

Borderline Personality Vulnerabilities for Intimate Partner Violence Perpetration in a
Non-forensic Sample: Developing a Typology and Theoretical Model

by

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Bachelor of Arts (Honours), St. Francis Xavier University, 2019

A Dissertation Submitted in Partial Fulfilment of the Requirements for the Degree of

DOCTOR OF PHILOSOPHY

in the Graduate Academic Unit of Psychology

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This dissertation is accepted by the
Dean of Graduate Studies

THE UNIVERSITY OF NEW BRUNSWICK

February 2025

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ABSTRACT

Research demonstrates that intimate partner violence (IPV) perpetrators are heterogeneous (Corvo & Johnson, 2013). Borderline personality disorder, a mental health condition reflecting a pervasive pattern of interpersonal and identity dysfunction, emotion dysregulation, and impulsivity (APA, 2013), has often been recognized among IPV perpetrators (Spencer et al., 2019). Nonetheless, not all IPV perpetrators have BPD traits, nor do all people with BPD traits perpetrate IPV. Better understanding a ‘borderline subtype’ of IPV perpetrators may help discern which BPD features are predictive of IPV behaviours (physical, psychological, sexual). The current research utilized online recruitment strategies to: (1) identify latent profiles of self-report BPD features, insecure attachment, and anxiety sensitivity (AS) among a non-forensic sample; (2) distinguish latent profiles on their reported IPV behaviours; (3) test the explanatory value of attachment dimensions and AS in the BPD-IPV pathway; and (4) investigate the validity of BPD features over and above traditional criminogenic risk factors in predicting IPV behaviours. From the final sample of community-based members ($N = 451$, $M_{age} = 31.98$, 62.7% men), two profiles emerged via latent profile analysis: (1) insecure attachment-specific (IAS, $n = 90$) and (2) mixed borderline features (MBF, $n = 361$). MANOVAs revealed that the MBF profile endorsed significantly more frequent and severe IPV behaviours and criminogenic risk factors. Structural equation modelling demonstrated that insecure attachment and AS partially mediated relations between BPD and IPV. Hierarchical regression analyses and canonical correlation analyses indicated that BPD features and traditional criminogenic risk factors each have incremental validity in predicting IPV behaviours. Correctional

implications include adding BPD features to existing IPV risk assessment tools.

Clinically, results corroborate the notion that addressing heterogeneity in IPV offenders is important for tailoring evidence-based interventions to the unique needs of offenders (Butters et al., 2021). Whereas insecure attachment-specific offenders might benefit from attachment-based or emotionally-focused couples therapy, mixed borderline features offenders would likely require interventions that focus on enhancing emotion regulation (e.g., dialectical behaviour therapy). Overall, the present findings support the need to tailor IPV interventions, and continue investigating the role of BPD features in IPV behaviours to maximize the utility of current risk assessment tools.

ACKNOWLEDGEMENTS

I hope to always be in awe of having been conferred a doctoral degree. It is through neither luck, nor industriousness alone (although surely, both help) that one finds themselves awarded the highest possible academic degree. It is also a product of the innumerable people whose compassion, guidance, and wisdom have shaped me, not to mention their belief in my potential. I am deeply grateful to my mentors and supervisors, past and present, and thank my committee members for their time, expertise, and insights provided in the service of strengthening this research. To my PhD supervisor, Dr. Mary Ann Campbell, your mentorship has been instrumental in my development as a competent, confident, and curious researcher. Thank you for challenging me, and for every opportunity that you made available. An explicit debt of gratitude is also in order to Dr. Margo Watt, whose influence, insight, and ingenuity were formative in my professional and personal development. Thank you for believing in me before I fully knew how to believe in myself. I am grateful to my dear friends, most especially L. Sorel, L. de la Roche, and E. Cartwright, for providing the requisite support and love to persist with passion in a world fraught with cynicism and monotony. To *mon conjoint*, N. Favero, thank you for knowing me, witnessing my life, and always reminding me that I could never “consent to creep when one feels an impulse to soar.” Loving you quiets my mind in the most beautiful way. To my mother, R. Doyle, this beautiful life is both surreal and synchronistic, a non-recursive paradox. How fortunate am I to call you mother, a woman whose innate wisdom and resilience surpasses that of anyone I have ever met. Thank you for being a grounding rod through adversity; for ensuring that a life of courage, ardor, and integrity was the only option. The best of me exists because of the best of you. Thank you for lighting the torch.

Author Note

This research was supported in part through the following funding sources awarded to the author: a Joseph-Armand Bombardier Doctoral CGS scholarship from the Social Science and Humanities Research Council of Canada (Award No. 767-2021-1456), a Canadian Psychological Association's Scientific Affairs Committee Student Research Grant, and a Snodgrass Research Proposal Award.

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CHAPTER ONE: INTRODUCTION

Intimate Partner Violence (IPV) is a critical public health concern that pervasively affects individuals of all genders, ethnicities, and socioeconomic status across the globe (Breiding et al., 2015; Garcia-Moreno et al., 2005; Smith et al., 2017). IPV is a broad term comprising various harmful acts perpetrated by a current or former intimate partner, such as a spouse, boyfriend/girlfriend, casual dating partner, or frequent sexual partner (Breiding et al., 2015). These harmful acts include physical assault, psychological aggression (including coercive control), and sexual coercion (Breiding et al., 2015). Suffering from IPV perpetration entails a myriad of harmful consequences for the victim, including physical injury, psychological harm (e.g., depression, post-traumatic stress disorder, substance use, suicide), and even negative economic outcomes (Breiding et al., 2014; Campbell, 2002; Coker et al., 2002). Although preventing and addressing risk factors for IPV is both a clinical and societal goal, there remains a lack of consensus on conceptualization of IPV (e.g., power-based models, attachment-based frameworks) and effective intervention approaches (Bartholomew & Allison, 2006; Tomsich et al., 2016).

An integral component of understanding, preventing, and treating IPV is identifying proximal risk factors (Corvo & Johnson, 2013; Spencer et al., 2019), such as borderline personality disorder (BPD). BPD is a mental health condition reflecting a pervasive pattern of interpersonal and identity dysfunction, emotional dysregulation, and impulsivity (American Psychiatric Association; APA, 2013). Until the past several decades, unfortunately, empirical research has not prioritized the relationship between BPD and IPV perpetration (e.g., Zanarini et al., 1999), despite hallmark BPD features,

such as interpersonal and emotional dysregulation (e.g., Gunderson & Lyons-Ruth, 2008; Rosenthal et al., 2008), commonly observed in IPV perpetration (Lee et al., 2020). Recency of studies notwithstanding, BPD has been quickly and robustly linked to IPV perpetration (Jackson et al., 2015) in clinical (Fowler & Western, 2010), community (Clift & Dutton, 2011), and forensic (Edwards et al., 2003) samples. Trait hostility in BPD has been associated with violent offending in general (Kolla et al., 2017), and ineffective relationship dynamics are known risk markers for physical IPV (Spencer et al., 2022). However, discerning certain symptom domains (e.g., emotional dysregulation, identity concerns) as specific risk factors for various types of IPV within a contextual framework of BPD has yet to be accounted for in the literature. Instead, save for a few notable exceptions (e.g., Davoren et al., 2017; Dugal et al., 2021; discussed in sections below), researchers have traditionally investigated the utility of BPD as a categorical diagnosis in predicting risk for IPV perpetration (e.g., Jackson et al., 2015; Mauricio et al., 2007).

Categorical models of psychopathology are known to be fraught with issues related to heterogeneity within disorders, extensive comorbidity, and reliability of diagnoses (Ruggero et al., 2019). Indeed, many researchers argue for a dimensional conceptualization of personality disorders due to its clinical and theoretical superiority; for instance, via better accounting for heterogeneity of symptom presentation and high rates of co-occurring disorders (e.g., Bornestein & Natoli, 2019; Hopwood et al., 2018). Dimensional (vs. categorical) approaches also provide more “precise information about the specific associations with criminal behavior” (Ullrich et al., 2001; p. 442) and offer more precise targets for intervention. Nonetheless, categories for various constructs continue to be used – sometimes in conjunction with dimensional conceptualizations to

form a ‘hybrid’ model – to aid in comprehension of, and communication about, a phenomenon (Ruggero et al., 2019).

A better understanding of IPV perpetration in the context of BPD necessitates an investigation of potential mechanisms to explain the BPD-IPV association. Several mechanisms have been proposed, such as insecure attachment and emotion dysregulation (Jackson et al., 2015). Because attachment is indicated in interpersonal difficulties and overall conflict in relationships (e.g., Treboux et al., 2004) as well as fundamental to personality pathology (Levy et al., 2015), it will be considered prominently. Indeed, attachment frameworks have been proposed for both IPV behaviours (Bartholomew & Allison, 2006) and personality disorders (Levy et al., 2015). According to attachment theory (Bowlby, 1973), insecure relational patterns – insecure attachment dimensions – increase risk for a developmental pathway toward BPD (e.g., Bowlby, 1977; Levy et al., 2011; Levy et al., 2015). BPD tends to co-occur with an anxious attachment pattern (Levy, 2005). Anxious attachment reflects an anxious preoccupation with the reliability and availability of one’s attachment figure and is characterized by hyperactivating strategies (e.g., rumination about attachment figure) intended to maintain proximity to the attachment figure (Mikulincer & Shaver, 2009). On the other hand, an avoidant attachment pattern reflects preoccupation with independence from an attachment figure, and is characterized by deactivating strategies (e.g., cognitively devaluing an attachment figure) designed to maintain distance from the attachment figure (Mikulincer & Shaver, 2009).

In addition to providing a compelling framework for understanding BPD, attachment theory also has been applied to the conceptualization and treatment of IPV perpetration (Gibby & Whiting, 2022). Research has established a connection between

attachment anxiety with all forms of IPV, and attachment avoidance with physical and psychological IPV (see Velotti et al., 2022 for meta-analysis). Although insecure attachment is robustly and differentially related to various types of IPV perpetration (e.g., Velotti et al., 2022), the relationship does not appear to be linear.

As suggested by Jackson and colleagues (2015), attachment possibly serves a mediating role in the BPD-IPV link. Another construct, anxiety sensitivity, is important but understudied in relation to IPV behaviours. Anxiety sensitivity (AS) is a dispositional and excessive fear of anxiety-related somatic sensations (Reiss et al., 1991) and is known to confer risk for various forms of psychopathology (Naragon-Gainey et al., 2010; Taylor, 2019; Vujanovic et al., 2018). Although heritable, AS develops within the context of insecure attachment (Intrieri & Margentina, 2017), appears to play a unique role in BPD symptomatology (Doyle et al., 2022a; Gratz et al., 2008), and mediates the attachment-aggression relationship (Watt et al., 2020), thereby suggesting potential importance in understanding IPV.

Prior to discussing relevant psychological underpinnings of IPV, it is critical to better understand IPV as a multidimensional construct. In the following section, various manifestations of IPV and prevalence rates will be defined and summarized. Risk factors for IPV then will be articulated, with a discussion on known risk factors for specific types of IPV. Subsequently, proposed typologies of IPV will be described, including a discussion of disparate views on how best to conceptualize IPV. A definition and theoretical account of BPD and attachment will ensue, followed by a delineation of the link between these constructs and their seemingly synergistic importance in conferring risk for IPV. What is known about AS and its explanatory potential in IPV will be reviewed, highlighting the need for a nuanced theoretical model and typology in

understanding IPV for the purposes of prevention and intervention. Finally, notable criminogenic and IPV-specific risk factors for IPV aside from BPD features will be emphasized; lending further credence to the predictive import of BPD requires comparison to variables with high predictive accuracy.

CHAPTER TWO: LITERATURE REVIEW

Intimate Partner Violence (IPV): Definition, Types, and Prevalence

The core feature of IPV is that it is directed at a current or past significant other within the context of an intimate partner relationship (Breiding et al., 2015; Cotter, 2021). Intimate partner relationships include current or former spouses, boyfriends/girlfriends, dating partners, and/or sexual partners (Breiding et al., 2015). IPV ranges from physical violence and sexual assault to psychologically/emotionally damaging behaviours, each of which have a range of and differential ramifications for the victim and society (World Health Organization, 2021). Widespread economic outcomes, such as health costs and productivity losses, have also been observed (Peterson et al., 2018) and some evidence has revealed intergenerational transmission of IPV (Ehrensaft & Lanhinrichsen-Rohling, 2022).

The definition of IPV has evolved over time to capture the nuanced and varied manifestations of violence against an intimate partner (Cotter, 2021). Within both feminist activist circles and the research literature, IPV has been traditionally conceptualized as a means for men to assert patriarchal control and power over women (Hines & Douglas, 2010). This view fails to sufficiently assimilate the existence of woman-perpetrated violence, which has been documented since the early 1970s (see Archer, 2000), as well as the varied psychological factors shown to be substantially

more efficacious in predicting IPV perpetration than macrosystemic beliefs and attitudes consistent with a heteronormative and ‘patriarchal worldview’ (e.g., a male proclivity to control females) (Spencer et al., 2022).

In moving away from a gender-based conceptualization of IPV, current definitions emphasize the multifaceted nature of the issue and the complexity of interpersonal dynamics, including victims’ tendency to continue relationships with perpetrators (Dowd & Lambo, 2021). To appreciate the complexity of the issue, IPV is best conceptualized when categorized into three broad types: *physical violence*, *psychological aggression (including coercive control)*, and *sexual coercion* (Brieding et al., 2015). Each type entails a multitude of actions and patterns of behaviours that warrant a precise review.

Physical violence encompasses intentional use of physical force or assault that may cause death, injury, harm, or disability. Physical violence entails various acts or threats of force including, but not limited to, being threatened with or use of a weapon, choked, slapped, beaten, pushing, pulling hair, and use of one’s body as restraint (Brieding et al., 2015). The U.S. National Intimate Partner and Sexual Violence Survey (NISVS) demonstrated that the annual prevalence of physical IPV victimization was 4.7% for men and 4.0% for women (Breiding et al., 2014). Data drawn from Canada’s General Social Survey (GSS, 2021) indicates that 4.2% of women and 2.7% of men reported physical IPV victimization in 2019. In terms of physical IPV perpetration, a review by Desmarais et al. (2012) found an overall prevalence rate of 24.8%, with 28.3% of women reporting having perpetrated physical IPV, compared to 21.6% of men. The discrepancy between perpetration and victimization rates raises various questions. Possible explanations include decreases in IPV since 2012 (GSS, 2019), victims

underreporting IPV, jurisdictional differences in IPV prevalence (Desmarais et al., 2012), or methodological differences such as focusing on current relationships instead of current or previous relationships combined (Lysova et al., 2019).

Psychological aggression, or psychological IPV, involves communicating verbally or nonverbally the intention to harm one's partner mentally or emotionally, and/or to exert control over one's partner (Brieding et al., 2015). Psychological aggression can manifest as expressive aggression (e.g., degrading, humiliating), using coercive control (e.g., limiting access to resources and support systems, threatening harm to self, excessive monitoring of a partner's behaviour), threat of physical or sexual violence, controlling reproductive rights, exploiting a partner's vulnerability (e.g., disability), or 'gaslighting' (Brieding et al., 2015). Because psychological aggression is not physical violence in nature, the covertness and manipulateness of it are often overlooked as IPV (Brieding et al., 2015). Nevertheless, psychological aggression is a substantial component of IPV, particularly considering that it often co-occurs with and precedes other, more acute violent forms of IPV, such as physical and sexual violence (Frieze, 2005; Murphy & O'Leary, 1989). Furthermore, research indicates that psychological aggression by an intimate partner can be as similarly impactful as physical violence in terms of negative psychological ramifications (Follingstad et al., 1990). Psychological aggression has been documented as the most prevalent form of IPV in the general population, occurring at equal rates across men and women (57%; Brieding et al., 2015; Hellemans et al., 2015). In a Canadian sample, 35% of men and 34% of women reported being victims of coercive control behaviours (Lysova et al., 2019). Further research is warranted in disentangling psychological aggression from other

forms of IPV to better understand reported perpetration rates, and its underlying mechanisms and impact (Dugal et al., 2018).

Sexual violence refers to sexual acts that are attempted or perpetrated without freely given consent, or against someone who is unable to provide or revoke consent (Brieding et al., 2015). These acts can include unwanted, physically forced, or alcohol/drug-facilitated penetration of a victim, or a victim is made to penetrate someone else, engage in intentional sexual touching, and forced to perform other acts of a sexual nature that do not include contact. Sexual violence also includes non-physically pressured unwanted sexual assault, wherein a victim is pressured through verbal tactics, intimidation, or misuse of authority to engage in sexual acts (Brieding et al., 2015). Canadian data indicates that 12% of women report having been sexually assaulted by an intimate partner at some point since age 15, whereas 2% of men report the same (Cotter, 2021). As our understanding of the complexity of IPV dynamics and behaviours evolve, so do our theoretical perspectives on these behaviours. These theories are discussed next.

Theories of IPV

As scholarly attention to IPV has increased over the past three decades, several theories have been proposed to better understand the confluence of factors contributing to IPV perpetration and the bidirectional relationship between perpetration and victimization that tends to ensue (Langhinrichsen-Rohling et al., 2012). Theories of IPV tend to be conceptualized through a sociocultural (e.g., feminist theory, power theory) or individual (e.g., social learning theory, personality/typology theories) lens. Although a comprehensive discussion of theoretical explanations of IPV is not the primary focus of

the current research, it is important to review the roles of personality and psychological attributes (i.e., social learning theory and personality/typology theories), particularly given that psychosocial/psychological theories of IPV are the most parsimonious and empirically supported frameworks for understanding IPV perpetration (Corvo & Johnson, 2013). Moreover, although no phenomenon occurs in a vacuum, risk factors present at the level of individual differences and psychological attributes are more readily amenable to treatment than, for example, sweeping changes in societal structure. Nonetheless, feminist/sociocultural theories have been integral in bringing IPV into the public eye and thus warrant brief consideration and discussion about why they are insufficient in capturing the IPV phenomenon.

Feminist/Sociocultural Theories

When IPV initially emerged as a public health concern in need of scholarly attention and preventive/treatment efforts, it was conceptualized primarily as male violence against women (Kelly, 2011). It is now well-known that IPV occurs in all kinds of intimate relationships (Kelly, 2011). Both men and women can be perpetrators and victims of IPV, and rates across genders tend to be statistically similar (Cotter, 2021; Brieding et al., 2015), with some research indicating that women perpetrate more IPV than men depending on how it is defined, such as inclusion of psychological abuse and attempted violence (e.g., Archer, 2000). Of note, little is known about the prevalence of IPV perpetrated by transgender and gender-nonconforming persons (Jacobson et al., 2015); however, 50% of transwomen have reported victimization via physical IPV (Risser et al., 2005). IPV perpetration is not inherent to any one gender identity (Messinger, 2020). However, feminist and power theories of IPV contend that IPV is

essentially gender-based and an expression of male privilege and power (Dobash & Dobash, 1978). Feminist theorists (e.g., McHugh et al., 2005) believe gender to be the *cause* of IPV; IPV reflects “the use of abusive force to maintain male domination of women” (hooks, 1984; p. 118). Therefore, any consideration of IPV must be nested within the context of gender. Furthermore, proponents of feminist theory argue that male domination and power are borne out of social and historical origins, wherein men are socialized to exert privilege and control over women (Kelly, 2011).

Through the feminist/power theory, research and policy on IPV has been influenced to focus on women as victims and men as perpetrators (Bates & Taylor, 2019). Interventions emanating from this theory (e.g., Duluth Domestic Abuse Intervention Project; Pence & Paymar, 1993) were thus established to solely protect women. Of note, the empirical basis for Duluth interventions was shoddy (e.g., one small, ungeneralizable sample; Dutton & Corvo, 2009) and one of the original authors later acknowledged “many of the men I interviewed did not seem to articulate a desire for power over their partner.... we realized we were finding what we had already predetermined to find” (Pence, 1999; p. 29-30). Indeed, there is only weak empirical evidence that the IPV is caused by the vague, ill-defined ‘patriarchy’ or related constructs, such as a males’ need for dominance over females (Corvo & Johnson, 2013). There are many individual psychological factors (e.g., emotional dysregulation) known to more strongly influence IPV (Birkley & Eckhardts, 2015), than patriarchal values. Moreover, feminist theories of IPV cannot adequately account for the existence of bidirectional (i.e., mutual, reciprocal) IPV (Langhinrichsen-Rohling et al., 2012). Finally, there is a lack of evidence in support of feminist theories proposed causal factors of IPV (Corvo & Johnson, 2013), and a preponderance of evidence indicating

that current gender-based interventions are not effective (Karakurt et al., 2016; Stith et al., 2012). Nevertheless, the feminist/sociocultural theory has remained the dominant theoretical and intervention perspective on IPV. Yet, other empirically based models exist, which offer theoretically sound explanations of IPV perpetration and identify targets for change therein to address IPV, including social learning theories.

Social Learning Theory

Social learning theory posits that IPV perpetrators capitulate the aggressive and violent behaviours that were modelled to them by parents and peers during childhood (Bandura, 1973; Mihalic & Elliot, 2007). From this lens, violent and aggressive behaviours are learned via role models in the family and reinforced during childhood into adulthood as a means of coping with stress or resolve conflict (Bandura, 1973). Social learning theorists propose that both victims and perpetrators are exposed to, or experience, abuse as a child, which results in tolerating family violence, including IPV (Jin et al., 2007; Vung & Krantz, 2009).

Social learning theory has been employed to conceptualize and understand intergenerational transmission of violence, which refers to how family violence is broadly observed to be ‘transmitted’ across generations (Mihalic & Elliot, 2007). It also has provided a compelling framework for why children exposed to IPV are at elevated risk of being victims or perpetrators of IPV during adulthood (Ehrensaft & Langhinrichsen-Rohling, 2022). Nearly 40 years of research has confirmed that exposure to IPV is a consistent risk factor for adulthood involvement in IPV (Ehrensaft & Langhinrichsen-Rohling, 2022). However, because effect sizes of exposure to IPV on later perpetration of IPV tend to be small to medium (Capaldi et al., 2012; Knight et al.,

2016; Stith et al., 2000), mechanisms aside from the context and consequences related to violence in family, peer, and dating relationships during youth certainly contribute to the occurrence of IPV (Corvo & Johnson, 2013).

As research has incorporated potential mediators to better understand precursors to IPV perpetration, it seems that intergenerational transmission is less a product of solely transmitting learned behaviours than was unilaterally believed (Corvo & Johnson, 2013). For instance, adolescent conduct disorder is a better predictor of adult IPV perpetration than early exposure to family of origin violence (Ehrensaft et al., 2003). There are likely multiple pathological pathways to IPV perpetration (Corvo & Johnson, 2013). Indeed, intergenerational transmission of IPV also has been understood from an attachment theory lens (e.g., Holtzworth-Munroe et al., 1997), which may offer additional explanation to this phenomenon and will be discussed more in subsequent sections. However, individual characteristics of the perpetrator also play a role in IPV behaviour risk.

Psychological/Psychosocial Theories

Psychological/psychosocial theories of IPV propose that individual psychopathology, personality traits, and behavioural and neurological factors enhance risk for perpetrating IPV (Corvo & Johnson, 2013). Essentially, these theories suggest that men and women who perpetrate IPV differ meaningfully from those who do not perpetrate IPV on important psychological factors. Corvo and Johnson (2013) posited that psychological/psychosocial explanations provide the most parsimonious and empirically compelling frameworks for IPV. For example, research shows that most IPV perpetrators will have some form of psychopathology, and at a much higher rate than

non-IPV perpetrator controls (Corvo & Johnson, 2013). Gondolf (1999) found that 48% of a sample of IPV perpetrators had a personality disorder, relative to 24% of offenders incarcerated for non-IPV offences (Coolidge et al., 2011). Psychological factors most strongly implicated in IPV perpetration are personality disorders, disordered/insecure attachment, cognitive distortions, and post-traumatic stress symptoms (Capaldi et al., 2012).

Risk Factors for IPV

Identifying risk factors for IPV, particularly physical IPV, is frequently done by considering four concentric levels of a person's environment: macrosystem, exosystem, microsystem, and ontogenetic system (Dutton, 1995; Spencer et al., 2019; Stith et al., 2004). This ecological framework proposes that human behaviour is a consequence of the interaction between multiple levels of individual, social, and cultural factors (Ali & Naylor, 2013). The macrosystem reflects the values and beliefs of the society in which the victim and perpetrator live. The exosystem encompasses the perpetrator's formal and informal social structures (e.g., friendships, workplace). The microsystem focuses on the family unit or specific context of abuse (e.g., previous history of abuse, family/relationship dynamics). At the most individual level, the ontogenetic level reflects the perpetrator's individual factors, such as mental health, substance use, and personality characteristics. As indicated above, individual psychological factors provide the most parsimonious explanation and empirical basis for IPV perpetration (Corvo & Johnson, 2013).

Meta-analyses that have examined risk factors for physical IPV perpetration within an ecological framework (e.g., Spencer et al., 2022; Stith et al., 2004) indicate

that risk factors nested within the ontogenetic and microsystem levels (i.e., the two most proximal levels to the individual) produce the most robust and strongest effect sizes (Corvo & Johnson, 2013). Proximal risk factors readily lend themselves to psychosocial intervention and are specifically pertinent to the focus of the current research. Notably, research on female- (vs. male-) perpetrated IPV, and corresponding risk factors, is substantially lagging due to the dominant feminist belief that IPV is fundamentally a problem of male violence against women (Dowd & Lamdo, 2021). Indeed, any research on risk factors for IPV that includes women considers these factors differentially by gender. Thus, the current section will do so where relevant; however, some research indicates that both motivation for, and risk factors of, IPV do not seem to differ by biological sex or gender (e.g., Dowd & Lambo, 2021; Spencer et al., 2022). It is worth noting that despite researchers having used sex (male/female) and gender (man/woman; masculine/feminine) interchangeably (e.g., Jackson et al., 2015; Ross & Babcock, 2009), they have found similar patterns of risk of IPV. The current section also will consider risk factors differentially by the type of IPV (physical, psychological, sexual).

Risk factors for physical IPV have received the most empirical attention to date. A recent meta-analysis by Spencer et al. (2022), building on previous work (e.g., Stith et al., 2004), examined 503 studies for risk factors of physical IPV perpetration for men and women using the ecological framework. Although Spencer et al. (2022) considered risk differentially by sex, they noted more similarities than differences, with the most potent risk factors for physical IPV at the ontogenetic level for both men and women being alcohol use, anger, antisocial personality disorder, anxiety, approval of violence, borderline personality disorder, lack of communication and conflict resolution skills, poor coping, depression, and impulsivity. Depressive symptoms appear to be a stronger

risk factor for IPV perpetration for women than for men (Capaldi et al., 2012). Psychopathic features and antisocial personality disorder have been found to robustly predict physical IPV, particularly for men (Collison & Lynam, 2021; Shaffer-McCuish et al., 2021). Relevant to the current research, borderline personality disorder consistently has been found to predict physical IPV (Davoren et al., 2017; Mauricio et al., 2007; Ross & Babcock, 2009; Spencer et al., 2019) and associated with increased severity and frequency of physical IPV (Jackson et al., 2015). At the microsystem level, for both men and women, previous IPV victimization, previous physical IPV perpetration, controlling behaviours, and insecure attachment (both anxious and avoidant styles) were risk factors for physical IPV perpetration (Spencer et al., 2022). With respect to attachment, a meta-analysis by Velotti et al. (2022) found strong and consistent effect size for the influence of attachment anxiety on physical IPV, whereas effect sizes were low for attachment avoidance.

Research on risk factors for psychological IPV has received greater research attention since the first review by Schumacher et al. (2001b). The first review identified only 10 relevant studies and focused exclusively on men-to-women psychological abuse among married and cohabiting couples. As an example of the evolution of more recent research, a longitudinal study found that substance use problems, negative emotionality, academic difficulties, and sexual activity during adolescence predicted psychological IPV during emerging adulthood and adulthood (Lohman et al., 2013). Substance use interestingly is a stronger risk factor for the perpetration of psychological IPV than physical IPV, and a more potent predictor for male-perpetrated than female-perpetrated IPV, perhaps due to greater prevalence of male (vs. female) substance use (Low et al., 2017). Impulsivity is a known risk factor for psychological IPV in both men (Tharp et

al., 2013) and women (Shorey et al., 2011), particularly negative urgency, which is a dimension of impulsivity characterized by behavioural reactivity following negative affect (Dugal et al., 2018). Additional risk factors for psychological IPV include cumulative childhood trauma (mediated by negative urgency), emotional dysregulation, and the “dark triad” maladaptive personality traits (Machiavellianism, psychopathy, narcissism) (Dugal et al 2018). Further, trait anger has been found to mediate the relationship between impulsivity and psychological IPV (Shorey et al., 2011), avoidant attachment and psychological IPV in men, and anxious attachment and psychological IPV in women (Lafontaine & Lussier, 2005). Depressive symptoms (Barros-Gomes et al., 2019) and trait hostility (Song-Choi & Woodin, 2021) have also predicted psychological IPV. Finally, borderline personality symptoms (Clift & Dutton, 2011) and a BPD diagnosis predict psychological IPV, with BPD being the strongest predictor of psychological IPV when compared with the nine other DSM-5 personality disorders and psychopathy in a recent meta-analysis (Collison & Lynam, 2021).

Sexual coercion, or sexual IPV, has garnered less research attention than both physical or psychological IPV, or general sexual violence (Capaldi et al., 2012; Jung et al., 2021). Despite it being prevalent in abusive relationships (Bergen & Bukovec, 2006) and casual sexual relationships (Kilpfel et al., 2014), sexual IPV is often grouped statistically either with other forms of IPV or sexual assaults perpetrated by non-partners and is inconsistently defined. These methodological challenges complicate the identification of its specific risk factors for sexual IPV (Bagwell-Gray et al., 2015). Identified risk factors for sexual IPV in men include impulsivity (Tharp et al., 2013), and domineeringness and hostility towards women (Abbey et al., 2011; Malamuth et al., 1995). Violence in the perpetrator’s family of origin is cited as a risk factor for “marital

rape” [sic] (i.e., cohabitating intimate partners) and dating violence (Gover et al., 2000, Edwards et al., 2014). However, the evidence in support of this link is inconsistent (Bowker, 1983; Shields & Hanneke, 1988). Women/female victims of sexual IPV have reported their partners as being coercive (Messing et al., 2014), but direct measurement thereof has not been established. However, gender role attitudes, peer norms permissive of dating sexual violence, and exposure to violence during childhood have been identified as risk factors for sexual IPV among men (Gover et al., 2000). Alcohol and drug use has been associated with rape occurring in the context of marriage (Coker et al., 2000) and dating relationships (Abbey, 2002); however, other research did not find substance use to confer increased risk for perpetrating sexual IPV (Bowker, 1983). Perpetration of sexual IPV is associated with having impersonal views of sex and a higher number of sexually coercive fantasies in men (Malamuth et al., 1995). Pegram et al. (2018) demonstrated that hostile masculinity in men had a direct association with sexual aggression toward women in both steady and casual dating relationships, as were psychopathic personality traits. Holtzworth-Munroe et al.’s (2000) typology of IPV perpetrators has also distinguished among subtypes of violent husbands, with men in the low-level antisocial, borderline-dysphoric, and general violent/antisocial subtypes engaging in the most sexual coercion, and men in the general violent/antisocial subtype engaging in the most threatened or forced sex (Marshall & Holtzworth-Munroe, 2002). Psychological and physical IPV were predictive of sexual IPV across Marshall and Holtzworth-Munroe’s (2002) sample. Finally, a meta-analysis by Collison and Lynam (2021) found that psychopathy, ASPD, and BPD significantly correlated with sexual IPV. Both psychopathic and borderline characteristics have been associated with the severity of aggression in sexual crimes (Cardona et al., 2020).

Current Typologies of IPV

The heterogeneity among IPV perpetrators observed by researchers and clinicians (Corvo & Johnson, 2013) has led to attempts to classify perpetrators as a means of better guiding prevention and intervention (Bernardi & Day, 2015).

Typological efforts endeavour to elucidate the complexities of IPV (Cavanaugh & Gelles, 2005), and its disparate aetiologies, correlates, and outcomes (Holtzworth & Stuart, 1994). Classifying IPV perpetration on the basis of psychological variables is likely to facilitate the development and implementation of tailored, targeted prevention efforts and interventions (Capaldi & Kim, 2007; Cavanaugh & Gelles, 2005).

Typologies have been proposed based on type of violence and how it arises (e.g., control within relationships; Johnson, 1995), the gender of the perpetrator (e.g., Gottman et al., 1995), perpetrator characteristics (e.g., Holtzworth-Munroe & Stuart, 1994), and (albeit infrequently) select victim characteristics (e.g., posttraumatic stress disorder symptoms of women victim; Hebenstreit et al., 2015). The current section will first discuss Johnson's (1995) typology, then focus on the perpetrator characteristic typology proposed by Holtzworth-Munroe and Stuart (1994) given its emphasis on the heterogeneous psychological profiles of IPV perpetrators. To justify use of a psychological typology, Johnson's (1995) and Holtzworth-Munroe and Stuart's (1994) typologies should be compared to observe commonalities and highlight the theoretical and practical superiority of the latter typological approach.

Johnson's Typology

Johnson and colleagues (Johnson, 1995; Johnson, 2008; Johnson & Ferraro, 2000; Kelly & Johnson, 2008) proposed a typology reflecting a synthesis of both

feminist and family violence researchers, thus viewing IPV as a method for men to control and dominate their partner (feminist view), while acknowledging that women can perpetrate violence as a form of resistance (family violence view). Johnson's typology includes five, qualitatively distinct subtypes based on the role of control in the relationship context: (1) coercive controlling violence (CCV), (2) violent resistance, (3) situational couple violence (SCV), (4) mutual violent control violence, and (5) separation-instigated violence.

CCV, previously referred to as 'intimate terrorism,' signifies a partner's pattern of emotionally abusive, manipulative, and coercive control over their intimate partner (Kelly & Johnson, 2008). CCV also involves major physical violence and any combination of tactics to maintain control; the associated violence is severe, occurs frequently, and will escalate over time (Johnson & Leone, 2005; Kelly & Johnson, 2008). Most evidence in support of this subtype has been examined among men perpetrators (Johnson, 2006), but some research also has found women perpetrators to exert CCV (e.g., Beck et al., 2013; Hines et al., 2007).

Violent resistance refers to a form of violence used by victims of IPV to resist CCV behaviours (Kelly & Johnson, 2008). Most women perpetrators of IPV have been historically typified under this form of IPV by feminist researchers, seeing any violence engaged by women as a defensive action when it does occur; however, Johnson contends that both men and women victims exert violence to resist IPV (Kelly & Johnson, 2008). Research demonstrates that women who engage in violent resistance (vs. those who do not) are twice as likely to be injured (Bachman & Carmody, 1994). Research on men's violent resistance is limited (Ali et al., 2016).

Situational couple violence (SCV) refers to reciprocal violence between intimate partners, specifically when one or both partners is violent, but neither are controlling (Johnson, 2006). Johnson asserts that SCV is the most common form of violence in the general population and is instigated by men or women at similar rates (Johnson, 2006; Straus & Gelles, 1992). SCV arises from situations, conflicts, or contentions among partners, which escalate into physical violence (Kelly & Johnson, 2008) and reflect one or both partners' difficulty with managing anger or resolving conflict (Johnson, 2006). In contrast with CCV, SCV is not characterized by a persistent pattern of controlling and manipulative patterns (Kelly & Johnson, 2008). SCV can, however, include verbally abusive behaviours, including shouting, infidelity accusations, and cursing (Ali et al., 2016).

Mutual violent control violence also refers to reciprocal violence between intimate partners; however, both partners are violent towards, and controlling of, one another (i.e., both exerting CCV) (Beck et al., 2013). Previously considered to be a rare form of IPV (Johnson, 2000), a recent study indicates that 70% of a community sample reporting IPV were mutually violent (Leonard et al., 2014). To date, there is little known about this form of IPV.

As the name suggests, separation-instigated violence can arise in couples who are undergoing a separation or divorce (Johnston & Campbell, 1993). These couples tend not to have a history of IPV, and the violence is precipitated by major stressors during a separation (Johnston & Campbell, 1993). It is typically limited to one or two episodes of IPV during the separation (Kelly & Johnson, 2008) and is symmetrically exerted by both men and women.

Although Johnson's (1995) typology is among the most widely known and has been integrated into family court practices, serious criticism has been raised regarding the extent to which this typology is empirically supported and effectively distinguishes between perpetrators' motivations (Meier, 2015). For example, although Johnson has contended that SCV is the most frequent form of IPV in the general population, independent research has asserted the opposite (Frye et al., 2006; Leonard et al., 2014). Johnson's (2008) own analysis of Frieze and McHugh's (1992) data compelled him to acknowledge that the evidence contradicted his theoretical assertion (Meier, 2015). Johnson's typology has also been critiqued for having arbitrarily distinguished levels of coercive control when drawing lines between primary clusters for his typology (Meier, 2015). Theoretical inconsistencies in Johnson's typology have too been identified, including: (1) whether the proposed subtypes reflect more severe/more controlling patterns evinced and escalated over time within the same relationship (Frye et al., 2006; Meier, 2015); (2) that fear of one's intimate partner as a result of violence reflects at least some degree of power imbalance/control (Meier, 2015); and (3) that his definitions of SCV and CCV might mislead courts into incorrectly believing that the former is less physically violent (and thus less dangerous) than the latter (Meier, 2015). Critiques related to the definition and measurement of coercive control (i.e., how many controlling behaviours and what level of seriousness of the controlling behaviour warrant classification of CCV), and not considering context or impact of coercive controlling acts resulting in misclassifying behaviour of partners (e.g., Ali et al., 2016; Meier, 2015) are particularly concerning given the central focus of coercive control in Johnson's typology. Thus, alternative typologies should be considered.

Holtzworth-Munroe and Stuart's Typology

Holtzworth-Munroe and Stuart (1994) developed a typology based on a comprehensive review of 15 prior typologies of men IPV perpetrator characteristics. Based on their review, Holtzworth-Munroe and Stuart (1994) identified three subtypes of perpetrators: family only, borderline-dysphoric, and generally violent-antisocial. Subsequently, Holtzworth-Munroe et al. (2000) identified a fourth subtype, low level antisocial. In addition to demarcating IPV subtypes, Holtzworth-Munroe and Stuart (1994) integrated intrapersonal models of aggression and violence, including social learning (e.g., O'Leary, 1988) and psychopathology-attachment (e.g., Dutton et al., 1997) to provide a developmental framework for their typology. Perpetrators within each subtype differed based on the severity and frequency of IPV, as well as their psychopathology and emotional dysregulation (Holtzworth-Munroe & Stuart, 1994). Research has supported this typology with men IPV perpetrators (e.g., Hamberger et al., 1996; Langhinrichsen-Rohling et al., 2000a; Lawson et al., 2003; Tweed & Dutton, 1998), and Walsh et al. (2010) provided preliminary support for the Holtzworth and Stuart's (1994) initial three-factor typology in both men and women psychiatric patients.

The family-only perpetrator subtype is considered moderately violent and, of the three subtypes proposed by Holtzworth-Munroe and Stuart (1994), is the least likely to engage in frequent and severe violence, demonstrate other forms of antisocial/criminal behaviour, exert violence outside of the home, or have psychopathology or a personality disorder. Accordingly, this subtype also has been aptly labelled by some researchers as the "low-psychopathology" subtype (Hamberger et al., 1996; Walsh et al., 2010).

Holtzworth-Munroe and Stuart (1994) remarked that family-only perpetrators infrequently engage in psychological and sexual IPV; their physical IPV demonstrates

inappropriate assertiveness and misconstrued interpersonal cues, coupled with personal or marital stress. Following IPV, perpetrators of this subtype experience remorse, tend to apologize for their behaviour, and are compelled to prevent escalation of violence. IPV reoffending following an average of 27 months for this subtype is fairly low (7%; Thijssen & de Ruiter, 2011). Research indicates that approximately 50% of IPV perpetrators fall into the family-only subtype (Dixon & Browne, 2003; Holtzworth-Munroe & Stuart, 1994).

The borderline-dysphoric perpetrator subtype is characterized by exerting moderate to severe IPV (Holtzworth-Munroe & Stuart, 1994). Violence outside the home may occur, but the borderline-dysphoric subtype is characterized primarily by violence toward their intimate partner (Holtzworth-Munroe & Stuart, 1994). Borderline-dysphoric IPV is considered more severe than that perpetrated by the family-only subtype, and may include physical, psychological, or sexual IPV (Holtzworth-Munroe & Stuart, 1994). Borderline-dysphoric perpetrators have traits and dysphoria associated with BPD and, of the three subtypes, are the most distressed and emotionally reactive. Thus, IPV often emanates from diffuse and volatile anger, fear of abandonment, delusional jealousy, and difficulties with substance use (Holtzworth-Munroe & Stuart, 1994). This subtype tends to be impulsive and have a fearful or preoccupied attachment style (Holtzworth-Munroe et al., 2000), which coincides with the developmental model proposed by Holtzworth-Munroe and Stuart (1994). Prevalence of the borderline-dysphoric subtype in IPV perpetrator populations ranges from 20% to 25% (Dixon & Brown, 2003; Holtzworth-Munroe & Stuart, 1994). Studies vary on rates of recidivism for this subtype, but range from 16% to 37% (Eckhardt et al., 2008; Thijssen & de Ruiter, 2011).

The third subtype, the general violent-antisocial perpetrator, is considered to be the most violent both in terms of IPV and extrafamilial aggression and criminal activity (Holtzworth-Munroe & Stuart, 1994). Offenders in this subtype use all forms of violence and are more likely to inflict severe harm on partners and family members. Perpetrators of this subtype are most likely to be diagnosed with antisocial personality disorder (ASPD), psychopathy, and have issues with substance use (Holtzworth-Munroe et al., 2000). The prevalence of this subtype in IPV perpetrator populations is estimated to be between 25% and 30% (Dixon & Brown, 2003; Holtzworth-Munroe & Stuart, 1994). Rates of recidivism for the general violent-antisocial subtype are 19% over an average of 27 months (Thijssen & de Ruiter, 2011).

The fourth subtype introduced by Holtzworth-Munroe et al. (2000), low-level antisocial perpetrator, falls between the family-only and general violent-antisocial subtypes. Individuals represented by this subtype thus perpetrate moderate extrafamilial and intrafamily violence and are likely to exhibit more criminality than those in the family-only subtype and less criminality than those in the general violent-antisocial subtype. The low-level antisocial perpetrator is unlikely to experience psychopathology and far less likely to endorse traits of personality disorders compared with individuals represented by the borderline-dysphoric or general violent-antisocial subtypes. This subtype has a reported prevalence of 24% among IPV perpetrators and a recidivism rate of 14% (Thijssen & de Ruiter, 2011). Holtzworth-Munroe et al. (2000) conceptualized the family-only, low-level antisocial, and general violent-antisocial subtypes as falling on a continuum of antisociality. The borderline-dysphoric subtype is not placed on this continuum (Holtzworth-Munroe et al., 2000), likely indicating a specific etiology with unique intervention needs.

There are several notable similarities between Johnson's (1995) and Holtzworth and Stuart's (1998) typologies. For example, Holtzworth and Stuart's (1998) family-only subtype resembles Johnson's (1995) SCV in terms of motivation for and severity of IPV (Ali et al., 2016). The general violent-antisocial and dysphoric/borderline subtypes both resemble CCV in terms of severity of IPV, impulsivity, and hostility (Bernardi & Day, 2015); however, Holtzworth and Stuart's (1998) typology provides more nuance in the characterological profiles. Other models (e.g., Chase et al., 2001; Ross & Babcock, 2009) distinguish perpetrators based on proactive and reactive aggression. Holtzworth and Stuart's (1998) general violent-antisocial subtype resembles perpetrators who exert IPV proactively and instrumentally in both intrafamilial and extrafamilial contexts, whereas the borderline-dysphoric subtype is more reactively aggressive and driven by impulsive emotional reactions to real and perceived threats of abandonment (Bernardi & Day, 2015).

Although Holtzworth-Munroe and Stuart's (1994) typology is a more empirically and theoretically credible and parsimonious alternative to Johnson's, it is not without its limitations. For example, amongst the initial three subtypes proposed by Holtzworth-Munroe and Stuart (1994), Huss and Ralston (2008) found that differences were inconsistent in important treatment-related outcomes, such as treatment response and completion, and recidivism. Further, the lack of available tools to support practitioners in discriminating between subtypes call into question the practical utility of current typologies (Boxall et al., 2015; Holtzworth-Munroe & Meehan, 2004). These concerns have led some researchers to assert that current typologies are not practically or clinically helpful (Ali et al., 2016).

