SUBTYPES OF FEMALE INTIMATE PARTNER VIOLENCE SUSPECTS:

IMPLICATIONS FOR THE VALIDITY OF THE ODARA WITH FEMALES

by

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Abstract

Less research is available on risk appraisal for female perpetrators of intimate partner violence (IPV) relative to male offender. The current study examined police records of 151 adult female IPV suspects to obtain risk appraisal information from the Ontario Domestic Assault Risk Assessment tool (ODARA; Hilton et al., 2004) and measures of the index IPV event, suspect and victim characteristics. The most robust predictor of subsequent female IPV was greater severity of borderline/antisocial personality features, whereas the ODARA was not predictive of female IPV. Latent cluster analysis failed to identify clusters of female IPV suspects based on key variables. A series of exploratory analyses identified differences between three groups based on IPV recidivism outcomes (a "no recidivism" group, $n = 105$; a "new police contact" group, $n = 28$; an "at least arrested" group, $n = 18$). These groups differed based on borderline/antisocial personality characteristics, mental health issues, suicidal tendencies, and previous weapon use. Overall, the current findings demonstrate the need for female-relevant IPV risk appraisal tools and the role of personality features in that risk appraisal.

Keywords: intimate partner violence, female offenders, clusters, risk assessment, personality, borderline, antisocial, ODARA

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Introduction

Intimate partner violence (IPV) can be described as a means of coercive, threatening, harassing, and violent behaviour which is used to dominate and control an intimate partner in a former or current relationship (Burczycka et al., 2018; Cunningham & Berry, 2012; New Brunswick, 2012). IPV is a widespread societal problem, yet health consequences, financial cost, and the general societal burden stemming from this behaviour did not come to the attention of researchers, law enforcement and policy makers until the 1970s (Cuevas & Rennison, 2016; Dutton, 2006; Garcia & McManimon, 2012; Gavin & Porter, 2015). Prior to this period, IPV was considered mainly a private matter. Since then, however, the topic of IPV was rediscovered in a broader social context, though much of this work focused only on male-to-female IPV perpetration (Cook, 2009; Dutton, 2006; Gavin, & Porter, 2015; Kruttschnitt, 2016). This recognition of intimate partner violence as a pervasive societal problem initially emerged from women's advocacy groups (Mattern & Post, 2015). Representatives of feminist movement recognized a lack of criminal justice system response to IPV, the absence of services, and even a difficulty in getting divorced (Mattern & Post). This initiated the creation of hotlines and emergency shelters, as well as networks of volunteers to help women fleeing abusive relationships (Mattern & Post). In addition, according to McPhail and colleagues (2007), feminist perspectives emphasized IPV as resulting from historic and current social powers aimed at keeping women subordinate and manifested through the use of physical, sexual, economic, and psychological abuse. McPhail and colleagues also added that the contemporary latest feminist approach acknowledged an intersectional model of IPV, stressing the connection between gender, race, class, sexual orientation, national origin, age, and disability. Finally, Gill and

Aspinall (2020) stressed the importance of looking at IPV from the perspective of a continuous pattern of behaviour, rather than considering IPV only from the lens of an isolated incident. These authors further argued that the notion of coercive control (i.e., a pattern of controlling and proprietary behavior, physical and non-physical abuse, sexual jealousy, and stalking) should be incorporated into the understanding of IPV dynamics and corresponding legal response. Thus, the feminist approach emphasizes the heterogeneous nature of IPV; however, it also stresses that IPV is perpetrated mainly by men against women.

Statistics across countries show that females are the predominant victims of IPV (Burczycka & Conroy, 2018; WHO, 2013). For example, Canadian Centre for Justice Statistics (Burczycka et al., 2018) identified that 75,399 women were victimized by their intimate partners in Canada in 2017 compared to 20,085 male IPV victims. The difference between the number of male and female IPV victims is apparent; however, current research suggests that there are valid reasons to consider that female perpetration might be underrepresented in family violence surveys and within the existing research on IPV perpetration.

Although males tend to be the more frequent perpetrators of IPV (Burczycka & Conroy, 2018; Burczycka et al., 2018; WHO, 2013), a number of researchers have called for studies of the specificity and frequency of female IPV perpetration, which might be underreported (Bair-Merritt et al., 2010; Coleman et al., 2018; Cook, 2009; Dutton, 2006; Gavin & Porter, 2015; Kruttschnitt, 2016; Mager et al., 2014; Straus, 2010). There are some compelling reasons for this call. As early as the 1970s, Straus (1977) identified high rates of violence within American families, with only slightly more violent incidents being perpetrated by husbands in comparison to wives based on results

obtained from the1975 National Family Survey. These results were supported by Steinmetz's research (1977) which found equally high rates of female marital violence perpetration to male perpetration. In the 1990s, a study by Magdol and colleagues (1997) in Dunedin, New Zealand found that self- and partner-reported IPV rates were higher for women in comparison with men. Such results initiated further debate and investigation into the nature of female IPV (Henning & Feder, 2004). More recent surveys also acknowledge high rates of male victimization. For example, the National Centre for Injury Prevention and Control in the United States reported that men experienced physical and sexual violence and/or stalking by their intimate partners at similar rates to that experienced by women (31% for males, and 37% for females; Smith et al., 2017). Moreover, 47.3% of men reported experiencing psychological abuse, which was at a comparable rate with women's experience of psychological abuse (47%; Smith et al., 2017). Thus, IPV can be committed and experienced by both male and female partners.

Determining the prevalence and incidence of IPV in a relationship is a daunting task as research shows that men and women each tend to both underreport and exaggerate their own aggression, as well as the aggression used by their partners (Dutton et al., 2005; Espinoza & Warner, 2016; Henning & Feder, 2004; Henning et al., 2005). However, it is evident that both men and women perpetrate IPV. Thus, it is important to understand nuances in IPV that may relate to perpetrator gender. Such nuances have implications for risk appraisal of subsequent IPV and for designing risk prevention and risk management policies. Unfortunately, most of the extant literature is focused on male perpetrators and available data on female perpetrators of IPV is only emerging.

The current introduction will first review gender nuances which relate to the perception of IPV by professionals in criminal justice system, academics, and the

general public (e.g., Carlyle et al., 2014; Cook, 2009; Dutton et al., 2005; Kruttschnitt, 2016). Then, we will examine available IPV risk assessment tools and the adequacy of using these primarily male-derived instruments with female offenders (e.g., Belfrage & Strand, 2012; Canales et al., 2013; Graham et al., 2019; Hilton et al., 2004; Hilton et al., 2010; Olver & Jung, 2017). Additionally, to understand potential gendered-based risk nuances, we will compare male and female IPV risk factors, including but not limited to demographic characteristics (Gover et al., 2011; Henning et al., 2009), criminal history (Cho & Wilke, 2010; Henning & Feder, 2004), and relationship dynamics (Copp et al., 2017; Mackay et al., 2018). Notably, much of the existing research literature is focused on male perpetrators of IPV and female victims in heterosexual relationships (Baker et al., 2013; Estes & Webber, 2017; Frankland & Brown, 2014; Messinger, 2011). Thus, unless otherwise stated, the following literature review primarily pertains to that context of IPV. When relevant, research pertaining to female-to-female and male-to-male IPV will be noted. Finally, given that numerous studies have highlighted the significant contribution of personality traits (Mager et al., 2014; Moser, 2012; Sijtsema et al., 2014) and the nature of violence used (Blais et al., 2014; Lake & Stanford, 2011), we will consider the role of these elements for better theoretical understandings of the nature of IPV in general, and female-specific IPV in particular.

Gender Nuances in Perception of IPV-Related Cases

Research has found that female IPV perpetration might be underreported or misrepresented in various domains, including within the criminal justice system, academia, and mass media (Dutton et al., 2005; Espinoza & Warner, 2016; Kruttschnitt, 2016; Stewart et al., 2014). For example, Kruttschnitt (2016) emphasized that, in many studies, women's usage of violence was too often explained by their "victimization"

which created a false understanding of the nature of female-perpetrated violence. In reality, according to available research, only some female-initiated violence is a reaction to male-perpetrated abuse (Dutton et al., 2005; Kruttschnitt, 2016; Stewart, et al., 2014).

Bates and colleagues (2019) recently criticized the roots of IPV stereotypes as resting within gendered and feminist models, according to which men are believed to perpetrate IPV against women just because they are women, and that this violence gives men feelings of power, control, and dominance. According to Bates and colleagues, the feminist model has played a large role in bringing the issue of IPV to the attention of society; however, it has also influenced the development of such stereotypes as "man = perpetrator" and "woman = victim", as well as equaling IPV with physical violence only. Such biases were further reinforced by media portrayal of female offenders. For example, Carlyle and colleagues (2014) examined 331 news articles with male (80.7%) and female (19.3%) perpetrators of IPV and compared differences in the news coverage of crimes perpetrated by offenders of both genders. They focused specifically on news covering cases of physical, emotional, sexual, psychological, and economic IPV. Notably, physical violence was covered in approximately 96% of articles, which might perpetuate the belief about IPV as being primarily physical in nature. In addition, Carlyle and colleagues found that news featuring female IPV offenders had more extensive coverage of reasons behind IPV offending, including infidelity, emotional distress, finances, and self-defense, as well as more reports about their criminal history than in comparison with the articles portraying male IPV offenders. Moreover, female perpetrators were also more likely to be described in the media as socially deviant than male perpetrators of IPV. Carlyle and colleagues argued that such portrayal of female offenders in the media aligned with existing stereotypes regarding women's violence as