Although current typologies may be aspirational at present, continuing to adopt a more nuanced and precise understanding of relevant typological subtypes might be one of our best chances for developing and implementing targeted evidence-based approaches to IPV focused treatment and risk reduction (Bernardi & Day, 2015; Gondolf, 2012). This need for knowledge is of particular importance when considering that many of the current approaches to IPV treatment (e.g., male batterer programs) are neither guided by evidence, nor effective in treating IPV (Bernardi & Day, 2015). Homing in on, and gaining a better understanding of, subtypes that have been empirically supported is of crucial importance in identifying an IPV perpetrator's targets for change and needs in treatments. Doing so can also inform an individual's level of risk for IPV to better guide prevention. As a guide to knowledge development, in this context, greater attention to the role of BPD is warranted. This focused attention is justified given that this personality disorder construct is common to theories, typologies, and salient risk factors, indicating a need to focus more specifically on how BPD pertains to IPV for preventative and intervention purposes.

Borderline Personality Across IPV Theories, Typologies, and Risk Factors

A common thread across IPV theories (psychological/psychosocial; Corvo & Johnson, 2013), typologies (borderline-dysphoric; Holtzworth-Munroe & Stuart, 1994), and prominent risk factors (Collison & Lynam, 2021) is BPD. BPD is a severe psychological disorder marked by emotional dysregulation, impulsivity, and unstable interpersonal relationships (APA, 2013). Demarcating a definition and description of BPD remains a challenging scholarly and clinical endeavour. Nevertheless, BPD has

figured prominently since the 1990s in the literature into IPV perpetration (Zanarini et al., 1999) and victimization (Kuijpers et al., 2011).

It cannot be overlooked that one of the most prominent IPV typologies – Holtzworth-Munroe and Stuart's (1994) – identified a specific subtype (i.e., borderline-dysphoric) that largely resembles and can be clinically classified as BPD (Dutton et al., 1997). The borderline-dysphoric subtype also appears to be qualitatively distinct from the others proposed by Holtzworth-Munroe and Stuart (2000). In particular, the borderline-dysphoric subtype was intermediate to the family-only and general violent-antisocial subtypes in terms of violent behaviours, and indeed demonstrated impulsivity, but uniquely presented with qualities distinct from the others, such as fear of abandonment, preoccupied or fearful attachment, dependency, and jealousy (Holtzworth-Munroe & Stuart, 2000). These undeniable differences led Holtzworth-Munroe and Stuart (2000) to propose that the borderline-dysphoric represents a distinct group of IPV perpetrators. Research appears to confirm this supposition; the nature and antecedents of IPV appear to differ based on the perpetrator's personality traits. For instance, men with antisocial personality disorder (resembling the generally violent-antisocial subtype) use violence proactively within relationships, whereas men with BPD tend to use violence reactively (Ross & Babcock, 2009).

Among theoretical understandings of IPV, psychological and psychosocial theories provide the most compelling and parsimonious account (Corvo & Johnson, 2013). Along with attachment disturbances and anger/hostility problems (both of which are implicated in BPD; Allen & Links, 2012; Levy et al., 2011), personality disorders broadly, and BPD more specifically, are conspicuously present in the psychological understanding of IPV. Some consider personality disorders as part of the etiology of IPV

(Ehrencraft et al., 2006); that is, the violence is understood as a manifestation of the pathology as opposed to simply a correlate (Babcock et al., 2007). For instance, IPV perpetrators with BPD may physically attack their partners when distressed or experiencing vulnerable emotions such as feeling abandoned, ashamed, and lonely (Keulen-de Vos et al., 2016; Velotti et al., 2014) as a method of regulating negative affect or to “discharge arousal” (Kingsbury et al., 1997, p. 227). Indeed, emotional dysregulation and intense unstable relationships have been linked to extreme violence in a forensic BPD sample (Raine, 1993). Inappropriate and intense anger coupled with impulsivity, both of which are characteristic of BPD, are predictive of general violent offending and IPV perpetration (Kolla et al., 2017; Shorey et al., 2011).

For BPD to be considered as part of an etiological pathway to IPV perpetration, it would have to be identified as a prominent risk factor across the lifespan (Bell & Naugle, 2008). Cross-sectional, and some longitudinal data support this notion. For example, Reuter et al. (2015) found that BPD features predicted teen dating violence in an ethnically diverse sample of 778 adolescents. Borderline personality pathology was also the most robust predictor of intimate partner aggression in older (ages 55 to 64 years at enrollment) married couples at the 2.5-year follow up (South et al., 2021). Across adult samples, where most research on IPV perpetration has been conducted, BPD is one of the foremost predictors of IPV for both men and women perpetrators (Spencer et al., 2022). As noted in the risk factors section of the current research, BPD is linked to, and is among the most robust predictors of, all forms of IPV perpetration (physical, psychological, sexual) in both men and women (Clift & Dutton, 2011; Collison & Lynam, 2021; Spencer et al., 2022).

Previous researchers have done well to identify the heterogeneity within IPV perpetrators in general (e.g., Holtzworth-Munroe et al., 2000). BPD is undeniably prominent across theories and typologies of IPV perpetration and exhibits remarkable heterogeneity in its own presentation (Kotov et al., 2017) that may add nuance to understanding IPV perpetration. BPD seems to be an aspect of an IPV trajectory and is disproportionately represented among abusive partners, but not all people with BPD perpetrate IPV and those who do, do so with varying degrees of severity and use varying forms of violence. For instance, Gonzalez et al. (2015) demonstrated that, of their sample of individuals with BPD, only 32% also engaged in IPV behaviours. BPD and IPV behaviours are related, but they are not one and the same. Because of the extensive heterogeneity within BPD itself (Kotov et al., 2017), there is a great necessity for understanding the borderline ‘subtype’ in a more nuanced fashion for preventative and intervention purposes.

Defining Borderline Personality Disorder (BPD)

Borderline Personality Disorder (BPD) refers to a pervasive pattern of emotional instability and reactivity, impulsive behaviours, inappropriate anger, and marked disturbances in identity and interpersonal relationships (American Psychiatric Association; APA, 2013). Individuals with BPD tend to experience profound functional impairment and suffering and have suicide rates 50 times higher than that found in the general population (Holm & Severinsson, 2011). BPD is highly comorbid with other disorders, including mood disorders (82.7%), anxiety disorders (84.5%), and substance use disorders (78.2%) (Tomko et al., 2014). It was previously thought that the majority of individuals with BPD were women (Widiger & Trull, 1993), but more recent research

indicates that both men and women are afflicted at similar rates (Busch et al., 2016). Women with BPD tend to have more depressive, anxious, and somatic symptoms, and are more hostile than men with BPD (Silberschmidt et al. 2015). No gender differences in aggression and suicidality between men and women with BPD were found in a study with a multinational clinical trial sample (Silberschmidt et al., 2015). In many respects, men and women with BPD present quite similarly (Goodman et al., 2013). The increasing convergence between genders in terms of BPD presentation may reflect both the evolution of the DSM, as well as increases in gender equality across the past several decades (United Nations, 2022), including the recognition that people of all genders can experience and endorse both internalizing and externalizing symptoms.

Reviews of the community point prevalence of BPD in adults suggest rates between 0.7% to 1.2% (Eaton & Greene, 2018) and 0.7% to 2.7% (Ellison et al., 2018). Prevalence rates tend to be much higher in clinical settings, with one review reporting rates of 12% in outpatient psychiatric clinics and 22% in inpatient psychiatric clinics (Ellison et al., 2018). These rates, and overrepresentation of individuals with BPD within intensive care settings, indicate the severity of the disorder and the desperate help-seeking tendencies of those affected by it (Paris, 2020). Indeed, over 40% of emergency room patients who have made recurrent suicide attempts, and 15% of those with single attempts met criteria for BPD (Forman et al., 2004). BPD is particularly overrepresented within forensic settings, with one study finding that nearly 30% of incarcerated offenders met criteria for BPD (Black et al., 2007).

The term BPD was introduced by Adolf Stern in 1938 to denote individuals whom he viewed as falling at the border between neurosis and psychosis (Bohus et al., 2021). BPD was introduced to the Diagnostic and Statistical Manual of Mental

Disorders, 3rd edition (DSM-III; APA, 1980), which was seminal in providing a cohesive conceptualization of BPD, including eight diagnostic criteria: impulsive behaviours; affective instability; inappropriate/intense anger; recurrent suicidal behaviour; unstable/intense interpersonal relationships; identity disturbance (e.g., uncertainty about self-image, preferred values); chronic feelings of emptiness/boredom; and frantic efforts to avoid real or imagined abandonment. A ninth criterion was added in the publication of the DSM-IV to describe cognitive symptoms: transient stress-related paranoid ideation or dissociative symptoms (APA, 1994). The DSM-IV established a polythetic format for diagnostic criteria requiring that five of the nine symptoms be present to warrant a diagnosis of BPD (APA, 1994). Of note, changes in sociocultural factors have the potential to influence etiology and definition of psychopathology, including BPD. For instance, Millon (2000) has argued that rapid modernization and cultural shifts have exacerbated individual atomization and disruptions in attachment relationships. Notwithstanding the sociological influence on construct definition, BPD has been recognized in differing iterations since Ancient Greece (e.g., Aerateus' description of individuals who experienced intense and unpredictable vacillations of intense anger, mania, and impulsive anger; Millon, 2004).

Although BPD criteria did not change from the DSM-IV to the DSM-5 (APA, 2013), Section III of the DSM-5 for emerging measures and models introduced an alternative, hybrid categorical/dimensional model of personality disorders (Skodol et al., 2011). The inception of the alternative model was to address the extensive critiques of the DSM's categorical model of personality disorders (Widiger & Simonsen, 2005), including heterogeneity within categories and severity of disorders, high rates of comorbidity, and limited diagnostic reliability and stability (Kotov et al., 2017).

The hybrid model includes categories of personality disorders comprised of impairments in self and interpersonal functioning (Criterion A; Bender et al., 2011) and pathological personality traits (Criterion B; Krueger et al., 2012) derived from five trait domains: negative affectivity, detachment, antagonism, disinhibition (vs. compulsivity), and psychoticism. From these trait domains, 25 traits are derived, and specific constellations of traits are theoretically and empirically consistent with features of the six included personality disorders (Krueger et al., 2012). The proposed diagnostic criterion for BPD within the alternative dimensional model necessitates the presence of at least moderate impairments in two or more of the following areas of personality functioning (Criterion A): identity (related to emptiness and dissociation), self-direction (reflecting lack of goals), empathy (related to interpersonal sensitivity), or intimacy (reflecting unstable relationships). As well, at least four of the following seven personality traits derived from three trait domains (negative affectivity, antagonism, disinhibition) must be present: emotional lability, anxiousness, separation insecurity, depressivity, impulsivity, risk taking, and hostility. At least one of the traits present in an individual must be impulsivity, risk taking, or hostility (APA, 2013).

Proponents for the dimensional model argue that the dimensions underlying personality disorders can be understood with reference to research that has emerged regarding 'normal' personality (O'Connor & Dyce, 1998; O'Connor, 2002b). By extrapolating from the plethora of research already established on 'normal' personality, one can apply it to personality disorders and thereby provide a more comprehensive and substantiated conceptualization of personality disorders. Moreover, in parallelizing normal and pathological personality traits, a developmentally oriented perspective on the conceptualization of personality pathology can be made empirically justifiable (Trull &

Widiger, 2013). The dimensional model reflects a more dynamic clinical picture, which validates and does justice to the complexity of personality disorders, and any potential subtype model based on personality disorder profiles. Anderson and Sellbom (2015) found that the Section III trait profile for BPD has good construct validity and loaded onto the criterion outlined in the Section II categorical model.

In addition to capturing the essence of BPD, the dimensional model provides a more comprehensive way of assessing and diagnosing BPD, thereby increasing the potential for more effective treatment strategies (Rodríguez-Seijas et al., 2015). Furthermore, dimensional conceptualizations can detect subsyndromal BPD pathology, whereby the affected individual does not clearly meet five of the nine BPD polythetic criteria (Zanarini et al., 2007) but experiences profound functional impairment and distress (Ten Have et al., 2016). An evidence base is accumulating in support of dimensions underlying personality disorders (e.g., Bornstein & Natoli, 2019; Hopwood et al., 2018). Thus, the practicality and feasibility of incorporating a dimensional framework into clinical assessment and intervention remains uncertain but optimistic (Rodríguez-Seijas et al., 2015).

BPD Theory and Attachment Theory

Several theories have attempted to elucidate the core etiological mechanisms and aspects of BPD. Notably, there is a moderate genetic contribution for BPD, with heritability rates ranging between .42 to .69 in adults (Distal et al., 2008; Kendler et al., 2011; Torgerson et al., 2000) and similar heritability estimates found for borderline traits in adolescents (Belsky et al., 2012). The biological basis of BPD has been summarized for adults (Paris, 2020) and adolescents (Sharp & Kim, 2015). It is clear, however, that

simple linear models wherein biological risk factors inexorably predict the development of BPD are insufficient (Sharp & Kim, 2015). Most current etiological frameworks for the development of BPD espouse a diathesis-stress model (e.g., Fonagy et al., 2003; Linehan, 1993). Although some theories view emotional dysregulation as the core of BPD (e.g., Linehan, 1993), others view BPD as representing a fundamental deficit in attachment-related mentalization (e.g., Fonagy et al., 2003). Gunderson and Lyons-Ruth (2008) have proposed that interpersonal hypersensitivity, a temperamental proclivity to be excessively sensitive and respond intensely to interpersonal cues (particularly real or perceived abandonment or rejection), is also central to BPD. In all likelihood, BPD is a product of both attachment and temperament, among other complex etiological factors (Gunderson et al., 2018). In keeping with this view, the next section will summarize Linehan's (1993) biosocial theory and tie in the uncontested contributions of attachment theory to the onset and maintenance of BPD and dysfunctional relationship dynamics (Fonagy et al., 2003; Levy et al., 2015).

The biosocial theory, developed by Linehan (1993) and extended by Crowell et al. (2009), proposes that individuals with trait vulnerabilities to emotional sensitivity/reactivity (similar to emotion dysregulation) and impulsivity are at risk for developing BPD. Emotion dysregulation refers to highly intense, unstable, and vacillating emotional responses, a delayed return to baseline following mood changes, as well as limited emotional awareness and access to adaptive emotion regulation strategies (Carpenter & Trull, 2013). Impulsivity refers to reduced sensitivity to both short- and long-term repercussions of behaviour, and reflexive and rapid reactions to stimuli prior to complete information processing (Moellar et al., 2001). These trait vulnerabilities have a transactional relationship with psychosocial factors, particularly aberrant socialization

within the family, referred to as an invalidating family environment (Linehan, 1993). The invalidating environment has two primary characteristics, (1) the individual is conveyed the message that they are essentially wrong to feel and express emotions, and (2) the individual's experience is attributed to their fundamentally flawed and unacceptable personality (Linehan, 1993). The reciprocal interaction between trait vulnerabilities and the invalidating environment results in failure to learn how to properly regulate emotions, tolerate distress, and trust one's own emotional or cognitive responses (Linehan, 1993). Several studies have empirically validated both specific and interactive components of the biosocial theory (Arens et al., 2011; Crowell et al., 2009; Gratz et al., 2011)

The idea of an invalidating environment being essential to the development of BPD is resonant of attachment theory, which also has been theoretically employed to understand BPD (e.g., Bateman & Fonagy, 2004). Bowlby's (1973, 1977) attachment theory posits that the early interactions between a child and caregiver inform mental schemas about the self and others. These schemas are known as internal working models. These internal working models guide interactions, intrapersonal regulation strategies, interpersonal attitudes, and identity formation (Bowlby, 1973; Bretherton & Munholland, 2008). A healthy, coherent self-concept and secure attachment is developed if, through early child-caregiver interactions, the child learns that they can depend on and trust the caregiver, particularly during times of stress (Bowlby, 1973). Alternatively, if the child does not have their biological and psychological needs met by a caregiver, then the individual will proceed into adulthood with negative working models of self or others and adaptive attachment is disrupted (Bowlby, 1973). Insecurely attached adults

approach intimate relationships with more anxiety, avoidance, or both than their securely attached counterparts (Fraley & Waller, 1998).

Adult attachment styles are best conceptualized on two dimensions: anxious attachment and avoidant attachment (Bartholomew & Horowitz, 1991; Brennan et al., 1998; Fraley et al., 2015). Attachment anxiety is associated with a negative model of self and is characterized by fears of abandonment and rejection, and low self-worth (Brennan et al., 1998). Anxiously attached individuals adopt hyperactivating strategies, such as hypervigilance in relationships and rumination about partners, to reduce distressing affect and fulfill attachment needs (Mikulincer & Shaver, 2009). By contrast, attachment avoidance is associated with a negative model of others and is characterized by intense discomfort with intimacy and a tendency to be excessively self-reliant (Mikulincer & Shaver, 2009). To maintain distance in relationships, avoidantly attached individuals adopt deactivating strategies such as keeping physical distance from partners, suppressing emotional experiences, and thinking about their partners disparagingly (Mikulincer & Shaver, 2009).

Attachment styles are known to play a role in individual functioning and dysfunctional relationship dynamics. Several studies have documented that insecure attachment dimensions (anxious, avoidant) predict greater distress and maladaptive emotion regulations strategies (Mikulincer & Shaver, 2003; Pietromonaco & Feldman Barrett, 2000). These dimensions are associated with low marital satisfaction (Wagner, 2020) and relationship satisfaction (Butzer & Campbell, 2008). Insecurely attached individuals also demonstrate greater stress when reacting to relationship conflict than securely attached individuals (Powers et al., 2006). Moreover, conflict tends to occur in relationships more frequently in relationships with insecurely attached individuals

(Pietromonaco et al., 2004; Treboux et al., 2004). From an attachment perspective, conflict arises and escalates – sometimes to the point of IPV (discussed more below) – due to maladaptive reactions to perceived attachment threats stemming from unmet attachment needs (Bartholomew & Allison, 2006). Anxiously attached individuals tend to perceive more threats in relationships and the excessive reassurance and proximity seeking behaviours in which they tend to engage can alienate their partners and induce relationship conflict (Collins et al., 2006). By contrast, avoidantly attached individuals tend to ‘mask’ their intimacy needs and relational distress; consequently, these individuals may experience greater difficulty with identifying subjective and relational distress and are subsequently less effective when conflict arises (Pietromonaco et al., 2004).

Attachment difficulties – whether anxious or avoidant – have long been believed to increase vulnerability to psychopathology (Bowlby, 1977). Since Bowlby’s assertion, attachment theory has received significant empirical support as a conceptual framework for understanding BPD (Fonagy et al., 2003; Levy et al., 2011; Patrick et al., 1994; Rosenstein & Horowitz, 1996; Schindler & Sack, 2015). Attachment seems to be an imperative developmental context for the acquisition of emotion regulation skills (Mikulincer & Shaver, 2019), and disruptions in attachment may thereby contribute to the emotion regulation deficits observed in BPD (Linehan, 1993). Although attachment anxiety has been most consistently linked with BPD (for review, see Levy, 2005), there is a great deal of variability in attachment styles amongst individuals with BPD (Beeney et al., 2015). Whereas some studies have found no relationship between avoidant attachment and BPD (e.g., Meyer et al., 2004), others have found a significant association (Smith & South, 2020), often when attachment anxiety was also elevated

(Levy et al., 2005). Thus, attachment styles contribute greatly to the development of BPD, but individual differences in attachment style may reflect variations in the expression of BPD in a given individual (Meyer et al., 2004).

Relationship between BPD and Attachment Issues with IPV and General Violence

Attachment theory provides a compelling conceptual framework for understanding BPD origins (Levy et al., 2011) and general relationship dysfunction (Treboux et al., 2004). Adult attachment style has also been used to predict forms of hostility in patients with BPD (Critchfield et al., 2008). Specifically, self-directed aggression (i.e., suicidality) was predicted by avoidant attachment; anger and irritability were associated with anxious attachment; and reactive aggression was primarily related to ‘fearful’ attachment (high anxiety, high avoidance) (Critchfield et al., 2008).

Given its connections to relationship challenges, it is not surprising that attachment theory has been used to understand IPV (e.g., Bartholomew & Allison, 2006; Fonagy, 1999; Gibby & Whiting, 2022). Attachment theory posits that violence in relationships is an extreme and maladaptive manifestation of how an individual attempts to satisfy their attachment needs (Dutton, 2011; Mayseless, 1991). When attachment needs are unmet, with triggering attachment-related fears and threats, self- and other-directed anger can escalate into violence (Dutton, 2011). Ultimately, attachment theorists claim that IPV is a result of psychological and interpersonal factors that are explained by attachment theory (Bartholomew & Allison, 2006).

Extremes on both attachment dimensions – anxiety and avoidance – are predictive of IPV (Velotti et al., 2022), albeit they appear to differ on their motivations. Anger arising from anxious attachment has been denoted as “burning hot,” which is

indicative of high arousal, self-directed anger, and displaced aggression (Gormley, 2005). “Burning hot” anger might evoke violence as a method of maintaining proximity to an attachment figure and reflect reactive aggression (Mayseless, 1991). Avoidant attachment anger has been conversely described as “burning cold,” which is also associated with hostility and high arousal, but with concurrent high control of anger, low self-reported anger, and deactivating strategies (Gormley, 2005). “Burning cold” anger might function to maintain control over the level of intimacy in the relationship and reflect instrumental forms of aggression (Mayseless, 1991). Thus, different pathways to violence may exist as a function of differing attachment dysfunctions (Hamill et al., 2014). According to a recent meta-analysis, both anxious and avoidant dimensions were significantly associated with physical, psychological, and sexual IPV; however, relations between both physical and psychological IPV, with avoidant attachment were notably weaker than for anxious attachment (Velotti et al., 2022).

Attachment theory indeed provides a convincing framework for understanding underlying psychological factors involved in IPV perpetration. However, many researchers acknowledge that attachment dimensions do not predict IPV in a linear fashion (e.g., Gibby & Whiting, 2021; Mauricio et al., 2007; Velotti et al., 2022). For instance, the attachment framework cannot account for the role of characterological factors (Gibby & Whiting, 2021), with which attachment might interact to produce complex pathways leading to IPV perpetration (Hamill et al., 2014).

Although BPD is a salient characterological factor known to enhance risk for IPV perpetration (Jackson et al., 2015), questions have arisen as to whether BPD and attachment can independently predict IPV perpetration (Mauricio et al., 2007). One study demonstrated that BPD fully mediated the relationship between avoidant

attachment and both physical and psychological IPV, and partially mediated the relationship between anxious attachment and psychological IPV in court-mandated men IPV perpetrators (Mauricio et al., 2007). However, a more recent study showed that BPD traits were predictive of IPV perpetration in a subgroup of securely attached men in group treatment for IPV perpetration, as well as a subgroup of insecurely attached men in the same study (Buck et al., 2014). Thus, it is possible that elevated BPD traits interact with attachment in predicting IPV (Jackson et al., 2015), but can also predict IPV independently of insecure attachment. Complicating the picture is the power that both BPD and attachment dimensions have in predicting different types of IPV, such as physical or psychological aggression (Collison & Lynam, 2021; Velotti et al., 2021). Moreover, the surplus heterogeneity observed in presentations of BPD (e.g., Skodol et al., 2002) suggest that specific domains of BPD-related symptomatology or traits might be differentially related to, and predictive of, certain IPV types (Davoren et al., 2017). At present, Davoren et al. (2017) have demonstrated that all BPD criteria, as ascertained by diagnostic interview, are individually related to physical IPV perpetration. Furthermore, it is documented that those with (vs. without) BPD traits are more likely to cause significant injury during IPV perpetration (Ross & Babcock, 2009), thereby highlighting the importance of disentangling the precise nature of this complex picture and determining whether specific BPD symptom domains are predictive of other IPV types. Overall, there is a need to better understand the relationship between BPD and its symptom domains, attachment dimensions, and IPV types, particularly for the sake of identifying targets for prevention and intervention.

Anxiety Sensitivity: A Possible Mechanism Underlying the BPD-IPV Connection

A mechanism that has yet to be considered in the IPV literature is anxiety sensitivity (AS), which may at least partially explain the links between BPD, attachment, and IPV. AS refers to a temperamental predisposition for difficulty tolerating anxiety-related somatic sensations (Reiss & McNally, 1985). AS is a multidimensional construct, with three lower-order facets representing an individual's tendency to catastrophize the physical (e.g., fears of a heart attack), cognitive (e.g., fear of cognitive dyscontrol), and social (e.g., fearing public embarrassment) concerns associated with feared anxiety sensations (Taylor, 2019).

High AS is already established as a transdiagnostic risk factor (i.e., mechanisms that put one at risk for many disorders; Ein Dor et al., 2016) for several forms of psychopathology, including anxiety (Taylor, 2019), depression (Naragon-Gainey et al., 2010), substance misuse, and post-traumatic stress disorder (Vujanovic et al., 2018). High AS has been linked to BPD symptoms in community samples (Bounoua et al., 2015; Lilienfeld & Penna, 2001; Tucker et al., 2016) and two studies have found that high AS predicted BPD symptoms in a clinical BPD sample over and above emotional dysregulation and impulsivity (Doyle et al., 2022a; Gratz et al., 2008), with AS social concerns emerging as a uniquely significant predictor (Doyle et al., 2022a).

AS appears to result from a combination of genetic and environmental factors (Brown et al., 2012), including early learning experiences (Watt et al., 1998) that occur within the context of attachment styles (Watt et al., 2005). In particular, attachment anxiety predicts high AS and may play a predisposing contribution in the development thereof (Intrieri & Margentina, 2017; Watt et al., 2005). Thus, AS seems to develop

within the context of insecure attachment (Intrieri & Margentina, 2017) and may play an etiological role in the development of BPD (Doyle et al., 2022a).

Individuals with elevated AS are inordinately affected by physiological sensations associated with anxiety (e.g., Stewart et al., 2001), which evokes behaviours intended to avoid these sensations (Sabourin et al., 2011). Research suggests that high AS individuals will also avoid physical aggression due to the high arousal nature of such encounters (Broman-Fulks et al., 2007). On the other hand, in line with the hypothesis that aggression reflects escalated agitation (Yu et al., 2016), strong correlations have been found between AS cognitive concerns and dysregulated anger (Martin et al., 2020; Tucker et al., 2016).

Interestingly, recent work demonstrates a mediating role of AS dimensions on the relationship between attachment dimensions and various forms of aggression for both men and women (Watt et al., 2020). Specifically, for women, AS physical concerns explained the association between attachment anxiety and premeditated (proactive, controlled) aggression, and AS social concerns explained the attachment avoidance and premeditated aggression link. AS cognitive concerns accounted for relations between both attachment anxiety and avoidance, and premeditated aggression for men. Watt et al. (2020) suggested that women's premeditated aggression is more unpredictable or situation-specific (e.g., IPV) than men's. In terms of impulsive (reactive, uncontrolled) aggression, AS cognitive concern was an important mediator for women with attachment anxiety, and for both genders with attachment avoidance. Thus, the fear of 'going crazy' (i.e., AS cognitive) may trigger an impulsively aggressive reaction for both men and women who are insecurely attached. AS dimensions also accounted for the forms of aggression used, with high AS physical and cognitive concerns accounting

for insecure attachment and physical aggression links, AS cognitive concerns explaining insecure attachment and verbal aggression links, and AS social concerns mediating insecure attachment and hostility links. Overall, findings from Watt et al. (2020) indicate that AS serves an important role in aggressive behaviour – in terms of motivation and how it is expressed – for insecurely attached individuals and seems to increase risk for aggressing rather than mitigating it via avoidance of feared sensations.

Given the apparent role that AS plays in general aggression, it is possible that AS is implicated in IPV perpetration more specifically. The motivation that a highly anxiety sensitive individual has to discharge arousal and emotion via aggression (Watt et al., 2020) might manifest more as IPV when these behaviours occur in the context of intimate relationships. This tendency is perhaps especially so for individuals with known proclivities for IPV perpetration (Jackson et al., 2015), who tend to be insecurely attached (Levy et al., 2011), and for whom high AS is prominent (Doyle et al., 2022a); that is, individuals with elevated BPD symptoms. Furthermore, as described in previous sections, insecure attachment has positive correlations with aggression in IPV (e.g., Dutton, 1995). Specifically, attachment anxiety is closely linked with both high AS (Intrieri & Margentina, 2017) and IPV perpetration emanating from fear related to abandonment and similar attachment threats (Velotti et al., 2022). However, the specific roles that AS dimensions play in accounting for relations between BPD symptoms and IPV remains uncertain. Given Watt et al.'s (2020) findings, it is likely that specific AS dimensions confer risk for specific types of IPV, suggesting unique foci for prevention and intervention. Whether AS is a similarly potent mediator relative to attachment dimensions in the BPD-IPV link also remains to be determined.

Additional Notable Personal Characteristics Linked to IPV

BPD characteristics and corresponding correlates (insecure attachment, anxiety sensitivity) appear to have a particular potent role in the prediction of various IPV dynamics (Jackson et al., 2015; Velotti et al., 2021; Watt et al., 2020). Yet, it is indisputable that these characteristics are not the sole contributors to risk of IPV perpetration (Spencer et al., 2022). When reviewing the literature, several additional personal characteristics emerge as relevant risk factors across all forms of IPV dynamics (physical, psychological, sexual): dark triad personality traits (psychopathy, narcissism, Machiavellianism), procriminal thinking, and alcohol/substance misuse (Spencer et al., 2022). These variables represent some of the key “criminogenic needs” elucidated by Bonta and Andrews’ (2017) Risk-Need-Responsivity (RNR) model of general reoffending and violence. The criminogenic need principle of the RNR model stipulates that certain variables, such as psychopathy, procriminal thinking, and substance use, are empirically associated with risk of violence and repeat offending and therefore should be targeted in intervention to reduce recidivism risk (Bonta & Andrews, 2024). These antisocial- and substance use- focused risk factors will be considered relative to prominent BPD features associated with IPV to strengthen our understanding of the contribution of borderline features on IPV behaviours as compared to these more traditional criminogenic risk factors. The inclusion of these traditional risk factors also will assist with the interpretation of subtypes reflecting the heterogeneity of IPV perpetrators.

The dark triad comprises subclinical manifestations of psychopathy, narcissism, and Machiavellianism (Paulhus & Williams, 2002). Psychopathy refers to a trait characterized by callousness, lack of empathy and guilt, and impulsive behaviours

(Paulhus & Williams, 2002). Narcissism reflects dispositional grandiosity, entitlement, and excessive need for admiration and power (Paulhus & Williams, 2002).

Machiavellianism describes a personality proclivity toward manipulateness, instrumental use of others, and deception (Christie & Geis, 1970). Each of the dark triad traits has been linked to IPV. Psychopathy, in particular, has been robustly linked to all forms of IPV dynamics (Collison & Lynam, 2021). For individuals high in psychopathy, motivations for IPV perpetration appear to include a means of asserting control, as well as a reaction to provocation (Blais et al., 2014; Jambroes et al., 2018; Reidy et al., 2011).

Machiavellianism has been less consistently linked to IPV; specifically, it has been significantly related to sexual IPV (Kiire, 2016) and emotionally coercive behaviours (Carton & Egen, 2017) in some studies, whereas other research has found that these links to IPV are nullified when controlling for the other two dark triad traits (Peerters et al., 2010). One proposed argument is that individuals high in Machiavellianism aggress against others when doing so confers greater long- (vs. short-) term benefits (Jones & Paulhus, 2009; 2010), but may interact with the other dark triad dimensions to create greater risk of IPV.

In addition to psychopathy being generally related to IPV, and Machiavellianism being linked to subtypes of IPV, narcissism also has been associated with physical, psychological, and sexual IPV in both men and women (Gormley & Lopez, 2010; Green et al., 2020; Plouffe et al., 2022). Violence from narcissistic individuals is ostensibly evoked in situations that threaten their inflated but fragile self-esteem (e.g., Baumeister et al., 2000; Bucklels et al., 2013; Ryan et al., 2008). A dark triad composite score (comprising all three traits) at baseline was associated with psychological IPV one year later (Kanemasa et al., 2022). Despite all dark triad traits being linked to IPV, when

relations between dark triad traits and IPV are assessed simultaneously, psychopathy tends to emerge as the most robust predictor of various IPV dynamics including physical, psychological, and sexual violence (Brewer et al., 2018; Carton & Egan, 2017; Kiire, 2017). Moreover, among the three dark triad traits, psychopathy was the only construct that predicted IPV perpetration severity in a convenience community sample (Plouffe et al., 2022). Although all three dark triad traits do, to varying degrees, confer risk of IPV perpetration, psychopathy is the most robust predictor thereof.

Procriminal thinking refers to an individual's attitudes and beliefs that are supportive of criminality (Bonta & Andrews, 2024). Procriminal thinking patterns are conceptualized as quasi-stable cognitive variables, rather than personality traits (Walters, 2020). Some researchers distinguish procriminal thinking into two interrelated dimensions: proactive and reactive (e.g., Walters et al., 2011). Whereas the proactive dimension captures the calculative and callously instrumental aspects of criminal thinking, the reactive dimension assesses the impulsive, emotional, and reactionary aspects thereof (Walters, 2017). Procriminal thinking predicts reoffending across a range of criminal behaviours, including IPV (Hilton & Radatz, 2021). For instance, in a sample of 1,421 men with a police record of IPV against a female intimate partner, procriminal thinking significantly distinguished between participants who recidivated with an IPV offense versus those that did not (Hilton & Radatz, 2021). Proactive (vs. reactive) procriminal thinking had a moderating effect in the relationship between prior IPV and subsequent IPV recidivism in a sample of 1,238 formerly incarcerated men, suggesting calculated and callous planning increases likelihood of future IPV (Walters, 2020). In a study investigating risk factors (age, education, SES, substance misuse, mental health status, procriminal thinking, and previous abuse against and victimization

by a partner) of IPV perpetration in both men and women attending a batterer-intervention program ($N = 584$), procriminal thinking emerged as the most robust predictor (Solinas-Saunders, 2022). Procriminal thinking has also differentiated individuals who graduated (vs. were revoked) from a federal domestic violence court and was a significant predictor of probation revocation (Garner et al., 2021). Moreover, significant reductions in procriminal attitudes have been observed in men following treatment for IPV (Mennicke et al., 2015; Yorke et al., 2010). In summary, procriminal thinking confers not only a notable risk for general criminality, but also has a demonstrated predictive and maintenance role in IPV perpetration.

A final notable characteristic to be considered in the prediction of IPV perpetration is substance use/misuse, particularly alcohol. Relative to other substances, alcohol has been the most robustly linked to violence and IPV in particular (e.g., Hellmuth et al., 2013; McKinney et al., 2010). The influence of alcohol use on IPV perpetration has been documented for both men (e.g., Cafferky et al., 2018) and women (e.g., Kelly & Halford, 2006; Shorey et al., 2012) perpetrators. In a meta-analysis of 285 studies, problematic alcohol use was a significant predictor of IPV perpetration for both men ($r = .22$) and women ($r = .15$) (Cafferky et al., 2018). Moreover, multilevel analyses of longitudinal data examining the time-varying effects of heavy episodic drinking on physical and psychological IPV showed a significant interaction of drinking with age, such that drinking was a potent risk of IPV during late twenties (Feingold et al., 2015). Another study demonstrated that, among women arrested for IPV and court-referred for a batterer intervention program, women were at higher risk for perpetrating physical IPV when consuming alcohol (Stuart et al., 2013). Hazardous alcohol use has also contributed to increased risk of sexual coercion in dating relationships (Rapoza &

Drake, 2009). Substances aside from alcohol (e.g., cocaine) also increases risk of IPV; a meta-analysis demonstrated similarly potent effect sizes for in risk of physical IPV for both men ($r = .24$) and women ($r = .22$) (Cafferky et al., 2018).

In summary, dark triad traits, procriminal attitudes, and substance misuse are all closely linked to IPV perpetration (Cafferky et al., 2018; Kanemasa et al., 2022; Solinas-Saunders, 2022). Although the proposed dissertation will focus primarily on elucidating how various BPD characteristics, attachment, and anxiety sensitivity contribute to IPV dynamics, the above-described criminogenic factors will be considered alongside the primary variables. Inclusion of these additional variables will allow for direct interpretation of the relative importance of primary variables in accounting for IPV behaviours over and above traditional criminogenic factors.

The Current Study

Considering the continued prevalence of IPV perpetration by both men and women, and the reduced efficacy of IPV interventions that fail to effectively target psychological factors contributing to underlying IPV behaviours, a greater understanding of how BPD features and its correlates coalesce to increase potential risk is needed. Such information is intended to produce greater precision in guiding preventative and intervention efforts, with the goal of reducing IPV perpetration across all types of IPV, including psychological aggression, physical assault, and sexual coercion. The dominating view of IPV continues to be based on the gender paradigm of IPV, which is inadequate for accounting for the complexity and heterogeneity of individuals who perpetrate IPV and underestimates the existence of women perpetrators. Most of the research that has considered the role of an ontogenetic factor – BPD – does

so via a categorical perspective, rather than considering the most informative and nuanced contributions of prominent BPD characteristics (i.e., emotion dysregulation, self-harming impulsivity, identity difficulties, maladaptive relationship features) that may influence perpetration of various IPV types. Not only are IPV perpetrators heterogeneous in terms of personality pathology, but a nuanced picture of specific BPD symptoms may contribute to the understanding of diverse and specific forms of IPV (Holtzworth & Stuart, 1994; Moffit et al., 2000; Walsh et al., 2010). This research may also help to explain why some individuals with BPD features do not engage in violence towards intimate partners (e.g., secure attachment). Furthermore, considerations of attachment style in the BPD-IPV link have been sparse. The only known study investigating these relations was conducted with men/male perpetrators in an intervention program (Mauricio et al., 2007), thereby missing variation attributable to women and those within the community. A transdiagnostic risk factor – anxiety sensitivity (AS) – also warrants consideration as a core variable of influence given its relationship with attachment, BPD, and aggression. Finally, investigating the incremental validity of BPD features over and above traditional criminogenic risk factors in predicting IPV is warranted to continue refining risk assessment and conceptualization by capturing all potentially relevant variables.

Given the gaps in the available literature, the current research was guided by a psychological/psychosocial framework of IPV and utilized psychometric measures of BPD symptom domains, attachment dimensions, AS dimensions, IPV perpetration, and traditional criminogenic risk factors to: (1) enumerate a typology of individuals to determine if the Holtzworth-Munroe and Stuart's (1999) borderline-dysphoric group is replicated or others emerge, and determine variability in constructs of interest across

profiles; (2) explore whether IPV dynamics vary as a function of latent profiles identified through Research Question 1; (3) explore the explanatory power of attachment dimensions (anxiety, avoidant) and AS in the relationship between BPD features and IPV behaviours; and (4) examine the degree to which BPD features predict IPV behaviours over and above traditional criminogenic risk factors also known to be predictive of IPV.

Research Question 1

Existing theory and research pertaining to the psychological characteristics of IPV perpetrators points to a borderline-dysphoric subtype, largely characterized by features consistent with BPD. However, clinical literature clearly indicates that individuals with subclinical BPD features and a clinical BPD diagnosis are highly heterogenous in their symptom presentation. To date, there is no research that has accounted for the heterogeneity of IPV perpetrators while also considering the heterogeneity of BPD symptom endorsement. Thus, the first research question was: *Are there unique profiles of BPD features and correlates among community members that constitute a typological group and, if so, how do these profiles differ?*

Hypothesis 1. It was hypothesized that participants would be classified into meaningful groups, and that these emerging groups would be characterized primarily by variations in attachment and co-occurring BPD symptoms: Anxious, Avoidant, Anxious/Avoidant, and Secure. A four-class solution was hypothesized to yield metrics indicative of a good fitting model, including small values for Bayesian information criteria (BIC; Schwartz, 1978) and Akaike information criteria (AIC; Akaike, 1974);

significant likelihood-based tests; and average posterior class probabilities indicating good separation of classes (i.e., $\geq .70$).

Latent profile analysis (LPA) was used to identify and enumerate *a posteriori* groupings of underlying characteristics to develop a typology of non-forensic participants reporting varying degrees of IPV behaviours. Variables used in LPA to identify profiles included BPD features, attachment dimensions, and AS dimensions. Latent profiles identified were then used as independent variables and the above continuous variables as dependant variables in a multivariate analysis of variance (MANOVA) to determine which factors significantly varied between profiles. Omnibus chi-square analyses were conducted with nominal demographic variables to determine how these characteristics differed between profiles.

Research Question 2

Research Question 2 asked: *Do profiles vary in degree of self-reported IPV behaviours?* This question was tested with the two latent profiles that ultimately emerged from Research Question 1, and were characterized by primarily insecure attachment (Profile 1) and mixed borderline features (Profile 2),

Hypothesis 2. Profile 2 was expected to endorse statistically higher endorsement of all IPV behaviours measures (physical, psychological, sexual, injury). A one-way MANOVA was used to examine whether various kinds of self-reported IPV behaviours varied between profiles, with the latent profiles identified in Research Question 1 as independent variables and the five CTS2 subscales as dependent variables. Follow-up ANOVAs were examined to deduce univariate effects.

Research Question 3

Research indicates that both BPD and insecure attachment important predictors of various IPV behaviours (Jackson et al., 2015). It is also known that insecure attachment is highly correlated with BPD (Levy et al., 2015). Given the potent role that BPD has in predicting IPV being in tension with the reality that not all individuals with BPD engage in IPV behaviours (Gonzales et al., 2015), it is important to examine potential mechanisms underlying the BPD-IPV link. Attachment has been proposed as one such mechanism (Jackson et al., 2015). Anxiety sensitivity (AS) is another construct associated with aggression (Watt et al., 2020) and has linkages to BPD (Doyle et al., 2022a). As such, Research Question 3 asked: *Does attachment and AS mediate the effect of BPD on IPV?*

Hypothesis 3. It was hypothesized that there would be a significant direct pathway from BPD to IPV, and both attachment and AS would mediate the BPD-IPV link, but anticipated the former would be a more potent explanatory variable. Structural equation modelling (SEM) was used to test the direct pathways between BPD features and IPV dynamics and model potential mediating pathways between these two variables stemming from attachment dimensions and AS.

Research Question 4

Myriad research on effective correctional rehabilitative strategies point to factors commonly linked with general recidivism; these factors are known as criminogenic risk factors (Bonta & Andrews, 2024). Several of these criminogenic risk factors have been specifically linked to IPV offending and reoffending, including dark triad traits (narcissism, Machiavellianism, psychopathy), procriminal thinking, and alcohol and

drug misuse (Cafferky et al., 2018; Collison & Lynam, 2021; Hilton & Radatz, 2021; Kanemasa et al., 2022). BPD is not among a traditional criminogenic factor but is strongly associated with IPV behaviours. As such, Research Question 4 asked: *Does BPD harbour predictive power beyond the four identified traditional criminogenic risk factors in predicting IPV behaviours?* SEM was again used to test this research question.

Hypothesis 4. The nature of Research Question 4 was more exploratory in nature, as both the above criminogenic risk factors and BPD have been previously shown to powerfully predict IPV. Nevertheless, it was hypothesized that BPD would have at least similar predictive potency as the traditional risk factors in influencing the variance in IPV. SEM was used to model pathways between criminogenic risk factors and IPV, and BPD and IPV. Follow up hierarchical regressions and canonical correlation analyses were conducted to glean additional information on the role of these variables in predicting specific forms of IPV behaviours.

CHAPTER THREE: METHODOLOGY

Participants

Participants were 451 adult (i.e., 19 years or older), English-speaking community members who were recruited online via advertisements requesting participating in a study intended to understand how personality affects conflict management strategies in relationships. Advertisements were disseminated across various media, including social media snowball sampling and the crowdsourcing platform Amazon's Mechanical Turk (MTurk). Participants recruited from MTurk were specifically recruited from the United States and Canada given similarities in conceptualizing violence (Hellmuth & Leonard, 2013).

Sample Size and Power

Although there is no consensus on guidelines for LPA sample size, studies and Monte Carlo simulations usually indicate large sample sizes – between 200 and 1000 – as appropriate (Finch & Bronk, 2011; Nyland et al., 2007). Power in LPA can be understood as the probability of identifying the true model from the sample (Tein et al., 2013). Several studies have demonstrated that power is influenced by the extent to which latent classes are distinct (i.e., class separation), such that more distinct classes increase power, thus requiring smaller sample sizes (Gudicha et al., 2016; Tein et al., 2013). Several factors affect class separation, including selecting a model with fewer classes, uniform class size proportions, having many high-quality indicators in the model, and strong class-indicator associations (Gudicha et al., 2016). Strong class separation increases power when the effect size is small and more difficult to detect, as such strong (vs. weak) class separation requires a smaller sample size to detect the effect (Tein et al., 2013). Additional factors to consider for strong class separation is the inclusion of psychometrically strong and theoretically relevant measures (Wurpts & Geiser, 2014).

Required sample size for cluster definition and comparisons was estimated using G*Power (Faul et al., 2009). Estimated sample size is based on the expected four-class LPA solution. In terms of parameters, per convention, alpha was set to .05 and power was set to .80; sample size calculations were computed separately for small, medium, and large effects according to Cohen's (1998) effect size guidelines, given varying effect sizes across relations amongst variables of interest. For chi-square analysis with one degree of freedom and Cohen's ω effect sizes of small (.10), medium (.30), and large (.50), estimate sample sizes were 785, 88, 32, respectively. For the one-way MANOVA,

with four anticipated levels (i.e., latent profiles) to the independent variable, and the four CTS2 subscales as dependant variables, and Cohen's η_p^2 small (.01), medium (.06), and large (.14) effect sizes, minimum required sample sizes are 296, 44, and 24 for main effects, and 245, 37, and 20 for interactions, respectively. The available literature suggests that associations between BPD and IPV perpetration yield a medium effect (Collison & Lynam, 2021), whereas effect sizes for the relationship between attachment and IPV range from small to medium (Velotti et al., 2022). There is no available research on the relationship between IPV and AS. Thus, the current research was completed with a conservative assumption of small-to-medium effects. G*Power (Faul et al., 2009) was used to calculate power for MANOVA analyses, with an estimated sample size of 84 obtained based on the following input parameters: alpha = .05, power = .80, 14 predictors (i.e., nine BPQ subscales, three ASI subscales, two ECR-S subscales), and a medium effect size of $\eta_p^2 = .06$.

Due to SEM's inherent flexibility, it is challenging to determine sample size requirements for this approach (Wolf et al., 2013). Nonetheless, various rules-of-thumb have been proposed, including 1) a minimum sample size of 100-200 (Boomsma, 1985), 2) five to 10 observations per parameter estimated (Bentler & Chou, 1987), or 3) 10 cases per variables (Nunnally, 1967). Wolf et al. (2013) note that these rules are problematic because they are not specific to the model being tested, which could result in excessive over or underestimated requirements. Using Monte Carlo simulations, Wolf et al. (2013) demonstrated that SEM mediations models with larger effects were able to achieve sufficient statistical power for modelling direct and indirect effects with smaller sample sizes. For instance, when direct effects accounted for 16% of the variance in the dependant variables, a sample size that was 2.4 times larger was required as compared

with a model wherein 45% of the variance was explained (i.e., $n = 440$ vs. $n = 180$). Wolf et al. (2013) also showed that, whereas models with more indicators required fewer participants, the model wherein $> 70\%$ of variance was accounted for required fewer participants than the 45% variance model. This variation was due to bias of parameter estimates in the model and larger standard errors. Thus, a larger sample size is not necessarily warranted in SEM, particularly if a greater number of potent indicators are included. The variables included in the present dissertation demonstrate varying effect sizes amongst themselves and in relation to IPV behaviours. Therefore, the current research erred on the side of caution, aiming for a final sample of 400 to detect effects when conducting SEM.

Estimating sample size for the current research was somewhat complicated, as it was uncertain how many classes the LPA would produce. Moreover, the identified variables have demonstrated effects of variable sizes in relation to one another and IPV behaviours (i.e., ranging from small to large). The aforementioned descriptions suggest that a sample size of 100 was sufficient to establish latent profiles, 84 for follow-up comparisons, and an approximate sample of 400 for SEM. Over-sampling was employed to balance concerns noted related to data quality. Therefore, the current research collected more data than estimated ($N = 600$ participants) to enhance probability of attaining sufficient power. After data conditioning and cleaning (raw $N = 669$; see Data and Conditioning section; Table 1), the final dataset consisted of 451 participants. As such, it was presumed that there was sufficient statistical power for all planned analyses, while balancing potential concerns related to bias for SEM.

Sample Characteristics

Participants were recruited from various online media sources, including social media forums (19.96%) and MTurk (80.04%). Descriptive statistics for the sample were examined and are summarized in Table 2. On average, participants were 31.98 years of age ($SD = 9.71$; range = 20 to 73), and identified largely as men (62.7%), heterosexual (69%), and White (80.3%). The majority of participants reported residing in the United States (81.2%). Regarding educational background, most participants reported having completed university (48.1%) and as presently employed full-time (82.5%). Regarding relationship status, most of the sample stated being in a committed relationship (54.8%); of participants who reported currently being in a relationship, 44.3% reported their primary partner was a man, 55.2% reported their primary partner was a woman, and 0.6% reported that their primary partner was a transgender woman.

In terms of stressors experienced within the six months prior to survey completion, 10.9% endorsed having undergone a divorce/separation; 21.5% reported the death of a relative; 21.5% shared being exposed to a natural disaster; 16.4% reported being involved in a serious accident (e.g., car crash); 25.5% endorsed having serious financial problems; 19.5% shared struggling with a serious mental and/or physical illness; 10.6% indicated being subjected to physical and/or sexual abuse; and 3.5% reported another (i.e., “other”) major stressors in their lives.

Measures and Materials

Demographics Form. An author-developed general demographics form was administered to ascertain information from participants relating to age, gender, ethnicity, country of residence, education, primary language, occupation, socioeconomic status,

sexual orientation, current relationship status and years in relationship (see Appendix A). These data were used to contextualize profiles that emerge from analyses.

Stressor Checklist. An author-developed Stressor Checklist was administered to gather information about participants' exposure to various stressful and potentially traumatic events experienced within the six months prior to survey completion. Participants selected all stressors that applied to them, including: divorce/separation, death of a relative, natural disaster, serious accident, serious financial problems, serious physical and/or mental illness, physical/sexual abuse, and 'other.' These data were used to contextualize the sample.

Social Desirability Response Set (SDRS-5). The SDRS-5 (Hays et al., 1989; Appendix B) is a brief measure of social desirability response sets (SDRS) designed to capture the extent to which social desirability pressure influences the validity of self-report data. The SDRS-5 comprises five items rated on a five-point scale (1 = *Definitely True*; 5 = *Definitely False*), with response options denoting a SDRS coded as 1 and all other response options coded as 0. Controlling for SDRS, if necessary, can be useful to mitigate the potentially undue influence thereof on the utility and accuracy of self-report data. The SDRS-5 was developed to address concerns related to data validity via a brief measure to mitigate respondent fatigue. During development, items were selected from a widely-used tool of SDRS (i.e., the Marlowe-Crowne scale) and evaluated with a large sample of outpatients who reported depressive symptoms. The preliminary study yielded good internal consistency and intraclass correlations values, as well as test-retest reliability following a one-month interval (Hays et al., 1989). Acceptable internal consistency has also been identified in more recent research (e.g., Luo et al., 2022).

Conflict Tactics Scale – Revised (CTS2). The CTS2 (Straus et al., 1996; Appendix C) is the most widely used measure of IPV perpetration (Sleath et al., 2018) and was used to assess self-reported perpetration of various forms of IPV. The CTS2 consists of 78 items rated on a 8-point scale assessing the frequency of behaviours (0 = never; 1 = not in the past year, but it happened before; 2 = once; 3 = twice; 4 = 3-5 times; 5 = 6-10 times; and 7 = more than 20 times) that correspond to five subscales capturing various tactics used during intimate conflict: Physical Assault, Psychological Aggression, Sexual Coercion; Injury; Negotiation. The CTS2 also distinguishes items based on perpetration and victimization, with 39 items corresponding to each. For the purpose of the current research, only the perpetration items will be analysed, and only Physical Assault, Psychological Aggression, Sexual Coercion, and Injury will be used in analyses. For use with non-offending populations, Straus et al. (1996) recommended that two variables, prevalence and chronicity, be created for the Physical Assault, Psychological Aggression, Sexual Coercion, and Injury scales. Prevalence is computed as a 0-1 dichotomy, with 1 indicating that one or more acts in the scale were reported; chronicity is computed as a tally of how much the act in the scale occurred.

The CTS2 was based on its similarly prolific and robust predecessor, the CTS (Straus, 1979; see Straus, 1990). Revisions included: the addition of Sexual Coercion and Injury scales, additional items for the original scales to enhance content validity, replacing a relatively underperforming scale (Reasoning) with Negotiating, revising items for gender neutrality and to better distinguish minor and severe levels of IPV for specificity, and interspersing item order (Straus et al., 1996). Despite revisions, the CTS2 retains the original theoretical basis and method of operationalizing conflict as used for the CTS (Straus et al., 1996). Specifically, the CTS2 is theoretically based on

conflict theory (e.g., Adams, 1965), which considers general conflict to be inevitable within interpersonal relationships while acknowledging violence as a tactic whereby conflict is not managed appropriately (Straus et al., 1996). The CTS2 focuses on concrete acts and captures to what extent specific tactics are used, rather than measuring attitudes about conflict or violence (Straus et al., 1996).

Factor structure of the CTS2 has been independently confirmed by several studies, including with a women incarcerated samples (Jones et al., 2002; Lucente et al., 2001), community samples (Moraes & Reichenheim, 2002; Newton et al., 2001), and university students across 17 countries (Straus, 2004). A recent review on psychometric properties of the CTS2 as a measure of IPV perpetration, including factor structure, reliability, and validity in both community and clinical samples, was conducted by Chapman and Gillespie (2019). In terms of reliability, the authors found that the CTS2 has good cross-cultural reliability (Chapman & Gillespie, 2019; Loinaz et al., 2012; Signorelli et al., 2014; Straus, 2004), and good test-retest reliability in offenders convicted of IPV following nine weeks (Vega & O'Leary, 2007). Overall, the CTS2 scales demonstrated good internal consistency across various samples, however, low coefficients have been noted for Sexual Coercion in women samples (Chapman & Gillespie, 2019). Straus et al. (1996) demonstrated good preliminary construct and discriminant validity and good to excellent internal consistency of the CTS2 in their preliminary study with undergraduate students depending on the subscale. Regarding validity, Chapman and Gillespie (2019) noted support for concurrent validity and increased rates of IPV disclosure with use of the CTS2 (Straus, 2007) and predictive validity particularly for the Physical Assault and Psychological Aggression Scales. Chapman and Gillespie (2019) found reasonable support for construct validity but

cautioned that a lack of contextual information could impede differentiating acts that do or do not reflect conflict.

Borderline Personality Questionnaire (BPQ). The BPQ (Poreh et al., 2006; Appendix D) is an 80-item self-report measure that was used to capture BPD characteristics true to DSM-5 criteria while incorporating dimensionality to characteristics. On a dichotomous (0 = *false*, 1 = *true*) scale, respondents indicate the extent to which a statement best describes their typical self (i.e., for at least two years). Items correspond to nine subscales that directly map on to DSM-5 criteria, thereby allowing for a nuanced understanding of endorsement and severity within each domain: Impulsivity (nine items), Affective Instability (10 items), Abandonment (10 items), Relationships (i.e., tumultuous, intense relationships; eight items), Self-Image (nine items), Suicide/Self-Mutilation (seven items), Emptiness (10 items), Intense Anger (10 items), and Quasi-Psychotic States (seven items). Mean scores are computed for each subscale, as well as a total summed index score. Higher scores on a subscale indicate greater severity with that specific domain. Overall summed index scores range from zero to 80.

The BPQ was normed with four undergraduate samples: two from the United States (US), one from England, and one from Australia (Poreh et al., 2006). BPQ items were generated according to the DSM-IV criteria of BPD (the same as DSM-5 criteria), previous measures of borderline personality, structured clinical interviews of personality disorders, and clinical expertise. Items (total = 162) that did not contribute to internal consistency of subscales or were confusing to respondents, as discerned from the first US sample, were removed, resulting in 80 items. In terms of BPQ factor structure, various solutions have been identified. Poreh et al.'s (2006) preliminary principal

component analyses of BPQ subscales suggest that both a single borderline factor and a two-factor solution (Negative Affectivity/Interpersonal difficulty, Impulsiveness) best fit the data. Another study examining the dimensional structure BPQ in a nonclinical sample of young adults and found that, at the level of BPQ subscales, one dimension explained 40.17% of the total variance (Fonseca-Pedrero et al., 2011). At the item level, Fonseca-Pedrero et al. (2011) determined that a five-factor solution (Emptiness/Identity, Impulsiveness/Instability, Intense Anger, Suicide, Quasi-Psychotic Experiences) best fit the data, accounting for 32.86% of total variance. Bianchi et al.'s (2018) principal component analysis using BPQ subscales with a nonclinical sample revealed a two-component structure (Affective Insecurity, Impulsiveness). As suggested by Fonseca-Pedrero et al. (2011), the symptomological heterogeneity of BPD might account for differing structure solutions found not only with BPQ, but with BPD as represented by other instruments as well. Indeed, the structure of BPD in nonclinical samples is found to range from a two-factor to six-factor solution (see Fonseca-Pedrero et al., 2011). Due to lack of consensus regarding the factor structure, the current research will use the nine subscales for all analyses.

The BPQ has demonstrated the highest test-retest reliability following two weeks (ICC = .92), and the highest internal consistency ($\alpha = .92$) when compared to the McLean Screening Instrument (MSI) for BPD, BPD items from the International Personality Disorder Examination Screening Questionnaire, and the Structured Clinical Interview for DSM-IV Axis II (SCID-II) Personality Questionnaire (Chanen et al., 2008). Acceptable to excellent internal consistency levels has been confirmed for BPQ subscales in both nonclinical (Bianchi et al., 2018; Fonseca-Pedrero et al., 2011), clinical BPD (Gill & Warburton, 2014; Gill et al., 2018a, Gill et al., 2018b), clinical anorexia

nervosa (Lekgabe et al., 2021), and clinical bipolar disorder (Salem et al., 2019) samples.

High convergent and moderate discriminant validity were established with the norming samples (Poreh et al., 2006). Of the 12 participants selected from Sample 2 for their high BPQ scores, five were diagnosed with BPD according to clinical interview and the remainder scored in subsyndromal levels. Meanwhile, none of the randomly selected participants scoring half a standard deviation below the average sample sum score ($M = 21.06$) were diagnosed with BPD; clinical classification and questionnaire results were significantly positively associated (Poreh et al., 2008). Furthermore, Chanen et al. (2008) showed that, relative to the MSI for BPD, BPD items from the International Personality Disorder Examination Screening Questionnaire, and the Structured Clinical Interview for DSM-IV Axis II (SCID-II) Personality Questionnaire, the BPQ summed index score had the highest overall diagnostic accuracy (0.85), a notably higher relationship with the criterion diagnosis ($\kappa = .57$). Based on Receiver Operator Curve (ROC) analysis, the BPQ was statistically superior to the MSI (Chanen et al., 2008). Boldero et al. (2009) reported that, in an undergraduate sample, the SCID-II Questionnaire was significantly positively correlated with the total number of BPD features as captured by the BPQ, and their analyses of interest yielded an identical pattern of results when using SCID-II Questionnaire or BPQ data. Good convergent validity has been established between BPQ subscales and measures of depressive, anxiety and stress symptoms, and measures of psychotic symptoms (Fonseca-Pedrero et al., 2011) and neuroticism (Bianchi et al., 2018). Total BPQ scores also have been positively correlated with measures of emotional dysregulation, childhood emotional vulnerability, negatively related with therapeutic alliance in clinical and nonclinical

samples (Gill et al., 2018b). The BPQ has also been independently used to screen for BPD in outpatient youth (Chanen et al., 2008). As compared with three other validated BPD screeners, the BPQ had the best combination of instrument characteristics, with a clinical cut-off of 56 showing moderate sensitivity (0.68), high specificity (0.90), high negative predictive value (0.91), and moderate positive predictive value (0.65).

The BPQ was selected for the current research because it reflects the multifaceted, heterogeneous nature of BPD. It is one of the few self-report instruments specifically developed to assess BPD features. Although others have been developed to include assessment of BPD pathology or symptoms (e.g., Minnesota Multiphasic Personality Inventory-2 BPD scale; Colligan et al., 2009), many of these scales are based on early DSM III criteria or show relatively low diagnostic sensitivity and specificity. For instance, the Borderline Personality Inventory (BPI; Leichsenring, 1999) poorly discriminated amongst individuals with schizophrenia, schizotypal personality disorder, and BPD. Moreover, many current scales capture overall BPD symptom severity without specifying severity within specific traits or characteristics.

Experiences in Close Relationships – Short (ECR-S). The ECR-S (Wei et al., 2007; Appendix E) is a 12-item self-report scale that was used to measure adult attachment style in intimate partner relationships. Respondents rate a 7-point Likert scale (1= *strongly disagree*, 7 = *strongly agree*) to indicate endorsement of items associated with two dimensions of attachment: anxiety and avoidance. Whereas attachment anxiety reflects fear of interpersonal rejection, need for approval, and distress and preoccupation when one's object of attachment is perceived as unavailable, attachment avoidance captures fear of interpersonal dependence, need for excessive self-reliance, and avoidance of intimacy (Wei et al., 2007). Higher scores on either

dimension are indicative of greater attachment difficulties within the respective dimension, with subscale scores ranging from 6 to 42.

The ECR-S has been widely used to assess adult attachment patterns in intimate relationships across a range of populations, including undergraduate students (Wei et al., 2007), community samples of adolescents and adults, psychiatric patients, and sexual minorities (Mikulincer & Shaver, 2016). Acceptable (for attachment anxiety subscale) and good (for attachment avoidance subscale) internal consistency has been demonstrated for the ECR-S (Wei et al., 2007). Construct validity for the scale has been demonstrated via positive correlations between excessive reassurance-seeking and affective reactivity with attachment anxiety (vs. avoidance), negative correlation between comfort with self-disclosure and attachment avoidance (vs. anxiety), and positive correlations between fear of emotional intimacy for both anxiety and avoidance (Wei et al., 2007).

Anxiety Sensitivity Index-3 (ASI-3). The ASI-3 (Taylor et al., 2007; Appendix F) was used to assess AS (i.e., concerns associated with the somatic experience of anxiety), including lower-order dimensions. The ASI-3 is a self-report measure consisting of 18-items whereby participants rate each item on a 5-point Likert-type scale (0 = *very little*, 4 = *very much*). These items are equally divided into three subscales reflecting subdimensions of AS: Physical Concerns, Cognitive Concerns, and Social Concerns. As delineated in previous sections, elevated Physical Concerns reflects beliefs that anxiety related somatic sensations portend negative physical consequences, such as the belief that heart palpitations will result in cardiac arrest (Taylor et al., 2007). Elevated Cognitive Concerns represents the belief that anxiety-related cognitive difficulties will evoke negative cognitive consequences, such as difficulty concentrating

will lead to insanity (Taylor et al., 2007). Elevated Social Concerns represents the belief that perceptible anxiety-related symptoms (e.g., trembling) will result in social rejection (Taylor et al., 2007). ASI-3 subscales also load on to a single factor – Global AS.

Subscales are scored by computing a mean score for corresponding subscale items, and a Global AS score is yielded by computing a mean score for all items (Taylor et al., 2007).

The ASI-3 was developed to remediate psychometric concerns associated with the original ASI and ASI-Revised, including inadequate reliability for the multidimensional assessment of AS and unstable factor structures (Deacon et al., 2003). Taylor et al. (2007) developed and evaluated the ASI-3 across a series of studies, establishing factorial validity, convergent and discriminant validity, and internal consistency across clinical and nonclinical samples recruited from multiple countries. Good psychometric properties of the ASI-3 have been independently corroborated in both clinical and nonclinical samples (e.g., Farris et al., 2015; Kemper et al., 2011; Wheaton et al., 2012). Further, Rifkin et al. (2015) demonstrated good to excellent internal consistency and convergent and divergent validity of the ASI-3 in a heterogeneous treatment seeking sample, thereby supporting its use as a transdiagnostic construct. The ASI-3 has also been used in clinical BPD samples (Gratz et al., 2008) and nonclinical samples with BPD traits (Bounoua et al., 2015; Lilienfeld & Penna, 2001; Tucker et al., 2015).

Short Dark Triad (SD3). The SD3 (Jones & Paulhus, 2014; Appendix G) was used to assess dark triad traits of psychopathy, Machiavellianism, and narcissism. The SD3 is a 27-item self-report measure where participants rate how much they agree with a statement on a 5-point Likert scale (1 = *disagree strongly*, 5 = *agree strongly*). Each item corresponds to a subscale representing a dark triad trait: Psychopathy (six items),

Machiavellianism (nine items), and Narcissism (nine items). Mean scores are computed for each subscale; higher scores on a subscale are indicative of greater endorsement of the associated construct (Jones & Paulhus, 2014).

The SD3 was designed to address concerns about the length associated with using instruments designed for each individual dark triad trait, as well as the concerning psychometric properties of the Dirty Dozen scale (Jonason & Webster, 2010) – the only other brief measure of the dark triad. To construct the SD3, the authors reviewed seminal theoretical sources for each construct (see Jones & Paulhus, 2011; Jones & Paulhus, 2014). Specifically, the psychopathy items were designed to tap impulsivity, callous manipulation, and antisocial behaviour, whereas the Machiavellian items represented cynicism and manipulation tactics, and the narcissism items included items reflecting self-centeredness and grandiosity (Jones & Paulhus, 2014). Across a series of studies with community members and university students, Jones and Paulhus (2014) established strong psychometrics properties for the SD3. Using exploratory structural equation modelling across three studies, Jones and Paulhus (2014) identified a three-factor solution with effect sizes in the moderate to high range.

Alpha internal consistencies for the SD3 were acceptable to good – psychopathy (.80), Machiavellianism (.77), narcissism (.71) in the preliminary study (Jones & Paulhus, 2014). Comparable alphas were present in independent research (Maples et al., 2014). A study examining test-retest reliability of the SD3 demonstrated strong reliability following a 12-day lag in testing – psychopathy (.85), Machivellianism (.85), narcissism (.88), and confirmed acceptable internal consistencies for the SD3 (Dragostinov & Mõtttus, 2023).

The SD3 was validated against standard measures of each dark triad trait; concurrent validity was established with each dark triad trait significantly correlated with a standard measure of the same trait (Jones & Paulhus, 2014). Self-reported scores on the SD3 were also significantly correlated with informant rating scores (Jones & Paulhus, 2014). Independent research has also demonstrated strong convergent validity for the SD3, as evidenced by significant and meaningful correlations between SD3 subscales and established measures of psychopathy, Machivellianism, and narcissism (Maples et al., 2014). The SD3 (14% additional variance) also demonstrated better incremental validity than the Dirty Dozen (3% additional variance) in relation to its convergence with established measures of the dark triad (Maples et al., 2014).

Psychological Inventory of Criminal Thinking Styles – Layperson Edition – Short Form (PICTS-L-SF). The PICTS-L-SF (Mitchell et al., 2017; Appendix H) was used to assess procriminal thinking styles; that is, thought patterns associated with criminal behaviour. The PICTS-L-SF is a 35-item, self-report measure that has participants rate on a four ordinal metric response options (1 = *disagree*, 2 = *uncertain*, 3 = *agree*, 4 = *strongly agree*) the extent of their agreement with items reflecting endorsement of criminality or associated behaviour, and higher scores indicating elevated criminal thinking. Like its predecessors (PICTS; PICTS-L; PICTS-SF), the PICTS-L-SF has two subscales, both of which have 18 items: Proactive Criminal Thinking and Reactive Criminal Thinking.

The PICTS-L-SF was based on the original PICTS, an 80-item assessment of procriminal thinking that was specifically designed for individuals with criminal justice involvement (Walters, 1990). The PICTS has robust psychometric properties for incarcerated populations (e.g., Walters, 2012; Walters & Mandell, 2007). However, the

original measure contained items that individuals without a history of involvement with the criminal justice system would have difficulty responding to due to lack of relevance, that is, items pertaining to consequences while incarcerated (Gross & Morgan, 2013). The PICTS-Layperson Edition was then developed to examine procriminal thinking among university students and included wording so not to be specific to those who have been previously involved with the criminal justice system (Walters et al., 2009). Subsequently, the PICTS-L-SF (Mitchell et al., 2017) was modified from the PICTS-L for more widespread use of the measure by selecting items on the PICTS-L that correspond with the PICTS-SF.

The PICTS-L-SF was normed with a large sample ($N = 619$) of university students who did not report a history of involvement in the criminal justice system (Mitchell et al., 2017). Via categorical confirmatory factor analysis, a bifactor model reflecting general criminal thinking (GCT), and proactive criminal thinking (PCT) and reactive criminal thinking (RCT) was the best fitting model for the data. This finding was consistent with previous PICTS results among university students (Walters et al., 2009).

Omega reliability coefficients yielded excellent reliability during preliminary investigation of the bifactor model of the PICTS-L-SF (Mitchell et al., 2017). The PICTS-L-SF has also demonstrated excellent internal consistency (Scanlon & Morgan, 2021). Moreover, the original PICTS has demonstrated strong test-retest validity with all factors demonstrating Pearson product moment correlation of at least .70 after two weeks (Walters, 2002).

Concurrent validity of the PICTS-L-SF has been examined by assessing relations among GCT, PCT, and RCT, with assessments of criminal sentiments and antisocial

personality disorder traits; high concurrent validity was observed (Mitchell et al., 2017). Predictive validity was also examined by observing the GCT, PCT, and RCT to predict frequency of engagement in illegal or risky behaviours. The promising findings pertaining to the validity of the PICTS-L-SF is bolstered by robust evidence of validity of the original PICTS. For instance, two meta-analyses have demonstrated that PICTS scores demonstrated its predictive and incremental validity via predicting recidivism over and above well-established static risk factors such as age and criminal history (Walters, 2012).

Drug Abuse Screening Test-10 (DAST-10). The DAST-10 (Skinner, 1982; Appendix I) was used to assess substance misuse in the current research. The DAST-10 is a shortened version of the original DAST, which contains 28 items. The DAST-10 is a 10-item brief screening tool where participant indicate potential involvement with substances (excluding tobacco and alcohol) on a dichotomous scale (0 = *no*, 1 = *yes*) within the past year. Higher scores on the DAST-10 indicate greater concern with substance misuse. Scores of 3 to 5 are indicative of moderate level of problems related to substance misuse (Skinner, 1982).

The DAST-10 is best conceptualized as a single factor model (Villalobos-Gallegos et al., 2015). Reliability analyses demonstrate test-reliability reliability from .71 to .90 depending on delay between testing, which has ranged from seven to 43 days (Carey et al., 2003; Cocco & Carey, 1998). Internal consistency for the DAST-10 is shown to be good with Cronbach's alpha ranging from .80 (Villalobos-Gallegos et al., 2015) to .91 (Umut et al., 2015) across diverse clinical and community samples.

Convergent validity of the DAST-10 has been demonstrated via statistically significant correlations with other measures of substance misuse (Cocco & Carey, 1998;

Umut et al., 2015) prior iterations of the DAST (Cocco & Carey, 1998), and measures of mental health difficulties (Cocco & Carey, 1998). The DAST-10 has also significantly differentiated between participants with and without substance use disorders (Cocco & Carey, 1998). In terms of criterion validity, research indicates a cut-off score of 4 can identify substance misuse (e.g., Bohn et al., 1991; Maisto et al., 2000), with sensitivity and specificity scores in identifying substance use disorders being .98 and .91, respectively (Ögel et al., 2017). More recently, it has been shown that a cut-off score of 3 demonstrates diagnostic efficiency at 97% and is thus recommended to avoid false negatives (Villalobos-Gallegos et al., 2015).

Cut down, Annoyed, Guilty, Eye-Opener (CAGE). The CAGE (Ewing, 1968; Appendix J) is a screening tool developed to identify problems associated with hazardous alcohol use. Its name is derived from the four dichotomous questions (0 = *no*, 1 = *yes*) asked by the tool: Cut down, Annoyed, Guilty, and Eye-Opener. Each affirmative answer contributes one point to the total possible score, with higher scores indicating more severe alcohol-related problems. The recommended cut-off score for CAGE is 2 to screen for alcohol misuse (Dhalla & Kopec, 2007).

Test-retest reliability of CAGE (with test-retest interval of one week) was .80 in psychiatric outpatients and 0.95 in a community sample (Teitelbaum et al., 2000). A review of CAGE psychometric properties indicates that scores on the CAGE correlate well (between .48-.70) with other measures of alcohol misuse (Dhalla & Kopec, 2007). Internal consistency is not computed given how few items comprise the CAGE (Dhalla & Kopec, 2007). The CAGE was originally validated by Mayfield et al. (1974) with psychiatric inpatients and demonstrated good diagnostic sensitivity when the cut-off score of 2 was used. A meta-analysis of 10 studies demonstrated that sensitivities of

CAGE were .87, .71, and .60, depending on the sample, and corresponding specificities were .77, .91, and .92 (Aertgeerts et al., 2004).

Procedure

Following approval from the institution's Research Ethics Board (REB), online recruitment occurred via recruitment advertisements across various social media platforms (e.g., Facebook, X) and crowdsourcing recruitment websites (i.e., MTurk). Recruitment occurred from November 22, 2023, through January 29, 2024. Of note, efforts were also made to recruit via support groups and online forums for individuals with personality difficulties by contacting forum moderators/administrators. Interactions with forum moderators were similar to the informed consent form and included a delineation of the nature of the current research and its potential implications (Appendix L). Unfortunately, the only forum willing to share the recruitment advertisement with their members was markedly delayed in doing so. To avoid significant delays with data collection, the decision was made to proceed with data collection solely via social media and crowdsourcing platforms. Advantages and disadvantages to recruiting from crowdsourcing platforms are discussed in the subsequent section, with strategies identified to mitigate the latter. The recruitment advertisement disseminated across these platforms provided a brief message inviting English-speaking adults to participate in a study designed to understand how personality affects conflict management in relationships (Appendix K). Prospective participants were able to use the recruitment message, which was consistent with suggestions for IPV research to avoid explicitly advertising studies as IPV-related (Hellmuth & Leonard, 2013), to determine their interest in participating. After choosing to participate, participants were provided the

option to click the research link or scan a QR code, which connected them first with a reCAPTCHA to complete to filter out bots. Upon successful completion, participants were presented with the informed consent page wherein more comprehensive information about participation in the study was provided.

The online survey was designed so that it was impossible to link any personal identification information (e.g., email) with data being collected. After completing the survey, participants were invited to share the study link with other known persons from their social network with the intent to enhance participant recruitment (Wright, 2005).

Regarding incentives, participants were offered different forms of remuneration depending on the platform from which they were recruited. Participants recruited from MTurk were compensated \$3.00 CAD for their time (approximately 30 minutes), which was consistent with suggested rates of pay. Participants broadly recruited from social media were provided with the chance to win one of 10 gift cards of \$30 value for participating. To account for different forms of compensation, two identical surveys with separate website links were created: one for MTurk, and one for other recruitment mediums. Data files derived from various recruitment sources were merged into one file upon concluding data collection. Participants with the option to enter the raffle draw were redirected to a separate survey where they were asked to provide their email addresses. These data were stored separately from all survey data, were used solely to contact winners of the raffle, and destroyed after contacting raffle winners (Appendix O).

The informed consent form invited participants to complete a questionnaire on personality and relationship negotiation tactics that was advertised to take approximately 30 minutes to complete; confidentiality and anonymity was emphasized, and participants

were required to provide their voluntary consent to participate (Appendix M). Participants were screened based on the following inclusion criteria: 1) their age (i.e., at least 19 years old), 2) their ability to read and comprehend information delivered in English, 3) not have already completed the survey as discerned via IP address and statement of this fact, 4) residence in Western countries (i.e., Canada, United States) as other cultures have different views and values pertaining to violence (Do et al., 2013) and may thus confound interpretation of findings, and 5) willing to provide their informed consent to participate. Because IPV includes abuse toward both current and former partners, participants were not screened based on their current relationship status. Additional screenings were completed following data collection to ensure data quality and are described in the section below and Chapter Four.

The survey was administered using Qualtrics, an online survey platform that maintains participant anonymity and confidentiality. Measures were entered in blocks within the Qualtrics platform, and blocks were randomized such that participants viewed core survey measures in different orders to reduce bias related to order of measure completion. After completing the survey, participants were directed to a debriefing form (Appendix N). The debriefing form provided participants with specific information on the purpose of the study, namely, to examine relations between challenging personality traits and intimate partner violence. Debriefing also included provision of various mental health resources (e.g., national mental health crisis hotline) should they experience distress related to their participation.

Online Data Collection Considerations

This dissertation used internet-based methods for collecting data from non-forensic community members to examine typologies of IPV and define a theoretical model of pathways from BPD traits to IPV. Online data collection confers several advantages, including participant anonymity balanced with access to unique populations who otherwise might be difficult to reach (Wright, 2005), such as the case with persons who engage in IPV behaviours in the community. On the other hand, internet-based methodology poses challenges with verifying participant eligibility and the veracity of participant responses, as well as enhancing response rate (Menon & Muraaleedharan, 2020). To address some of the challenges inherent to internet-based research, the current study maintained relative brevity of survey length, and integrated Google captcha verification questions to ensure attentive and consistent responses. In terms of accessing unique populations via internet-based methods, the current study followed Wright's (2005) recommendations to recruit from online communities, including from forums and support groups, and obtain permission from website moderators prior to recruitment. In addition to seeking permission, researcher contact information, information about the study, and the researcher's credentials were included in the invitation to participate to enhance credibility (Wright, 2005). Unfortunately, permission was not received from most forums.

With increasingly sophisticated artificial intelligence enhancing risk of fraudulent data, several safeguards within the Qualtrics survey platform were implemented to mitigate risk (see "Fraud Detection," Qualtrics Support). Qualtrics survey options provides a function where, when selected, the researcher can prevent multiple submissions prior to collecting data by flagging respondents who attempt to

complete surveys using the same browser. If the respondent is determined to have already taken the survey, their responses will be flagged and assigned a value under the data field “Q_BallotBoxStuffing.” The researcher can then review these cases and determine their legitimacy based on the value assigned with values ranging from 0 (Null) to 1 (true), with the latter value meaning the response is likely a duplicate. Moreover, multiple submissions from the same IP address were removed, as this practice has demonstrated a drastic reduction in frequency of fraudulent responses (Chandler & Paolacci, 2017). Qualtrics also offers a function entitled “Expert Review Fraud Detection,” which tracks patterns related to completing surveys en masse. Moreover, Qualtrics’ “Bot Detection” function allows researchers to track the probability that responses are bots by adding a field to each response labelled “Q_RecaptchaScore.” Each case is provided a probabilistic rating pertaining to the likelihood that the respondent was a bot, which can then be used to filter the data. Another option within Qualtrics is “RelevantID,” which enhances fraud detection by evaluating respondent metadata to identify the likelihood that a respondent is answering multiple times. Various fields are calculated using technology that scans not only response patterns but also analyzes a user’s browser, operating system, and general location to provide a fraud score. Finally, Fraudulent Detection Fields can be added to the survey flow, wherein logic based on the aforementioned fields are embedded into the flow of the survey; fraudulent respondents can then be redirected using branch logic, and their responses will not be recorded. The above strategies were implemented within the Qualtrics survey to mitigate risk of fraudulent data. The number of cases excluded for these reasons are recorded in Chapter Four (“Data Cleaning and Conditioning” section), Appendix P, and Table 1.

Crowdsourcing platforms (i.e., MTurk), were also used for recruitment, presenting an advantage in terms of accessing a large and diverse sample efficiently and economically (Hauser et al., 2019). Notwithstanding advantages, crowdsourcing recruitment also presents challenges related to the quality of data (Hauser et al., 2019). Thus, specific eligibility qualifications were used, including high Human Intelligence Task (HIT; i.e., single, self-contained task) approval rating exceeding 95%, ensuring the survey was not already completed, and including specific countries (Hauser et al., 2019); that is, the United States and Canada. The identified recommendations were implemented during recruitment and data conditioning phases of the current study, as appropriate, to increase the probability of obtaining high-quality survey data. Low-quality data were removed from the data file. These recommendations are also consistent with suggestions from Burchett et al. (2023) regarding assessment of response bias in personality disorder research.

Research on Intimate Partner Violence Perpetration

Given the sensitivity related to researching topics such as IPV (Fontes, 2004; Lee & Renzetti, 1990), recruiting participants who endorse perpetration of physical, psychological, sexual abuse, or a combination thereof warrants specific ethical and practical considerations (Fraga, 2016). Although the field of IPV research has erupted over the last several decades, the majority of ethical and practical guidelines for research thereof has focused on duty to IPV survivors (e.g., Bender, 2017; Btoush & Campbell, 2009) with minimal focus on IPV perpetrators. Given the oft-bidirectional nature of IPV (Langhinrichsen-Rohling et al., 2012), the author of this dissertation contends that some

of the principles aiming to guide research on IPV survivors can partially inform research on IPV perpetration.

Broadly speaking, regulatory frameworks for ethical scientific research address four key issues: justification of information gathering, maximizing benefit and minimizing harm, obtaining informed consent, and ensuring the safety of respondents (Fraga, 2016). In addition to general ethical principles, research on IPV requires specific considerations, including balancing national legislation on reporting violence and the autonomy of respondents (Ellsberg & Heise, 2005). In Western societies, wherein the current research is situated, violence is a crime. However, most IPV researchers assert priority of autonomy and confidentiality in conducting research (Fraga, 2016; Hellmuth & Leonard, 2013) and devote substantial effort to minimize any potential harm to research participants (Clements & Hotzworth-Munroe, 2009; Delva, 2007). Although most participants in IPV research describe their experience as rewarding (Johnson & Benight, 2003; Shorey et al., 2011), the topic's sensitivity necessitates risk-mitigation efforts to address potential for emotional distress or discharge. Such efforts of relevance to online data collection include offering complete anonymity and confidentiality to ensure participant safety and data quality and providing referral lists of resources (Ellsberg & Heise, 2005; Hellmuth & Leonard, 2013).

Extrapolating from research on perpetration of sexual violence, researchers' duty of care must be prioritized (Jewkes et al., 2012). Specifically, studies should not be explicitly advertised as "perpetration research" (Jewkes et al., 2012), questions related to perpetration should be embedded in surveys that cover a range of other topics, and informed consent should emphasize confidentiality. Moreover, participants should not be asked to divulge the specific nature of the study to others to mitigate risk of stigma,

self-report methods should be used to enhance likelihood of honest reporting, and collected data should be recorded anonymously and password protected (Jewkes et al., 2012).

Hellmuth and Leonard (2013) empirically examined the prevalence of adverse events reported by doctoral-level researchers while conducting IPV research and using participant protection methods. The authors found that most researchers (66%) reported having never experienced an adverse event during their career and, of those who had, none were directly associated with their IPV research (Hellmuth & Leonard, 2013). Regarding participants protection methods, it was suggested to not explicitly promote IPV perpetration as the subject of study (Hellmuth & Leonard, 2013), which is consistent with recommendations made for research specifically on perpetration of sexual violence (Jewkes et al., 2012). Thus, although many researchers and institutional review boards adopt a “better-safe-than-sorry” orientation toward the study of IPV (Hellmuth & Leonard, 2013), research points to the study of IPV conferring greater benefits than any risk potentially posed by such research (Bledsoe et al., 2007; Sullivan et al., 2011). In keeping with recommendations for participant safety and honesty in reporting noted above, the current study (1) did not explicitly advertise the study as perpetration research; (2) embedded the CTS2 within the broader survey; (3) used self-report methods; (4) ensured and emphasized complete anonymity and confidentiality, (5) provided referral lists of resources in both Canada and the United States as part of the debrief, and (6) password protected collected data.

CHAPTER FOUR: DATA ANALYSES AND RESULTS

Data Cleaning and Conditioning

Raw data were screened and conditioned prior to conducting preliminary and planned statistical analyses to ensure the final sample represented high-quality data and the dataset met relevant assumptions for analyses. A summary description of each step of data conditioning can be found in Table 1. A thorough description of the data screening and conditioning process is available in Appendix P. In general, the data conditioning process involved attending to suspicious responding, construed as excessively rapid or long completion (<10 minutes or >60 minutes, $n = 174$ cases removed), reviewing embedded metadata and relevant metrics for bot detection and indication of fraudulent data ($n = 6$ cases removed), addressing duplicate entries ($n = 0$ cases removed), ensuring participants met eligibility criteria ($n = 8$ cases removed), handling missing data ($n = 27$ cases removed; additional information pertaining to handling of missing data is found in Appendix P and Table 1), identifying and handling inappropriate responding and outliers ($n = 3$ cases removed), and examining various indices of normality. The final dataset contained 451 participants.

Describing and Contextualizing the Overall Sample

Descriptive statistics and frequencies for the final sample are summarized in Table 2. Participants' scores on a measure of socially desirable responses indicated low levels of this manner of responding ($M = 7.24$, $SD = 8.52$), especially relative to the normative sample (Hays et al., 1989). The sample reported elevated IPV behaviours relative to previous research. Specifically, CTS2 Psychological Aggression frequency scores ($M = 43.01$, $SD = 39.65$) were somewhat higher compared to prior non-clinical

samples (e.g., Straus et al., 1996) but comparable to a community sample of partner violent couples (Babcock et al., 2019). When considering endorsement of minor and severe manifestations of this form of IPV, the sample demonstrated slightly higher endorsement of minor forms ($M = 22.34, SD = 20.92$) relative to severe forms ($M = 20.67, SD = 21.92$), $t(451) = 2.07, p = .02$. High rates of CTS2 Physical Assault were reported by the current sample with notable variability in scores across participants ($M = 61.73, SD = 60.56$); moreover, minor forms ($M = 34.06, SD = 36.28$) of CTS2 Physical Assault were endorsed more frequently than severe forms ($M = 27.67, SD = 28.16$), $t(451) = 5.78, p < .001$. Frequency of CTS2 Physical Assault was markedly higher than in previous non-forensic samples (e.g., Babcock et al., 2023). CTS2 Sexual Coercion frequency scores for the present sample ($M = 37.10, SD = 35.37$) were higher than a sample of incarcerated women (Jones et al., 2002); again, the present sample endorsed minor forms ($M = 19.42, SD = 21.67$) of sexual coercion with greater frequency than severe forms ($M = 17.63, SD = 17.16$), $t(451) = 2.32, p = .01$. Overall, the present sample reported high frequencies of all forms of IPV behaviours, albeit with greater endorsement of minor forms of each behaviour relative to severe forms, as construed by the CTS2.

BPQ total scores in the current sample ($M = 38.01, SD = 15.08$) were notably higher than the normative sample of college students (Poreh et al., 2006) and a community-based sample (Azvedo et al., 2018), but were comparable to a clinical sample with co-occurring BPD and bipolar disorder (Salem et al., 2019). Based on Chanen et al.'s (2008) suggested clinical cut-off score of ≥ 56 , 11.3% ($n = 51$) of the sample met criteria for BPD as measured by the BPQ. Although BPQ Impulsivity and Relationships scores for the current sample were comparable to a non-clinical normative

sample (Poreh et al., 2006), the remaining BPQ subscales were higher than expected for a community sample. In comparison to a previous clinical sample (Salem et al., 2019), however, all BPQ subscale scores in the current study were comparable. As such, although most of the sample did not meet the clinical cut-off for BPD, the distribution of the subscales indicates severity of specific BPD features.

ECR-S Anxiety scores for the current sample ($M = 28.48$, $SD = 7.85$) were higher than the scale development sample comprised of undergraduate students (Wei et al., 2007), and more comparable to, but still higher than, a sample of community-based adults reporting symptoms of psychopathology (McHugh & Eagan, 2023), thus suggesting that the overall sample is characterized by high attachment anxiety. By contrast, ECR-S Avoidance scores for the present sample ($M = 29.18$, $SD = 6.54$) were higher than both samples of undergraduate students (Wei et al., 2007) and community-based adults (McHugh & Eagan, 2023), indicating high rates of attachment avoidance in the present sample. Indeed, scores on both subscales most closely resembled scores for a sample of outpatients with substance use disorders (Gidhagen et al., 2018).