stemming from emotional instability, previous abuse by males, or tendency to act "abnormally".

Wozniak and McCloskey (2010) investigated the difference between newspaper coverage of female and male IPV in the context of IPV-related homicides. They randomly selected 100 homicide-related newspaper articles (70 – male-perpetrated and 30 – female-perpetrated) and found that 72% of these articles lacked any discussion on domestic violence in terms of a broader social context, or even mentioned the term "domestic violence" at all. Moreover, when the offender was female, the past history of violence perpetrated by male victims was covered in 23.3% of the 30 articles, whereas the past violence perpetrated by female victims was reported in 8.6% of the 70 articles dealing with male IPV homicides. However, there was no statistically significant difference between the media reported reasons behind homicide perpetrated by males or females, and there was no gendered difference between the extent of coverage (calculated by measuring articles length and the number of follow-up reports; Wozniak & McCloskey). Additionally, Lloyd and Ramon (2017) examined the change in newspaper coverage of domestic-related homicides over a 10-year time span. Despite focusing mainly on male-perpetrated offenses, they also found gender-specific difference in mass media reports. Specifically, male offenders were primarily presented as acting in the heat of the moment and committing crime mostly due to their spouses' infidelity, whereas female offenders were presented as "particularly deviant" or "evil".

Interestingly, Estes and Weber (2017) examined how IPV within same-sex couple dynamics is reported in the US newspapers. These authors examined 25 newspaper articles covering the period of time from 2005 to 2015. First, Estes and Weber noted a lack of coverage of same-sex IPV, which might perpetuate disregard for

this type of IPV as a social problem. In addition, these authors found that some articles depicted instances of female-to-female IPV as more extreme and severe in comparison with male-to-male IPV. Estes and Weber expressed concerns with how news articles described lesbian IPV offenders as more masculine, as well as exotic and unusual. This depiction might create a distorted general public impression of same-sex IPV as a stand-alone extraordinary phenomenon. However, Estes and Weber also noted the objective coverage of this type of violence in some newspapers. Overall, mass media tends to create sensationalized images of IPV-related crimes, yet they often fail to mention the intricate nature of this widespread problem and continue to endorse gender biases in IPV.

Not surprisingly, gender biases seem to exist in the eye of the general public in terms of how they perceive information pertaining to IPV-related cases. Sylaska and Walters (2014) investigated the perception of IPV as a function of the observer, participant, and victim's gender. They presented 178 university students with vignettes describing cases suggestive of physical violence in dating relationships and manipulated perpetrator and victim gender in these vignettes. Sylaska and Walters found that male participants tended to express more victim-blaming views; however, participant gender did not influence the perception of seriousness of IPV. In addition, participants were more likely to consider male victims as more responsible for IPV, but also viewed cases with female IPV victims as more serious in comparison with cases involving male IPV victims. More recently, Karlsson and colleagues (2018) examined the connection between the offender's gender, crime type, and the relationship between the offender and a child (if a child was a hypothetical victim) in a mock jury's (167 university students) perception of these cases. Participants were presented with vignettes describing

cases of familial homicide and provided background information about the individuals involved. Interestingly, Karlsson and colleagues found that when having a forced choice between maliciousness and mental illness as a cause for crime, participants were more likely to choose mental health problems if the offender was female. In addition, participants expressed the belief that female offenders were more likely to have a history of victimization and mental illness and were less likely to reoffend in comparison with male perpetrators, whereas male offenders were viewed as more likely to express aggression, have substance misuse issues, and experience employment problems. However, the gender of the perpetrator did not significantly influence the severity or length of punishment proposed by these mock jurors (Karlsson et al., 2018).