ASI-3 total scores for the current sample ($M = 33.61$, $SD = 14.30$) were quite elevated and comparable to a panic disorder clinical sample (Taylor et al., 2007). Although the current sample was non-clinical, elevated ASI-3 scores in a sample with high BPD symptoms (as assessed by the BPQ) corresponds with prior research identifying high AS in a clinical BPD sample (Doyle et al., 2022a). ASI-3 subscale scores also more closely reflected previous clinical, instead of non-clinical samples. The most strongly endorsed subscale was Social Concerns ($M = 12.43$, $SD = 4.72$), which was comparable to a sample of adults with substance use disorder (Hilton et al., 2022).

ASI-3 Physical Concerns ($M = 11.90$, $SD = 5.27$) was also elevated in the current sample, as was ASI-3 Cognitive Concerns ($M = 9.29$, $SD = 6.85$).

Regarding criminogenic risk factors, the present sample reported SD3 Narcissism ($M = 3.04$, $SD = 0.51$) and SD3 Machiavellianism ($M = 3.50$, $SD = 0.76$) scores that can be interpreted as moderate and were comparable to a previous sample of community-based adults (Jones & Paulhus, 2014). SD3 Psychopathy scores in the current sample ($M = 3.14$, $SD = 0.80$) were marginally more elevated than prior non-clinical, non-forensic samples (e.g., Dragostinov & Mottus, 2023; Jones & Paulhus, 2014). PICTS-L-SF scores reported by the sample ($M = 92.90$, $SD = 24.65$) were significantly higher than reported by an undergraduate sample without a history of criminal justice involvement from prior research, albeit there was markedly more variability in the present sample (Mitchell et al., 2017). PICTS-L-SF scores suggest that the sample was characterized by higher propensity for procriminal thinking, but lower than what has been observed in a justice-involved sample (as ascertained via the PICTS-SF; Scanlon et al., 2022). DAST-10 scores ($M = 3.74$, $SD = 2.69$) were marginally higher than the suggested cut-off of 3 for drug use concerns with the sample, but lower than that reported by a sample of adults with substance use issues (Villalobos-Gallegos et al., 2015). CAGE scores ($M = 1.68$, $SD = 1.13$) were below the recommended clinical cut-off of 2 (Dhalla & Kopec, 2007), suggesting few cases of hazardous alcohol use in the sample.

In summary, given the above-average levels of insecure attachment, BPD features, AS, and criminogenic features, the sample may be best characterized as at risk or clinically elevated in nature, rather than reflective of the general population.

Correlations Amongst Study Variables

Pearson product bivariate correlations with a Bonferroni adjustment (p value = .004) were conducted to examine patterns of relations amongst study variables and are summarized for the full sample in Table 3. All CTS2 subscales (Psychological, Physical, Sexual, Injury) were significantly positively correlated with BPQ, ECR-S Anxiety and Avoidance, ASI-3, SD3 Narcissism, Machiavellianism, and Psychopathy, PICTS-L-SF, DAST-10, and CAGE. Unsurprisingly, BPQ was significantly positively correlated with both ECR-S Anxiety and Avoidance, ASI-3 (global score), PICTS-L-SF, DAST-10, and CAGE. Somewhat more unexpectedly, BPQ total scores also were significantly associated with higher scores on all three SD3 subscales.

Pearson product moment correlations were also conducted separately with study variables for both men and women; these data are summarized in Table 4. Correlations amongst variables tended to follow similar patterns across men and women and were generally comparable to correlations for the full sample. However, whereas correlations between CTS2 Physical and Machiavellianism; CTS2 Injury and Machiavellianism; and Machiavellianism and CAGE were each significantly positively associated for women, these same patterns were not observed to be statistically significant for men. Specifically, the magnitude of the associations were much lower for men and did not reach statistical significance.

Research Questions and Hypothesis Testing

Research Question 1

Research Question 1 purported to identify underlying latent profiles (*a posteriori* subgroups) of IPV perpetrators who share certain characteristics in terms of BPD traits,

attachment style, and anxiety sensitivity dimensions. Latent profile analysis (LPA) is a mixture modelling approach to probabilistic classification of individuals into latent (unobserved) groups based on theoretically plausible characteristics using cross-sectional data (Bauer, 2021). The purpose of LPA is to identify qualitatively distinct population subgroups (i.e., latent profiles) that share certain features; thus, LPA is used to elucidate latent heterogeneity in samples (Hagenaars & McCutcheon, 2002). The fundamental assumption of LPA is that an individual's membership in a certain latent profile can be accounted for by their pattern of scores across indicators like survey data. Specifically, probabilities of class membership are derived in LPA based on these indicators (Weller et al., 2020). LPA combines within- and between-class models (Sterba, 2013). Whereas the within-class model draws population parameters for the relatively homogenous sub-group of individuals identified within a specific class (k), the between-class model defines the probability of each individual having been sampled from the sub-group that underlies that class k (Bauer, 2021). The mixture models thus classify statistically similar persons regarding within-class parameters and, for each individual, produce a classification probability per class. Model class assignment can then assign persons to a latent profile based on their highest membership probability (Bauer, 2021).

With respect to the current research, latent profiles were based on scores of BPQ subscales (Impulsivity, Affective Instability, Abandonment, Relationships, Self-Image, Emptiness, Suicide and Self-Mutilation, Intense Anger, and Quasi-Psychotic States), ECR-S subscales (Attachment Anxiety, Attachment Avoidance), and ASI-3 subscales (Social, Physical, Cognitive). Latent profiles were compared on IPV behaviours and determined using the above variables via Mplus version 6.12.

Latent profile analysis was conducted with 20 continuous measures reflecting aggregated scores (Bauer, 2021) of borderline features, attachment, anxiety sensitivity, to examine 2-to 5 profile solutions based on hypothesis and theory. These profile solution results are summarized in Table 5. In terms of parameter restrictions, the local independence and homogeneity model automatically imposed by Mplus software (Muthén & Muthén, 1998-2017) was utilized; however, the number of initial stage starts and number of final stage optimizations were increased to 500 and the number of initial stage iterations set at 50 to ensure model convergence (Muthén & Muthén, 1998-2017). Log likelihood values indicated that the best values were replicated several times across multiple sets for each model. Maximum likelihood parameter estimated means and observed means were examined to discern probability of class membership for each k -class solution to reduce within-profile variation, while optimizing between-profile variation.

Enumerating the number of latent profiles that represent an optimal fit involves attempts to balance model parsimony and fit, while distinguishing coherent and interpretable classes (Bauer, 2021). Despite there being a body of research on fit indices (e.g., Nyland et al., 2007; Peugh & Fan, 2013), there is no consensus on a single best index of fit. Rather, model selection must be guided equally by substantive interpretability of the selected class solution as by the fit indices (Bauer, 2022), and other metrics such as class size. Nonetheless, there are certain statistical criteria that can be helpful in determining the optimal number of latent classes. First, information criteria are examined: typically, a smaller Bayesian information criterion (BIC; Schwartz, 1978), Akaike information criterion (AIC; Akaike, 1974), and sample-size adjusted BIC (SSABIC; Sclove, 1987) are indicative of a better fitting model (Tofighi & Enders,

2006). Next, likelihood-based tests can be examined and used to compare models with adjacent numbers of latent classes (Bauer, 2021). Simulations suggest that a significant Lo-Mendell-Rubin adjusted likelihood ratio test (LMR; Lo et al., 2001) and bootstrapped likelihood ratio test (BLRT; McLachlan & Peel, 2000) supports the additional class (i.e., k -class model) over the $k-1$ model (Nylund et al., 2007). Finally, classification diagnostics can inform the process of enumerating classes. Average posterior class probabilities (AvePP) function as a metric of how well individuals are classified, with values $\geq .70$ suggesting good separation (Nagin, 2005; Ramaswamy et al., 1993). Classification accuracy information is condensed in the entropy measure, with values of 1 representing perfect classification, and uses similar interpretation guidelines to reliability coefficient values ($\geq .80$ good, $\geq .60$ acceptable; Asparouhov & Muthén, 2014). Entropy should not be used as a primary model selection criterion (Masyn, 2013), but might be especially useful when comparing solutions with similar fits (Rost, 2006).

Based on information criteria (AIC, BIC, SSABIC), likelihood-based tests (LMR, BLRT), classification accuracy information (i.e., entropy), and indices of accurate membership classification (i.e., AvePP), a 2-class solution was selected as the optimal model (see Appendix Q for MPlus syntax). At first glance, fit criteria appeared to favor a 5-class solution, insofar as it had the lowest AIC, BIC, and SSABIC, and a statistically significant BLRT; however, two of the classes (i.e., 4 & 5) contained fewer than 25 cases, which suggests they are anomalous and would also preclude statistical comparisons (Bauer, 2022; Spurk et al., 2020). Similarly, a 4-class solution had comparably low information criteria indices and had both statistically significant LMR and BLRT tests; yet it too produced two classes (3 & 4) that were seemingly anomalous and not statistically viable. The 3-class solution also demonstrated strong information

criteria indices and a significant BLRT but also produced an anomalous class (class 3). As such, the 2-class solution was determined to be the optimal model, with information criteria comparable to the other solutions, an entropy value of 0.95 indicating that LPA model partitions the data into profiles well, and a statistically significant BLRT indicating that 2-class is preferable to one, but also with classes that could be clearly demarcated from one another. Although the LMR was not statistically significant, research indicates that a significant BLRT has higher statistical power, defined as the probability of selecting the true model from the sample of interest (Tein et al., 2013). The estimated membership probability for the 2-class solution was as follows: Profile 1 was 97.2% and Profile 2 was 98.9%. Conversely, the probability of misclassification was 1.1% for Profile 1 and 2.8% for Profile 2.

Prior to interpreting the 2-class solution, several additional models were tested including both clinical variables of interest and (1) all criminogenic factors of interest to the current study (i.e., dark triad traits, procriminal thinking, substance misuse, alcohol misuse; see Table 6), and (2) substance misuse and alcohol misuse (see Table 7). For the first set of models, the issue of anomalous classes was prevalent across all five models. Moreover, for the 2- and 3-class models, both likelihood-based tests were not computed irrespective of the amount of initial stage starts and number of final stage optimizations, suggesting these models were not stable. For the second set of models, anomalous classes were again observed across all classes and likelihood-based tests not computed for the 2-class solution. Examining various iterations of models across variables and classes strengthened the decision to proceed with a 2-class solution solely with the clinical variables of interest (i.e., BPQ subscales, ECR-S subscales, and ASI-3 subscales).

A graphical representation of z-score means for the 2-class solution is depicted in Figure 1. Latent profile membership differences for variables included in the model are described in Tables 8 and 9. The posterior latent profiles were conceptually labelled based on notable patterns of borderline features, attachment, and anxiety sensitivity endorsed by class members. Put differently, profile labels were discerned according to notable trends in characteristics endorsed. In general, the two profiles appear to reflect different levels of severity in characteristics included in the model. Omnibus chi-square analyses were conducted to examine differences between profiles on nominal descriptive variables (see Table 8), whereas a multivariate analysis of variance (MANOVA) was used to examine the difference between the two profiles on the remaining continuous variables (see Table 9). The MANOVA was statistically significant with a large effect size, Pillai's Trace = .564, $F(15, 433) = 37.31$, $p < .001$ $\eta p^2 = .56$; between group differences are presented in Table 8 for chi-square and Table 9 for MANOVA analyses.

Participants classified in Profile 1 ($n = 90$, 19.9%) were characterized by objectively low endorsement of all borderline features, moderately high attachment anxiety and avoidance, and relatively low anxiety sensitivity across all three AS dimensions. Of Profile 1's scores on the BPQ, the highest were for BPQ Relationships and BPQ Self-Image subscales. Profile 1 demonstrated significantly lower scores across all constructs of interest relative to Profile 2; however, their scores reflecting insecure attachment (ECR-S attachment anxiety and avoidance) were elevated in absolute terms. As such, Profile 1 was labelled insecure attachment-specific. Members of Profile 1 were also statistically older than members of Profile 2 and were, on average, in their late 30s. There were no observed gender differences between the two groups; 60% of Profile 1 members identified as a man and 40% identified as a woman in that same profile. The

majority of Profile 1 members identified as being heterosexual and White. Most group members had achieved post-secondary education, and the vast majority indicated either being employed full-time or was a student. Finally, the majority of Profile 1 members reported being in a committed relationship at the time of the study.

Participants classed in Profile 2 ($n = 361$, 80.1%) were characterized by relatively greater endorsement of borderline features, elevated attachment anxiety and avoidance, and elevated AS dimensions. Of Profile 2's scores on the BPQ, the highest were for BPQ Affective Instability, Self-Image, Emptiness, Intense Anger, and Impulsivity. Given these patterns, Profile 2 was labelled mixed borderline features. Profile 2 demonstrated statistically higher scores across all borderline symptom domains, attachment dimensions, and AS dimensions relative to Profile 1 and were also elevated relative to previous research (Poreh et al., 2006; Taylor et al., 2007; Wei et al., 2007). On average, members in Profile 2 were in their early 30s. As with Profile 1, the majority of Profile 2 members identified as a man (63.3%), heterosexual (64.9%), and White (79.3%). Likewise, most of Profile 2 had completed post-secondary education, and the vast majority was employed full-time. Unlike Profile 1, a smaller majority of Profile 2 members reported being in a committed relationship, with the rest being largely single (23.9%) or dating one person exclusively (14.6%).

Research Question 2

Using the latent profiles enumerated for Research Question 1, Research Question 2 posed whether the profiles differed in their endorsement of IPV behaviours. MANOVA was used to establish whether specific forms of IPV behaviours varied between the two latent profiles. MANOVA is advantageous over traditional analysis of

variance (ANOVA) as it allows for inclusion of several dependent variables, which can enhance external validity (Tabachnick & Fidell, 2018). MANOVA computes a linear combination of measured dependent variables to form a new composite dependent variable. ANOVA is then executed on the composite dependent variable. MANOVA is particularly advantageous for the current research as IPV dynamics – physical, psychological, sexual – often co-occur. MANOVA takes into consideration the co-occurrence of dependent variables while emphasizing statistical differences among groups (Tabachnick & Fidell, 2018). Moreover, it considers both the main effects of and interactions among independent variables, the latter of which elucidates whether changes in the dependent variable over levels of one independent variable depends on another. Finally, MANOVA is robust to nonnormality when there are greater than 20 cases in each group, including instances of unequal sample sizes (Tabachnick & Fidell, 2018).

The profiles derived from Research Question 1 served as the independent variable, and IPV dynamics – as represented by the CTS2 subscales – were the dependent variables. Pillai's Trace was examined to determine the multivariate effects of profile membership on IPV behaviours. Relative to Wilk's Lambda, Pillai's V test is more robust to any indication of assumption violation, including when there are unequal sample sizes across groups (Mertler & Vannatta, 2002). *Post hoc* analyses utilized analysis of variance (ANOVA) to follow-up on significant main effects to identify group differences of individual CTS2 subscales.

Results of the MANOVA examining the multivariate effect of profile membership on various IPV behaviours was statistically significant, Pillai's Trace = .228, $F(5, 445) = 26.35$, $p < .001$, $\eta_p^2 = .23$, indicating a large effect. Follow-up ANOVAs found significant differences between groups for psychological aggression,

physical assault, and sexual coercion (see Table 10 for *F*-statistics). The mixed borderline features group endorsed significantly higher levels of these IPV behaviours relative to the insecure attachment-specific group. Large effect sizes were observed for all reported differences.

To better characterize the identified profiles, another MANOVA was conducted to examine differences between profiles on criminogenic risk factors previously linked to IPV. The two profile levels (insecure attachment, mixed borderline features) served as the independent variable, and SD3 subscales, PICTS-L-SF, DAST-10, and CAGE were entered as dependent variables. The decision was made to conduct a MANOVA (vs. series of ANOVAs) given the known inter-relatedness of the included dependent variables as known criminogenic risk factors. Pillai's Trace was again selected as the test statistic given its superiority and greater robustness when group sample sizes are unequal. The multivariate effect of profile membership on criminogenic risk factors was statistically significant, Pillai's Trace = .376, $F(6, 444) = 44.60, p < .001, \eta^2 = .36$, indicating a large effect. Univariate ANOVAs produced during the MANOVA identified significant differences between profiles across all individual dependent variables (see Table 11 for *F*-statistics), with the mixed borderline features group reporting significantly higher levels of all criminogenic risk factors than the insecure attachment-specific group, with notably large effects for differences in PICTS-L-SF and SD3 Psychopathy between profiles.

Research Question 3

Research Question 3 was concerned with examining pathways between borderline features and IPV behaviours, and modelling mediating pathways of

attachment dimensions and AS in relations between BPD features and IPV behaviours. As such, Research Question 3 posed: do attachment dimensions and AS explain the relationship between BPD features and IPV behaviours and, if so, does one of these constructs best account for such relations? Structural equation modelling was utilized to answer these questions. Structural equation modeling (SEM) refers to statistical techniques that use a conceptual model, path diagram, and interrelated regression-like equations to examine complex relations among observed and unobserved (latent) variables (Gunzler et al., 2013). SEM allows for exploring relations among one or more exogenous/independent variables and one or more endogenous/dependent variables, either of which can be continuous or discrete (Tabachnick & Fidell, 2018). SEM utilizes exogenous and endogenous terms (vs. the traditional independent and dependent) because variables can play a reciprocal role in SEM models. For instance, a variable may serve as a 'dependent' variable in one SEM equation but could function as a mediator in another equation within the same model (Gunzler et al., 2013). The general SEM model combines a measurement model with a structural model. The measurement model describes the associations between observed/measured variables and unobserved/latent variables and employs a confirmatory factor analysis (CFA) to examine the loadings of each hypothesized factor (Morrison et al., 2017). The structural model then depicts the pattern of relationships amongst the latent variables included in the model (von der Embse, 2016). In summary, through *a priori* specifications, SEM equations model the causal relationships between the exogenous and endogenous variables, and the causal relations among endogenous variables, thereby allowing SEM to suggest causality (Gunzler et al., 2013).

Specific to the current study, SEM was used to evaluate latent variables of attachment and AS as mediators in relations between BPD and IPV. In mediation, an intermediate variable (i.e., mediator; M) is understood to partially or fully account for the influence of an independent variable (X) on an outcome variable (Y) (Gunzler et al., 2013). The total effect of X on Y is referred to as the total effect, which is then partitioned into two other effects: the direct effect of X on Y, and the indirect effect of X on Y via M (Agler & De Boeck, 2017). If the relationship between X and Y is fully mediated by M, then the presence of M completely eliminates the direct effect of X on Y. In partial mediation, the effect of X on Y is only partially accounted for by M, meaning the direct effect will be attenuated, but not eliminated (Gunzler et al., 2013). Mediation specifies through which mechanisms relationships among variables occur and has thus been used to approximate inferences of causality (Agler & De Boeck, 2017). This information can provide insight into the etiology or development of phenomena (Gunzler et al., 2013), thereby articulating efficient points of intervention.

Using SEM (vs. traditional regressions) for mediation presents several benefits. First, SEM can simplify mediation modelling because it is designed to handle complex models in a single analysis (Gunzler et al., 2013). Thus, this approach allows for accessible inclusion of multiple mediators within a single analysis without relying on ad hoc methods to infer indirect and total effects. Moreover, SEM explicitly provides estimates of error variance parameters, thereby eliminating measurement error (Tabachnick & Fidell, 2018). A third advantage of SEM is that it yields information about the fit between the hypothesized mediation model and the data and can provide evidence for plausible assumptions of causality (Gunzler et al., 2013). Thus, the current

research's theoretical pathway hypothesis is most appropriately addressed using structural equations.

Several indices, categorized into four domains (Hu & Bentler, 1999), are used to determine the goodness-of-fit between the SEM model and the data (Stone, 2021). The first step is to compute absolute fit indices, including the model chi-square (χ^2), which assesses the overall model fit and difference between the sample and fitted covariance matrices; a good cut-off of χ^2 is $p > .05$ (Hooper et al., 2008). Another recommended absolute fit index is the Goodness of Fit (GFI), which also infers how well an *a priori* specified model reproduces the sample data and has a suggested cut-off of $> .90$ (Hooper et al., 2008). Noncentrality-based indices are then evaluated, including the comparative fit index (CFI), which is an incremental fit index and compares the fit of a target model to that of a null model with a cut-off of $\geq .90$, and the root mean square error of approximation (RMSEA), which is a parsimony-adjusted absolute fit index, with a cut-off of $< .05$ (Hooper et al., 2008). Finally, the parsimony normed fit index (PNFI) serves as a parsimonious fit index and has a suggest cut-off of $> .05$ (Kahn & Ahn, 2021). Modifications to the SEM model should be guided by the above indices, but not made solely based on them (Hooper et al., 2008). Additionally, it is advised to examine the fit of each construct and its items in the model to identify items that are performing unacceptably poorly. Specifically, items with factor loadings less than $.06$ should be removed (Kang & Ahn, 2021) and item $R^2 < .04$ indicate high levels of error and should thus be removed (Hooper et al., 2008).

The measurement model in the current study included one purely exogenous latent variable assumed to represent BPD. The unobserved variables indicating the BPD latent variable included all nine BPQ subscales; the loadings on eight subscales were set

at 1.0 to provide a scale for the latent variables and assist model identification. Two latent variables were endogenous to BPD, which is to say, they were positioned as mediators, with pathways from BPD to these latent variables. These variables were Attachment, indicated by ECR-S attachment anxiety and avoidance subscales, and AS, indicated by ASI-3 social, cognitive, and physical concerns subscales; the loadings of ECR-S anxiety on Attachment, and the loadings of ASI-3 social and cognitive were set to 1.0 to aid in identifying the model. Whereas Attachment and AS were endogenous to BPD, they were exogenous to the only purely endogenous latent variable in the model: IPV. That is, unidirectional paths were drawn from Attachment to IPV and AS to IPV. As such, these pathways specified indirect relationships between BPD and IPV, with Attachment and AS as intervening variables. The IPV endogenous latent variable was indicated by CTS2 subscales of physical assault, psychological aggression, and sexual coercion; the loadings of two of these subscales were set to 1.0 to aid in model identification.

To summarize the hypothesized structural model, there is a direct unidirectional path from BPD to IPV. There is a unidirectional path from BPD to Attachment, and Attachment to IPV, thereby identifying Attachment as an intervening variable. There is also a direct unidirectional path from BPD to AS, and from AS to IPV, identifying AS as another intervening variable. These pathways reflect the assumptions that BPD contributes to IPV behaviours; that BPD contributes to insecure attachment, which in turn influences IPV behaviours; and that BPD contributes to AS, which then influences IPV behaviours. The latter two paths also specify indirect relationships between BPD and IPV, with Attachment and AS as intervening variables. The model is fully recursive, meaning that all relationships were posited to be unidirectional.

The model proposed and summarized in Figure 2 was tested and parameters estimated using IBM Amos v. 29. The covariance matrix was analyzed and the maximum likelihood (ML) fitting function was used to estimate model parameters. A chi-square test was examined to evaluate the null hypothesis that there were no differences between the sample covariance matrix and the covariance matrix estimated from the null parameters. Not rejecting the null hypothesis is desirable in this case, as it indicates that the estimated model is not significantly different from the sample model, suggesting good model fit.

Estimates of model fit indicated an inadequate fit between the hypothetical model and the data, $\chi^2(125) = 723.88, p = .000$. Additional fit estimates corroborated the assertion of poor fit, GFI = .83, CFI = .87, RMSEA = .10, PNFI = .78 (see Table 12). These statistics and fit indices therefore highlight statistical and meaningful differences between the covariance matrix predicted by model parameters and the sample covariance matrix. After examining fit indices, the measurement models for the four latent variables were assessed. All factor loadings (i.e., standardized regression weights) exceeded the optimal 0.6 (Kang & Ahn, 2021), save for BPQ Emptiness, which was 0.58. All item R^2 exceeded the ideal 0.4 (Kang & Ahn, 2021). The decision was made to remove BPQ Emptiness from the next iteration of the model given its poor performance in loading onto the BPD factor.

After removing BPQ Emptiness from the model, a markedly better fit was produced by the modified model, $\chi^2(109) = 576.38, p < .000$. Although the χ^2 model remained significant, multiple fit indices were improved from the initial model, and are viewed as superior methods of determined good model fit relative to chi-square (Schlermelleh-Engel et al., 2003; Vandenberg, 2006). Indeed, when considering multiple

fit indices, the model appeared to be approaching a good fit for the sample, but still suboptimal GFI = .86, CFI = .90, RMSEA = .09, PFNI = 0.80 (see Table 11).

Upon examining modification indices, several empirical indicators of ways to improve the model were observed. In particular, empirical indicators of appropriate modifications to the model suggested to correlate error terms amongst several BPQ subscales, and between error terms for endogenous variables Attachment and AS. Despite potential improvements to the fit of the model, the decision was made to not correlate error terms. Because correlating error terms is associated with the validity of the measurement model, it is not advisable to correlate these terms solely to improve the goodness-of-fit of the model, especially without an *a priori* rationale (Kang & Ahn, 2021). Moreover, correlating endogenous error terms implies interpreting a partial correlation between endogenous variables (Kang & Ahn, 2021); by contrast, the *a priori* theoretical model assumes that Attachment and AS are independent mediators. When considering results from prior analyses to better understand the suboptimal fit of the current model to the sample, it was observed that ASI-3 total score (aggregate of indicators for AS) is correlated with both ECR-S subscales (indicators for Attachment). Although the magnitude of association did not suggest multicollinearity, the correlations were nonetheless moderate to large (see Table 3). Given simulation studies demonstrating that mediation models with highly correlated mediators can impact results (Hyun et al., 2014), it was considered possible that the presence of two strongly correlated mediators in the current model may have unduly biased it. The decision was therefore made to test the two mediators in independent models and compare them *ad hoc*.

The Attachment model produced a good fit for the data, $\chi^2 (70) = 336.80, p < .000$. Although the model χ^2 remained significant, multiple fit indices, which are superior methods of determining good model fit, were improved from the modified model. Indeed, when considering multiple fit indices, the model appeared to be a good fit for the sample, GFI = .90, CFI = .92, RMSEA = .07, PFNI = 0.80. An examination of the measurement model (summarized in Table 13) indicated that all items loaded appropriately onto their respective factors, with standardized estimates of the factor loadings interpreted as very good (Kang & Ahn, 2021). The squared multiple correlations (SMC) for each item indicated that the respective latent variables explained a sizeable portion variance for each observed variable. Overall, fit indices and factor loadings suggest that the measurement model is an appropriate fit for the data. The Attachment structural model (summarized in Table 14) indicates that BPD significantly predicts both Attachment and IPV; however, IPV is not significantly predicted by Attachment. Bootstrapping methods were used to test the indirect effect of BPD on IPV through Attachment (summarized in Table 15). Results of bootstrapping indicated that the meditation was statistically significant (indirect effect = 2.38 (0.11), BC 95% confidence interval: [1.96 - 2.81], $p < .001$); because the direct effect of BPD on IPV remained significant after the introduction of Attachment as a mediator, results suggest a partial mediation of BPD on IPV through Attachment. See Figure 3 for conceptual model.

The AS model produced a better model fit than the initial modified model, $\chi^2 (83) = 414.58, p < .000$. Most fit indices suggested that the model was nearing an adequate fit for the data, GFI = .88, CFI = .92, PFNI = 0.82; however, the RMSEA = .09. Both the AIC and BIC for the AS model were higher than for the Attachment model

(see Table 12), suggesting the latter is a better fitting model specifically because the model with the lowest AIC and BIC values is the most parsimonious (Morrison et al., 2017). Nevertheless, when interpreting the measurement model more closely, all items loaded onto their respective factors appropriately and item SMC suggested that the latent variables explained a good portion of the observed variables (see Table 16). The AS structural model (summarized in Table 17) demonstrated that BPD predicted both AS and IPV, but AS did not predict IPV. Bootstrapping methods were again used when testing indirect effects of BPD on IPV through AS, with results (summarized in Table 18) showing that the effect of BPD on IPV was significantly partially mediated by AS (indirect effect = 2.28 (0.10), BC 95% confidence interval: [1.94 – 2.59], $p < .001$). See Figure 4 for conceptual model. In summary, both Attachment and AS partially mediated relations between BPD and IPV, while having no direct effects on their own with IPV. However, the AS model was less parsimonious and fit the data less optimally than the Attachment model.

Research Question 4

Research Question 4 focused on examining whether BPD has similar predictive potency as traditional risk factors in influencing the variance in IPV (i.e., a test of incremental validity). The SEM articulated for the current research question included three measurement models, the latent BPD variable was indicated by eight of the BPQ subscales (BPQ Emptiness was not included due to its poor performance in the previous SEM); the IPV latent variable was indicated by CTS2 Physical Assault, CTS2 Psychological Aggression, and CTS2 Sexual Coercion; and a third latent variable labelled Criminogenic Risk Factors was indicated by the three Short Dark Triad

subscales (SD3 Narcissism, SD3 Machiavellianism, SD3 Psychopathy), the total score of the Psychological Inventory of Criminal Thinking Styles – Layperson Edition – Short Form (PICTS-L-SF), the total score of the Drug Abuse Screening Test (DAST-10), and the total score of the CAGE). The hypothesized model was a suboptimal fit for the data $\chi^2(124) = 884.24, p < .000$; fit indices: GFI = .80, CFI = .83, PFNI = .74, RMSEA = .12. Given the poor fit of the model, the decision was made to rely on subsequent analyses. A description of the model is included in Appendix R; tables summarizing the measurement model and structural model are available in Table 19 and 20, respectively.

To discern the role of BPD in predicting IPV beyond traditional criminogenic risk factors by assessing the amount of variability BPD contributes to the prediction of IPV (i.e., incremental validity), three hierarchical linear regressions were conducted. Across the three separate regressions, the criminogenic risk factor variables [SD3 subscales, PICTS-L-SF, DAST-10, CAGE] were entered at Step 1 and BPQ subscales entered at Step 2. For the first regression, CTS2 Physical Assault was the dependent variable. Results are summarized in Table 21. The overall model at Step 1 was statistically significant, $F(6, 444) = 25.48, p < .001$, and was able to account for 25.6% of the variability in CTS2 Physical Assault scores. Specifically, lower SD3 Machiavellianism ($\beta = -.19, t(444) = -3.02, p = .003$), and higher SD3 Psychopathy ($\beta = .17, t(444) = 2.50, p = .013$), PICTS-L-SF ($\beta = .28, t(444) = 3.65, p < .001$), and DAST-10 ($\beta = .15, t(444) = 2.70, p = .007$), emerged as uniquely predictive of CTS2 Physical Assault scores. Step 2, when controlling for risk factor variables in Step 1, also accounted for a significant amount of variance $F_{change}(9, 435) = 6.77, p < .001$, and contributed 9.1% of additional variance over and above risk factor variables for CTS2 Physical Assault scores. Higher BPQ Affective Instability ($\beta = .17, t(435) = 3.04, p =$

.003, and BPQ Suicide ($\beta = .19$), $t(435) = 3.51$, $p < .001$, scores emerged as significant unique predictors of CTS2 Physical Assault scores at this step.

CTS2 Psychological Aggression was the dependent variable in the second regression (see Table 22). The model at Step 1 was statistically significant, $F(6, 444) = 19.55$, $p < .001$, and was able to account for 20.9% of the variability in CTS2 Psychological Aggression scores; higher SD3 Psychopathy ($\beta = .18$), $t(444) = 2.47$, $p = .014$, PICTS-L-SF ($\beta = .18$), $t(444) = 2.30$, $p = .022$, and DAST-10 ($\beta = .18$), $t(444) = 3.09$, $p = .002$, scores emerged as uniquely predictive of greater endorsement of CTS2 Psychological Aggression. Step 2 of the model significantly added to the prediction of CTS2 Psychological Aggression, $F_{change}(9, 435) = 7.35$, $p < .001$, contributing 10.4% of additional variance over and above risk factor variables for CTS2 Psychological Aggression scores. Specifically, higher BPQ Affective Instability [$\beta = .18$, $t(435) = 3.14$, $p = .002$], BPQ Suicide [$\beta = .16$, $t(435) = 2.94$, $p = .003$], BPQ Emptiness [$\beta = .20$, $t(435) = 3.25$, $p = .001$], and BPQ Anger [$\beta = .13$, $t(435) = 2.40$, $p = .017$] each emerged as significant unique predictors of elevated CTS2 Psychological Aggression scores.

CTS2 Sexual Coercion was the dependent variable for the final regression (see Table 23). The model was statistically significant at Step 1, $F(6, 444) = 20.384$, $p < .001$, and was able to account for 22% of the variability in CTS2 Sexual Coercion; higher SD3 Psychopathy [$\beta = .18$, $t(444) = 2.54$, $p = .011$], PICTS-L-SF [$\beta = .19$, $t(444) = 2.39$, $p = .017$], and DAST-10 [$\beta = .13$, $t(444) = 2.30$, $p = .022$] scores each emerged as uniquely predictive of endorsement of more serious levels of CTS2 Sexual Coercion. Step 2 was also a significant predictor of CTS2 Sexual Coercion, $F_{change}(9, 435) = 4.59$, $p < .001$, and contributed 6.8% of additional variance over and above risk factor variables. However, higher BPQ Abandonment [$\beta = .13$, $t(435) = 2.03$, $p = .043$] and

BPQ Anger [$\beta = .13, t(435) = 2.19, p = .029$] were the only significant unique predictors of CTS2 Sexual Coercion at Step 2.

To more specifically answer the question of whether BPD has similar predictive potency as criminogenic risk factors, another series of hierarchical regressions were conducted with CTS2 subscales as criterion variables, but with Step 1 containing BPQ scales and Step 2 containing criminogenic risk variables as a check on the incremental validity of traditional criminogenic factors over BPD features. When reversing these blocks with CTS2 Physical Assault as the outcome, the model at Step 1, with the BPQ subscales, was statistically significant $F(9, 441) = 19.35, p < .001$, and was able to account for 28.3% of the variability in CTS2 Physical Assault scores. At Step 2, the addition of SD3 subscales, PICTS-L-SF, DAST-10, and CAGE, added an additional 5.8% of variance, $F_{change}(6, 435) = 6.36, p < .001$. When comparing these results with those from the previous regression wherein criminogenic factors contributed 25.6% of variance of CTS2 Physical Assault scores, BPQ subscales appear to have similar predictive potency as criminogenic risk variables. As such, each set of independent variables have incremental validity over the other, meaning that both sets of IVs are important for explaining CTS2 Physical Assault.

With CTS2 Psychological Aggression as the outcome variable, the model at Step 1, with BPQ subscales, was statistically significant, $F(9, 441) = 18.46, p < .001$, accounting for 27.4% of the variability in CTS2 Psychological Aggression scores. At Step 2, the model was again significant, $F_{change}(6, 435) = 3.44, p < .001$, with criminogenic risk variables contributing an additional 3.3% of variance to the outcome scores. In the previous regression set, criminogenic variables entered in Step 1 accounted for 20.9% of variance in CTS2 Psychological Aggression scores, compared

with 27.3% accounted for by the present Step 1 model with BPQ subscales Comparing these results suggests that BPQ subscales may harbor somewhat greater statistical potency than traditional criminogenic risk variables in predicting CTS2 Psychological Aggression, but both sets of variables are still relevant and important.

Finally, for CTS2 Sexual Coercion scores, the model at Step 1 including BPQ subscales was statistically significant $F(9, 441) = 15.35, p < .001$, accounting for 23.9% of the variability in the outcome scores. At Step 2, the model was statistically significant, $F_{change}(6, 435) = 4.74, p < .001$, with criminogenic risk variables contributing an additional 4.7% of variance to the outcome scores. Relative to 22% of variance accounted for by risk factors in Step 1 in the previous set of regressions, BPQ subscales were comparable contributors in predicting CTS2 Sexual Coercion scores. As such, both criminogenic variables and BPQ subscales each importantly contributed to higher sexual coercion.

To further understand the patterns of association between BPQ and CTS2 relative to risk factor variables and CTS, two canonical correlation analyses (CCA) were conducted. CCA examine relations between two sets of variables through linear combinations (i.e., canonical variates) within each set that demonstrate the highest correlation across sets. In doing so, CCA helps to elucidate the manner whereby changes in one set of variables relate to changes in another set.

The first CCA examined the pattern of associations between BPD symptoms [BPQ subscales in set 1] and IPV behaviours [CTS2 Physical Assault, Psychological Aggression, and Sexual Coercion subscales in set 2]. The analysis yielded three functions. The first canonical correlation was statistically significant, Wilks' $\Lambda = .66, F(27, 1282.75) = 7.37, R_c = .55, \lambda = .43, p < .001$, with sets of variables explaining

30.25% of the variance in their function. The second canonical correlation was also statistically significant, Wilks' $\Lambda = .94$, $F(16, 880) = 1.77$, $R_c = .22$, $\lambda = .05$, $p = .03$, explaining 4.8% of the variance. The third canonical correlation was not statistically significant, Wilks' $\Lambda = .99$, $F(7, 441) = 0.88$, $R_c = .12$, $\lambda = .01$, $p < .525$. Given the R^2_c effects and significance testing, only the first function was considered noteworthy (Sherry & Henson, 2005), as it explained 30.25% of the variance, relative to 4.8% explained by the second function and 1.37% explained by the third nonsignificant function of the remaining variance explained after extraction of the first function. Table 24 presents the standardized canonical coefficients, canonical loadings, and canonical cross-loadings for Function 1. The canonical correlation between the canonical variates (i.e., linear composites) of variables in set 1 and set 2 was statistically significant with a large effect size (Sherry & Henson, 2005). In examining the Function 1 coefficients, it is observed that the highest predictor variables were primarily BPQ Impulsivity and BPQ Quasi-Psychotic States. In consulting the canonical loadings and cross-loadings, BPQ Impulsivity, BPQ Affective Instability, BPQ Emptiness, BPQ Quasi-Psychotic States, BPQ Intense Anger, and BPQ Suicide appeared to be the strongest contributors to the variate, with canonical loadings $> .45$ (Sherry & Henson, 2005); particularly excellent contributions (i.e., $> .71$; Tabachnick & Fidell, 2018) were from BPQ Impulsivity, BPQ Suicide, and BPQ Intense Anger. Regarding the criterion variables, all CTS2 subscales strongly contribute to the canonical variate, with CTS2 Physical Assault and CTS2 Psychological Aggression contributing the most strongly. These results confirm prior results and theory indicating a strong relationship between BPD symptoms and IPV behaviours. Based on the contributing variables, Function 1 can be labelled as “Emotionally Reactive IPV.”

The second CCA examined the pattern of associations between criminogenic risk factors [SD3 Narcissism, SD3 Machiavellianism, SD3 Psychopathy, PICTS-L-SF, DAST-10, CAGE in set 1] and IPV behaviours [CTS2 Physical Assault, Psychological Aggression, and Sexual Coercion subscales in set 2]. The analysis yielded three functions. The first canonical correlation was statistically significant, Wilks' $\Lambda = .72$, $F(18, 1250.65) = 8.62$, $R_c = .51$, $\lambda = .36$, $p < .001$, with sets of variables explaining 26.01% of the variance in their function. Neither the second function, Wilks' $\Lambda = .98$, $F(10, 886) = 1.05$, $R_c = .12$, $\lambda = .02$, $p = .400$, nor the third function, Wilks' $\Lambda = .99$, $F(4, 444) = 0.95$, $R_c = .09$, $\lambda = .01$, $p = .435$ were statistically significant and were therefore not interpreted further. Table 25 presents the standardized canonical coefficients, canonical loadings, and canonical cross-loadings for Function 1. Consideration of the standardized canonical coefficients, canonical loadings, and cross-loadings indicate that, for the predictor canonical variate, PICTS-L-SF, SD3 Psychopathy, and DAST-10 were the primary contributors (loadings $> .71$; Tabachnick & Fidell, 2018), whereas, for the criterion canonical variate, CTS2 Physical Assault had the largest contribution, but the variate was also strongly influenced by CTS2 Psychological Aggression and CTS2 Sexual Coercion. Based on the contributing variables, Function 1 can be labelled as "Procriminally-Minded IPV."

Finally, in comparing the magnitude of the first ($R_c = .55$, 30.25% variance) versus the second ($R_c = .51$, 26.01% variance) canonical correlation, the first (including measures of BPD variables) had a marginally stronger effect. These results suggest that BPD symptoms predict IPV at least as well as select criminogenic risk factors. Notably, based on CCA, BPD symptoms were predictive of a synthetic canonical variate that captured in relatively equal proportion the three measured IPV behaviours (physical,

psychological, sexual). Although the measured risk variables were also predictive of a canonical variate capturing the three IPV behaviours, CTS2 Physical most strongly contributed to the variance in this variate, suggesting that these risk factors – particularly procriminal thinking and psychopathy - might be most apt at predicting physical IPV behaviours.

CHAPTER FIVE: DISCUSSION AND IMPLICATIONS

The aims of the current research were to: (1) identify profiles of BPD characteristics amongst community members reporting varying degrees of IPV behaviours that comprise typological groups, and determine differences in clinical characteristics across groups; (2) elucidate the degree to which emerging profiles are related to and differ in their endorsement of IPV behaviours; (3) explore the explanatory power of adult attachment insecurity and anxiety sensitivity (AS) in the relationship between BPD features and IPV behaviours; and (4) examine the incremental validity of BPD features in predicting IPV behaviours over and above traditional criminogenic risk factors also known to be predictive of IPV. Online data collection was used to recruit community adults from Western countries from social media and crowdsourcing platforms.

The majority of participants were White, heterosexual men from the United States, who reported having post-secondary education, being employed full-time, and were on average in their early thirties. Participants tended to report being in a committed relationship. The sample reported experiencing various stressors during the last six months, with the most prevalent stressor being serious financial problems. About a third of the overall sample reported engaging in some form of IPV during their lifetime but not within the past year.

Overall, the sample reported levels of BPD symptoms comparable to clinical BPD (Salem et al., 2019) and eating disorder (Lekgabe et al., 2021) samples. Both attachment anxiety and avoidance scores were notably higher than in a prior nonclinical sample (Wei et al., 2007). Scores on AS dimensions indicated that the present sample endorsed elevated levels of social and cognitive concerns, comparable to clinical anxiety disorder samples, and physical (vs. social, cognitive) concerns were more strongly endorsed by the present sample (Rifkin et al., 2015; Taylor et al., 2007). Self-reported IPV was elevated in the current sample and was markedly higher relative to a sample of university students (Straus et al., 1996), and comparable to a sample of incarcerated females (Jones et al., 2002). Of note, there was also significantly more variability in CTS2 scores across IPV behaviours relative to previous research; high endorsement of lower threshold, more minor forms of IPV, as captured by the CTS2, helps to understand the relatively high mean frequency CTS2 scores. Narcissism and psychopathy scores for the present sample were comparable to a sample of university students, whereas Machiavellianism scores were somewhat lower (Kiire, 2017). Procriminal thinking was, on average, notably higher in the present study relative to a sample of university students with no prior involvement in the criminal justice system (Mitchell et al., 2017); however, the current sample demonstrated notable variability in endorsement of this variable. Scores of substance misuse were lower in the current study compared to a sample of adults admitted to a substance misuse facility (Villalobos-Gallegos et al., 2015), and alcohol misuse scores were below the recommended clinical cut-off (Dhalla & Kopec, 2007). In summary, the overall sample bore greater resemblance to a clinical sample as opposed to the general population, and was characterized by high BPD symptoms, insecure attachment, was highly anxiety sensitive, with a moderately dark

personality constitution, high procriminal thinking, low substance and alcohol misuse, and high IPV perpetration.

Examining and Contextualizing the Typology

The above characterization of the overall sample must, however, be considered in light of the heterogeneity observed via identification of two distinguishable profiles, differentiated on the basis of BPD features, attachment, and AS. Classifying individuals who perpetrate IPV can guide preventative and intervention efforts by elucidating nuances in clinical presentations, identifying targets for change, and revealing mechanisms and motivations associated with outcomes (Bernardi & Day, 2015; Capaldi & Kim, 2007). Latent profile analysis was employed in the current research and identified two distinct profiles of community members reported varying degrees of IPV perpetration.

The hypothesis that participants would be meaningfully classified into heterogenous groups based on BPD features, attachment, and AS was generally supported. However, the emerging groups were not characterized primarily by variations in attachment and co-occurring BPD symptoms as initially anticipated. Rather, the groups were best defined by clinical severity of BPD features and correlates, with 19.12% of the sample classified as belonging to the insecure attachment-specific profile and 80.88% of the sample falling in the mixed borderline features group. Evidently, the sample skewed more heavily toward the latter group, which may help account for the high endorsement of clinical characteristics across the overall sample. The two-profile typology that emerged from the data represents one method of classifying community

members along various metrics of BPD and BPD-related variables and offers important insights into the diversity of persons that can be examined in relation to IPV behaviours.