Gendered stereotypes seem to exist within legal contexts as well. For example, Bates and colleagues (2019) indicated that IPV is placed under the Violence against Women and Girls strategy in the United Kingdom and is considered a gendered crime, despite the use of gendered-neutral terminology. Moreover, there is a remarkable disparity in the number of female and male perpetrators of IPV who were arrested by police. For example, in Canada, 6,470 females were arrested for spousal IPV in 2016 in contrast to 25,423 male offenders. This disparity was even greater in the context of dating IPV, with 7,548 female perpetrators arrested versus 31,823 male perpetrators of this kind of IPV (Burczycka & Conroy, 2018).

Understanding police officers' perception of IPV-related cases in general, and female and male IPV offenders in particular, is crucial given that police serve as first responders in various domestic conflicts and their judgment might play an important role in the resolution and handling of these cases (Cook, 2009; Russel, 2018). For example, Cook (2009) indicated that men who experienced IPV were sometimes ridiculed by

police officers or disbelieved by judges, thus putting men in an even more stressful and shameful situation and creating an obstacle for male victims seeking help from the criminal justice system. Interestingly, Friend and colleagues (2011) indicated that, despite similar rates of IPV-related arrests for men and women in their study, male perpetrators were more likely to receive jail sentences, whereas female offenders were more likely placed on a "good behaviour" community condition (i.e., not in jail). A more recent study by Russel (2018) investigated police officers' assessment of IPV perpetrators' blame, responsibility, danger to other family members, and the likelihood of past and future violence as a function of perpetrators' gender and sexual orientation. Russel found that the perpetrator's gender or sexual orientation did not influence police officers' judgment of offenders' culpability. However, heterosexual male perpetrators were perceived as more dangerous than female heterosexual and male and female homosexual IPV perpetrators. In addition, victims of female perpetrators (both heterosexual and homosexual) were rated as more responsible for the IPV conflict than female heterosexual victims and were considered more likely to cause harm in the future or in the past, whereas heterosexual female perpetrators were considered the least likely to have caused any harm to their partners in the past. Interestingly, Russel also found that police officers perceived homosexual male and heterosexual female victims as more credible in their reports about IPV incident than heterosexual male victims. Evidently, gender bias persists among first responders to IPV calls, even though it is currently manifested in milder forms (i.e., not affecting arrest decisions, but influencing the credibility ratings given to female and male victims of IPV).

Renauer and Henning (2006) identified gender bias in IPV behaviour interpretations as expressed by police officers when differentiating between self-defense

and offense tactics employed by women. These authors first examined IPV recidivism among 880 male and female cases of IPV (440 men and 440 women) from Memphis, USA, and 6,010 cases (5,829 men and 721 women) from Portland, USA. Their results showed that, overall, female IPV offenders were less likely to recidivate in comparison with male IPV suspects; in fact, women were more likely to appear in subsequent IPV cases as victims. However, Renauer and Henning observed from their data that, in many cases, police officers incorrectly identified women as aggressors when in reality their behaviour reflected incidents of self-defense. Based on their interpretation of these files, Renauer and Henning concluded that only 6% to 8% of female perpetrators of IPV were "pure suspects" with a history of violence. Renauer and Henning noted that this number also could be underestimated due to police officers' gender bias. Moreover, 12% to 17% of female suspects were identified in later reports as both victims and suspects in IPV incidents. Renauer and Henning concluded that gender did play a role in IPV recidivism; thus, there is a case for development of relevant historical and dynamic gendered risk assessment tools comprising behavioural, psychological, and demographic characteristics.

Straus (2010) provided an account of his experience of raising awareness of the problem of female IPV perpetrators in the academic community. He noted that this issue had been hotly debated and sometimes even denied by supporters of the feminist approach to the study of IPV. However, despite existing gender stereotypes, more and more research is emerging that highlights the specificity of female IPV perpetration (Dutton et al., 2005; Espinoza & Warner, 2016; McTague, 2018; Moser, 2012). Thus, to move this field forward, it is crucial for researchers to identify the characteristics of female IPV perpetrators, the dynamics of their use of violence in intimate relationships,

and clarify common and gendered risk factors for recidivism among female perpetrators. Such valuable data is needed to inform theoretical understandings of female IPV offenders' behaviour and to develop effective risk management and intervention strategies. To develop these risk mitigation strategies, researchers and professionals in the field must first understand how best to appraise IPV risk for male and female perpetrators.

Intimate Partner Violence Risk Assessment

Risk assessment is the process used to prioritize cases for monitoring and service support, guide case management and intervention planning, and gauge changes in risk over time. Using structured appraisal risk tools is the best way to achieve these goals but these tools must be developed and validated for the population in which they are used. Most of the available risk tools are male-derived and then extended to females or not used at all with female perpetrators of IPV given the limited available validity data for female IPV offenders (e.g., Graham et al., 2019; Hilton et al., 2014; Kropp & Hart, 2000; McTague, 2018; Thijssen & de Ruiter, 2011).