Clear divisions were observed between the identified profiles on all clinical variables of interest. Specifically, the profile analysis captured one group of community members (i.e., insecure attachment-specific profile) who experience some degree of attachment insecurity, but who also did not endorse clinically meaningful features of BPD psychopathology or any indication of a transdiagnostic risk factor reflecting intolerance of anxiety symptoms. In contrast, the second latent profile identified in the profile analysis captured a group of community members (i.e., mixed borderline features profile) who endorsed clinically meaningful symptoms of BPD with concomitant severe attachment insecurity, and a stark fear that anxiety symptoms portend negative physical, social, and cognitive consequences. Considering these qualitatively different profiles in depth in relation to IPV behaviours, and how they correspond to existing forensic typological IPV subtypes, is warranted.

Insecure Attachment-Specific Profile

The insecure attachment-specific subtype was characterized by moderately elevated attachment anxiety and avoidance scores, also known as a ‘fearful’ attachment profile (Mikulincer & Shaver, 2016). This relationship orientation is broadly characterized by negative internal working models of self and others (Mikulincer & Shaver, 2016). Internal working models reflect cognitive frameworks based on past relational experiences that inform expectations of how to interact with others and respond during interpersonal situations (Bowlby, 1973).

Attachment anxiety is influenced by a negative working model of the self and ambivalent model of others, viewing the self as inherently inferior to others and helpless, and real or potential attachment figures as untrustworthy or unreliable (Mikulincer & Shaver, 2016). As a result, anxiously attached individuals are excessively preoccupied with the reliability of the attachment figure to meet their attachment needs (Karantzas et al., 2022). High needs of closeness to and approval from the attachment figure, and fears of abandonment and rejection abound for these individuals, who often experience elevated negative affect during interpersonal conflict (Feeney & Karantzas, 2017). To navigate these attachment-related fears and concurrent affective discomfort, anxiously attached individuals engage in hyperactivating behavioural strategies, such as intensifying their distress and rumination about the relationship in their attempt to maintain proximity to their attachment figure (Mikulincer & Shaver, 2016).

Conversely, attachment avoidance is influenced by vacillations between precarious positive and negative views of self (i.e., unstable self-concept Karantzas et al., 2022) and negative views of others. Although avoidantly attached individuals view themselves in positive terms outside close relationships (e.g., Taubman-Ben-Ari et al., 2002), interpersonal stressors can evoke negative self-appraisals for these individuals. Avoidantly attached individuals frequently engage in defensive self-enhancement by positioning themselves as excessively autonomous to defend against low self-worth that might have arisen from a history of neglect (Mikulincer & Shave, 2016). A history of rejection or neglect also underpins decidedly negative views of others, reflected by negative attributions of attachment figures' interpersonal behaviour (Karantzas et al., 2022). As such, avoidantly attached individuals demonstrate a need for excessive self-reliance, experience discomfort with emotional intimacy, and prioritize success in other

life domains over relationships (Karantzas et al., 2010). Underpinning these characteristics are deactivating behavioural strategies, such as cognitive and emotional disparagement of attachment figures, in the service of maintaining interpersonal distance (Mikulincer & Shaver, 2016).

Moderate endorsements of both anxious and avoidant attachment, as observed in the “insecure attachment-specific” cluster (Profile 1), suggests that this profile’s members may fluctuate in their uses of both hyperactivating and deactivating strategies (Karantzas et al., 2022). On average, profile members reported being in a committed relationship at the time of the study. Members appear to simultaneously experience a desire for close relationships while also experiencing interpersonal conflict related to fears of attachment-related emotional pain (Bartholomew & Horowitz, 1991). Although profile members did not report clinically elevated levels of BPD symptoms, their highest scores for BPD symptoms were on subscales capturing relationship difficulties, self-image, and affective instability. These findings converge with the profile’s attachment scores, suggesting that profile members experience somewhat tumultuous relationships characterized by a lack of trust and disappointment; may view themselves as inferior to others and have a fragile sense of self; and tend to experience some vacillations in affect. Overall, profile members’ BPD symptom endorsement is indicative of moderate attachment elevations insofar as they reflect moderate relationship difficulties, unstable views of self, and unstable affect.

Further contextualizing the insecure attachment-specific profile was done by examining how this group varied on criminogenic risk factors. Overall, members of this profile endorsed normative levels of dark triad traits and low frequency of alcohol and substance misuse, but they did endorse moderate levels of procriminal thinking. These

findings suggest, based on knowledge accrued through the Risk-Need-Responsivity (RNR) model of general reoffending and violence (Bonta & Andrews, 2024), along with research specific to risk factors of IPV (e.g., Hilton & Radatz, 2021), that this profile's members are less apt to engage in generalized procriminal behaviours and may have a lower likelihood of future IPV. When IPV does occur, it may be influenced by procriminal thinking that could be negatively framed around attachment-related internal working models.

It is notable that Insecure attachment-specific Profile members exhibited a somewhat stronger than normative proclivity for cognitions that justify criminal behaviour (i.e., procriminal thinking) relative to a sample without a history of criminal justice involvement (Mitchell et al., 2017). Although the current study did not inquire about past criminal justice involvement, insecure attachment-specific profile members did report engaging in some degree of IPV, suggesting that harboring cognitions in support of offending may have influenced past IPV behaviour. Solinas-Saunders (2022) has demonstrated that procriminal thinking is among the most robust risk factors for IPV, so even a moderate tendency to justify antisocial behaviour is noteworthy. Given the lower levels of dark triad traits and substance misuse, however, it is probable that this profile is more likely to restrict violence to the context of intimate relationships. Altogether, insecure attachment-specific profile members do not present with a constellation of features indicative of high risk of offending, but considerations of the thinking process are likely relevant to mitigating or preventing IPV in this profile.

Despite a lower-risk profile, members of the insecure attachment-specific group commonly reported instances of engaging in physical, psychological, and sexual IPV behaviours. The endorsement of IPV behaviours in this profile was similar in frequency

to that reported in previous community-based samples (e.g., Babcock et al., 2022). Consistent with the current findings, a recent meta-analysis (Velotti et al., 2022) demonstrated that attachment anxiety was robustly linked to physical, psychological, and sexual IPV, whereas effect sizes for relations between attachment avoidance and IPV varied, with small effects for physical and psychological abuse, and medium effects for sexual violence. Given that the insecure attachment-specific profile's members exhibited both anxious and avoidant attachment, it is unsurprising that they reported all three IPV behaviours. Although IPV was reported across the three behavioural domains of violence, minor forms of physical, psychological, and sexual IPV were reported by this profile's members at a greater frequency than severe forms. Although all forms of IPV are unacceptable and warrant mitigation, these findings suggest that the insecure attachment-specific profile tends to engage in low threshold behaviours, as might be expected by profile features and relatively low endorsement of notable risk factors, supporting its lower risk profile characterization.

Insecure attachment-specific profile members' motivations for IPV, although not directly measured by the current research, may be inferred via their moderate insecure attachment (i.e., anxious and avoidant). Attachment theorists claiming that IPV results from attachment-based psychosocial variables (e.g., Bartholomew & Allison, 2006) assert that IPV motivations for the anxiously attached is motivated by "burning hot" anger (Gormley, 2005). This form of anger is motivated by maintaining proximity to the attachment figure and its associated aggression is ultimately reactive to the attachment context (Mayseless, 1991), making it akin to the "Emotionally Reactive IPV" canonical function identified in the current sample (see 'The Predictive Importance of BPD Features Relative to Criminogenic Risk Factors' section below). In other words,

anxiously attached individuals may perpetrate IPV as a function of perceiving rejection or abandonment from their partner as a means of managing actual or perceived thwarted attachment bonds (Finkel & Slotter, 2006). By contrast, the motivation underlying IPV for avoidantly attached individuals is “burning cold” anger (Gormley, 2005), reflecting high instrumental control of anger meant to maintain dominance over the degree of intimacy in the relationship (Mayseless, 1991). This dynamic was described in the Procriminally Minded IPV canonical function in the current sample. Overall, elevated attachment avoidance may impel violence toward one’s intimate partner through attempts to control levels of closeness to a partner or avoid perceived proximity intrusions (Spencer et al., 2021); this pattern may be related to coercive control dynamics.

For a group that demonstrates both moderate anxious and avoidant attachment, along with moderate symptoms of relationship difficulties, problems with self-image, and emotional vacillations, motivations for IPV may include anxious-related fears of abandonment and attempts to maintain proximity that fluctuate with motivations to withdraw and maintain independence. For example, Arseneault et al. (2023) demonstrated that both attachment anxiety and avoidance indirectly predict psychological IPV through use of demand/demand communication patterns (which occurs when partners mutually accuse or blame each other, Christensen & Heavey, 1990), whereas sexual IPV was predicted by attachment anxiety through I demand/partner withdraws communication. The IPV behaviours informed by attachment motivations may well be maintained through beliefs and attitudes that justify the offences (Leclerc et al., 2022), such as procriminal thinking.

Association with Previous Typologies. Members of the insecure attachment-specific group bear a striking resemblance to the family-only subtype produced by Holtzworth-Munroe and Stuart's (1994) well-known psychological typology of IPV perpetrators. The family-only subtype is denoted as a "nonpathological" subtype, characterized by low levels of psychopathology (including personality disorder features and psychopathy), low levels of general criminality, moderate insecure attachment, and low levels of substance misuse (Holtzworth-Munroe et al., 1994). Moreover, this subtype reportedly perpetrates the fewest and least severe acts of IPV (Dixon & Browne, 2003), and are at a lower risk of reoffending. Based on the variables assessed in the current research, the insecure attachment-specific corresponds closely with the family-only subtype identified by Holtzworth-Munroe and Stuart (1994) and Holtzworth-Munroe et al. (1994) in terms of their description. However, the current research cannot clarify whether the aggression used by this profile was unique to the family context vs generalized.

Although there are similarities between the family-only subtype and the current research's insecure attachment-specific profile, important points of difference do exist between them. Most notably, research has indicated that the family-only subtype represents approximately 50% of individuals committing IPV. Conversely, the insecure attachment-specific profile within the current sample was disproportionately underrepresented, at 19.9%. Furthermore, it is reported that family-only perpetrators rarely commit psychological or sexual IPV acts, whereas the insecure attachment-specific group reported comparably frequent acts of physical, psychological, and sexual IPV. It is possible that the ostensibly indiscriminate approach to IPV adopted by the insecure attachment-specific group can be accounted for by their moderate tendencies

toward procriminal thinking. Despite reporting both psychological and sexual IPV, the insecure attachment-specific profile reported minor (vs. severe) forms of IPV, and overall IPV behaviour was reported at a significantly lower rate than the other profile emerging from the present data, and as compared to previous research of Holtworth-Munroe and Stuart's (1994) other, more severe subtypes (Petersson & Strand, 2018).

Overall, insecure attachment-specific profile members closely resemble the family-only subtype in terms of psychological features, low endorsement of criminogenic risk factors, and low frequency of and low threshold severity IPV acts. This similarity suggests that risk mitigation and treatment efforts identified for the family-only subtype might be pertinent to the insecure attachment-specific group (discussed below in 'Clinical Implications').

An alternate typology of IPV perpetrators, Johnson's typology, has also identified a subtype with some similarity to the insecure attachment-specific group identified herein. Of note, Johnson's typology is not based on the psychological constitution or characteristics of the perpetrator but on the level of control and violence exerted. Johnson's situational couple violence (SCV) describes mutual violence but not control between intimate partners. This violence is argued to arise from conflicts and contentions among partners, which can escalate into physical violence (Kelly & Johnson, 2008) but might also include psychological IPV via verbally abusive behaviours (Ali et al., 2016). Although the design of the current research precluded examination of situational dynamics of participant-reported IPV, SCV is generally viewed as reflecting lower threshold IPV given its theoretical absence of coercive controlling behaviours. Of note, there are theoretical concerns with Johnson's framework, such as its marked disregard for the individual level of analysis and,

therefore, its limited ability to identify treatment targets (as described and expounded upon in the ‘Johnson’s Typology’ section of Chapter 2). However, Gibby and Whiting (2022) have theorized that SCV can be understood from an attachment-based lens. The insecure attachment-specific profile is therefore similar to SCV insofar as SCV is indicative of low frequency and low threshold IPV acts carried out by insecurely attached individuals.

A third method of classifying IPV perpetrators is according to presumed purposes of violence, which results in a proactive type and a reactive type (Tweed & Dutton, 1998). Proactive violence is planned and instrumental, whereas reactive violence transpires during high arousal and negative affect (Babcock et al., 2014). The current research did not measure the functions or underlying motivations of violence, leaving the contextual purpose of violence committed by the insecure attachment-specific group unclear. However, fearful attachment styles (i.e., high anxiety, high avoidance) have been associated with reactive IPV in past research (Tweed & Dutton, 1998). Assessing this profile on measures of the functions of violence is warranted in the future to better understand the context, motivation, and escalating factors associated with violence. See Table 26 for brief comparison of prominent typologies of IPV perpetration.

Clinical Implications. Traditional IPV interventions (e.g., Duluth batterer intervention programs) have demonstrated limited and equivocal efficacy in reducing IPV (Arias et al., 2013; Stewart et al., 2013), which is, in part, due to the heterogeneity of IPV perpetrators and failure to specifically address dynamic criminogenic needs of offenders (Hilton & Radatz, 2021; Stewart et al., 2013). Applying effective correctional intervention principles (i.e., the RNR model) to IPV intervention as the core theoretical framework, regardless of where services are being provided (e.g., correctional settings,

community practice), is warranted (e.g., Gover et al., 2021; Stewart et al., 2013). The RNR model is centered around the principles of risk, need, and responsivity (Bonta & Andrews, 2024). The *risk* principle stipulates that validated risk assessment tools can measure an offender's risk of reoffending, and the frequency and intensity of intervention and supervision must match that level. The *need* principle states that an offender's criminogenic needs must be identified and targeted. The *responsivity* principle asserts that criminal behaviour can be effectively reduced via cognitive-behavioural and social learning strategies, and intervention strategies should be matched with the offender's strengths and functional challenges.

Insecure attachment-specific profile members can be characterized as lower risk based on the low criminogenic risk factors endorsed, and low frequency and severity IPV acts reported. Moreover, as noted in the previous section, the insecure attachment-specific profile bears resemblance to Holtzworth-Munroe and Stuart's (1994) family-only subtype, which has been described as low risk (Doyle & Campbell, 2023). As such, interventions and risk-mitigation strategies suggested for the family-only subtype are likely relevant for the insecure attachment-specific. For the purpose of risk level-service matching in accordance with the RNR model, intervention for the insecure attachment-specific profile should theoretically adhere to a low-intensity model to address relevant criminogenic needs associated with risk of IPV perpetration and relevant responsivity factors that could influence response to intervention.

IPV-specific and traditional criminogenic risk factors that were present included: 1) insecure attachment; 2) low grade BPD features associated with poor relationships, self-image, and emotional instability; and 3) procriminal thinking. Although insecure attachment does not fall explicitly into the RNR model's 'Central 8' criminogenic

risk/need factors (Bonta & Andrews, 2024), it has been a consistent strong predictor of physical, psychological, and sexual IPV behaviours (Stewart et al., 2013; see Velotti et al., 2022 for meta-analysis). Moreover, insecure attachment is predictive of marital problems (Pietromonaco et al., 2004; Wagner, 2020), the latter of which is identified as one of the Central 8 criminogenic risk/need characteristics of offending (Bonta & Andrews, 2024; Stewart & Power, 2014). Indeed, poor relationships have been shown to predict IPV recidivism beyond Ontario Domestic Assault Risk Assessment (ODARA) risk scores, which is an actuarial measure of IPV risk (Hilton & Radatz, 2021). Insofar as insecure attachment is a proxy for, or predictive of, poor relationships (Treboux et al., 2004), it can be considered as contiguous with the Central 8 need of family/marital problems. In terms of BPD features, the previous section has argued that the moderate elevations on subscales of poor relationships, poor self-image, and affective instability can be considered reflective of profile members' insecure attachment (i.e., vacillations in attachment-related hyperactivating and deactivating strategies). Emotion dysregulation in general has been linked to risk of IPV (Stewart et al., 2013). As such, it is possible that some members of insecure attachment-specific have trouble with regulating affect independent from their attachment-based concerns. In either case, addressing affective instability might be relevant for preventative intervention, as this instability could impel reactive aggression toward an intimate partner, particularly during times of relational conflict or attachment triggers. Finally, problematic beliefs and attitudes that serve to justify criminality (i.e., procriminal attitudes) were moderately endorsed by profile members and have been previously associated with IPV risk (Solina-Saunders, 2022). For the insecure attachment-specific profile, procriminal thinking may serve to justify aggressive behaviours impelled by attachment concerns. In summary, results of the

present dissertation suggest that prevention and intervention for the insecure attachment-specific group should focus on (1) addressing attachment-related concerns and associated behavioural strategies, (2) potentially incorporating emotional regulation strategies, and (3) addressing cognitive distortions and beliefs that justify aggressive behaviours.

Given that the insecure attachment-specific profile exhibited comparably low IPV and lower rates of substance misuse, psychopathology, personality disorders than the other profile emerging in the current research, as well as previous psychologically-based subtypes (Huss & Ralston, 2008), these individuals likely have the lowest risk of recidivism. Based on the profile's similarity to the family-only subtype, profile members are more likely to experience positive intervention outcomes, such as completing more treatment sessions and deriving greater benefit (Cantos et al., 2019; Eckhardt et al., 2008; Huss & Ralston, 2008; Petersson & Strand, 2018). Overall, given that the insecure attachment-specific profile endorses fewer criminogenic needs relative to other subtypes, they would likely benefit from lower intensity intervention that specifically targets their unique criminogenic needs (i.e., healthy relationship and communication skills, enhanced coping skills, and procriminal thinking).

To address the needs and responsivity factors of the insecure attachment-specific profile, the nature of intervention should include the use of couples counselling to focus on enhancing communication skills and techniques to effectively respond to criticism and negotiate within relationships (Juodis et al., 2014). Research examining IPV treatment suggests that couples therapy can be safely used for low-risk offending (Stith et al., 2011; Whiting et al., 2021). Understanding the context of IPV during screening can be helpful in determining motivations for violence and whether couples therapy is

appropriate (Gibby & Whiting, 2023). Concerns of IPV may emerge in the context of ongoing couples therapy, at which point IPV might be considered a target for behavioural change for one or both partners. Gibby and Whiting (2023) suggested that attachment narrative therapy and emotionally focused couples therapy (EFT) are two approaches that could be well-suited for couples experiencing lower threshold IPV. Attachment narrative therapy combines attachment, narrative, and trauma theories and systemic practice, with the goal of better understanding how relational histories are manifesting in the current relationship (Vetere, 2015). This approach then adheres to four domains: “creating the secure base in therapy, exploring narratives and attachments within a systemic framework (loosening attachment dilemmas), considering alternatives (emotional risk taking and change), and the future (maintaining the therapeutic base)” (Vetere, 2015, p. 244). EFT, although historically described as contraindicated for IPV treatment, might be useful in cases of SCV (Gibby & Whiting, 2023) and low severity violence. From an EFT perspective, attachment-informed clinicians address physical and emotional safety through safety planning, and use ‘time-outs’ to identify partners’ attachment-related needs and draw in strategies specific to a partner’s needs (e.g., Stith et al., 2011).

Regardless of modality, research supports the cruciality of a strong therapeutic alliance in working with IPV offenders (e.g., Stewart et al., 2013; Taft & Murphy, 2007). Addressing attachment bonds within treatment are important for promoting therapeutic alliance (Taylor et al., 2015), which is itself the strongest predictor of therapeutic change. Individual therapy might be warranted to build skills in emotion regulation or address procriminal thinking patterns but should be delivered on a case-by-case basis and on a time-limited basis. In line with the RNR model (Bonta & Andrews,

2024), intensity of services, including frequency and length, should be commensurate with an offender's risk level. Results of the current study suggest that the lower risk profile of the insecure attachment-specific subtype warrants lower intensity services addressing attachment-related concerns and procriminal thinking contributing to IPV behaviours, either individually, within the context of couples therapy, or both.

Mixed Borderline Features Profile

The mixed borderline features profile comprised the largest proportion of participants in the current sample and was engendered by significantly greater endorsement on measured clinical features (i.e., BPD features, insecure attachment, anxiety sensitivity) relative to the insecure attachment-specific profile. Whereas the insecure attachment-specific profile was characterized by low-grade endorsement on BPD features, minimal anxiety sensitivity (AS), and moderate insecure attachment, the mixed borderline features profile was characterized by elevated BPD features, high insecure attachment (i.e., both anxiety and avoidance), and elevated AS; these quantitative elevations were such that the profiles were statistically characterized as qualitatively distinct.

A commonality between the two profiles was endorsement of both attachment anxiety and attachment avoidance. Insofar as these two groups each endorsed both dimensions of insecure attachment, they can both be described as having a 'fearful' attachment style, characterized by utilization of both hyperactivating and deactivating strategies in the face of preoccupation with maintaining the concomitant proximity to and distance from an attachment figure (Mikulincer & Shaver, 2016). Despite the commonality of insecure attachment between these two profiles, members of the mixed

borderline features profile reported significantly higher levels of both attachment dimensions, which is unsurprising given members' broad endorsement of BPD features. This pattern of attachment-based information processing and behaviour may resemble the classic push/pull dichotomy (technically referred to as the approach-avoidance dilemma) observed in individuals with BPD within the context of relationships (Schindler & Sack, 2015). Interestingly, members of this profile reported a lower frequency of being in a committed relationship than what was reported by the insecure attachment-specific profile, which might be accounted for by the greater elevations of insecure attachment and BPD features reported by the current group given its resulting impact on relationship dynamics that interfere with developing and sustaining relationships. The high levels of insecure attachment observed in this group also suggests that attachment-based fears and associated maladaptive behaviours – including IPV (Bartholomew & Allison, 2006) – will be markedly higher for members of the mixed borderline features profile.

Despite their attachment insecurity overlap, the mixed borderline features profile was also distinct from the insecure attachment-specific profile in that members exhibited elevations on all clinical indicators included in the analysis. Not only did these elevations meet clinical thresholds for BPD (Chanen et al., 2008), their attachment scores were meaningfully higher than non-clinical samples from previous research (McHugh & Eagan, 2023), and AS elevations were comparable to clinical samples known to have the high AS (i.e., panic disorder; Taylor et al., 2007). Considering the elevations across clinical features, this profile's members largely resembled a BPD sample.

Although all BPD features measured were elevated for the mixed borderline features profile, this profile's members demonstrated particularly prominent levels of affective instability, impulsivity, intense anger, issues with self-image, and emptiness. Both affective instability and impulsivity are theorized to be core BPD features (Crowell et al., 2009; Linehan, 1993). Profile members' elevations on AS was consistent with previous research beginning to establish the presence, and speculate on the potential transdiagnostic role, of AS in BPD symptomatology (Doyle et al., 2022a; Gratz et al., 2008). High anxiety sensitive individuals are disproportionately intolerant of physiological anxiety sensations and are motivated to discharge arousal and distressing affect via aggression (Watt et al., 2020), which is consistent with BPD distress intolerance (Doyle et al., 2022a). Furthermore, elevated insecure attachment is oft observed in BPD samples (Levy et al., 2015).

To further contextualize the mixed borderline features profile, it was compared to the insecure attachment-specific profile on measured criminogenic risk factors, namely dark triad traits, procriminal thinking, and alcohol and substance misuse. The mixed borderline features profile endorsed significantly higher levels of all measured risk factors relative to the insecure attachment-specific profile. Moreover, levels of dark triad traits and procriminal thinking endorsed by profile members exceeded normative levels gleaned from the literature (Kiire, 2016). Furthermore, drug use levels exceeded the suggested clinical cut-off (Villalobos-Gallegos et al., 2015), suggesting that this profile's members reported levels of drug use consistent with problematic substance use. Alcohol misuse scores were only marginally below the recommended clinical cut-off (Dhalla & Kopec, 2007), suggesting that profile members' alcohol use was approaching hazardous levels. In summary, the mixed borderline features profile boasts strong

endorsement of traditional criminogenic risk factors (psychopathic traits, procriminal thinking, and substance misuse; Bonta & Andrew, 2017), along with the profile itself being characterized by high BPD features, insecure attachment, and AS - the former two of which are strongly linked with IPV perpetration (Jackson et al., 2015; Velotti et al., 2022) and the latter associated with aggression (Watt et al., 2022). In light of such characterizations and based on the RNR model (Bonta & Andrews, 2024) and research specific to risk factors of IPV (e.g., Hilton & Radatz, 2021), this profile is hypothesized to likely reflect a moderate-to-high risk of IPV offending.

The frequency and severity of IPV behaviours reported by the mixed borderline features profile members was consistent with what would be expected based on the profile's constellation of traits and plethora of risk factors endorsed. That is, members of the mixed borderline features profile reported significantly more frequent and severe endorsements of physical, psychological, and sexual IPV relative to insecure attachment-specific profile members. The frequency of physical and sexual IPV acts were reported at higher rate by this profile's members relative to incarcerated women (Jones et al., 2002) and community-based men and women (Sugihara & Warner, 2002), whereas psychological IPV was reported at a comparable rate to a sample of incarcerated women (Jones et al., 2002). Although all IPV behaviours were reported at a high rate, physical IPV was most strongly endorsed. Both BPD (Caballero Guzman et al., 2024) and insecure attachment (Velotti et al., 2022) are predictive of physical IPV acts. Yet, dark triad traits (Carton & Eagan, 2016; Green et al., 2020), and psychopathy in particular, may help account for the disproportionately high reporting of physical IPV, as psychopathy has been found to significantly increase the likelihood of engaging in more severe IPV acts in both men and women (Plouffe et al., 2022). The role of

procriminal thinking in physical IPV (Hilton & Radatz, 2021; Walters, 2020) and general violence (Bonta & Andrews, 2024), and the predictive power of problematic substance use (see Cafferky et al., 2018 for meta-analysis) may also help explain the disproportionately elevated physical IPV reported. Indeed, these criminogenic factors are found to be predictive of IPV severity (Aguilar Ruiz et al., 2022; Brassard et al., 2022)

In addition to the conceivable, potentially attachment-related motivations as delineated for the previous profile, the prominence of BPD features, AS, and traditional criminogenic risk factors in the mixed borderline features profile must be considered in relation to members' potential motivations for IPV. Research demonstrates that men with BPD (either alone or co-occurring with antisocial personality disorder) engage primarily in reactive IPV (Ross & Babcock, 2009), which is “designed to lower [...] aversive arousal and the negative affect comprised of this arousal” (Tweed & Dutton, 1998, p. 227). As such, during moments of distress, BPD/Comorbid individuals may react with violence toward a partner. The high levels of AS endorsed by the mixed borderline features profile members, which has been linked to arousal-discharge aggression (Watt et al., 2020), bolster this supposition. Ross and Babcock (2009, p. 614) assert that “paradoxically, the erratic behaviour which is common among individuals with BPD makes the unpredictability of these batterers' behaviour somewhat predictable...[participants] behaved largely unpredictably during a fight with a romantic partner.” Motivations, then, for individuals characterized as having BPD features, even with concurrent antisocial features, may be considered as reactionary; as a method of discharging heightened arousal (Babcock & Michonski, 2019). Conversely, it has been widely argued that psychopathic traits beget proactive aggression (Babcock et al., 2000;

Babcock et al., 2023; Babcock & Michonski, 2019; Ross & Babcock, 2009), characterized as a means of intimidating or controlling others or “a self-serving strategy of social control” (Little et al., 2003, p. 130), which is an element of coercive control (Hilton et al., 2023).

It is possible that both reactive and proactive motivations underlie the IPV behaviours of the mixed borderline features group. Indeed, when coding men’s partner violent behaviours as either reactive or proactive patterns of behaviour to classify perpetrators’ motives for violence, Babcock et al. (2023) added a third category by combining reactive and proactive categories, recognizing that both forms of aggression can coexist and may vary depending on the context. Another explanation, however, concerns the tool used to assess psychopathy. The SD3 psychopathy subscale, although reliable and valid, arguably disproportionately captures impulsive and antisocial behaviors, as opposed to characterological psychopathic features such as callousness, coldness, and dominance. This distinction between antisocial behaviours and psychopathic character reflects Checkley’s (1941) differentiation between secondary psychopathy and primary psychopathy, respectively. Indeed, Babcock and Michonski (2019) demonstrated that individuals with secondary psychopathy features (i.e., impulsive and antisocial behaviours) demonstrated a similar pattern to BPD features of hyperarousal to facial affect, whereas individuals with primary psychopathy features (i.e., callous and dominance traits) evinced a pattern of hypoarousal. These findings suggest that motivations for IPV may be similar between BPD and secondary psychopathy (i.e., reactive), whereas primary psychopathy motivations may be distinct and proactive in nature (Babcock & Michonski, 2019). On the other hand, however, more recent research did not detect a difference between reactive and proactive violence

as a function of personality disorder features (Babcock et al., 2023). The design of the current research precludes an equivocal interpretation of the mixed borderline features profile members' motivation for IPV, but it would be prudent for future research to continue disentangling motivations based on personality features (see Directions for Future Research below).

Association with Previous Typologies. Members of the mixed borderline features subtype closely resemble the borderline-dysphoric (BD) subtype identified by Holtzworth-Munroe and Stuart (1994). The BD subtype is characterized by features consistent with BPD, including fear of abandonment, emotional reactivity, impulsivity, volatile anger, and attachment anxiety (Holtzworth-Munroe et al., 2000). Ancillary features of this subtype include positive attitudes toward violence, and high levels of substance misuse and distress (Holtzworth-Munroe & Stuart, 1994). BD perpetrators' IPV acts are largely motivated by distress and emotional reactivity (Holtzworth-Munroe et al., 2000), and their violence tends to be confined to IPV with marginal extrafamilial violence. The degree of IPV perpetrated by the BD subtype tends to be moderate-to-severe (Holtzworth-Munroe & Stuart, 2019).

On many accounts and based on the measures utilized in the current research, the mixed borderline features profile is consistent with Holtzworth-Munroe and Stuart's (1994) BD subtype. Specifically, the current profile endorsed high BPD features, high insecure attachment, problematic substance use, and procriminal attitudes (consistent with the BD subtype's positive attitudes toward violence). Violence outside of the intimate partner context and general criminality were not assessed in the current research; however, Holtzworth-Munroe and Stuart's (1994) BD subtype's high severity IPV and likelihood of inflicting psychological and sexual acts of violence on a partner is

consistent with what members of the mixed borderline features profile reported in the current research.

Important differences are nevertheless apparent between Holtzworth-Munroe and Stuart's (1994) BD subtype and the mixed borderline features profile of the current research. Whereas research indicates that the prevalence rate of the BD subtype ranges from 20% to 25% among IPV perpetrators (Dixon et al., 2003; Holtzworth-Munroe et al., 2000), the present profile was disproportionately overrepresented in the current sample, at 80.1%. As a more direct comparison, of those participants who reported any instance of physical IPV within the past year, 89.8% belong to the mixed borderline features profile; 84.9% and 87.4% of participants who reported any instance of psychological and sexual IPV, respectively, belonged to the mixed borderline features profiles. This finding is concerning and somewhat perplexing. One potential explanation for the disproportionate representation of a profile characterized by BPD features is that BPD symptoms have significantly increased over the last few years, with one study reporting an increase in odds of 24% of endorsing clinically elevated BPD symptoms (Min et al., 2023). That same study found that, during the COVID-19 pandemic, participants had a 36% increase in odds of reporting clinically significant BPD symptoms relative to pre-COVID. Similarly, large increases in IPV among adults have been observed within the past decade. In Canada, there was a 32% increase in IPV among adults from 2014 to 2022 (Statistics Canada, 2023), which is consistent with global estimates of IPV cases increasing by 25% to 33% during COVID-19 lockdowns in 2020 (Boserup et al., 2020). These documented increases in both clinically meaningful BPD symptoms and police-reported IPV may help account for the disproportionate representation of the mixed borderline features profile in the current

sample relative to when Holtzworth-Munroe and Stuart (1994) conducted their research, more than 30 years ago.

Another point of difference between the mixed borderline features profile and the BD subtype is the former's relatively high endorsement of dark triad traits, and psychopathy in particular. Holtzworth-Munroe and Stuart's (1994) typology differentiates between the family-only, BD, and generally violent/antisocial (GVA) subtypes. The GVA subtype is thought (and has been empirically shown) to differ from the previous two in terms of its high severity IPV, extra-familial violence and general criminality, and, of relevance, has features of antisocial personality disorder. Although measures specifically capturing antisocial personality were not included in the current study, dark triad trait measures are often employed as a proxy for antisocial traits and are predictive of antisocial behaviours (Giammarco et al., 2013). To the degree that dark triad traits are reflective of antisociality, the high levels of these traits in the mixed borderline features profile suggests some level of overlap with the GVA subtype. However, in line with the distinction between primary and secondary psychopathy discussed in the previous section, researchers have proposed and found empirical support for a vulnerable dark triad comprised of secondary psychopathy, vulnerable narcissism (i.e., defensive grandiosity masking feelings of inadequacy), and BPD (Miller et al., 2010). Essentially, the vulnerable dark triad captures overlapping characteristics reflecting an antagonistic interpersonal style and emotional vulnerability. The vulnerable dark triad empirically differs from the original dark triad, which is reflective of a cold or callous relational style with an affinity for instrumentally using or harming others (Maheux-Caron et al., 2024). This distinction raises the possibility that secondary psychopathy and vulnerable narcissism were being reflected in the mixed borderline

features profile's endorsement of dark triad traits in the current sample. Nuances in these constructs ought to be captured in future research to help disentangle and explain the similarities and overlap observed between the BD and GVA subtypes on key constructs when examining members of these groups at a 1.5- and 3-year follow up (Holtzworth-Munroe et al., 2003).

In terms of Johnson's typology, it is difficult to speculate on how the mixed borderline features profile corresponds to identified subtypes given that Johnson's typology is based on the role of control in the relationship context, which was not measured by the current study. Moreover, Johnson asserted that coercively controlling one's partner is a direct outgrowth of an attempt to maintain patriarchal dominance and control (e.g., Johnson, 1995). Although the current research highlights the shortcomings of this theoretical standpoint underlying Johnson's typology, as well as the questionable validity of the typology itself (see 'Johnson's Typology' subsection, Chapter 2), coercive control as a construct demonstrates small to moderate associations with more frequent past acts of IPV (Verschuere et al., 2021), indicating its importance in IPV risk. Johnson's coercive controlling violence (CCV) subtype (also known as intimate terrorism) involves emotionally abusive and controlling behaviours toward one's intimate partner, as well as major physical violence (Kelly & Johnson, 2008). Based on the IPV behaviours reported by the mixed borderline features profile, the level of violence and affinity for control related to attachment fears and jealousy previously linked to another subtype resembling this profile (i.e., Holtzworth-Munroe and Stuart's BD subtype) could be viewed as CCV (Bernardi & Day, 2015). Importantly, however, the current research views controlling behaviours and corresponding violence from a psychosocial lens, rather than a critical feminist/power lens. Differently put, it is

possible that the mixed borderline features profile engages in controlling behaviours consistent with CCV, but the potential motivation for doing so differs from what Johnson and colleagues and feminist scholars might assert. Hilton et al.'s (2023) empirical examination of the coercive control construct identified two lower-order factors: psychological control (indicated by jealousy, psychological abuse, stalking, and suicide threats) and controlling attitudes (indicated by controlling activities, IPV denial, and attitudes supportive of IPV). It is possible that the present profile is most closely associated with the psychological control facet, whereas a profile with a more antisocial bent (e.g., GVA subtype) would have a greater proclivity for the controlling attitudes dimension. It would be helpful to examine whether psychological and personality-based subtypes elevate potential for coercive control, conceptualized psychologically (Hilton et al., 2023), and whether subtypes have differential endorsement of control lower-order factors.

Comparisons also can be drawn between the current research's mixed borderline features profile and the reactive-proactive typology of aggression (Tweed & Dutton, 1998). As articulated in the previous subsection, it is probable that the mixed borderline features profile is largely prone to reactive violence toward an intimate partner. However, more work is needed to examine this profile's motivation for IPV, including the possibility of the presence of both proactive and reactive motivated forms of aggression (Babcock et al., 2023). See Table 26 for brief comparison of prominent typologies of IPV perpetration.

Clinical Implications. Profile members may be aptly characterized as medium-to-high risk based on the variety of criminogenic risk factors endorsed and high frequency and severity of self-reported IPV. Although the mixed borderline features

profile demonstrates meaningful overlap with Holtzworth-Munroe and Stuart's (1994) BD subtype, which has been described as a medium risk group (Doyle & Campbell, 2023), the current profile also evinced some features of antisociality (e.g., high procriminal thinking and dark triad traits), suggesting the possibility that at least some of this profile's members typify a high-risk profile. Nevertheless, where mixed borderline features profile is largely distinguished by BPD features, interventions and risk mitigation strategies indicated for the BD subtype are likely relevant for the mixed borderline features profile. In line with the RNR model, intervention for this profile should adhere to a medium-to-high intensity model, and address criminogenic needs associated with IPV perpetration risk and pertinent responsivity factors.

IPV-specific and traditional criminogenic risk factors endorsed by the mixed borderline features profile include: 1) BPD features including affective instability and impulsivity, 2) insecure attachment, 3) substance misuse, 4) procriminal thinking, and 5) dark triad traits, including psychopathy. The inclusion of anxiety sensitivity (AS) represented a novel contribution to understanding IPV perpetration; as AS is currently considered neither an IPV-specific, nor general criminogenic risk factor, it will be construed herein as a responsivity factor. Of the risk factors present for the mixed borderline features profile, substance misuse, procriminal thinking (i.e., antisocial attitudes), and psychopathy (proxy for antisocial personality) fall explicitly in the RNR model's Central 8 criminogenic risk/need factors for general offending (Bonta & Andrews, 2024). These factors also have been associated with IPV offending and recidivism (Cafferky et al., 2018; Collison & Lynam, 2021; Hilton & Radatz, 2021; Kanemasa et al., 2022). Both BPD features (Jackson et al., 2015; Spencer et al., 2022) and insecure attachment (Velotti et al., 2022) have been consistently associated with

physical, psychological, and sexual IPV acts. In summary, results of the present dissertation suggest that prevention and intervention for the mixed borderline features group should focus on: 1) targeting borderline features, especially affective instability, impulsivity, and tolerating distress (including distress related to AS; Doyle et al., 2022a); 2) addressing attachment-related concerns; 3) addressing problematic substance use; and 4) attending to cognitive distortions and beliefs that justify partner violence behaviours. Notably, research suggests that targeting substance misuse and emotion dysregulation in IPV intervention has the most evidence in support of effectiveness (Stewart et al., 2013).

In addition to the identified targets for treatment, level of treatment intensity should be considered. Given that the mixed borderline features profile demonstrates high frequency and severity of IPV, features of personality pathology, and substance misuse, members likely have a medium-to-high risk of recidivism (Huss & Ralston, 2008). Based on the endorsement of BPD features, however, members are at an increased risk of dropping out of treatment (Doyle et al., 2023b). For example, Munroe and Sellbom (2020) found that abusive partners with (vs. without) BPD features were less likely to complete an intervention program and demonstrated a higher risk of reoffending at a one-year follow up. Insofar as the mixed borderline features profile is similar to Holtzworth-Munroe and Stuart's (1994) BD subtype, members are less likely to complete intervention (Huss & Ralston, 2008) and are more likely to recidivate compared to the family-only subtype (Eckhardt et al., 2008). Given the mixed borderline features profile's endorsement of a multitude of risk factors and previous research concerning treatment outcomes, this profile would benefit from medium-to-high intensity intervention.

To address the needs and responsivity factors present, individuals falling in the mixed borderline features profile would likely benefit from interventions designed to address deficits in emotion regulation and associated behavioural consequences (Banks et al., 2013; Fruzzetti & Levensky, 2000; Stewart et al., 2013; Waltz, 2003) by using such interventions as dialectical behaviour therapy (DBT; Linehan, 1993). DBT is a third-wave cognitive behaviour therapy with a large evidence base for treating BPD (Stoffers-Winterling et al., 2022), including individuals with subclinical BPD (Setkowski et al., 2023). There is also mounting evidence for DBT's effectiveness for addressing issues commonly co-occurring with BPD, such as substance misuse (Fruzzetti & Levensky, 2000; Flynn et al., 2019; Nyamathi et al., 2017). Importantly, two preliminary studies by Rathus et al. (2006) demonstrated that DBT with adaptations specific to violent partners (described below) reduced IPV, emotion dysregulation, and impulsivity, and improved anxious attachment to intimate partners.

Standard DBT includes both individual therapy and group skills training; treatment involves balancing change and acceptance strategies, and enhancing skills related to emotional regulation, distress tolerance, interpersonal effectiveness, and mindfulness (Linehan, 1993). This treatment approach is frequently employed with difficult-to-treat clients, for whom other interventions have produced limited success (Banks et al., 2013). Fruzzetti and Levensky (2000) proposed that DBT's emphasis on orienting and committing to treatment, and collaboration between client and clinician, enhance its potential benefit for IPV perpetrators. They describe a DBT-based model for IPV perpetrators, which begins by targeting and reducing life-threatening behaviour (e.g., suicidal and parasuicidal behaviour), therapy-interfering behaviours, and quality-of-life interfering behaviours (e.g., in this context, criminal behaviours, problematic

sexual behaviour). Concurrently, the described DBT-based model aims to enhance key skills (e.g., emotional regulation, interpersonal effectiveness) that are deficient in this population.

DBT appears particularly well-positioned to effectively reduce IPV behaviours by perpetrators resembling a BPD population given their high levels of emotion dysregulation and anger, and the complexity of their clinical presentation (Waltz, 2003). Moreover, clients with BPD features who perpetrate IPV engage in a high frequency of life-threatening behaviours (either to themselves, others, or both) and have difficulty complying with treatment. DBT's explicit emphasis on these behaviours and utilizing strategies to increase commitment to change facilitates its potential to mitigate these problematic behaviours (Waltz, 2003). Rathus et al's. (2006) adaptation to DBT for partner violent populations included: 1) expanding the 'life-threatening behaviour' and 'quality of life interfering behaviours' targets to explicitly include behaviours that can threaten the lives and quality of lives of others, respectively; 2) modifying the DBT diary card to include monitoring of conflict tactics and corresponding affect; 3) adding a "Domestic Partner Education" psychoeducation module on various IPV behaviours and beliefs that justify them; 4) expanding mindfulness and validation to include being empathically aware, accepting, and validating of one's partner; and 5) an explicit focus on the emotion of jealousy. In summary, an intervention approach, such as DBT, that addresses dysregulated emotion, impulsivity, and poor interpersonal strategies including insecure attachment is likely indicated for the mixed borderline features profile identified in the current research.

Examining Mechanisms Underlying the BPV-IPV Association

The third aim of the current research was to garner a better understanding of potential explanatory mechanisms accounting for the robust association between BPD (clinical and subclinical) and IPV behaviours (Jackson et al., 2015; Spencer et al., 2022). Results indicated that both insecure attachment and AS significantly mediated the relationship between BPD and IPV. As such, findings support the hypotheses that both insecure attachment and AS function as mechanisms through which BPD is associated with partner violence. However, the relationship between BPD and IPV was only partially mediated by insecure attachment and AS. After controlling for insecure attachment and AS, BPD continued to have a direct effect on IPV. Using SEM (vs. alternative analytic approaches) to test these pathways confers greater confidence in the effect BPD has on IPV both directly and through insecure attachment and AS by providing evidence for the plausibility of causality assumptions (Gunzler et al., 2013).

Concerning the insecure attachment model, results indicate that this construct could only partially explain the BPD-IPV link. These findings contribute to the ongoing debate surrounding the relative predictive import of attachment and BPD on IPV (Jackson et al., 2015; Mauricio et al., 2007). Current results provide evidence that insecure attachment is indeed an important contributor to the prediction of IPV, and BPD pathology and insecure attachment conjointly operate to influence IPV acts. However, BPD remains a robust predictor of IPV when statistically controlling for insecure attachment. These findings are consistent with one of the few studies examining these constructs collectively, which found that BPD traits were still predictive of IPV among securely-attached men in IPV treatment (Buck et al., 2014). Insecure attachment certainly remains an important variable that warrants attention when understanding

probability of IPV acts; however, results suggest that it cannot entirely account for why some individuals with BPD are violent toward their intimate partner. It has long been asserted that, for individuals with BPD features, partner violent behaviour stems from frantic and controlling behaviour in the face of real or perceived abandonment or rejection (Allison et al., 2008; Dutton, 1995; Dutton et al., 1994). Results presented herein suggest that this pattern is only part of the whole picture and may be relevant to some, but not all, IPV perpetrators. For instance, dysregulated affect and a predisposition for impulsivity – both characteristic of BPD – are features that portend partner violent behaviours even when controlling for attachment-related concerns.

With respect to the AS model, results indicate that dispositional fear and intolerance of anxiety-related somatic sensations partially accounted for the relationship between BPD and IPV. Highly anxiety sensitive individuals are disproportionately perturbed by physiological sensations associated with anxiety (Stewart et al., 2001) and react with behaviours intended to avoid these sensations (Sabourin et al., 2011). Current findings indicate that BPD predicts IPV through AS, raising the possibility that high anxiety and arousal arising during these conflicts is intolerable for individuals high in BPD features, partially as a function of high AS. The conjoint dynamic of BPD features and AS may increase risk for IPV, as the agitation experienced may escalate into aggressive behaviours (Watt et al., 2020; Yu et al., 2016). More specifically, the interpersonal hypersensitivity and relationship anxiety associated with BPD pathology (Gunderson & Lyons-Ruth, 2008) may precede and/or maintain relational conflict. The inability to tolerate associated anxiety sensations could then result in discharging arousal by aggressing against one's intimate partner. Nevertheless, when controlling for AS, BPD continues to have a direct effect on IPV.

The direct effect of BPD on IPV, even after separately controlling for insecure attachment and AS, lends credence to previous research (e.g., Buck et al., 2014; Jackson et al., 2015) highlighting the importance of BPD features in predicting IPV. Although both tested mediators partially explain why individuals with BPD features engage in IPV and are reflective of mechanisms underlying the BPD-IPV link, results indicate that features of BPD – affective instability, impulsivity, fragile self-image, etc. – remain highly influential in predicting perpetration of partner violence. Identifying perpetrators with BPD features through a comprehensive assessment is an important clinical implication of the present results. Given that insecure attachment and AS were partial mediators, addressing these variables in intervention may still help to reduce IPV for individuals with BPD features. Nevertheless, an emergent clinical implication of these findings is that interventions will still need to emphasize treatment of BPD features in the service of reducing IPV.

According to the biosocial model of BPD (Linehan, 1993) and available evidence, individuals high in BPD features have marked difficulties with regulating emotions, managing impulsivity, and maintaining stable relationships (e.g., Carmona i Farrés et al., 2019). Among these features, emotion dysregulation figures prominently, and entails difficulty with altering the “form, frequency, experience or expression of emotions” (Chapman, 2019, p. 1144). Specifically, individuals with a proclivity for emotion dysregulation may have challenges at any or all points in the sequence of regulating emotion, including identifying an emotional response, selecting a strategy to regulate emotion, and implementing the selected strategy (Gross, 2014). Emotional responses may then become excessively prolonged, tumultuous, or intense; they may not be appropriate for the situations; and/or they could entail maladaptive behaviours

(Beauchaine, 2015). Research shows that individuals with greater emotion dysregulation demonstrate attentional dyscontrol – characterized by both vigilance and avoidance - in the face of perceived threats (Bardeen et al., 2017). Emotion dysregulation may contribute to IPV perpetration for individuals with BPD features partially through an attentional bias to perceived threat (Babcock et al., 2008), subsequent difficulty with identifying and modulating affect, and acting violently as a means of regulating emotion. Impulsivity, like emotion dysregulation, is conceptually integral to BPD, multidimensional in nature, and is broadly characterized by difficulty inhibiting rash cognitive and behavioural decisions that are made with little consideration of long-term consequences (Moellar et al., 2001). For individuals with BPD features, impulsive behaviours occur with greater frequency under conditions of stress (Cackowski et al., 2014). Both emotion dysregulation and impulsivity have a direct influence on interpersonal dysfunction (Euler et al., 2019), highlighting the utility of targeting these features in treatment.

Treating key BPD features must be addressed during IPV intervention. These features are expressly targeted by DBT (described in the prior section), with one clinical trial demonstrating that DBT mindfulness skills training is especially useful in decreasing emotion dysregulation and impulsivity (Carmona i Farrés et al., 2019). DBT-informed intervention also has utility in targeting the mediators of the BPD-IPV link observed herein. Specifically, DBT can significantly decrease insecure attachment after 18 group and 16 individual sessions (Reyes-Ortega et al., 2020), and significantly reduce AS in BPD outpatients over one year (Doyle et al., 2022a). Developing a strong working alliance – inclusive of a therapeutic bond and mutual agreement on therapeutic tasks to accomplish treatment goals – is also conducive to improving attachment working models

(Lange et al., 2021). As well, incorporation of brief AS-specific interventions including psychoeducation on AS and interoceptive exposure (e.g., Watt et al., 2006) might be warranted for some especially anxiety sensitive individuals. In summary, the direct effect of BPD on IPV suggests that intervention for IPV perpetrators with BPD characteristics should focus on BPD pathology and monitor and intervene at the level of explanatory variables of attachment and AS throughout treatment.

The Predictive Importance of BPD Features Relative to Criminogenic Risk Factors

The final aim of the current research was to examine and compare the potency and incremental validity of BPD features in predicting IPV behaviours relative to specified criminogenic risk factors (procriminal thinking, dark triad traits, substance misuse, alcohol misuse). Criminogenic risk/need factors are of primary importance when conducting risk assessments and are a focal point when implementing correctional rehabilitative intervention. However, BPD is not among one of the assessed risk/need factors, despite its documented role in predicting IPV. The rationale underlying this final aim of the current research was therefore to elucidate the incremental validity of BPD features in predicting IPV to determine the added relevance that assessing BPD might have during risk assessment to inform management considerations.

Results of regression analyses demonstrate that both BPD features and measured criminogenic risk factors each have incremental validity in predicting physical, psychological, and sexual acts of IPV over the other. In their respective models, both traditional criminogenic risk factors (25.6%) and BPD features (28.3%) contributed a sizeable proportion of explained variance in physical IPV scores, with the latter contributing marginally more variance. BPD features of affective instability and

suicide/self-mutilation were uniquely predictive of physical IPV scores, suggesting these features have specific import when it comes to physical IPV acts. This finding is consistent with motivations for IPV in individuals with BPD features discussed in previous sections, such that emotion dysregulation might impel the individual to engage in maladaptive behaviours (i.e., physical IPV) as a method of regulating affect. Moreover, BPD patients engaging (vs. not) in suicidal behaviours tend to be more aggressive (Sher et al., 2016); results presented by the current research suggest that such aggressiveness can manifest as physical violence toward an intimate partner. Both BPD features, especially affective instability and suicide/self-mutilation, and measured criminogenic risk factors are each important in predicting physical IPV.

In terms of psychological IPV, BPD features (27.4%) and criminogenic risk factors (20.9%) contributed meaningfully to the prediction of this behaviour. BPD features of affective instability and suicide/self-mutilation were again uniquely important for predicting psychological IPV, along with emptiness and intense anger. Both intense anger and emptiness were found to be predictive of combined other- and self-directed violence in a large sample of individuals with clinical and subthreshold BPD (Harford et al., 2019). Chronic emptiness experienced by those with BPD is experienced as a sense of disconnection from self and others, and feeling numb and purposeless (Miller et al., 2020). This sense of emptiness may inhibit cognitive and affective empathy capacities – capacities that are akin to mentalization – that could otherwise be protective against harming one’s partner mentally and emotionally. Chronic emptiness is an integral component of BPD but remains understudied (Miller et al., 2020); continued work in understanding how this aspect of BPD gives ways to psychological IPV is warranted, particularly considering that this feature persists longer

than more acute and externalizing symptoms such as impulsivity (Casellas-Pujol et al., 2024). Overall, both BPD features and criminogenic risk factors demonstrate incremental validity in predicting psychological IPV.

Sexual IPV was predicted similarly by BPD features (23.9%) and criminogenic risk factors (22%) in their respective regression models. When examining variables that uniquely contributed to variance in sexual IPV, BPD features of abandonment and intense anger emerged. The role of intense anger is unsurprising; even outside the context of intimate relationships, it is widely accepted that sexual assault is frequently motivated by anger (Proulx et al., 2014). The role of abandonment fears in predicting sexual IPV suggests that, for some, sexual coercion may be one of many manners whereby individuals with BPD fears engage in frantic attempts to avoid real or perceived abandonment. Indeed, BPD symptom severity is associated with sexual risk-taking (Doyle et al., 2022b); these individuals may sexually coerce partners as a maladaptive and harmful method of regaining a sense of control of the relationship and proximity to their intimate partner. Generally, both BPD features and criminogenic risk factors demonstrated similar potency in predicting sexual IPV.

In further support of the important role that BPD features play in predicting IPV, canonical correlation analyses (CCA) yielded a function comprised of BPD features and IPV behaviours, wherein 30.25% of variance was shared between these two sets of variables and represented a large effect size (Sherry & Henson, 2005). This function was labelled Emotionally Reactive IPV based on strong contributions of BPD features surrounding impulsivity, affective instability, intense anger, and suicide/self-mutilation behaviours. The emergence of a function characterized by emotionally reactive and volatile behaviours is consistent with motivations for IPV acts by individuals with BPD

features asserted both herein and by previous research, as well as claims made about BPD and reactive aggression (e.g., Holtzworth-Munroe et al., 2000; Ross & Babcock, 2009).

Pertinent to the research question at hand, the Emotionally Reactive IPV function accounted for a similar level of shared variance as the function comprised of criminogenic risk factors and IPV behaviours. This latter function was labelled Procriminally-Minded IPV, which yielded a large effect size, with 26.01% of variance shared between these two sets of variables and was labelled as such due to strong contributions of procriminal thinking and psychopathy. To some extent, physical IPV (relative to psychological and sexual) was more strongly represented in the Procriminally-Minded IPV function, whereas the Emotionally Reactive IPV function captured in relatively equal measure physical, psychological, and sexual IPV. It is possible that criminogenic risk factors broadly, and procriminal thinking and psychopathy specifically, might be particularly apt in predicting physical IPV. However, regression results (see Tables 21 to 23) suggest that procriminal thinking, psychopathy, and substance misuse are important predictors of all forms of IPV behaviours (i.e., physical, psychological, and sexual). Overall, results of CCA converge with regression results pointing to the importance of both BPD features as well as criminogenic risk factors in predicting physical, psychological, and sexual IPV, while differentiating dominant emotional dysregulation from more dominant antisocial elements.

General Risk Conceptualization and Clinical Implications

Considerations for Risk Assessment and Conceptualization

A large body of evidence has been accrued over the past several decades (e.g., Jackson et al., 2015; Mauricio et al., 2007) demonstrating the influence that clinical BPD and subclinical BPD features have on acts of IPV. The typology identified by the current research, along with the incremental validity demonstrated by BPD features in contributing to IPV behaviours, raises potential implications for determining risk of IPV offending. The literature on forensic risk assessment has established the importance of systematic and comprehensive assessments using instruments that both appraise an offender's risk to reoffend and identify criminogenic risk factors that can inform risk management planning and intervention (e.g., Andrews et al., 2006). In accordance with the RNR model, a structured assessment evaluates risk, need, and responsivity using psychometric instruments (Bonta & Andrews, 2007). An essential psychometric quality of risk assessment tools is the predictive validity of their risk appraisal, or accuracy in predicting the specified outcome, such as IPV (Hegel et al., 2021).

IPV risk assessment literature (e.g., Messing & Thaler, 2013; van der Put et al., 2019) points to several tools with moderate predictive accuracy for IPV risk appraisal, including the Ontario Domestic Assault Risk Assessment (ODARA; Hilton et al., 2004), the Spousal Assault Risk Assessment Guide (now in its third edition; SARA-V3; Kropp & Hart, 2015) and the associated Brief Spousal Assault Form for Evaluation of Risk (B-SAFER; Kropp et al., 2005), and the Danger Assessment (DA; Goodman et al., 2000). Risk assessment instruments are either actuarial – where risk is determined solely based on evidence-based relations between risk factor and outcome, yielding a total score

reflecting a specified risk level (e.g., ODARA) – or structured professional judgment – where tools inform professional appraisals of risk based on review of clinically- and empirically-relevant risk factors with user-driven flexibility in the overall assessment of risk level determination (e.g., SARA). Whereas some risk assessment tools, such as the SARA, capture both static (e.g., history of offending) and dynamic (e.g., IPV supportive attitudes) risk factors, other tools, such as the ODARA, contain items that predominately capture static risk factors.

The existence of well-established tools available for assessing risk of IPV recidivism is encouraging. However, van der Put et al.'s (2019) meta-analysis examining predictive accuracy of IPV risk assessment tools indicated that tools specifically designed for predicting IPV performed no better than tools designed for general or violent recidivism, such as the Levels of Service/Case Management Inventory (LS/CMI; Andrews et al., 2004). This finding does not suggest that IPV-specific and general recidivism tools can be interchangeably utilized in practice. Rather, van der Put et al. (2019) suggest tandem use of these tools to ensure that IPV-specific risk factors are not erroneously missed during assessment and, consequently, unaddressed during intervention or not duly considered for risk mitigation.

Following the logic of van der Put et al. (2019) as well as results of the present research, current risk assessment tools may benefit from expanding their scope of content to include BPD features. With the exception of the SARA-V3 (Kropp & Hart, 2015), which considers the presence of a personality disorder diagnosis in general, IPV risk assessment tools do not typically examine BPD features in a deliberate manner. The current research is one among many that have identified an important role of BPD features in predicting IPV behaviours. As discussed in prior sections, the emergence of a

BPD profile (consistent with BPD subtypes derived in prior research, e.g., Holtzworth-Munroe et al., 2000) alone is indicative of how prominent these characteristics and corresponding motivations are in certain individuals who perpetrate IPV acts. Moreover, the BPD profile identified in the current research was disproportionately overrepresented in the overall sample. Where rates of BPD (Min et al., 2023) and IPV (Boserup et al., 2020) are progressing in a crecive manner, it may become increasingly important to include such features in IPV risk assessment to ensure that all relevant risk factors are being captured. The current research also presented novel evidence for the incremental validity of BPD features in predicting physical, psychological, and sexual IPV behaviours beyond traditional criminogenic/IPV-specific risk factors. Certainly, more evidence demonstrating incremental validity is warranted. Nevertheless, results presented herein strengthen the assertion that explicitly including BPD features as a risk factor in IPV risk assessment tools would incrementally add to the predictive accuracy and utility of existing tools.

Inclusion of BPD features in IPV risk instruments could provide insight into circumstances under which an individual is more susceptible to engage in IPV behaviours. For instance, the available evidence appears to suggest that, for individuals with BPD features or a diagnosis, aggression tends to be reactive and is more likely to occur during (interpersonally) stressful situations (Ross & Babcock, 2009). Drawing on this existing (and growing) evidence base could help to contextualize and conceptualize risk, including circumstances that increase susceptibility to IPV behaviours. Finally, including consideration of BPD features during formal IPV risk assessment has the potential to improve determination of a client's risk level while identifying and being able to address an important risk factor during intervention planning.

Considerations for Clinical Intervention

Incorporating the RNR framework into provision of IPV intervention has been shown to improve outcomes (Travers et al., 2021). These improvements are encouraging given the longstanding but ineffective ‘one-size-fits-all’ approaches to offender rehabilitation that have shown greater endurance among IPV (vs. other offending) interventions due to ideological disputes (Banks et al., 2013; Gondolf, 2011). Consistent with the RNR framework, it is well understood that tailoring interventions to perpetrators’ characteristics improves outcomes, including reduced recidivism (Travers et al., 2021). However, as addressed above, many widely used IPV risk assessment tools are not explicitly incorporating assessment of BPD features. Identifying BPD features in IPV perpetrators through assessment could facilitate tailoring interventions appropriately based on the needs of the client.

The general responsivity principle of the RNR model stipulates that offenders should receive evidence-based interventions grounded in cognitive-behavioural and social learning principles, which are among the most effective at producing behavioural change (Bonta & Andrews, 2007). Specific responsivity states that program delivery must be relevant for the individuals being treated, including matching services with the offender’s personality. In general, the spirit of the responsivity principle reflects the notion that interventions are improved by tailoring them to individual characteristics to enhance learning and change behaviour.

Addressing heterogeneity and different criminogenic profiles in IPV offenders is important for tailoring evidence-based interventions to the unique needs of offenders (Butters et al., 2021). As asserted earlier (see Examining and Contextualizing the Typology section), a DBT-informed intervention may be appropriate for IPV offenders

with a BPD profile. Conversely, the offenders without marked endorsement of BPD features who nonetheless have an insecure attachment style (corresponding to the insecure attachment-specific profile) would likely benefit from lower intensity intervention, perhaps in the form of attachment-based or emotion-focused couples therapy.

Notwithstanding the necessity of tailoring interventions to specific needs of offenders, the clinical psychology literature has been examining transtheoretical and transdiagnostic approaches to treatment of psychopathology (e.g., Southward et al., 2024). Transtheoretical mechanisms are thought to enhance therapeutic outcome and symptoms change across various modalities. Transdiagnostic interventions focus on psychological mechanisms that cut across and are common amongst specific diagnoses. These mechanisms (i.e., transdiagnostic factors) are thought to put individuals at risk for a myriad of psychological disorders, so targeting them in treatment has the potential to improve client outcomes for co-occurring conditions (Ein-Dor et al., 2016). Although there are clinical implications specific to the profiles that emerged in the current research (see Examining and Contextualizing the Typology section), consideration of transtheoretical and transdiagnostic mechanisms might also be useful in enhancing treatment outcomes across IPV perpetrators.

Attachment insecurity has been proposed as a transdiagnostic factor (e.g., Ein-Dor et al., 2016). Where both profiles derived in the current study endorsed some degree of attachment insecurity, and attachment mediated relations between BPD and IPV, insecure attachment might be a universal contributor to IPV. As such, it seems important that attachment-related concerns are addressed therapeutically in some fashion.

Attachment functioning is also predictive of therapeutic alliance (Bovard-Johns et al.,

2015). Therapeutic alliance is a transtheoretical mechanism (Southward et al., 2024) and plays an essential role in therapeutic process and outcome, accounting for approximately 40% of variance in treatment effectiveness (Marshall et al., 2003). The strength of therapeutic alliance is also associated with predictions of general (Galley & Richardson, 2011) and IPV recidivism (Taft & Murphy, 2007), highlighting the need for practitioners to form a strong alliance with clients regardless of criminogenic profiles to maximize treatment gains in insecurely attachment IPV perpetrators.

Strengths and Limitations

The current study possessed a number of strengths in its methodology and aims. First, careful consideration was made to balancing ethical considerations of confidentiality and anonymity with reducing potential harm to participants. Safeguards included not collecting identifiable or criminal conviction information, emphasizing anonymity and confidentiality in advertising and informed consent, not explicitly promoting IPV perpetration as the subject of study, and embedding questions of IPV within the larger survey. Second, empirically and theoretically supported constructs, both clinical and correctional, were selected to examine research questions, and psychometrically supported self-report tools were utilized to capture these constructs of interest. Third, and in terms of aims, the present dissertation is among the first to directly examine the incremental validity of BPD features in predicting self-reported IPV behaviours over and above criminogenic factors, thereby allowing explicit discussion of the potential benefit of incorporating BPD features into IPV risk assessment.

Despite the strengths of the current research, results must be interpreted in light of several limitations. First, use of self-report tools presupposes that: participants

understand items; they respond intentionally, honestly, and do not distort their response; and they have the capacity to accurately recount their dispositional tendencies and how these proclivities manifest behaviourally. Efforts to mitigate limitations of self-report bias included selection of psychometrically sound questionnaires; inclusion of a social desirability response set measure, which suggested that participants did not respond in a socially desirable manner; and implementations of safeguards, as described above, to assure participants of anonymity and confidentiality, and promote honest responding (e.g., Wright, 2005).

Second, online data collection has several benefits, but also presents concerns. Although this method of data collection can facilitate self-disclosure and enhances access to large and diverse participant pools, increasingly, there are concerns related to fraudulent data and verifying participant eligibility. To address this concern, participants completed pre-screening items during informed consent in order to access the survey. Many efforts were made to protect against low-quality data during the data collection and conditioning phases, and these efforts were consistent with suggestions made by researchers experienced with the MTurk platform in particular (O'Grady, 2024). Protecting against fraudulent data included embedding a slew of safeguards within the survey (e.g., a Captcha and a myriad of additional functions within Qualtrics), using specific eligibility qualifications within MTurk (e.g., high HIT rates, identifying specific countries, rejecting cases that did not provide a unique code provided to them at the end of the survey), and rigorous data screening. Although many attempts were made at recruitment from online sources (i.e., support forums) other than MTurk and social media, forum moderators frequently cited their preference for constraining forum posting scope to support for members. Despite failing to have representation from

support forums for those with personality disorders, the sample more closely resembled a clinical sample as opposed to the general population. Across MTurk and social media, participants were ultimately at liberty to choose whether to participate in the current research. Interest in and willingness to participate in a study purporting to better understand the link between personality and relationship conflict may have selected for individuals with the characteristics that the current study was ultimately hoping to recruit. In this respect, self-selection bias may have worked in favor of the current study's aims; however, self-selection for the current study likely also hindered recruitment of a sample that was representative of the general population. That is, no 'psychologically healthy' latent profile emerged from the current data. Keeping this limitation in mind, the extent to which findings of the current study are generalizable to the general population is uncertain, as it appears that the sample is more representative of, and thus generalizable to, a clinical sample.

Third, IPV behaviours were assessed by using the 39 self-referential items from Conflict Tactics Scale-Revised (CTS2), a self-report measure of IPV behaviours. The CTS2 is among the most well-validated and widely used measures of IPV perpetration (Sleath et al., 2018), though it is not without its criticisms (e.g., Winstok, 2017) and responses to criticisms (e.g., Hamby, 2017). Although multi-source data of IPV perpetration (e.g., police records) will be helpful in research future, it seems unlikely that anonymous participants would inflate their engagement in IPV behaviours. Moreover, the present research did not rely on a dyadic design that would require data from the partner, which is important given the dyadic nature of IPV (Bartholomew & Cobb, 2011).

Finally, the current study used a cross-sectional design, which precludes most inferences of causation. The use of SEM in addressing one aim of the present work, however, does allow for causality inferences given its modelling of relations amongst exogenous and endogenous variables, and the causal relations among endogenous variables (Gunzler et al., 2013). As such, we can suggest the causal role that BPD has on IPV behaviours but are limited in inferring causal relations pertaining to other aims of interest discussed.

Directions for Future Research

The current research raises several directions for future research to undertake. First, results, including the typology profiles that emerged, will need to be replicated to better understand their generalizability. It would be helpful to use alternative recruitment (e.g., in-person data collection of community members; justice-involved clients) and methods (e.g., archival data of IPV charges and/or convictions) combined with self-report in the future, particularly when considering that the current sample more closely resembled a clinical (vs. general population) sample. Moreover, the representation of a BPD profile was larger than and incongruous with Holtzworth-Munroe et al.'s (2000) findings; future research will need to parse whether this finding was specific to the current sample, or if current results generally reflect a trend of increasing BPD symptoms and IPV behaviours.

Second, future research should consider investigating the stability of profiles over time. Holtzworth-Munroe et al. (2003) provided evidence largely of stability of the Holtzworth-Munroe and Stuart's (1994) typology at 1.5- and 3-year follow ups; however, the borderline/dysphoric (BD) and generally violent/antisocial (GVA)

subtypes bore some resemblances in terms of borderline features and severity of IPV during follow ups. Their findings and those currently presented lead to a third direction for future research: including measures that capture primary and secondary psychopathy, and grandiose and vulnerable narcissism. Investigating a typology with measures that capture the nuances of dark triad constructs typically associated with GVA could test the possibility that a borderline subtype endorses secondary psychopathy and vulnerable narcissism, whereas an antisocial subtype is characterized by primary psychopathy and grandiose narcissism. Including nuanced measures may help to better distinguish profiles, which could facilitate understanding of IPV motivations specific to each.

Fourth, and related to motivations, including a measure of reactive versus proactive aggression would allow for profiles to be examined with reference to these differing forms of aggression. Babcock et al. (2023) have investigated various forms of aggression (i.e., reactive vs. proactive), finding no differences based on personality or attachment measures across these forms. However, incorporation of nuanced measures of constructs in profile generation, as suggested above, may yet yield differences in endorsement of reactive versus proactive motivational elements of aggression. If so, this distinction in motivation would be consistent with previous research that has found differences in IPV aggression, where perpetrators with ASPD were more likely to engage in proactive aggression and perpetrators with BPD (alone or co-occurring with ASPD) were more likely to use reactive aggression (Ross & Babcock, 2009). Overall, the design of the current research prevented a definitive interpretation of profile members' motivations for IPV, but it is recommended that research continues to work to disentangle motivations based on personality features. Doing so could aid in tailoring interventions to individual clients.

Fifth, coercive control – referring to a pattern of partner abusive behaviours wherein one partner leverages abuse to exert control over the other (Neave, 2020) – has been gaining theoretical and research attention in the past decades. Coercive control is typically conceptualized through a gendered lens, where men are perceived as arbiters of power and sole perpetrators of coercive control (e.g., Stark, 2007). Similar to other research on IPV (e.g., Breiding et al., 2015), research demonstrates that women also engage in, and men can be victims of, coercive control (Robertson & Murachver, 2011; Walklate et al., 2022). Hilton et al.'s (2023) empirical and psychological conceptualization of coercive control identified two subdimensions of this construct: controlling attitudes and psychological control. Future research could utilize Hilton et al.'s (2023) conceptualization to determine whether a BPD profile (such as the one derived in the current research) is more apt to engage in psychological control, whereas an ASPD profile is more apt to engage in controlling attitudes. This line of research would encourage greater theoretical consistency in IPV research and perhaps help to inform policy on criminalizing coercive control and intervening with this form of abuse.

Sixth, the current research was limited by not adopting a dyadic approach in assessing IPV (e.g., Bartholomew & Cobb, 2011). Future research should continue to investigate psychological and personality characteristics of those who engage in IPV behaviours, while including both partners in research design, and the interacting effects of partners' traits as they relate to IPV perpetration and victimization. Similarly, taking context into consideration (e.g., self-defense, in vivo stressors) could help to elucidate both partners' motivations for violence.

Seventh, future research should include assessment of adverse childhood experiences (ACEs) into its design. Holzworth-Munroe and Stuart's (1994) BD profile,

along with clinical research on BPD (Brakemeier et al., 2018), suggests that pathology emerges in part from a background of ACEs. A longitudinal or cohort-sequential design examining the causal pathway of ACEs on BPD and IPV could additionally inform primary prevention efforts by intervening with at-risk parents. This type of methodological design would also inform secondary prevention and intervention efforts by taking a trauma-informed and/or trauma-focused approach when treating non-offending clients with BPD and offending clients with a BPD profile, respectively.

Finally, taking the current results together with the robust literature on the role of BPD in predicting IPV, research on the development and refinement of IPV risk assessment tools should consider testing the predictive accuracy and utility of including a BPD diagnosis (static factor) or BPD features (dynamic factors) into risk instruments. It is anticipated that doing so could improve the incremental validity of these tools and aid in accurately capturing an offender's risk level, while identifying relevant targets for treatment.

CHAPTER SIX: CONCLUSIONS

The current research examined patterns of homogeneity (i.e., latent profiles) in a sample of non-forensic community-based adults who tended to endorse clinically meaningful features of BPD. In examining these profiles, the present research was informed by a psychosocial and personality-based theory of IPV and endeavored to embrace the move away from a 'one-size-fits-all' approach to understanding the characteristics of individuals self-reporting IPV behaviours. The profiles emerging from the current research indicated that non-forensic participants were differentiated based on self-reported BPD features, attachment insecurity, and anxiety sensitivity (AS); features that are associated with IPV and general aggression. Although the insecure attachment-

specific profile was distinguished by moderate insecure attachment, those in the mixed borderline features profile displayed clinically meaningful levels of BPD features and AS, and high attachment insecurity. Accordingly, the former profile endorsed lower frequency and severity of IPV behaviours and criminogenic risk factors, whereas the latter reported high frequency and severity IPV behaviours and endorsed high criminogenic risk factors. Along these lines, results also provided evidence for the partial explanatory role of insecure attachment and AS in the relationship between BPD and IPV. These findings suggest that intervening at the level of these mechanisms may prove useful in intervention. However, the maintenance of the direct effect of BPD on IPV suggests that intervention addressing BPD features specifically (e.g., DBT) is likely a necessary approach for IPV perpetrators presenting with such features. This recommendation is even more salient given that BPD features demonstrated incremental validity in predicting physical, psychological, and sexual IPV beyond traditional criminogenic risk factors of procriminal thinking, dark triad traits, and alcohol and other substance misuse.

Overall, results of the current research not only provide evidence for various homogenous groups of non-forensic participants self-reporting IPV, but also speak to the direct role and incremental role of BPD features on IPV behaviours. These findings support the conceptualization of IPV offenders as a heterogenous group while also reinforcing the conceptual and practical import of BPD features when conceptualizing IPV. Acknowledging profile differences and the influence that BPD features have on IPV behaviours can help inform tailored intervention and risk assessment approaches.

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Table 1*Step-by-step procedure for data screening, conditioning, and cleaning.*

Step	Variables	Condition Criteria & Decision	# Cases Removed	# Cases Remain
0. Download data from server and merge data sources.	-	-	N/A	669
1. Time to completion	Duration (in seconds)	<ul style="list-style-type: none"> Sorted cases ascending Removed if completed unfeasibly fast (i.e., < 10 minutes) 	174	495
2. Review of Qualtrics embedded data	Q_BallotBoxStuffing Q_RecaptchaScore Q_RelevantIDDuplicate Q_RelevantIDDuplicateScore Q_RelevantIDFraudScore Text-entry questions (i.e., “other, please specify”)	<ul style="list-style-type: none"> Sorted by each variable ascending Recaptcha score was only variable to yield cases with unacceptable values; remove these cases Manually reviewed text entry questions 	6 <i>Flag – Bot protection:</i> 643, 474 Recaptcha = .50 <i>Flag – text entry</i> (when asked to specify length of current relationship in months) 118: “I don't have personal relationships or a gender, but I'm here to help with any relationship advice or information you might need!” 66: “it is generally	489

from the first date or once they started exclusively dating each other”

341: “But three months is considered to be the average length of the first stage of a relationship”

330: “Healthy relationships involve honesty, trust, respect and open communication between partners and they take effort and compromise from both people”

Flag
361 and 324

489

3. Check for potential duplicate cases using IP addresses

IPAddress

- Frequency analysis to identify more than one case with same IP; 1 IP address noted with two cases associated
- Sorted ascending – Flagged two cases for manual review; Each cases provided

		complete and somewhat different responses. No other indicators suggesting fraudulent data. Both cases retained		
4. Eligibility criteria	-Age -English-speaking -No previous completion -Provision of informed consent (IC)	<ul style="list-style-type: none"> • Sorted cases ascending 8 • Removed cases that did not meet necessary conditions (relevant for IC variable especially) 176 (all variables) 115 (IC) 135 (IC) 186 (IC) 125 (IC) 297 (IC) 183 (IC) 155 (IC) 	8	481
5. Missing Value Analysis & cases without sufficient data	All quantitative study variables (questionnaires)	<ul style="list-style-type: none"> • Frequency analyses/sorting ascending to review cases with no survey data/questionnaire responses missing 660 524 306 57 657 • MVA conducted on the full sample using all continuous questionnaire item variables to determine the existence of participants with 236 400 510 645 308 667 554 383 60 217 661 642 664 492 	27	454

systematically missing data. The Little's MCAR analysis indicate data are missing completely at random (MCAR).	<i>Cases with >10% missing</i>
• Examination of missing value pattern charts indicated no evidence of monotonicity, further suggesting randomness to the missing values.	543
• Imputation analyses were also conducted to explore and examining missingness patterns more descriptively; missing data were distributed across 96.04% of variables and 71.24% ($n = 332$) of cases.	544
• Missing value patterns indicated that most missing data was concentrated	652
	654
	668
	498
	658
	665

within the SDRS-5 questionnaire

- Decision was made to remove cases with >10% missing data (i.e., cases where item non-response is indicated) (Tabachnick & Fidell, 2018)
- Re-run MVA with all sample after deleting above cases; data still MCAR.
- Decision was made to conduct Multiple Imputation (MI) for remaining missing data. Examination of descriptive statistics of iteration models indicated that model 3 was most similar to original data descriptive statistics.

6. Inappropriate responding (e.g., out of range, outliers, Demographic variables Stressors checklist All scales

- Demographic variables were checked for signs of inappropriate responding.

3 451
Flag – Univariate outliers (z >±3.29)

inappropriate entries).

- Inappropriate responses (e.g., writing out “age” in letters vs numbers) were reformatted. CTS2 Neg 530; 275; 542; 531; 514 - continuous, retained
 - Relevant scale items were reverse-coded (BPQ, ECR-R, SD3) CTS2 Psyc 199 282 -Not continuous; modified via windsorizing
 - SDRS raw scores recoded, where extreme set scores = 1 and all other scores = 0 CTS2 Inj 453 – continuous; not modified
 - CTS2 item scores were recoded in accordance with the manual, such that approximate frequency counts were obtained with the midpoint of each frequency scale (e.g., if a participant reported engaging in an act 3-5 times, their scores was recoded as perpetrating 4 of those acts). CTS2 Sex 56; 282; 453 - Not continuous; modified
 - Scale and subscale SD3 Narcissism 535; 527 – retained; continuous
- Flag – Multivariate Outliers*
538, 146, 557 (removed)

7. Normality

- scores were computed
- Checked for univariate outliers across full samples; transformed standardized z-scores for continuous variables. Potential statistical outliers flagged for scores outside range of $z = \pm 3.29$. Histograms analyzed. Continuous outliers retained without modification. Non-continuous outliers winsorized.
- Mahalanobis' distance computed, standardized, and examined visually via histogram to identify multivariate outliers
- Examined histograms, scatterplots, Shapiro-Wilks test for normality and homoscedasticity; some skewness

451

8. Examining correlations among variables

and kurtosis to data but did not violate these assumptions

- Examined bivariate correlations and variance inflation factor (VIFs) for multicollinearity and singularity; no predictor correlations exceeded magnitude of .85 and VIFs < 5.00.

451

Table 2*Descriptive statistics and frequencies of sample (N = 451).*

Variable	% (n)	M (SD)	Range		α
			Min.	Max.	
Age (years)		31.98 (9.71)	20	73	-
Unknown	0.4 (2)				
Gender Identity		-	-	-	-
Man	62.7 (283)				
Woman	37 (167)				
Trans man	0.2 (1)				
Sexual Orientation		-	-	-	-
Gay	2 (9)				
Lesbian	4 (18)				
Heterosexual	69 (311)				
Asexual	9.8 (44)				
Questioning	11.5 (52)				
No labels preferred	1.1 (5)				
Other	1.8 (8)				
Unknown	0.9 (4)				
Race/Ethnicity		-	-	-	-
Aboriginal/Indigenous	4.2 (19)				
Black	3.8 (17)				
White	80.3 (362)				
Latin American/Hispanic	5.8 (26)				
Arab	0.2 (1)				
Chinese	2.9 (13)				
Filipino	0.7 (3)				
Korean	0.2 (1)				
Bi-/Multi-Racial	1.3 (6)				
Other	0.4 (2)				
Unknown					
Country of Residence		-	-	-	-
USA	81.2 (366)				
Canada	17.5 (79)				
Other	0.2 (1)				
Unknown	1.1 (5)				

Table 2 continued

Variable	% (n)	M (SD)	Range		α
			Min.	Max.	
Education		-	-	-	-
Elementary School	0.2 (1)				
Some Middle or High School	1.3 (6)				
High School/GED	4.2 (19)				
Some College/Trade School	6.2 (28)				
College/Trade School	16.6 (75)				
Some University	7.1 (32)				
University	48.1 (217)				
Graduate School Completed	15.5 (70)				
Other	0.2 (1)				
Unknown	0.4 (2)				
Employment		-	-	-	-
Full-time Student	9.5 (43)				
Employed Full-Time	82.5 (372)				
Employed Part-Time	1.8 (8)				
Flexible Employment	1.8 (8)				
Not Working, Looking	0.9 (4)				
Not Working, Not Looking	0.4 (2)				
Retired	1.3 (6)				
Other	1.8 (8)				
Relationship Status		-	-	-	-
Single, Not Dating	21.3 (96)				
Dating, One Person Exclusive	14 (63)				
Dating, More Than 1 Person	4.9 (22)				
In Committed Relationship	54.8 (247)				
Open Relationship	3.5 (16)				
Unknown	1.6 (7)				
Current Relationship Length (months)	-	-	0.5	600	-
Current Partner's Gender					
Man	34.1 (154)	-	-	-	-
Woman	42.6 (192)				
Transgender	0.4 (2)				
Not applicable	22.8 (103)				
Stressor Checklist - Last 6 months		-	0	8	-
Divorce/separation	10.9 (49)				
Death of relative	21.5 (97)				
Natural disaster	21.5 (97)				
Serious accident	16.4 (74)				
Serious financial problems	25.5 (115)				
Serious mental/physical illness	19.5 (88)				
Physical/sexual abuse	10.6 (48)				
Other	3.5 (16)				

Table 2 continued

Variable	% (n)	M (SD)	Range		α
			Min.	Max.	
SDRS-5		7.24 (8.52)	0	48	.67
CTS2	CTS2				
	Lifetime				
Negotiation	32.5 (147)	44.74 (31.54)	0	150	.82
Psychological Aggression	32.5 (147)	43.01 (39.65)	0	180	.88
Minor		22.34 (20.92)	0	90	
Severe		20.67 (21.92)	0	100	
Physical Assault	31.7 (143)	61.73 (60.56)	0	270	.95
Minor		34.06 (36.28)	0	125	
Severe		27.67 (28.16)	0	220	
Sexual Coercion	28.6 (129)	37.10 (35.37)	0	150	.91
Minor		19.42 (21.67)	0	75	
Severe		17.63 (17.16)	0	100	
Injury	25.1 (113)	30.64 (30.91)	0	140	.91
BPQ		38.01 (15.08)	2	75	.92
Impulsivity		4.31 (2.36)	0	9	.68
Affective Instability		4.97 (2.63)	0	10	.71
Abandonment		4.45 (2.49)	0	10	.69
Relationships		3.62 (1.71)	0	8	.63
Self-Image		4.80 (2.24)	0	9	.63
Suicide/Self-Mutilation		3.09 (1.96)	0	7	.65
Emptiness		4.75 (2.56)	0	10	.69
Intense Anger		4.74 (2.54)	0	10	.68
Quasi-Psychotic States		3.18 (1.80)	0	7	.62
ECR-S					
Attachment Anxiety		28.48 (7.85)	6	42	.84
Attachment Avoidance		29.18 (6.54)	6	42	.72
ASI-3		33.61 (14.30)	0	62	.95
Social Concerns		12.43 (4.72)	0	20	.83
Physical Concerns		11.90 (5.27)	0	20	.85
Cognitive Concerns		9.29 (6.85)	0	24	.87
SD3					
Narcissism		3.04 (0.51)	1	4	.61
Machiavellianism		3.50 (0.76)	1	5	.84
Psychopathy		3.14 (0.80)	1	4	.73
PICTS-L-SF		92.90 (24.65)	35	140	.97
DAST-10		3.74 (2.69)	0	10	.75
CAGE		1.68 (1.13)	0	5	.58

Note: CAGE inter-item correlation = .25 and within range of acceptability (Cohen & Swerdlik, 2005).

Table 3

Pearson product correlations amongst orthogonal subscales and total scores for full sample (N = 451).

Measure	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. CTS2 Psychological	-													
2. CTS2 Physical	.85*	-												
3. CTS2 Sexual	.79*	.82*	-											
4. CTS2 Injury	.81*	.86*	.81*	-										
5. BPQ Total	.46*	.47*	.45*	.47*	-									
6. ECR-S Anxiety	.26*	.27*	.26*	.26*	.51*	-								
7. ECR-S Avoidance	.34*	.36*	.31*	.38*	.50*	.40*	-							
8. ASI-3 Total	.35*	.38*	.34*	.37*	.56*	.65*	.47*	-						
9. Narcissism	.23*	.27*	.28*	.28*	.25*	.35*	.29*	.35*	-					
10. Machiavellianism	.22*	.23*	.26*	.23*	.40*	.62*	.30*	.64*	.47*	-				
11. Psychopathy	.37*	.40*	.34*	.38*	.53*	.58*	.47*	.65*	.48*	.67*	-			
12. PICTS-S-LF	.38*	.43*	.41*	.41*	.60*	.66*	.55*	.74*	.49*	.72*	.78*	-		
13. DAST-10	.37*	.39*	.35*	.39*	.52*	.25*	.36*	.39*	.27*	.24*	.41*	.49*	-	
14. CAGE	.31*	.33*	.30*	.32*	.48*	.21*	.32*	.39*	.16*	.24*	.37*	.44*	.60*	-

Note. *Bonferroni correction applied (.05/14 = .004; $p < .004$). CTS2 = Conflict Tactics Scale – Revised; BPQ = Borderline Personality Questionnaire; ECR-S = Experiences in Close Relationships – Short Form; ASI-3 = Anxiety Sensitivity Index-3; Narcissism = Short Dark Triad (SD3) narcissism subscale; Machiavellianism = SD3 Machiavellianism subscale; Psychopathy = SD3 Psychopathy subscale; PICTS-S-LF = Psychological Inventory of Criminal Thinking Scale – Short – Layperson Form; DAST-10 = Drug Abuse Screening Test-10

Table 4

Pearson product correlations amongst orthogonal subscales and total scores for men (n = 283; below diagonal) and women (n = 167; above diagonal).

Measure	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. CTS2 Psychological	-	.89*	.83*	.84*	.47*	.29*	.36*	.45*	.29*	.31*	.41*	.47*	.42*	.33*
2. CTS2 Physical	.83*	-	.86*	.92*	.49*	.29*	.38*	.47*	.35*	.34*	.46*	.52*	.25*	.39*
3. CTS2 Sexual	.77*	.80*	-	.89*	.50*	.29*	.37*	.43*	.33*	.36*	.48*	.53*	.48*	.35*
4. CTS2 Injury	.79*	.84*	.76*	-	.49*	.30*	.41*	.48*	.35*	.35*	.48*	.53*	.46*	.36*
5. BPQ Total	.45*	.47*	.42*	.47*	-	.62*	.56*	.72*	.32*	.56*	.63*	.71*	.54*	.52*
6. ECR-S Anxiety	.24*	.26*	.24*	.24*	.44*	-	.45*	.60*	.32*	.61*	.57*	.62*	.27*	.23*
7. ECR-S Avoidance	.33*	.34*	.28*	.36*	.47*	.38*	-	.53*	.33*	.40*	.53*	.60*	.27*	.22
8. ASI-3 Total	.30*	.33*	.29*	.31*	.48*	.67*	.43*	-	.35*	.57*	.64*	.74*	.49*	.46*
9. Narcissism	.19*	.21*	.25*	.24*	.20*	.37*	.25*	.32*	-	.61*	.53*	.60*	.26*	.18
10. Machiavellianism	.18*	.15	.21*	.14	.31*	.61*	.23*	.66*	.36*	-	.67*	.77*	.34*	.27*
11. Psychopathy	.35*	.35*	.34*	.32*	.47*	.58*	.43*	.65*	.44*	.69*	-	.81*	.47*	.41*
12. PICTS-S-LF	.35*	.38*	.35*	.35*	.56*	.67*	.53*	.73*	.40*	.65*	.74*	-	.56*	.44*
13. DAST-10	.35*	.35*	.28*	.35*	.53*	.22*	.41*	.29*	.23*	.12	.34*	.41*	-	.36*
14. CAGE	.30*	.29*	.27*	.29*	.46*	.18*	.38*	.32*	.13	.18*	.31*	.40*	.60*	-

Note. *Bonferroni correction applied (.05/14 = .004; $p < .004$). CTS2 = Conflict Tactics Scale – Revised; BPQ = Borderline Personality Questionnaire; ECR-S = Experiences in Close Relationships – Short Form; ASI-3 = Anxiety Sensitivity Index-3; Narcissism = Short Dark Triad (SD3) narcissism subscale; Machiavellianism = SD3 Machiavellianism subscale; Psychopathy = SD3 Psychopathy subscale; PICTS-S-LF = Psychological Inventory of Criminal Thinking Scale – Short – Layperson Form; DAST-10 = Drug Abuse Screening Test-10

Table 5

Results of latent profile analysis including solely clinical variables of community members reporting varying degrees of IPV perpetration.