Risk assessment model. One of the major activities of the criminal justice system is criminal behaviour risk appraisal; it is used to provide guidelines for case decision-making by police officers, judges, prison officials, and other professionals in the field working with victims and perpetrators of crime (Andrews & Bonta, 2006; Andrews et al., 2011; Bowen & Brown, 2012; Bonta & Andrews, 2017; Ward et al., 2007). The Risk-Need-Responsivity (RNR) model was developed in the 1980s and first formalized in 1990 (Andrews et al., 1990). RNR Model serves as an evidence-based framework, which is used to appraise the risk of re-offending and to develop corresponding case management strategies. Ideally, risk appraisal tools should be

consistent with RNR principles in order for them to function effectively, including in situations of IPV. Specifically, as summarized by Bonta and Andrews (2017), there are three main principles of risk assessment and case management to mitigate criminal risk. The first principle is the risk principle, which highlights the importance of using reliable risk assessment measures to appropriately match the needed level of services and supervision with the offender's risk level. Specifically, higher risk perpetrators are in need of more intensive intervention, whereas minimal level of intervention or, at times, no intervention at all should suffice low-risk offenders (Bonta & Andrews). Thus, high intensity service/supervision is required to manage the danger posed by a high risk suspect for IPV perpetration, whereas a low risk suspect may require little follow-up or intervention. Validated risk tools are available to appraise general and violent criminal risk, including in the context of IPV. The second principle is the need principle. According to Bonta and Andrews (2017), the need principle discriminates between criminogenic and non-criminogenic needs. Criminogenic needs (e.g., substance misuse, pro-criminal attitudes and beliefs) are empirically supported changeable risk factors associated with the target outcome, directly impacting criminal risk. Non-criminogenic needs (e.g., major mental disorders, physical health) are unrelated or weakly tied indirectly to criminal behaviour, but they impact overall functioning. Both dynamic risk factors (i.e., changeable factors like age, use of substance) and static risk factors (i.e., historical factors like gender, history of abuse) form the bases for risk appraisal measures, but dynamic variables (i.e., criminogenic needs) are emphasized. Finally, the responsivity principle has two aspects (Bonta & Andrews, 2017). The general responsivity principle emphasizes the importance of employing cognitive-behavioural and social learning techniques to target risk factors. The specific responsivity principle

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argues that these techniques should be adjusted to client's personal characteristics. Such adjustments may be for a learning disability, accommodation for mental health issues, but should also tap into client's strengths.

History of risk assessment tools development. Bonta and Andrews (2017) provided an overview of four stages in the history of the development of risk assessment. First-generation risk assessment tools were based on unstructured professional judgment, which relies on a highly subjective and sometimes inaccurate decision-making process (Grove & Meehl, 1996; Harris et al., 2015). Second-generation risk assessment tools are evidence-based, meaning that they are derived from statistical models of risk factors best predicting the anticipated form of expected criminal behaviour and are more structured and actuarial (score-based) in nature. Evidence-based procedures provide higher prediction accuracy rates than unstructured judgements of risk and are considered preferable by correctional services (Bonta & Andrews, 2017). Despite their apparent benefits, second-generation risk tools also have their disadvantages (Bonta & Andrews, 2017; Campbell et al., 2009; Harris et al., 2015). Specifically, they are not supported by theory and are of a more static nature; thus, actuarial tools cannot capture changes in risk or in the state of risk factors themselves relevant to capturing increase and decrease in risk due to the passage of time or intervention. Furthermore, these static tools do not identify specific targets for change given reliance on historical and unchangeable risk factors. In contrast, third-generation risk assessment tools evolved to combine both static and dynamic factors, are considered reliable for predicting risk, and are more useful than second generation tools for informing intervention and change in risk over time. Lastly, fourth-generation risk assessment tools highlight the integrated connection between assessment and case

management, and include the acknowledgment of personal strengths, assessment of responsivity factors, and the monitoring of the case over time to adjust case plans and risk mitigation strategies as warranted (Bonta & Andrews, 2017).

Types of IPV Risk Assessment Instruments

One of the roles of risk assessment tools in the IPV context is to reliably appraise and predict the likelihood of future IPV and lethality of risk based on RNR principles (Bonta & Andrews, 2017; Campbell & Messing, 2007; Northcott & Canada, 2013). Renauer and Henning (2006) noted that, due to mandatory pro-arrest policies for IPV (i.e., policies which encourage or require officers to make arrests based on such evidence as victim's injury, broken furniture, etc., even when the officer has not directly witnessed the assault), the number of arrests and prosecutions of IPV perpetrators increased greatly. However, this increase in arrest volume has placed strain on the criminal justice system, leading to the necessity of prioritizing cases for closer monitoring and intervention and for criminal justice system responses. The perpetrator's risk for IPV can inform that prioritization, which is one of the main advantages of using risk assessment tools in daily practice of police officers.

Several IPV risk assessment tools have been validated for use by professionals (e.g., mental health professionals, probation and parole officers), with some of these measures being specifically designed for use by police officers. The most commonly used risk assessment instrument is the Spousal Assault Risk Assessment (SARA; Kropp & Hart, 2000) which is utilized by risk appraisal professionals (e.g., probation officers), whereas both the Brief Spousal Assault Form for the Evaluation of Risk (B-SAFER; Belfrage & Strand, 2012) and the Ontario Domestic Assault Risk Assessment (ODARA; Hilton et al., 2004) are designed to be used by professionals with less training, fewer

time resources, and more limited availability of clinical information, such as by police officers. Each of these risk assessment tools has been initially created for the use with male perpetrators and does not have a consistent research base validating its use with female offenders of IPV.

The SARA, a third-generation risk assessment tool, was among the first risk assessment tools created to be used with male IPV offenders (Kropp & Hart, 2000; Olver & Jung, 2017; Ryan, 2016; Yaxley et al., 2018). The validity of the original and revised versions of the SARA have been tested across various samples and are generally found to be moderately predictive of subsequent IPV for male offenders (Belfrage et al., 2012; Graham et al., 2019; Grann & Wedin, 2002; Kropp & Hart, 2000; Messing & Thaller, 2013; Olver & Jung, 2017; Wong & Hisashima, 2008; Yaxley et al., 2018). Commonly, the validity of risk appraisal tools is tested with a receiver operating characteristic curve (ROC) analysis (Rice & Harris, 2005). Area under the curve (AUC), which is, in essence, an effect size that can range from 0 to 1.00; values between .64 and .71 indicate moderate predictive validity, whereas values higher than .71 indicate strong predictive validity (Rice & Harris, 2005). Kropp and Hart (2000) conducted a retrospective study with a large number of adult male perpetrators ($N = 2681$) in British Columbia, Canada, and found a robust effect size for the SARA ($AUC = .70$). Another study in New Zealand with males found a large effect size for predicting IPV for the summary risk rating ($AUC = .78$), and a robust effect size for a calculated total score based on the sum of risk item ratings ($AUC = .72$; Callan-Bartkiw, 2012). Moreover, Wong and Hisashima (2008) investigated the predictive validity of the SARA as used by professionals within the criminal justice system with a Hawaiian sample and found above chance predictive validity for family recidivism ($AUC = .61$) among males.

Despite its utility with males, Yaxley and colleagues (2018) noted that the use of the

SARA with female IPV perpetrators has not been rigorously tested. This gap is a

concern given that the SARA's items are based on male perpetrator data rather than an

understanding of risk factors for IPV among female perpetrators. Thus, the utility of this

well-established risk assessment tool with females is unclear.

      Another third-generation risk assessment tool, the B-SAFER, was developed as a

shorter and a more user-friendly form of the SARA intended to be used specifically by

police officers as first responders to IPV (Belfrage & Strand, 2012; Canales et al., 2013;

Kropp & Hart, 2000). The B-SAFER has a limited research base in comparison with the

SARA, but data supports its validity with male IPV perpetrators (Au et al., 2008;

Canales et al., 2013; Graham et al., 2019; Storey & Strand, 2013; Thijssen & de Ruiter,

2011). Advancing research on female IPV risk prediction, Storey and Strand (2013)

specifically examined the use of the B-SAFER with 52 female perpetrators of IPV. Their

study was limited by the absence of recidivism information; however, these researchers

found certain similarities in the B-SAFER risk item scoring between female and male

IPV perpetrator cases. Specifically, the presence of risk factors was associated with

corresponding summary risk judgements made by police officers using this tool for both

male and female IPV offenders. At the same time, unsurprisingly, Storey and Strand

noted that the B-SAFER was lacking female-specific risk factors and called for future

research to examine whether additional risk factors would optimize the utility of this risk

assessment tool.