Model	Participants % (n)	Maximum Loglikelihood	AIC	BIC	SSABIC	Entropy	Adjusted LMR (p)	BLRT (p)
2 class	19.12 (83) 80.88 (351)	-15524.500	31135.001	31310.142	31173.683	0.948	1470.537 (.117)	-16267.841 (.000)***
3 class	18.56 (80) 77.98 (338) 3.46 (15)	-15099.917	30315.834	30552.070	30368.010	0.974	839.947 (.414)	-15524.500 (.000)***
4 class	18.89 (82) 77.42 (336) 0.69 (3) 2.99 (13)	-14810.223	29766.447	30063.779	29832.117	0.981	573.096 (.033)*	-15099.917 (.000)***
5 class	49.31 (214) 14.98 (65) 32.03 (139) 2.99 (13) 0.69 (3)	-14564.344	29284.179	29642.607	29363.342	0.930	506.706 (.315)	-14810.223 (.000)***

Note. AIC = Akaike Information Criteria; BIC = Bayesian Information Criteria; SSABIC = sample size-adjusted BIC; LMR = Lo-Mendell-Rubin test; BLRT = bootstrapped likelihood ratio test.

Table 6

Results of latent profile analysis of community members reporting varying degrees of IPV perpetration including SD3 subscales, PICTS-L-SF, DAST-10, and CAGE.

Model	Participants % (n)	Maximum Log likelihood	AIC	BIC	SSABIC	Entropy	Adjusted LMR (p)	BLRT (p)
2 class	99.3 (431) 0.69 (3)	-24744.629	49611.258	49859.714	49666.133	1.000	-	-
3 class	0.69 (3) 96.3 (418) 2.99 (13)	-23273.33	46711.467	47045.457	46785.233	1.000	-	-
4 class	21.1 (87) 2.99 (13) 76.21 (330) 0.69 (3)	-22267.551	44741.103	45160.626	44833.760	0.976	1996.708 (.769)	-23273.73 (.000)***
5 class	51.38 (223) 14.29 (62) 30.65 (133) 2.99 (13) 0.69 (3)	-21835.774	43919.547	44424.605	44031.096	0.950	856.837 (.708)	-22267.551 (.000)***

Note. AIC = Akaike Information Criteria; BIC = Bayesian Information Criteria; SSABIC = sample size- adjusted BIC; LMR = Lo-Mendell-Rubin test; BLRT = bootstrapped likelihood ratio test.

Table 7

Results of latent profile analysis of community members reporting varying degrees of IPV perpetration including DAST-10 and CAGE.

Model	Participants % (n)	Maximum Loglikelihood	AIC	BIC	SSABIC	Entropy	Adjusted LMR (p)	BLRT (p)
2 class	99.3 (431) 0.69 (3)	-19934.898	39967.796	40167.375	40011.876	1.000	-	-
3 class	0.69 (3) 19.60 (85) 79.72 (346)	-19128.211	38388.421	38657.343	38447.794	0.973	1597.897 (.421)	-19934.898 (.000)***
4 class	18.89 (82) 2.99 (13) 77.42 (336) 0.69 (3)	-18356.821	36879.742	37217.705	36954.308	0.982	1527.979 306)	-19128.21 (.000)***
5 class	0.69 (3) 18.89 (82) 1.84 (8) 1.15 (5) 77.42 (336)	-18027.596	36255.192	36662.497	36345.151	0.985	652.133 (.568)	-18356.821 (.000)***

Note. AIC = Akaike Information Criteria; BIC = Bayesian Information Criteria; SSABIC = sample size-adjusted BIC; LMR = Lo-Mendell-Rubin test; BLRT = bootstrapped likelihood ratio test.

Table 8

Latent profile membership descriptive characteristics and comparisons.

Variables	Statistic		Profile 1 "Insecure Attachment-Specific" n = 90		Profile 2 "Mixed Borderline Features" n = 361	
	χ^2	P	n	%	n	%
Demographic Variables						
Gender Identity	.653	.722				
Man			54	60	229	63.3
Woman			36	40	131	36.2
Sexual Orientation	22.28	.001				
Gay			2	2.2	7	1.9
Lesbian			2	2.2	16	4.4
Heterosexual			76	84.4	235	64.9
Asexual			2	2.2	42	11.6
Questioning			3	3.3	49	13.5
No labels preferred			1	1.1	4	1.1
Other			4	4.4	4	1.1
Race/Ethnicity	20.99	.013				
Indigenous			1	1.1	18	5
Black			2	2.2	15	4.1
White			75	83.3	287	79.3
Latin American/Hispanic			2	2.2	2	0.6
Asian			9	10	10	2.9
Bi-/Multi-Racial			1	1.1	5	1.4

Table 8 continued

Variables	Statistic		Profile 1 "Insecure Attachment-Specific" n = 90		Profile 2 "Mixed Borderline Features" n = 361	
	χ^2	p	n	%	n	%
Education	2.82	.945	V	.08		
Elementary			0	0	1	0.3
Some Middle/High			0	0	6	1.7
High School/GED			4	4.4	15	4.2
Some College			6	6.7	22	6.1
College			13	14.4	62	17.2
Some University			7	7.8	25	6.9
University			43	47.8	174	48.3
Graduate School			16	17.8	55	15
Employment	20.47	.005	V	.21		
Full-time Student			7	7.8	36	10
Employed Full-Time			69	76.7	303	83.9
Employed Part-Time			3	3.3	5	1.4
Flexible Employment			2	2.2	6	1.7
Not Working, Looking			2	2.2	2	0.6
Not Working, Not Looking			0	0	2	0.6
Retired			5	5.6	1	0.3
Other			2	2.2	6	1.7
Relationship Status	16.82	.002	V	.20		
Single, Not Dating			11	12.2	85	23.9
Dating, one-person exclusive			11	12.2	52	14.6
Dating, >1 person			0	0	22	6.2
Committed Relationship			65	72.2	182	51.3
Open relationship			2	2.2	14	3.9

Table 9

Latent profile comparisons on continuous measures of borderline features, attachment, and anxiety sensitivity.

Variables	Statistic		Profile 1 "Insecure Attachment-Specific" n = 90		Profile 2 "Mixed Borderline Features" n = 361	
	F	p	M	SD	M	SD
Age	39.32	< .001	37.48	13.14	30.60	8.12
BPQ Impulsivity	181.91	< .001	1.76	1.42	4.95	2.11
BPQ Affective Instability	146.72	< .001	2.35	2.14	5.62	2.32
BPQ Abandonment	238.77	< .001	1.51	1.62	5.18	2.11
BPQ Relationships	85.95	< .001	2.26	1.95	3.97	1.46
BPQ Self-Image	105.62	< .001	2.84	1.70	5.29	2.06
BPQ Suicide/Self-Mutilation	123.74	< .001	1.26	1.20	3.54	1.85
BPQ Empiriness	246.39	< .001	1.69	1.75	5.51	2.12
BPQ Intense Anger	147.55	< .001	2.21	1.62	5.38	2.32
BPQ Quasi-Psychotic States	126.49	< .001	1.48	1.32	3.72	1.17
ECR-S Attachment Anxiety	107.85	< .001	21.58	7.07	30.20	7.05
ECR-S Attachment Avoidance	71.60	< .001	24.33	5.54	30.39	6.20
ASI-3 Social Concerns	155.54	< .001	7.58	5.11	14.55	4.62
ASI-3 Physical Concerns	174.71	< .001	6.13	5.15	14.14	5.17
ASI-3 Cognitive Concerns	230.63	< .001	5.13	5.15	14.12	5.03

Note: BPQ = Borderline Personality Questionnaire, ECR-S = Experiences in Close Relationships – Short Form, ASI-3 = Anxiety Sensitivity Index-3

Table 10

Comparing profiles on endorsement of IPV behaviors.

Variable	Statistic	Profile 1 "Insecure Attachment-Specific" n = 90 M(SD)		Profile 2 "Mixed Borderline Features" n = 361 M(SD)	
		F	p	η^2_p	
CTS2 Psychological Aggression		67.99	< .001	.13	50.44 (39.49)
	Minor	27.92	< .001		25.50 (21.08)
CTS2 Physical Assault		69.60	< .001		24.61 (22.13)
	Minor	81.25	< .001	.15	76.17 (62.14)
CTS2 Sexual Coercion		63.86	< .001		32.93 (28.29)
	Severe	79.39	< .001		41.11 (36.61)
CTS2 Sexual Coercion		57.22	< .001	.11	43.03 (35.85)
	Minor	12.26	< .001		19.79 (17.46)
Severe	63.25	< .001		23.16 (22.05)	

Note: CTS2 = Conflict Tactics Scale-Revised.

Table 11

Comparing profiles on endorsement of criminogenic risk factors.

Variable	Statistic	Profile 1 "Insecure Attachment-Specific" n = 90 M(SD)		Profile 2 "Mixed Borderline Features" n = 361 M(SD)	
		F	P	η_p^2	
SD3 Narcissism	19.60	<.001	.01	2.00 (0.57)	3.50 (0.48)
SD3 Machiavellianism	53.71	<.001	.11	1.83 (0.87)	4.63 (0.68)
SD3 Psychopathy	147.18	<.001	.25	2.35 (0.81)	3.34 (0.66)
PICTS-L-SF	214.85	<.001	.32	64.84 (24.30)	99.89 (19.18)
DAST-10	83.99	<.001	.16	1.60 (2.27)	4.27 (2.51)
CAGE	74.35	<.001	.14	0.69 (1.19)	1.93 (1.23)

Note: SD3 = Short Dark Triad scale; PICTS-S-LF = Psychological Inventory of Criminal Thinking Scale – Short – Layperson Form; DAST-10 = Drug Abuse Screening Test-10

Table 12*Goodness of fit indices.*

Model	χ^2	df	GFI	CFI	RMSEA	PNFI	AIC	BIC
Hypothetical Model	723.88	125	.83	.87	.10	.78	779.88	782.22
Modified Model 1	576.38	109	.86	.90	.09	.80	630.38	632.50
Attachment Model	336.50	70	.90	.92	.07	.80	378.50	464.84
AS Model	414.58	83	.88	.92	.09	.82	458.58	460.09

Note: χ^2 = chi-square, df = degrees of freedom, GFI = goodness-of-fit index, CFI = comparative normed fit index, RMSEA = root mean squared error of approximation, PNFI = parsimony normed fit index, AIC = Akaike information criterion, BIC = Bayesian information criterion

Table 13*Loadings of Attachment measurement model.*

Latent variables	Measurement variables	Factor loadings	Standardized estimates	<i>p</i> -value	SMC
BPD	BPQ Impulsivity	1.00	0.72	-	0.52
	BPQ Affective Instability	1.00	0.63	-	0.40
	BPQ Abandonment	1.00	0.67	-	0.44
	BPQ Relationships	1.00	0.69	-	0.47
	BPQ Self-Image	1.00	0.65	-	0.43
	BPQ Suicide	1.00	0.74	-	0.55
	BPQ Anger	1.00	0.65	-	0.42
Attachment	BPQ Quasi-Psychotic States	0.87	0.71	<.001	0.51
	ECR-S Anxiety	1.00	0.63	-	0.40
	ECR-S Avoidance	0.83	0.64	<.001	0.42
IPV	CTS2 Physical Assault	1.78	0.94	<.001	0.89
	CTS2 Psych Aggression	1.00	0.88	-	0.78
	CTS2 Sexual Aggression	1.00	0.89	-	0.79

Note: BPD = borderline personality disorder; IPV = intimate partner violence; CTS2 = Conflict Tactics Scale – Revised; BPQ = Borderline Personality Questionnaire; ECR-S = Experiences in Close Relationships – Short Form; SMC = squared multiple correlations

Table 14

Estimates of Attachment structural model.

Exogenous variables	Endogenous variables	Estimate	Standardized estimates	p-value	SMC
BPD	Attachment	2.38	0.85	< .001	0.72
	IPV	10.32	0.46	< .001	0.32
Attachment	IPV	1.00	0.12	-	

Note: BPD = borderline personality disorder;; IPV = intimate partner violence

Table 15

Mediating effects of Attachment structural model.

Exogenous Variables	Endogenous variables	Direct effects	Indirect effects	Total effects
BPD	Attachment	2.38 (0.85)*	-	2.38 (0.85)*
	IPV	10.32 (0.46)*	2.38 (0.11)***	12.70 (0.56)*
Attachment	IPV	1.00 (0.12)	-	1.00 (0.12)

Note. * $p < .05$, *** $p < .001$; BPD = borderline personality disorder; IPV = intimate partner violence; values in parentheses are standardized estimates. Bootstrapping = 5,000k.

Table 16

Loadings of AS measurement model.

Latent variables	Measurement variables	Factor loadings	Standardized estimates	p-value	SMC
BPD	BPQ Impulsivity	1.00	0.72	-	0.52
	BPQ Affective Instability	1.00	0.63	-	0.40
	BPQ Abandonment	1.00	0.67	-	0.44
	BPQ Relationships	1.00	0.69	-	0.47
	BPQ Self-Image	1.00	0.65	-	0.43
	BPQ Suicide	1.00	0.74	-	0.55
	BPQ Anger	1.00	0.65	-	0.42
	BPQ Quasi-Psychotic States	0.87	0.71	<.001	0.51
	ASI-3 Physical	1.00	0.92	<.001	0.84
	ASI-3 Cognitive	1.04	0.92	-	0.84
AS	ASI-3 Social	1.00	0.88	-	0.78
	CTTS2 Physical Assault	1.78	0.94	<.001	0.89
IPV	CTTS2 Psych Aggression	1.00	0.88	-	0.78
	CTTS2 Sexual Aggression	1.00	0.89	-	0.79

Note: BPD = borderline personality disorder; AS = anxiety sensitivity; IPV = intimate partner violence; CTS2 = Conflict Tactics Scale – Revised; BPQ = Borderline Personality Questionnaire; ASI-3 = Anxiety Sensitivity Index-3; SMC = squared multiple correlations

Table 17

Estimates of AS structural model.

Exogenous variables	Endogenous variables	Estimate	Standardized estimates	p-value	SMC
BPD	AS	2.23	0.63	< .001	0.40
	IPV	10.27	0.45	< .001	0.32
AS	IPV	1.00	0.16	-	

Note: BPD = borderline personality disorder; AS = anxiety sensitivity; IPV = intimate partner violence; SMC = squared multiple correlations

Table 18

Mediating effects of AS structural model.

Exogenous Variables	Endogenous variables	Direct effects	Indirect effects	Total effects
BPD	AS	2.28 (0.63)*	-	2.28 (0.63)*
	IPV	10.27 (0.45)*	2.28 (0.10)***	12.55 (0.55)*
AS	IPV	1.00 (0.16)	-	1.00 (0.16)

Note. * $p < .05$, *** $p < .001$; BPD = borderline personality disorder; AS = anxiety sensitivity; IPV = intimate partner violence; values in parentheses are standardized estimates. Bootstrapping = 5,000k.

Table 19

Loadings of Comparative measurement model.

Latent variables	Measurement variables	Factor loadings	Standardized estimates	p-value	SMC	
BPD	BPQ Impulsivity	1.00	0.72	-	0.52	
	BPQ Affective Instability	1.00	0.63	-	0.40	
	BPQ Abandonment	1.00	0.67	-	0.44	
	BPQ Relationships	1.00	0.69	-	0.47	
	BPQ Self-Image	1.00	0.65	-	0.43	
	BPQ Suicide	1.00	0.74	-	0.55	
	BPQ Anger	1.00	0.65	-	0.42	
	BPQ Quasi-Psychotic States	0.88	0.72	<.001	0.51	
	SD3 Narcissism	1.00	0.55	-	0.30	
	SD3 Machiavellianism	2.12	0.77	<.001	0.59	
Criminogenic Risk	SD3 Psychopathy	2.47	0.85	<.001	0.73	
	PICTS-L-SF	82.08	0.92	<.001	0.85	
	DAST10	4.98	0.51	<.001	0.26	
	CAGE	2.18	0.46	<.001	0.21	
	CTS2 Physical Assault	1.78	0.94	<.001	0.87	
	CTS2 Psych Aggression	1.00	0.87	-	0.76	
	CTS2 Sexual Aggression	1.00	0.88	-	0.77	
	IPV					

Note: BPD = borderline personality disorder; IPV = intimate partner violence; BPQ = Borderline Personality Questionnaire; SD3 = Short Dark Triad scale; PICTS-S-LF = Psychological Inventory of Criminal Thinking Scale – Short – Layperson Form; DAST-10 = Drug Abuse Screening Test-10; CTS2 = Conflict Tactics Scale-Revised; SMC = squared multiple correlations

Table 20

Estimates of Comparative structural model.

Exogenous variables	Endogenous variable	Estimate	Standardized estimates	p-value	SMC
BPD	IPV	9.20	0.43	< .001	0.25
Criminogenic Risk Factors	IPV	27.97	0.25	< .001	

Note: BPD = borderline personality disorder; IPV = intimate partner violence

Table 21

Summary of hierarchical regression analysis predicting CTS2 Physical Assault scores as a function of BPQ subscales, controlling for dark triad traits, procriminal thinking, and alcohol and drug misuse.

Step	Predictor	Unstandardized coefficients		Standardized coefficients		R ²	R ² change	F change	p
		B	SE	β	p				
1	SD3 Narcissism	11.22	6.02	.09	.063	.26	.26	25.48***	< .001
	SD3 Machiavellianism	-15.82	5.24	-.19**	.003				
	SD3 Psychopathy	13.61	5.45	.17*	.013				
	PICTS-L-SF	0.71	0.20	.28***	< .001				
	DAST-10	3.47	1.29	.15***	.007				
	CAGE	4.04	2.50	.09	.107				
2	BPQ Impulsivity	2.59	1.74	.09	.136	.35	.09	6.77***	< .001
	BPQ Affective Instability	4.34	1.43	.17***	.003				
	BPQ Abandonment	1.08	1.59	.04	.679				
	BPQ Relationships	0.20	1.69	.01	.906				
	BPQ Self-Image	1.63	1.52	.06	.284				
	BPQ Suicide	6.23	1.78	.19***	< .001				
	BPQ Empiness	3.79	1.48	.16	.011				
	BPQ Anger	2.25	1.44	.09	.118				
	BPQ Quasi-Psychotic	2.55	1.92	.07	.186				

Note: * $p < .05$. ** $p < .01$. *** $p < .001$ (two-tailed). BPQ = Borderline Personality Questionnaire; Narcissism = Short Dark Triad (SD3) narcissism subscale; Machiavellianism = SD3 Machiavellianism subscale; Psychopathy = SD3 Psychopathy subscale; PICTS-S-LF = Psychological Inventory of Criminal Thinking Scale – Short – Layperson Form; DAST-10 = Drug Abuse Screening Test-10

Table 22.

Summary of hierarchical regression analysis predicting CTS2 Psychological Aggression scores as a function of BPQ subscales, controlling for dark triad traits, procriminal thinking, and alcohol and drug misuse.

Step	Predictor	Unstandardized coefficients		Standardized coefficients		R^2	R^2 change	F change	p
		B	SE	β	p				
1	SD3 Narcissism	4.17	3.92	.05	.288	.21	.21	19.55***	< .001
	SD3 Machiavellianism	-5.97	3.42	-.16	.081				
	SD3 Psychopathy	8.79	3.55	.18*	.014				
	PICTS-L-SF	0.29	0.13	.18*	.022				
	DAST-10	2.59	0.84	.18***	.002				
	CAGE	2.24	1.63	.07	.169				
2	BPQ Impulsivity	1.72	1.13	.10	.126	.31	.10	7.35***	< .001
	BPQ Affective Instability	2.96	0.93	.18***	.002				
	BPQ Abandonment	0.39	1.03	.02	.685				
	BPQ Relationships	0.44	1.10	.02	.685				
	BPQ Self-Image	1.85	0.98	.10	.061				
	BPQ Suicide	3.38	1.15	.16***	.003				
	BPQ Empiness	3.12	0.96	.20***	.001				
	BPQ Anger	2.24	0.93	.13*	.017				
	BPQ Quasi-Psychotic	1.68	1.25	.08	.179				

Note: * $p < .05$. ** $p < .01$. *** $p < .001$ (two-tailed). BPQ = Borderline Personality Questionnaire; Narcissism = Short Dark Triad (SD3) narcissism subscale; Machiavellianism = SD3 Machiavellianism subscale; Psychopathy = SD3 Psychopathy subscale; PICTS-S-LF = Psychological Inventory of Criminal Thinking Scale – Short – Layperson Form; DAST-10 = Drug Abuse Screening Test-10

Table 23.

Summary of hierarchical regression analysis predicting CTS2 Sexual Aggression scores as a function of BPQ subscales, controlling for dark triad traits, procriminal thinking, and alcohol and drug misuse.

Step	Predictor	Unstandardized coefficients		Standardized coefficients		R ²	R ² change	F change	P
		B	SE	β	P				
1	SD3 Narcissism	6.58	3.48	.09	.059	.22	.22	20.84***	< .001
	SD3 Machiavellianism	-4.21	3.03	-.09	.165				
	SD3 Psychopathy	8.00	3.15	.18*	.011				
	PICTS-L-SF	0.27	0.11	.19*	.017				
	DAST-10	1.70	0.74	.13*	.022				
	CAGE	2.16	1.44	.08	.136				
2	BPQ Impulsivity	1.59	1.02	.10	.121	.29	.07	4.59***	< .001
	BPQ Affective Instability	1.36	0.84	-.09	.107				
	BPQ Abandonment	1.90	0.93	.13*	.043				
	BPQ Relationships	-0.93	1.00	-.05	.348				
	BPQ Self-Image	-0.62	0.89	-.04	.487				
	BPQ Suicide	1.58	1.05	.09	.133				
	BPQ Empiness	0.79	0.87	.06	.369				
	BPQ Anger	1.86	0.85	.13*	.029				
	BPQ Quasi-Psychotic	1.07	1.13	.05	.347				

Note: * $p < .05$. ** $p < .01$. *** $p < .001$ (two-tailed). BPQ = Borderline Personality Questionnaire; Narcissism = Short Dark Triad (SD3) narcissism subscale; Machiavellianism = SD3 Machiavellianism subscale; Psychopathy = SD3 Psychopathy subscale; PICTS-S-LF = Psychological Inventory of Criminal Thinking Scale – Short – Layperson Form; DAST-10 = Drug Abuse Screening Test-10

Table 24.

Standardized canonical function coefficients, canonical loadings, and cross-loadings for Function 1 of CCA examining BPQ subscales and CTS2 subscales

	Variable	Coefficient	Canonical Loading	Cross-Loadings
Set 1	BPQ Impulsivity	.35	.84	.46
	BPQ Affective Instability	.23	.54	.29
	BPQ Abandonment	.14	.38	.43
	BPQ Relationships	.07	.42	.23
	BPQ Self-Image	.23	.39	.21
	BPQ Emptiness	.23	.66	.36
	BPQ Suicide	.29	.82	.45
	BPQ Intense Anger	.28	.74	.40
	BPQ Quasi-Psychotic	.31	.76	.42
Set 2	CTS2 Physical Assault	.52	.97	.53
	CTS2 Psychological Aggression	.42	.95	.52
	CTS2 Sexual Coercion	.11	.87	.48

Note: $R_e = .55$. Canonical loadings greater than .71 are bolded.

Table 25.

Standardized canonical function coefficients, canonical loadings, and cross-loadings for Function 1 of CCA examining criminogenic risk factor variables subscales and criminogenic risk factor variables and CTS2 subscales.

	Variable	Coefficient	Canonical Loading	Cross-Loadings
Set 1	SD3 Narcissism	.18	.56	.29
	SD3 Machiavellianism	.32	.48	.25
	SD3 Psychopathy	.36	.80	.41
	PCTS-L-SF	.51	.86	.44
	DAST-10	.30	.76	.39
Set 2	CAGE	.17	.65	.33
	CTS2 Physical Assault	.69	.98	.51
	CTS2 Psychological Aggression	.07	.89	.46
	CTS2 Sexual Coercion	.29	.91	.47

Note: $R_c = .51$. Canonical loadings greater than .71 are bolded.

Table 26.

Summary and comparison of prominent typologies of IPV perpetrators.

Typology	Subtypes	Theoretical perspective	Core Feature	Treatment Targets	Relevance to RNR model
BPD features (Doyle, 2024)	<ol style="list-style-type: none"> 1. Insecure attachment-specific 2. Mixed borderline features 	Psychological/personality/psychosocial	Personality disorder (emphasis on BPD)	Psychological variables associated with subtype (e.g., emotion dysregulation)	Subtypes show differential endorsement of key risk/need factors
Holtzworth-Munroe & Stuart's (1994)	<ol style="list-style-type: none"> 1. Family-only 2. Borderline/dysphoric 3. General violent/antisocial 4. Low level antisocial 	Psychological/personality/psychosocial	Personality disorder	Psychological variables associated with subtype.	Has not been formally synthesized with RNR model, but theoretically conciliable.
Johnson's (1995, 2008)	<ol style="list-style-type: none"> 1. Coercive controlling violence 2. Violent resistance 3. Situational couple violence 4. Mutual violent control violence 5. Separation-instigated violence 	Feminist & family violence	Role of coercive control	Requires link from behaviour to psychological variables to identify treatment targets.	Has not been formally synthesized with RNR model, but theoretically conciliable.
Reactive-Proactive (Chase et al., 2001)	<ol style="list-style-type: none"> 1. Reactive aggression 2. Proactive aggression 	Mechanisms that drive aggression	Motivation for aggression	Requires link from motivation to psychological variables to identify treatment targets.	Has not been formally synthesized with RNR. Theoretically conciliable, but one individual may aggress reactively or proactively depending on situation.

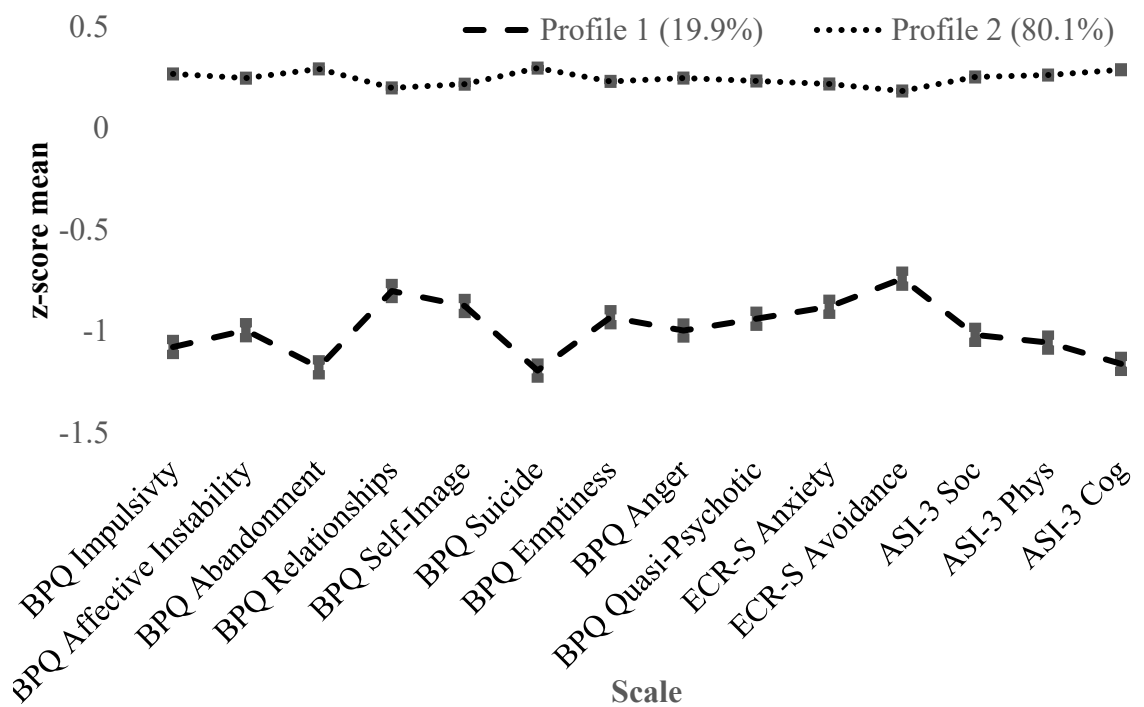


Figure 1. Standardized mean scores depicting latent profiles of community-based participants reporting varying degrees of IPV based on BPD features, attachment style, and anxiety sensitivity.

BPQ = Borderline Personality Questionnaire; ECR-S = Experiences in Close Relationships – Short Form; Anxiety = ECR-S Attachment Anxiety; Avoidance = ECR-S Attachment Avoidance; ASI-3 = Anxiety Sensitivity Index-3

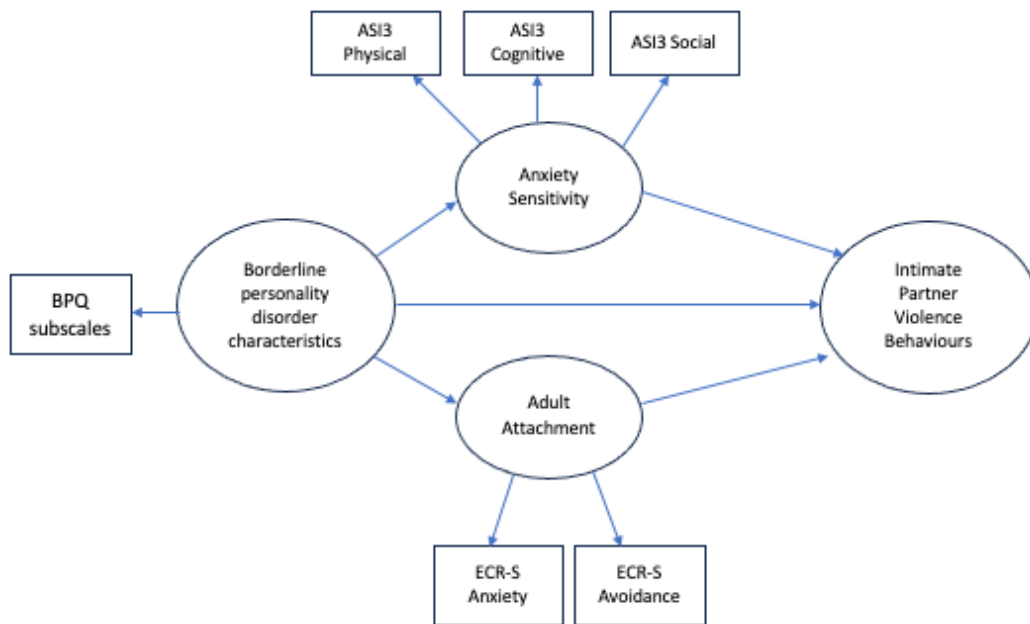


Figure 2. Hypothetical model of relations between latent variables of BPD, AS, Attachment, and IPV

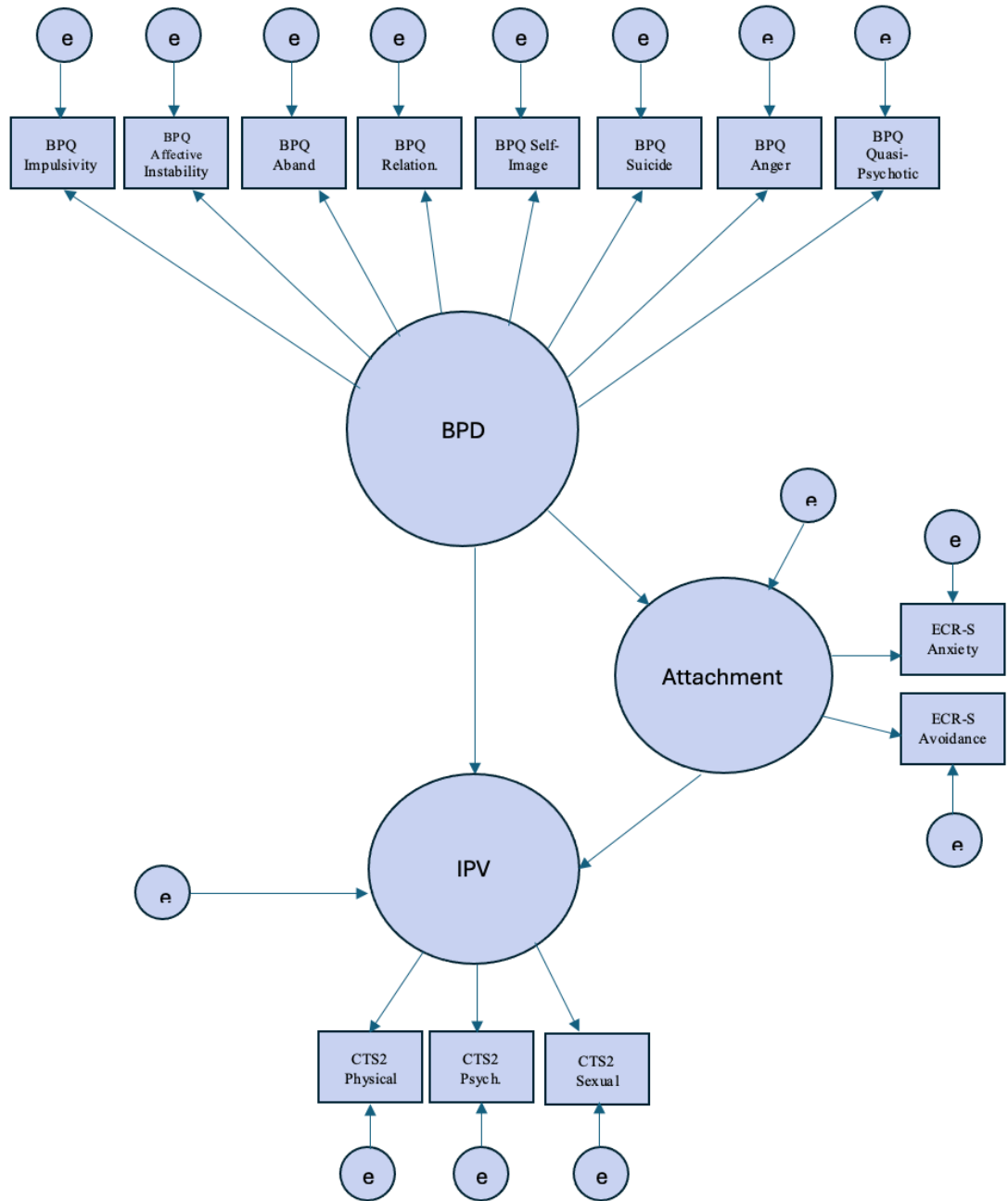


Figure 3. Attachment mediation conceptual model

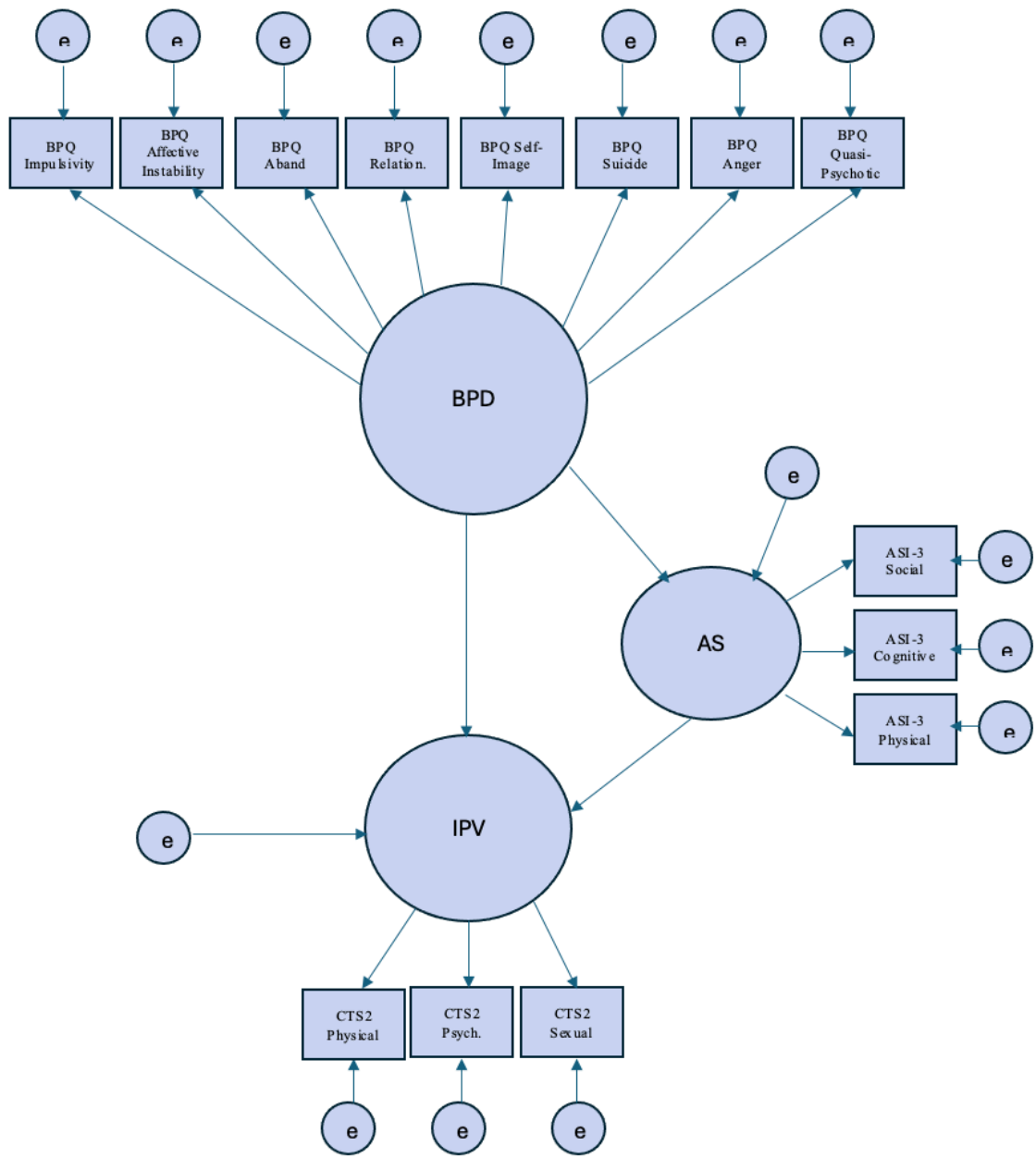


Figure 4. AS mediation conceptual model.

Appendix A
Demographics Questionnaire

1. How old are you (in years)?

2. What is your gender identity?

- Man
- Woman
- Trans man
- Trans woman
- Prefer not to answer
- Other (please specify)

3. Which of the following BEST describes your sexual orientation?

- Gay
- Lesbian
- Bisexual
- Heterosexual
- Asexual
- Questioning
- Other (specify) _____
- Don't know
- No labels preferred

4. Which best describes your race/ethnicity?

- Aboriginal/Metis/Inuit/Native American/American Indian
- African-American/Black
- Arab
- Caucasian/White/European
- Chinese
- Filipino
- Hispanic/Latino/Latina
- Japanese
- Korean
- Latin American
- Bi-racial/Multi-racial
- South Asian (e.g. East Indian, Pakistani, Sri Lankan)
- Southeast Asian (e.g. Vietnamese, Cambodian, Malaysian, Laotian)
- West Asian (e.g. Iranian, Afghan)
- Other (please specify)

5. Country of Residence?

- USA
- Canada
- Other: please specify

- 6. What language do you use the most often at home?**
- English
 - Spanish
 - French
 - Other: please specify
- 7. What is the highest level of education that you have completed?**
- Elementary school (highest grade): _____
 - Some Middle School or High School (highest grade): _____
 - High School or GED Completed
 - Some College or Technical/Trade School
 - College or Technical/Trade School Completed
 - Some University
 - University Completed
 - Graduate School Completed
 - Other (please specify):
- 8. Which of the following statements best describes your work status (if more than one applies, what do you spend most time doing):**
- Full-time student
 - Employed Full-Time
 - Employed Part-Time
 - Flexible Employment (e.g., seasonal)
 - Not Working, but looking for work
 - Not Working, and not looking for work
 - Retired
 - Other (please specify):
- 9. Have you experienced any of those following stressors within the last six months? Please check all that apply.**
- Divorce/separation
 - Separation
 - Death of a relative
 - Natural disaster
 - Serious accident (e.g., car crash)
 - Serious money problems (e.g., not enough money to live)
 - Very serious mental or physical illness
 - Experienced physical or sexual abuse
 - Other (please specify):
- 10. What is your current relationship status?**
- Single and not dating right now
 - Dating, one person exclusively
 - Dating, more than one person

- In a committed relationship (i.e., living together, engaged, married) with one person exclusively
- Open relationship

[If participants indicate any response other than “single and not dating right now”]

11. How long have you been in your current primary relationship (in months)?

Please count from the start of the relationship.

12. What is your current primary partner’s gender?

- Man
- Woman
- Transgender man
- Transgender woman
- Other (please specify):

13. How many romantic relationships have you been in that have lasted longer than 3 months? [numeric response]

Appendix B
Social Desirability Response Set-5 (SDRS-5)

Listed below are a few statements about your relationships with others. How much is each statement TRUE or FALSE for you?

	Definitely True	Mostly True	Don't Know	Mostly False	Definitely False
1. I am always courteous even to people who are disagreeable.	1*	2	3	4	5
2. There have been occasions when I took advantage of someone.	1	2	3	4	5*
3. I sometime try to get even rather than forgive and forget.	1	2	3	4	5*
4. I sometimes feel resentful when I don't get my way.	1	2	3	4	5*
5. No matter who I'm talking to, I'm always a good listener.	1*	2	3	4	5

* "Indicates the direction of the extreme SDRS response, scored 1. All other options are scored 0." (Hays et al., 1986, p. 633).

Appendix C
Conflict Tactics Scale – Revised.

This scale is under copyright, but a sample item includes: “I destroyed something
belonging to my partner.”

Appendix D Borderline Personality Questionnaire

Please put a circle around the response that you feel best DESCRIBES YOUR USUAL SELF (for the past two years or longer) in relation to each statement. Circle T if you think the statement is true. Circle F if you think the statement is false. There are no right or wrong answers and there are no trick questions. Please respond as honestly as you can, but don't ponder too long over each item.