      A few other risk appraisal studies involving female offenders have used the

ODARA, a second-generation risk assessment tool, created by Hilton and colleagues in

2004 in Ontario, Canada (Hilton et al., 2004; Hilton et al., 2010). This instrument is a

purely actuarial risk assessment tool which was developed specifically for police use and

is scored based on the information typically available to police. In addition, the ODARA

has all the limitations of the second-generation risk assessment tools: it captures mostly

situational static risk factors and might not be sensitive to change in risks over time

(Bonta & Andrews, 2017; Moser, 2012). Research on the ODARA's predictive validity

has shown generally positive results for male IPV perpetrators (Graham et al., 2019;

Hilton et al., 2004; Hilton et al., 2010; Hilton et al., 2014; McTague, 2018; Messing &

Thaller, 2013; Moser, 2012; Olver & Jung, 2017). For example, Hilton and colleagues

(2010) conducted several studies with 1,420 IPV male perpetrators and found AUC

effect sizes for IPV recidivism ranging from .72 to .80, indicating high predictive

validity for the ODARA. Similarly, Messing and Thaller's meta-analysis results (2013)

showed that the ODARA, in comparison with several other risk assessment tools, such

as the Danger Assessment (DA) and the SARA, had the highest weighted AUC of .67.

Olver and Jung (2017) also compared the ODARA with the SARA and the Family

Violence Investigative Report (FVIR). Unlike most ODARA studies, Olver and Jung's

sample was collapsed across gender, comprising male IPV perpetrators (85%), and a

small group of female IPV offenders (15%). They found that the predictive validity of

the ODARA was robust ($AUC = .72$) for IPV recidivism and similar to the predictive

validity of the SARA ($AUC = .74$). However, these findings pertained only to male

offenders as none of the female IPV perpetrators in their sample re-offended. However,

a master's thesis by Moser (2012) found that the ODARA was moderately predictive of

male recidivism ($AUC = .70$) and also was moderately predictive of female IPV

recidivism ($AUC = .67$) using a small sample of female perpetrators ($N = 26$). These

results were generally supported by Hilton and colleagues (2014) who assessed the

ODARA with a small sample of female IPV offenders ($N = 30$). Hilton's work, similar to Moser's study, found that the ODARA had robust predictive validity for IPV female recidivism ($AUC = .72$). Despite these promising preliminary data on the utility of this IPV risk assessment tool with females, a more recent study conducted by McTague (2018) with a larger sample of IPV female offenders ($N = 99$) found that the ODARA was moderately predictive of male IPV recidivism ($AUC = .64$), but produced only chance prediction of recidivism among female IPV offenders ($AUC = .52$).

It should be noted that the ODARA is used in the province of New Brunswick as the mandatory risk assessment tool for police officers, which makes this risk assessment tool relevant for the context of the current study. Moreover, the ODARA is an assessor-friendly and time-efficient risk assessment tool which requires a minimal level of training as compared with the SARA and the B-SAFER, both of which require a more clinical approach. Therefore, despite certain drawbacks typical of the second-generation risk assessment tools, the ODARA seems to be appropriate specifically for the police context and falls nicely within RNR framework, given that the ODARA can reliably classify perpetrators into risk categories (McTague, 2018; Moser, 2012).

Overall, a better understanding of characteristics and potential risk factors among female IPV perpetrators is required 1) to test the validity of existing male-derived risk tools with female offenders, and 2) to ascertain the need for developing female-specific risk tools, or making modifications to male tools. In addition, there may be variations among female IPV offenders that contribute to inconsistent findings in the existing risk assessment literature (i.e., the tools may work better with certain types of female offenders than others). Understanding the heterogeneity among female IPV perpetrators

also will add to risk management and intervention targets to mitigate this risk among this sub-group of offenders.

Gender Comparisons on IPV Characteristics

   Demographic characteristics. It is difficult to understand the complex issue of IPV without examination of perpetrators characteristics and their backgrounds (Dutton et al., 2005; Gover et al., 2011; Henning et al., 2009; Mackay et al., 2018). Dutton and colleagues (2005) argued that male and female IPV offenders share many traits, yet there are some female-specific risk factors as well. For example, Henning and Feder (2004) conducted a study with 6,704 persons arrested for IPV against their heterosexual partners (16.8% of females). They found that female offenders were younger than male offenders and twice as young as their respective male victims. Both of the male and female offenders in their sample were mainly African American, with similar household income and similar proportions of dating relationships relative to married relationships between them. In contrast, Houry and colleagues (2006) identified not being married and older age as risk factors for female arrests alongside their male counterparts in IPV-related incidents.