	Circle one	
1. I often do things without thinking them through.	T	F
2. I often become depressed or anxious 'out of the blue'.	T	F
3. People often leave me.	T	F
4. I am rarely disappointed by my friends.	T	F
5. I feel inferior to other people.	T	F
6. I have threatened to hurt myself in the past.	T	F
7. I do not believe that I have the skills to do anything with my life.	T	F
8. I rarely get angry at other people.	T	F
9. Sometimes I feel like I am not real.	T	F
10. I will not have sex with someone unless I have known them for quite some time.	T	F
11. I sometimes feel anxious or irritable and become sad a few hours later.	T	F
12. When people close to me die or leave me, I feel abandoned.	T	F
13. I often exaggerate the potential of friendships only to find out later that they will not work out.	T	F
14. If I were more like other people I would feel better about myself.	T	F
15. I have deliberately tried to hurt myself without trying to kill myself.	T	F
16. In general, my life is pretty boring.	T	F
17. I frequently get into physical fights.	T	F

18. People are sometimes out to get me.	T	F
19. My friends have told me that my mood changes very quickly.	T	F
20. I am afraid to spend time alone.	T	F
21. People who seem trustworthy often disappoint me.	T	F
22. I have made a suicide attempt in the past.	T	F
23. I often feel like I have nothing to offer others.	T	F
24. I have trouble controlling my temper.	T	F
25. I can read other people's minds.	T	F
26. I have tried 'hard' street drugs (e.g. cocaine, heroin).	T	F
27. My mood frequently alternates throughout the day between happiness, anger, anxiety and depression.	T	F
28. When my friends leave, I am confident I will see them again.	T	F
29. My friends often disappoint me.	T	F
30. I have cut myself on purpose.	T	F
31. I often feel lonely and deserted.	T	F
32. I have no difficulty controlling my temper.	T	F
33. I sometimes see or hear things that others cannot see or hear	T	F
34. It is not unusual for me to have sex on the first date.	T	F
35. I sometimes feel very sad but this feeling can change quickly.	T	F
36. People often let me down.	T	F
37. I wish I could be more like some of my friends.	T	F
38. I used to try to hurt myself to get attention.	T	F
39. I am often different with different people in different situations so that sometimes I am not sure who I am.	T	F
40. I easily become irritated by others.	T	F
41. Sometimes I can actually hear what other people are thinking.	T	F
42. I get high on drugs whenever I feel like it.	T	F
43. I rarely feel sad or anxious.	T	F

44. No one loves me.	T	F
45. When I trust people, they rarely disappoint me.	T	F
46. I feel that people would not like me if they really knew me well.	T	F
47. I get angry easily.	T	F
48. It is impossible to read others' minds.	T	F
49. I sometimes feel very happy but this feeling can change quickly.	T	F
50. I find it difficult to depend on others because they will not be there when I need them.	T	F
51. The relationships with people I care about have lots of ups and downs.	T	F
52. I feel comfortable acting like myself.	T	F
53. I have never made an attempt to hurt myself.	T	F
54. I rarely feel lonely.	T	F
55. I often find that the littlest things make me angry.	T	F
56. Sometimes I can't tell between what is real and what I have imagined.	T	F
57. When I drink, I drink too much.	T	F
58. I consider myself to be a moody person.	T	F
59. I have difficulty developing close relationships because people often abandon me.	T	F
60. My friends are always there when I need them.	T	F
61. I wish I were someone else.	T	F
62. I feel like my life is not interesting.	T	F
63. When I am angry, I sometimes hit objects and break them.	T	F
64. I often receive speeding tickets.	T	F
65. I often feel like I am on an emotional 'roller coaster'.	T	F
66. I feel like my family has deserted me.	T	F
67. I am very comfortable with who I am.	T	F
68. I often do things impulsively.	T	F
69. My life is without purpose.	T	F

70. I am not sure what I want to do in the future.	T	F
71. At times I eat so much that I am in pain or have to force myself to throw up.	T	F
72. People tell me that I am a moody person.	T	F
73. The people I love often leave me.	T	F
74. In social situations, I often feel that others will see through me and realise that I don't have much to offer.	T	F
75. I have been in the hospital for trying to harm myself.	T	F
76. I often feel empty inside.	T	F
77. Others often make me angry.	T	F
78. I often become frantic when I think that someone I care about will leave me.	T	F
79. I am confused about my long-term goals.	T	F
80. Others say I'm quick tempered.	T	F

Thank you for your assistance

Appendix E
Experiences in Close Relationship Scale-Short Form

Instruction: The following statements concern how you feel in **emotionally intimate relationships**. We are interested in how you generally experience relationships, including what happens in both previous and current relationship experiences. Respond to each statement by indicating how much you agree or disagree with it. Mark your answer using the following rating scale:

1	2	3	4	5	6	7
Strongly Disagree	Disagree	Slightly Disagree	Neutral	Slightly Agree	Agree	Strongly Agree

1. It helps to turn to my intimate partner in times of need. _____
2. I need a lot of reassurance that I am loved by my partner. _____
3. I want to get close to my partner, but I keep pulling back. _____
4. I find that my partner doesn't want to get as close as I would like. _____
5. I turn to my partner for many things, including comfort and reassurance. _____
6. My desire to be very close sometimes scares people away. _____
7. I try to avoid getting too close to my partner. _____
8. I do not often worry about being abandoned. _____
9. I usually discuss my problems and concerns with my partner. _____
10. I get frustrated if my intimate partner not available when I need them. _____
11. I am nervous when my partner gets too close to me. _____
12. I worry that my intimate partner won't care about me as much as I care about them.

Appendix F Anxiety Sensitivity Index-3

Enter the number from the scale below that best describes how typical or characteristic each of the 16 items is of *you*, putting the number next to the item. You should make your ratings in terms of how much you agree or disagree with the statement as a *general* description of yourself.

0	1	2	3	4
very little	a little	some	much	very much

1. It is important for me not to appear nervous.
2. When I cannot keep my mind on a task, I worry that I might be going crazy.
3. It scares me when my heart beats rapidly.
4. When my stomach is upset, I worry that I might be seriously ill.
5. It scares me when I am unable to keep my mind on a task.
6. When I tremble in the presence of others, I fear what people might think of me.
7. When my chest feels tight, I get scared that I won't be able to breathe properly.
8. When I feel pain in my chest, I worry that I'm going to have a heart attack.
9. I worry that other people will notice my anxiety.
10. When I feel "spacey" or spaced out I worry that I may be mentally ill.
11. It scares me when I blush in front of people.
12. When I notice my heart skipping a beat, I worry that there is something seriously wrong with me.
13. When I begin to sweat in a social situation, I fear people will think negatively of me.

14. When my thoughts seem to speed up, I worry that I might be going crazy.
15. When my throat feels tight, I worry that I could choke to death.
16. When I have trouble thinking clearly, I worry that there is something wrong with me.
17. I think it would be horrible for me to faint in public.
18. When my mind goes blank, I worry there is something terribly wrong with me.

Appendix G **Short Dark Triad**

Instructions: *Please indicate how much you agree with each of the following statements.*

1	2	3	4	5
Disagree Strongly	Disagree	Neither Agree nor Disagree	Agree	Agree Strongly

[Machiavellianism]

1. It's not wise to tell your secrets.
2. I like to use clever manipulation to get my way.
3. Whatever it takes, you must get the important people on your side.
4. Avoid direct conflict with others because they may be useful in the future.
5. It's wise to keep track of information that you can use against people later.
6. You should wait for the right time to get back at people.
7. There are things you should hide from other people to preserve your reputation.
8. Make sure your plans benefit yourself, not others.
9. Most people can be manipulated.

[Narcissism]

1. People see me as a natural leader.
2. I hate being the center of attention. (R)
3. Many group activities tend to be dull without me.
4. I know that I am special because everyone keeps telling me so.
5. I like to get acquainted with important people.
6. I feel embarrassed if someone compliments me. (R)
7. I have been compared to famous people.

8. I am an average person. (R)
9. I insist on getting the respect I deserve.

[Psychopathy]

1. I like to get revenge on authorities.
2. I avoid dangerous situations. (R)
3. Payback needs to be quick and nasty.
4. People often say I'm out of control.
5. It's true that I can be mean to others.
6. People who mess with me always regret it.

*[*R = denotes reverse scoring]*

Appendix H
Psychological Inventory of Criminal Thinking Styles – Layperson Edition – Short Form

Directions: The following items, if answered honestly, are designed to help you better understand your thinking and behavior. Please take the time to complete each of the 35 items on this inventory using the four-point scale defined below:

4= strongly agree (SA)

3= agree (A)

2= uncertain (U)

1= disagree (D)

		<u>SA</u>	<u>A</u>	<u>U</u>	<u>D</u>
1	I will allow nothing to get in the way of me getting what I want...	4	3	2	1
2	Even though I may start out with the best of intentions I have trouble remaining focused and staying "on track"...	4	3	2	1
3	When pressured by life's problems I have said "the hell with it" and followed this up by doing whatever I want to do...	4	3	2	1
4	The way I look at it, I've paid my dues in life just like anyone else, and am therefore justified in taking what I want ...	4	3	2	1
5	The more I get away with in life, the more I think there's no way I will ever be caught...	4	3	2	1
6	I believe that breaking the law is no big deal as long as you don't physically hurt someone...	4	3	2	1
7	I would not hesitate to get money in any way (legally or illegally) if my friends or family needed help...	4	3	2	1
8	I am uncritical of my thoughts and ideas to the point that I ignore the problems and difficulties associated with these plans until it is too late...	4	3	2	1
9	When frustrated I find myself saying "screw it" and then engaging in some irresponsible or irrational act...	4	3	2	1

		<u>SA</u>	<u>A</u>	<u>U</u>	<u>D</u>
10	I find myself taking shortcuts, even if I know these shortcuts will interfere with my ability to achieve certain long-term goals...	4	3	2	1
11	I will frequently start an activity, project, or job but then never finish it...	4	3	2	1
12	When it's all said and done, society owes me...	4	3	2	1
13	I tend to let things go which should probably be attended to, based on my belief that they will work themselves out...	4	3	2	1
14	I have used alcohol or drugs to eliminate fear or apprehension before doing something risky...	4	3	2	1
15	I sometimes think that I would be willing to do anything, even something illegal, in order to live the life I have coming...	4	3	2	1
16	When questioned about my motives for making poor choices, I have justified my behavior by pointing out how hard my life has been...	4	3	2	1
17	I have trouble following through on good initial intentions...	4	3	2	1
18	There have been times in my life when I felt I was above the law	4	3	2	1
19	I tend to act impulsively under stress	4	3	2	1
20	I tend to put off until tomorrow what should have been done today...	4	3	2	1
21	Although I have always realized that I might get caught for doing something, I would tell myself that there was "no way they would catch me this time"...	4	3	2	1
22	I have difficulty critically evaluating my thoughts, ideas, and plans...	4	3	2	1
23	I still find myself saying, "the heck with working a regular job, I'll just take it"...	4	3	2	1
24	I think that I can use drugs and avoid the negative consequences (such as addiction) that I have observed in others...	4	3	2	1
25	I tend to be rather easily sidetracked so that I rarely finish what I start...	4	3	2	1
26	I have trouble controlling my angry feelings...	4	3	2	1
27	I believe that I am a special person and that my situation deserves special consideration...	4	3	2	1
28	Even when I set goals I frequently do not obtain them because I am distracted by events going on around me...	4	3	2	1

		<u>SA</u>	<u>A</u>	<u>U</u>	<u>D</u>
29	When frustrated I will throw rational thought to the wind with such statements as "screw it" or "the hell with it"...	4	3	2	1
30	There have been times when I have felt entitled to break the rules or behave poorly in order to pay for a vacation, new car, or expensive clothing that I told myself I needed ...	4	3	2	1
31	I rarely consider the consequences of my actions...	4	3	2	1
32	There are times when I have done bad things and not gotten caught, and sometimes I feel overconfident and feel like I could do just about anything and get away with it...	4	3	2	1
33	There have been times when I have made plans to do something with my family and then cancelled these plans so that I could hang out with my friends, and behave irresponsibly...	4	3	2	1
34	I tend to push problems to the side rather than dealing with them...	4	3	2	1
35	I have used good behavior or various situations to give myself permission to do things that may be irresponsible or dangerous...	4	3	2	1

Appendix I Drug Abuse Screening Test – 10

Instructions: Please read a list of questions concerning information about your potential involvement with drugs, excluding alcohol and tobacco, during the past 12 months.

When the words “drug abuse” are used, they mean the use of prescribed or over-the-counter medications/drugs in excess of the directions and any non-medical use of drugs.

The various classes of drugs may include: cannabis (e.g., marijuana, hash), solvents, tranquilizers (e.g., Valium), barbiturates, cocaine, stimulants (e.g., speed), hallucinogens (e.g., LSD) or narcotics (e.g., heroin). Remember that the questions do not include alcohol or tobacco. If you have difficulty with a statement, then choose the response that is mostly right. You may choose to answer or not answer any of the questions in this section.

These questions refer to the past 12 months.	No	Yes
1. Have you used drugs other than those required for medical reasons?	0	1
2. Do you abuse more than one drug at a time?	0	1
3. Are you always able to stop using drugs when you want to? (if never use drugs, answer “Yes.”)	0	1
4. Have you had "blackouts" or "flashbacks" as a result of drug use?	0	1
5. Do you ever feel bad or guilty about your drug use? If never use drugs, choose “No.”	0	1
6. Does your spouse (or parents) ever complain about your involvement with drugs?	0	1
7. Have you neglected your family because of your drug use?	0	1
8. Have you engaged in illegal activity in order to obtain drugs?	0	1
9. Have you ever experienced withdrawal symptoms (felt sick) when you stopped taking drugs?	0	1
10. Have you had medical problems as a result of your drug use (e.g., memory loss, hepatitis, convulsions, bleeding, etc.)?	0	1

Appendix J
Cut down, Annoyed, Guilty, Eye-Opener

Please answer the following four questions:	No	Yes
1. Have you ever felt you should cut down on your drinking?	0	1
2. Have people annoyed you by criticizing your drinking?	0	1
3. Have you ever felt bad or guilty about your drinking?	0	1
4. Have you ever had a drink first thing in the morning to steady your nerves or to get rid of a hangover (eye-opener)?	0	1

Research Participants Wanted...

To understand personality and
relationship conflict

Researchers at the
**University of New
Brunswick** want to
understand how personality
affects our conflict
management strategies!



We are recruiting **English-speaking adults (19+ years)**. The survey will take about 30 minutes to complete. This project is on file with the Research Ethics Board, University of New Brunswick (REB #2023-119). If you have any questions, please contact:
Principal Investigator: Jessie Doyle (jn.doyle@unb.ca)

If interested in participating in this
CONFIDENTIAL and **ANONYMOUS**
project, please go to the following
link/QR code and complete the
survey and for a chance to win **1 of
10 \$30 Gift Cards:**

https://unbfpsyc.ca1.qualtrics.com/jfe/form/SV_b7wlytKGINrUcFE



THANK YOU FOR CONTRIBUTING TO SCIENCE!

[Accompanying Text]

Researchers at the University of New Brunswick need your help! We are recruiting English-speaking adults (19+ years) to help us understand how personality characteristics influence ways of managing conflict in romantic relationships. This survey is anonymous and confidential, and will take about 30 minutes to complete. You also will have the option to enter a raffle draw to win one of ten \$30 gift cards (odds of winning are approximately 1 in 50). Please click the following link to participate:

[Qualtrics link]

Appendix L

Letter to Agencies/Organizations

Hello,

My name is Jessie Doyle, and I am senior PhD Student in Clinical Psychology at the University of New Brunswick. I am conducting research on the influence of personality characteristics on ways of managing conflict in romantic relationships. For this research, I am recruiting adults (19+ years) who may have noticed difficulties in their romantic relationships. This study has been reviewed by the Research Ethics Board at the University of New Brunswick and is on file as REB# 2023-119).

I am writing to ask whether you are interested and willing to share this research opportunity with members of your online community.

Why is this research being done?

We are seeking to understand if there are personality tendencies that influence dynamics in intimate partner/romantic relationships. More specifically, we want to learn whether personality tendencies and related characteristics increase the likelihood that certain strategies to manage conflict in relationships are used. We also hope to understand if general ways of behaving in relationships can help us to understand why personality tendencies might influence conflict management strategies. We hope to use results from this research to support people in effectively navigating the conflicts that come up in their relationships.

What does the study ask participants to do?

Participants will be asked to take part in an online survey that will take about 30 minutes to complete. This survey will ask participants questions about their background history, personality and related characteristics, their typical ways of behaving in relationships, and how they manage conflict in relationships. Participants are asked to complete this survey in a private setting where they feel comfortable and are unlikely to be interrupted.

How is the survey advertised and completed?

Recruitment advertisements will be shared with online communities and support forums geared towards adults experiencing difficulties with certain personality characteristics and/or difficulty managing conflict in intimate relationships. Those interested in participating can click the survey link, which will take them to an informed consent page on the Qualtrics survey (survey platform). This page will provide participants with more detail about the study. Eligible participants (i.e., English-speaking adults age 19+) will be able to access the survey from any computer with internet access, which will take approximately 30 minutes to complete. After completing the survey, participants will have the option to enter their email address on a separate page from their survey responses, for a chance to win one of ten \$30 gift cards (odds of winning are approximately 1 in 50). Email addresses will not be associated with survey responses and will only be used to contact winners of the draw. Participants are encouraged to share the survey link with others who may be interested in and eligible to participate.

How do you protect participants' confidentiality?

All answers are confidential and anonymous, meaning there will be no way to identify who participants are based on their answers. We will not ask participants to provide any

information that could link their answers to them. To enhance protection of confidentiality, the survey platform we will use, Qualtrics, is secure and will not be able to link identifying information to responses.

Participants can also skip any questions that they do not feel comfortable answering. Results from the survey will be securely stored in a password protected database that only the researchers will have access to. The results of this research will be shared only in summary form through conference presentations and publications. Because results will be shared as a summary, participants will remain anonymous.

How can I help with this research?

This research cannot be done without participants, so you can help with this by agreeing to share this study with your community members/forum readers, or anyone else (individuals, organizations, community groups) that you think would be interested in this research. You will find attached a copy of the informed consent form that participants will be reading, and provides some additional details about the purpose of the study and any potential risks and benefits.

If you have any questions at all, either now, during, or after the research project, please do not hesitate to contact me. You are also welcome to contact my supervisor Dr. Mary Ann Campbell (Professor in the Department of Psychology and Director of Centre of Criminal Justice Studies at the University of New Brunswick; mcampbel@unb.ca). If you would prefer to speak with an individual not directly involved in this research,

please contact the Chair of the University of New Brunswick's Research Ethics Board
(REB@unb.ca or 506-648-5994).

Thank you for your time,

Jessie Doyle

PhD Student in Clinical Psychology

Department of Psychology

University of New Brunswick

jn.doyle@unb.ca

Appendix M

Informed Consent

We are recruiting adults (19+ years) to participate in a study exploring how personality characteristics influence ways of managing conflict in romantic relationships.

What does this research ask me to do? You will be asked to take part in an online survey that will take about 30 minutes to complete. This survey will ask you questions about your background history, personality and related characteristics, how you normally behave in relationships, and how you manage conflict in your relationships. If you agree to participate, please complete this survey in a private setting where you feel comfortable and are unlikely to be interrupted. *You are also welcomed to share this survey with any other forums or people who might have trouble managing conflict in relationships.*

Why is this research being done? We are seeking to understand if there are personality tendencies that influence dynamics in intimate partner/romantic relationships. More specifically, we want to see if personality traits and related characteristics influence strategies to manage conflict in relationships. We also hope to understand if general ways of behaving in relationships can help us to understand why personality traits might influence conflict management strategies. We hope to use results from this research to support people in effectively navigating the conflicts that come up in their relationships.

Are my answers anonymous? Yes! All of your answers are confidential and anonymous, meaning there will be no way to identify who you are based on your

answers. We will not ask you to provide any information that could link your answers to you. To enhance protection of confidentiality, the survey platform we will use, Qualtrics, is secure and will not be able to link identifying information to your responses. You can also skip any questions that you do not feel comfortable answering. Results from the survey will be securely stored in a password protected database that only the researchers will have access to. The results of this research will be shared only in summary form through conference presentations and publications. Because results will be shared as a summary, you will remain anonymous.

Do I have to complete the survey? Completing the survey is 100% voluntary. If you change your mind and want to end the survey session, you can exit out of the browser without submitting them and your answers will be deleted. The survey will only record your responses after you have finished all the questionnaires and have reached the debriefing page. You will not be able to withdraw your answers after clicking “submit” because we won’t be able to link your responses to you.

Are there any risks? Because some of the questions we ask are related to relationship conflict, it is possible that completing this survey will cause you to feel some discomfort. Discussing relationship conflict can sometimes highlight struggles associated with current relationship conflict (if you have one and experience conflict), so we recommend that you complete the survey in private. If you experience distress as a result from the survey, or have a difficult time managing conflict, you can contact the following resources:

- **Mental Health America: Call or text 988 or chat [988lifeline.org](https://www.988lifeline.org)**
- **Mental Health Helpline: (1-800-273-8255)**
- **United States Support for Domestic Disputes: 1 (800) 799 SAFE (7233)**
- **Wellness Together Canada: 1-866-585-0445 or text WELLNESS to 741741**
- **Canadian Crisis Hotline: 1 (888) 353-2273**
- **Canadian Safety Shelter: [Sheltersafe.ca](https://sheltersafe.ca)**

Are there any benefits to participating? You will be contributing to a growing body of research understanding personality and conflicts in relationship, with the potential to positively affect people like you. We will also make a summary of the findings available to those who are interested. *****.*****

**Participants recruited from online forums, support groups, and social media:* As a way of thanking you for your contributions, you have the option to be entered for a chance to win one of 10 \$30 gift cards (odds of winning are approximately 1 in 50). If you choose to participate in the raffle draw, your contact information will be collected from a separate survey and therefore not connected to your survey responses. If you choose to skip a question, you will still be eligible to enter the draw.

***Participants recruited via MTurk and Prolific:* As a way of thanking you for your contributions, you will receive payment of \$3.00 CAD. If you choose to skip a question, you will still be eligible to receive this payment.

Who can I contact if I have questions? If you have any questions before, during, or after the study, or if you would like to learn more about this research project, please feel free to contact the primary researcher, Jessie Doyle (jn.doyle@unb.ca), or Dr. Mary Ann Campbell (mcampbel@unb.ca). If you would prefer to speak with an individual not directly involved in this research, please contact the Chair of the University of New Brunswick's Research Ethics Board (REB@unb.ca or 506-648-5994). This study has been reviewed by the Research Ethics Board at the University of New Brunswick and is on file as REB# 2023-119).

Please select your age range:

Younger than 19 years*

19+

Are you able to read and understand information written in English?

Yes*

No

Have you completed this survey before?

Yes

No*

By clicking the “I agree” button at the bottom of this page I am agreeing to the following statement: I have read the above description and volunteer to participate in this study. I understand that I can decide to discontinue my participation or not to provide any personal information at any time without question and without penalty.

I agree

I disagree*

*If participant selects variable denoted with *, the following message will appear:

We appreciate your interest, but you are not eligible to participate. You are welcomed and encouraged to share this survey with other forums or individuals who might be eligible.

Appendix N
Debriefing Form

Thank you for taking the time to complete this survey on your personality characteristics and managing conflict in romantic relationships. We appreciate your time and effort!

This research is interested in exploring how various personality characteristics – such as emotional reactivity, impulsivity, and fearing abandonment from others – influences someone’s likelihood of using strategies for managing conflict in relationships that may escalate to violent behaviour. We also are interested in understanding if tendencies to find anxiety-related physical sensations distressing and typical patterns of engaging in relationships can help us understand the influence of personality characteristics and conflict management strategies.

Research shows that a general personality style of emotional reactivity and impulsivity increases risk of engaging in aggressive and sometimes violent strategies for managing conflict in romantic relationships. However, we don’t know yet which specific personality characteristics are responsible for enhancing that risk, or what factors help explain why that risk is present. Certain attachment styles (typical patterns of engaging in relationships) have also been shown to increase risk of aggressive conflict management strategies, and anxiety sensitivity (intolerance of anxiety-related physical sensations) is also shown to enhance likelihood of aggressing against romantic partners. By understanding how specific personality characteristics increase risk for these

ineffective conflict management strategies, we can better understand how to help people develop more effective and healthy ways of coping in their relationships.

Thank you again for completing this survey and contributing to science. This study has been approved by the Research Ethics Board, University of New Brunswick (REB# 2023-119). If you have any questions or concerns, please feel free to contact the primary researcher, Jessie Doyle (jn.doyle@unb.ca), or Dr. Mary Ann Campbell (mcampbel@unb.ca). If you would prefer to speak with an individual not directly involved in this research, please contact the University of New Brunswick's Research Ethics Board (REB@unb.ca).

If you are experiencing distress after completing this survey, you can contact the following resources:

- Mental Health Helpline: (1-800-273-8255)
- Wellness Together Canada: 1-866-585-0445 or text WELLNESS to 741741
- Canadian Crisis Hotline: 1 (888) 353-2273
- Mental Health America: **Call or text 988 or chat 988lifeline.org**

When this research is completed, a summary of study results will be posted on Research tab of the Centre of Criminal Justice Studies Website:

<https://www.unb.ca/saintjohn/ccjs/research.html>

You are also welcomed to share this survey with any other forums or people who might have trouble managing conflict in relationships. If you do share the survey, we ask that you do not share the specific purposes of this research, so our results are not influenced by prior awareness of what we are studying.

[Online recruited/Non-MTurk or Prolific participants]: If you would like your email to be entered into a draw for a 1 in 50 chance to receive a \$30 Amazon gift card, please click this link [separate link from survey]

Appendix O

Raffle Information

[Participants recruited from online forums, support groups, social media will be redirected to a new link separate from the study link]

If you are interested in being entered in a raffle draw to win one of ten \$30 gift cards (odds of winning are approximately 1 in 50), please provide your email address here:

We will contact winners of the raffle once data collection is completed. This link is not connected to the survey link, so your email address cannot be associated with your survey responses. Email addresses will only be used to notify the winner and will not be used for any other purpose.

Appendix P

Data Cleaning and Conditioning

Before conducting relevant statistical analyses, raw data were screened and conditioned following recommendations by Wright (2005) and Hauser et al. (2019) to ensure their quality and that relevant assumptions for analyses were met. Variables were renamed for ease of comprehension during analyses. Values associated with each measure were checked to confirm accuracy after exporting data from survey platform. A detailed overview summarizing each step of this process is included in Table 1.

Indicators of suspicious responding was addressed first. Steps 1-3 and 6 were performed in accordance with a web-based fraud detection plan informed by Qualtrics Support, Storozuk et al. (2020), and Webb and Tangney (2022). Step 1 included examining completion time for all participants. Where the anticipated time to completion was approximately 25-30 minutes, cases deemed to be completed unfeasibly quickly (i.e., less than 10 minutes) were removed using listwise deletion (Storozuk et al., 2020).

Step 2 included a review of the data embedded into Qualtrics as part of the bot detection plan. Specifically, the following metrics were embedded into the Qualtrics survey: `BallotBoxStuffing`; `RecaptchaScore`; `RelevantIDDuplicate`; `RelevantIDDuplicateScore`; and `RelevantIDFraudScore`. `BallotBoxStuffing` flags respondents who attempt to complete surveys using the same browser and is therefore an indicator of duplicate entries if the value assigned to the case = 1 (i.e., true).

`RecaptchaScore` allows researchers to track the probability that responses are bots; if cases are assigned a score of ≤ 0.5 , they are likely to be bots. `RelevantID` enhances fraud detection by evaluating respondent metadata to identify the likelihood that a

respondent is answering multiple times. It relies on several fields including RelevantIDDuplicate, where if true (=1) the response is likely a duplicate; RelevantIDDuplicateScore, where a score of ≥ 75 means the response is likely a duplicate; and RelevantIDFraudScore, where a score of ≥ 20 means the response is likely fraudulent and a bot. Of note, meeting the required conditions for each metric was embedded into the survey with branch logic, meaning that respondents who met or exceeded the afore-described values were redirected to the end of the survey and their responses were not recorded. Cases where at least one of these metrics indicated low quality data were removed. Responses to text-entry questions were also reviewed; indication of suspicious responding based on responses entered warranted removal of certain cases (Storozuk et al., 2020; Webb & Tangney, 2022).

Step 3 identified duplicate entries, by examining frequency of IP Address, which was then examined manually, and verified duplicates removed via listwise deletion (Storozuk et al., 2020; Webb & Tangney, 2022). Moreover, cases with no survey data or where all responses to questionnaires were missing were removed. Step 4 included a review of eligibility questions; if participants did not meet conditions of or did not select options on the following variables 1) English-proficiency, 2) Being 19 years or older, 3) Having not completed the survey before, and 4) Agreement to provision of informed consent, then their case was deleted using listwise deletion.

Step 5 comprised several analyses aimed at identifying data missingness and patterns thereof. A Missing Value Analysis (MVA) was first conducted on the full sample using all continuous questionnaire item variables to determine the existence of participants with systematically missing data. The Little's MCAR analysis provided by

MVA outputs was non-significant, it appears that data are missing completely at random (MCAR), $\chi^2(43330) = 42349.100, p = 1.000$. Moreover, examination of missing value pattern charts indicated no evidence of monotonicity, further suggesting randomness to the missing values. Multiple Imputation analyses were also conducted to explore and examining missingness patterns more descriptively. After examining patterns of missingness across both sets of analyses, it was determined that missing data were distributed across 96.04% of variables and 71.24% ($n = 332$) of cases. Missing value patterns indicated that most missing data was concentrated within the SDRS-5 questionnaire, with percentage of data missing per item ranging from 12.9% on item 3 to 21.7% on item 4. Further examination of outputs indicated that approximately 55% of the cases have no missing data and only 2.14% of ($n = 8$) of cases were missing more than 10% of questionnaire data. A conservative approach was taken, and these cases were deleted so as to not bias missing value estimation (Bennet, 2001). MVA was re-run and data were found to still be MCAR, $\chi^2(42192) = 41160.84, p = 1.000$.

Several methods of handling additional missing data were considered (Enders, 2023). Deleting variables was not viewed as a viable option as all quantitative variables were necessary to compute scale and subscale totals for primary analyses (e.g., LPA, SEM). It was crucial to identify a method that could both minimize bias while also retaining necessary information (Basagaña et al., 2013). Expectation Maximization (EM) methods were not selected as analyses based on this dataset would have inappropriate standard errors for planned analyses (Tabachnick & Fidell, 2018). Regression imputation also appeared inappropriate for hypothesis testing, given its requirement of variable linearity to estimate population parameters (Tabachnick &

Fidell, 2018). However, not all planned analyses relied on traditional population parameters, meaning that this method has potential to overestimate model statistics and lower significance values (Saunders et al., 2006; Tabachnick & Fidell, 2018). Given that data were determined to be missing completely at random (MCAR), multiple imputation methods were conducted.

Multiple imputation is among the most sophisticated methods of handling missing data, and employs an iterative process to estimate missing values and identify the best fit for the observed data. The active generator within SPSS was set with the Mersenne twister option selection with the starting point at a fixed value. The automatic imputation process, which scans for monotonicity, was selected and all questionnaire variables were imputed into the model; the default of five imputations was selected. The data were scanned to define constraints for imputation. Descriptive statistics were computed, and an iteration history was produced to see how much each model varied from original and pooled data (Tabachnick & Fidell, 2018). Across all five imputations, means and standard deviations were similar to the original; i.e., differences were not of a magnitude that would reach statistical significance and were noted to differ from the original data between 0.01 to 0.05 points. After reviewing all variables, the imputation model that produced means and standard deviations most comparable to original data set was the third model; this model was retained for future analyses.

Step 6 involved addressing any remaining indications of inappropriate responding (e.g., out-of-range, inappropriate entry, outliers). Demographic and relationship history questions were reviewed for odd entries and reformatted where appropriate (e.g., responding to lengths of relationship in years was reformatted to the

requested months). Data then was screened for outliers. For continuous variables, standardized variables (i.e., z-scores) were saved and examined. Potential univariate outliers were flagged in cases where scores range outside an absolute criterion threshold of ± 3.29 ($p < .001$, two-tailed test; Tabachnik & Fidell, 2018). Histograms were visually analyzed to observe whether any flagged scores were discontinuous from other values within the distribution. Statistical outliers that were continuous with the next nearest non-outlying values were not modified. Winsorization was applied to statistical outliers that were discontinuous with other values; that is, outliers were converted to the nearest non-outlying (Salkind, 2010).

Multivariate outliers were examined using Mahalanobis distance probabilities for each scale's total value using a criterion of $p > .001$ (Tabachnick & Fidell, 2018). Based on the combination of total scores, the sample was observed to have three multivariate outliers. Given that these cases harbor potential for unduly influencing analysis and the generalizability of the results, these cases were sequentially removed from the dataset using listwise deletion.

When examining the distribution of the data, several variables appeared to be skewed, including the CTS2 subscales, ECR-S subscales, the three SD3 subscales, and the PICTS-L-SF total score. However, tests of normality indicated that no variables violated normality based on the Shapiro-Wilks test ($p < .001$). Indeed, it was not altogether surprising to view these patterns given the constructs that the variables represent. Planned LPA is a non-parametric analysis and does not depend on traditional modelling assumptions, thereby making it robust to effects of non-normality (Vermunt & Magidson, 2002). Planned MANOVA is also robust to non-normality, particularly

when sample sizes are large with at least 20 participants per cell should cell sizes be unequal (Tabachnik & Fidell, 2018). As such, planned MANOVAs should be robust against potential violations of parametric assumptions. However, planned SEM does rely on multivariate normality (Morrison et al., 2017). Although there was some observed skewness, given that no variables of interest violated the Shapiro-Wilks test of normality, no transformations were applied.

Additional indices of normality were assessed. Homoscedasticity, which refers to whether residuals are normally distributed, was examined via review of scatterplots (Tabachnik & Fidell, 2018); scatterplots indicated no discernable pattern, thereby indicating that this assumption was met. Multicollinearity, referring to high correlations amongst predictor variables, was examined by reviewing correlation coefficients amongst predictors and the variance inflation factor (VIF) (Tabachnik & Fidell, 2018). There were no predictors whose correlations exceeded .85 (see Tables 3 & 4) and all VIFs had values below 5.00, indicating that this assumption was also met.

Appendix Q MPlus Syntax for LPA

TITLE: LPA for Dissertation;

DATA: FILE IS: C:\Users\nfave\OneDrive\Desktop\lpa.dat;

! scale scores for CTS2, BPQ, ASI3, SD3, PICTSLF, DAST10, CAGE
VARIABLE:

NAMES =id age gender orient
race country
educ work relastat
neg psyc phys inj sex BPQ
Impuls Affinst aband relat
selfim suicide emptin
anger qpsych ecrs_an ECRS_av
ASI3_soc ASI3_phy ASI3_cog
ASI3_sum Narc Machia psychop
pictslfs dast10 cage;

USEVARIABLES ARE

impuls
affinst aband relat selfim
suicide
emptin anger qpsych ecrs_an
ecrs_av ASI3_soc ASI3_phy
ASI3_cog;

CLASSES = c(2); !extract 2 classes

IDVARIABLE IS id;

ANALYSIS: Type=mixture;

STARTS = 500 50;

STITERATIONS = 50;

MODEL: %OVERALL%

SAVEDATA: SAVE=CPROBABILITIES;

FILE IS LPA_F.dat;

OUTPUT: TECH11 TECH14;

PLOT: TYPE = plot3;

Series = impuls(1) affinst(2) aband(3)

relat(4) selfim(5) suicide(6)
suicide(7) emptin(8) anger(9)
qpsych(10) ecrs_an(11)
ecrs_av(12) ASI3_soc(13)
ASI3_phy(14) ASI3_cog(15);

Appendix R

Description of SE model built for Research Question 4

The structural model positioned BPD and Criminogenic Risk Factors as uncorrelated exogenous factors, each with a unidirectional path to the endogenous IPV. The model was again tested, and parameters estimated using IBM Amos v. 29, with the maximum likelihood (ML) fitting function used to estimate model parameters. A chi-square test was examined to evaluate the null hypothesis that there were no differences between the sample covariance matrix and the covariance matrix estimated from the null parameters.

The hypothesized model was a suboptimal fit for the data $\chi^2(124) = 884.24, p = .000$; fit indices: GFI = .80, CFI = .83, PFNI = .74, RMSEA = .12. Examining modification analyses suggested that correlating BPD and Criminogenic Risk Factors would reduce the discrepancy between the model and data; although this is unsurprising given the strong correlations between unobserved indicators of these latent variables (see Table 3), the conceptual model was aiming to test these variables independently. The measurement model, summarized in Table 19, indicates that all items loaded onto their respective latent factors appropriately; however, the item R^2 of SD3 Narcissism, DAST-10, and CAGE did not meet the suggested 0.4 cut-off, suggesting that these predictors explain the variance in their respective latent factors poorly. Removing these items from the model, however, worsened the model fit and were therefore retained, $\chi^2(83) = 920.04, p = .000$; fit indices: GFI = .76, CFI = .78, PFNI = .69, RMSEA = .15 BPQ Impulsivity, Suicide, and Quasi-Psychotic States accounted for the highest variance in BPD; PICTS-L-SF and SD3 accounted for the highest variance in Criminogenic Risk Factors; and CTS2 Physical Assault accounted for the highest variance in IPV. The

structural model indicated that, although both latent variables predicted IPV, BPD had higher predictive power than Criminogenic Risk Factors (see Table 20); however, these findings must be interpreted cautiously given the suboptimal model fit.

Curriculum Vitae

Jessie Nicole Doyle

Universities Attended:

2019 - 2024 Ph.D. Clinical Psychology

University of New Brunswick, Fredericton, NB, Canada (CPA
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Supervisor: Mary Ann Campbell, PhD, L.Psych., R.Psych.

2014 - 2019 Bachelor of Arts, First Class Honours in Psychology

Concentration in Forensic Psychology

St. Francis Xavier University

Supervisor: Margo C. Watt, PhD, R.Psych.

Publications:

1. **Doyle, J. N.**, Campbell, M., & Canales, D. (2023). Quality of reporting following use of force encounters. *Journal of Police and Criminal Psychology*.
2. **Doyle, J. N.**, Smith, M. M., Watt, M. C., Cohen, J. N., & Couture, M. (2023). Higher baseline emotion dysregulation predicts treatment dropout in outpatients with borderline personality disorder. *Personality Disorders: Theory, Research, and Treatment*.

3. Gryshchuk, L., Campbell, M., Brunelle, C., **Doyle, J. N.**, & Nero, J. W. (2022). Profiles of vulnerability to alcohol use and mental health concerns in first responders. *Journal of Police and Criminal Psychology*.
4. **Doyle, J. N.**, Cormier, L. A., & Hymers, M. J. (2022). Shame-proneness mediates relations between borderline personality disorder symptom severity and domains of sexuality in undergraduate women. *Canadian Journal of Human Sexuality*, 31(2), 207-216. <https://doi.org/10.3138/cjhs.2022.0002>
5. Nero, J. W., Campbell, M., **Doyle, J. N.**, & Meagher, J. (2022). The link between social support and psychological vulnerability among Canadian police officers. *Journal of Police and Criminal Psychology*, 37, 377-391. <https://doi.org/10.1007/s11896-022-09505-x>
6. **Doyle, J. N.**, Watt, M. C., Cohen, J. N., Couture, M., & Smith, M. M. (2022). Relations between anxiety sensitivity and attachment in outpatients with borderline personality disorder. *Journal of Personality Disorders*, 36(5), 606-622. <https://doi.org/10.1521/pedi.2022.36.5.606>
7. Curley, T., Campbell, M., **Doyle, J. N.**, & Freeze, S. (2021). First responders' perceptions of the presence of support canines in the workplace. *Journal of Police and Criminal Psychology*. <https://doi.org/10.1007/s11896-021-09477-4>
8. **Doyle, J. N.**, Campbell, M., & Gryshchuk, L. (2021). Occupational stress and anger: Mediating effects of resiliency in first responders. *Journal of Police and Criminal Psychology*, 36, 463-472. <https://doi.org/10.1007/s11896-021-09429-y>
9. **Doyle, J. N.**, Watt, M. C., Howse, M., Hauf, P., & Blair, K. (2021). What is creepiness?: The underlying role of ambiguity. *Canadian Journal of Behavioural*

Science/ Revue canadienne des sciences du comportement, 54(3), 173-181.

<http://dx.doi.org/10.1037/cbs0000269>

10. **Doyle, J. N.**, & Smith, M. M. (2021). Edifying empathy in forensic psychology students: The role of experiential learning. *Mind Pad*.
11. **Doyle, J. N.** (2019). “Ear Hustle” – A social outlet for offenders. *Crime Scene*, 26(2), 31-32.

Conference Presentations:

1. **Doyle, J. N.**, Campbell, M., & Canales, D. (2022, June 17-19). *Report quality following police officers' use of force encounters: The role of executive functions* [Paper presentation]. 83rd Annual National Convention of the Canadian Psychological Association, Calgary, Alberta.
2. Cormier, L. A., & **Doyle, J. N.** (2022, June 17-19). *Shame goes unspoken: A qualitative exploration of language used by young women with and without elevated borderline personality symptoms when recounting past sexual experiences*. [Poster presentation]. 83rd Annual National Convention of the Canadian Psychological Association, Calgary, Alberta.
3. **Doyle, J. N.** (2022, May 12). *How does canine support fit in to first responder psychological health?* [Paper presentation]. Psychological Resilience and Responsivity to Mental Health Needs in First Responders: Organizational and Personal Perspectives. (Virtual Conference)
4. **Doyle, J. N.**, & Cormier, L.A. (2021, October 14-16). *Shame mediates relations between borderline personality disorder symptom severity and domains of*

sexuality in woman undergraduates [Poster presentation]. Canadian Sex Research Forum 2021 Annual Meeting. (Virtual Conference).

5. **Doyle, J. N.**, Smith, M. M., Watt, M. C., Cohen, J. N., Couture, M-E. (2021, May 6-8). *What factors predict adherence completion (vs. non-completion) in treatment for Borderline Personality Disorder?* [Poster presentation]. 10th Annual Conference of the Canadian Association of Cognitive and Behavioural Therapies. (Virtual Conference)
6. **Doyle, J. N.** & Watt, M. C. (2020, August 6-9). "*Creepiness*": *Unmasking the uncanny* [Poster presentation]. American Psychological Association Convention, Washington, DC. (Virtual presentation)
7. **Doyle, J. N.**, Campbell, M., & Brunelle, C. (2020, July 6-August 28). *Occupational stress and anger: Mediating effects of resiliency in first responders* [Paper presentation at a symposium entitled: "Psychological Wellness and Vulnerabilities in First Responders: Avenues for Organizational Change" (Chair: M. Campbell)]. 81st Annual Convention of the Canadian Psychological Association, Montreal, Quebec. (Virtual presentation)
8. **Doyle, J. N.**, & Watt, M. C. (2019, May 31- June 2) *The uncanniness of "creepiness"* [Poster presentation]. 80th Annual Convention of the Canadian Psychological Association, Halifax, Nova Scotia.
9. **Doyle, J. N.**, Cohen, J. N., Couture, M-E., Watt, M. C., & Parker, D. (2019, May 31-June 2). *The role of anxiety sensitivity in relations between attachment insecurity and Borderline Personality Disorder* [Poster presentation]. 80th

Annual Convention of the Canadian Psychological Association, Halifax, Nova Scotia.

10. **Doyle, J. N.**, Cohen, J. N., Couture, M-E., Watt, M. C., & Parker, D. (2019, May 31- June 2) *Can working alliance explain relations between insecure attachment and treatment outcome in BPD outpatients?* [Poster presentation]. 80th Annual Convention of the Canadian Psychological Association, Halifax, Nova Scotia.
11. **Doyle, J. N.**, Cohen, J. N., & Watt, M. C. (2019, March 17) *The role of anxious attachment and influence of anxiety sensitivity in borderline personality disorder* [Poster presentation]. 17th Annual St. Francis Xavier Student Research Day, Antigonish, Nova Scotia, March 2019.
12. **Doyle, J. N.**, & Watt, M. C. (2019, March 17). *Does “creepiness” reside in the eyes? Investigating risk assessment in everyday life* [Poster presentation]. 17th Annual St. Francis Xavier Student Research Day, Antigonish, Nova Scotia.
13. Smith, M. M., **Doyle, J. N.**, & Watt, M. C. (2019, March 17) *Fight, flight, freeze...fear? Investigating emotional responses to “creepiness.”* [Poster presentation]. 17th Annual St. Francis Xavier Student Research Day, Antigonish, Nova Scotia.
14. **Doyle, J. N.**, Cohen, J. N., & Watt, M. C. (2019, March 15-16) *Does anxiety sensitivity mediate relations between attachment and BPD?* [Poster presentation]. 17th Annual Crossroads Conference for Interdisciplinary Health Research, Halifax, Nova Scotia.
15. **Doyle, J. N.**, Gallagher, C. B, MacLean, K., & Watt, M. C. (2018, June 25-30) *Anxiety sensitivity and mindfulness as mediators of relations between*

attachment and cluster b personality traits [Poster presentation]. 29th Annual International Congress of Applied Psychology, Montreal, Quebec.

16. **Doyle, J. N.**, MacLean, K., Gallagher, C. B. & Watt, M. C. (2018, May 30- June 1) *Pathways to pathological personality traits: Roles for attachment, anxiety sensitivity, and mindfulness* [Poster presentation]. 29th Annual Atlantic Crime Prevention Conference, Saint John, New Brunswick.
17. **Doyle, J. N.**, Watt, M. C., MacLean, K., & Gallagher, C. B. (2018, March 9-10) *Anxiety sensitivity and mindfulness mediate relations between attachment cluster b personality traits*. [Poster presentation] 16th Annual Crossroads Conference for Interdisciplinary Health Research, Halifax, Nova Scotia.
18. **Doyle, J. N.**, Watt, M. C., MacLean, K., & Gallagher, C. B. (2018, March 5) *Dimensions of anxiety sensitivity and mindfulness mediate relations between attachment and personality traits*. [Poster presentation] 16th Annual St. Francis Xavier Student Research Day, Antigonish, Nova Scotia.