   Relationship dynamics. IPV cannot be studied fully without taking into account characteristics of relationship dynamics between former or current intimate partners (Copp et al., 2017; Mackay et al., 2018; Swan & Snow, 2002; 2006). Specifically, Caldwell and colleagues (2009) investigated motives for IPV among 412 women who were engaged in IPV against their male partners. These authors found diverse motives for initiating IPV, including anger; desire to make their partner do certain things; desire to gain or establish control; a self-perceived lack of ability to stop themselves from perpetrating IPV; desire to harm, hurt, and/or intimidate a partner; self-defense; desire to

show that a partner could not get away with his mistreating behaviour; jealousy; and potential partner's infidelity. Moreover, Bair-Merritt and colleagues (2010) examined 23 published studies on female motivations for perpetrating IPV. Their review findings generally supported the work of Caldwell and colleagues. Specifically, Bair-Merritt and colleagues found that women's motivations reflected the complexity of IPV. For example, female motives were more closely connected with expression of emotions and response to their partner's abuse than with establishing control over their partners. In addition, women reported feeling angry and powerless after they had tried to attract attention of their male partners, and such feelings triggered the incidents of IPV. Specifically in relation to reported self-defense and retaliation as motives for IPV among female perpetrators, some women reportedly initiated violence as a means of preemptively protecting themselves.

Copp and colleagues (2017) focused their longitudinal investigation of IPV motives on the role of gender mistrust and whether the link between gender mistrust and IPV perpetration could be traced from adolescence into young adulthood. They defined gender mistrust as a set of negative attitudes and beliefs about the opposite sex. Copp and colleagues argued that such attitudes can have a dire influence on the intimate partner relationship formation and dynamics, specifically among economically disadvantaged persons. As expected, Copp and colleagues found that gender mistrust was associated with an increased likelihood of female IPV perpetration; however, this association was no longer significant after statistically controlling for such sociodemographic characteristics as race, family structure, and poverty.

Henning and colleagues (2005) researched the role of cognitive distortions as factors in IPV among a sample of convicted male and female IPV perpetrators, including

the distortions of minimization, denial, and attributing blame to external factors. They found that both men and women tended to minimize, deny, and blame various external factors for their engagement in IPV behaviours. Notably, however, more females than males placed blame for IPV perpetration on their partners' actions, including their lack of commitment to the relationships, being unfaithful, and instilling a sense of insecurity in their relationships.

Interestingly, Swan and Snow (2002) concluded that men and women tended to engage in psychological violence at similar rates; however, women perpetrated more moderate physical violence than their male counterparts, such as throwing objects and pushing. Male perpetrators, on the other hand, tended to use more coercive control strategies and instilled more fear in their female victims; they also perpetrated more serious types of violence against women, such as sexual violence and violence with injury.

Demographic characteristics and relationship dynamics are important but not exhaustive markers of IPV perpetration. Ample research (e.g., Goldenson et al., 2007; Gover et al., 2011; Henning & Feder, 2004; Lake & Stanford, 2011; Sijtsema et al., 2014) has shown that such IPV factors as suspects' criminal history and history of victimization, substance misuse, personality traits, and the type of violence perpetrated by IPV suspects can provide a significant insight into the nature of IPV.

Gender Comparison on IPV Risk Factors

IPV incident context and suspects' criminal history. Henning and Feder (2004) found that female IPV perpetrators were more likely to use a weapon during the assault and they were also more likely to be arrested alongside their partners. However, more male than female arrestees used substances prior to their arrests and had violations

of pre-existing protective orders. Furthermore, male IPV offenders tended to be involved in more violent physical assaults than female IPV offenders and scored higher on a physical abuse scale, but both genders had similar scores on a psychological abuse scale. Moreover, male IPV offenders had a greater likelihood of having a history of domestic violence perpetration, as well as general violent incidents and previous non-violent criminality than their female counterparts. In contrast, there were no significant differences in the history of juvenile arrests or childhood exposure to violence in the respective homes of male and female IPV perpetrators.

When examining comparisons between the gender of victims and perpetrators, Cho and Wilke (2010) found that male victims of female perpetrators ($n = 298$) suffered more from aggravated assault than did female victims ($n = 2,462$) of male IPV offenders (28% vs. 17% respectively). However, there was little difference in the rates of simple assault experienced by these male and female IPV victims (71% vs.75% respectively; Cho & Wilke). Cho and Wilke also added that, despite being assaulted more severely, male victims of female IPV offenders were injured less often than female IPV victims of male IPV perpetrators, which might happen due to the difference in physical strength often found between men and women. In line with this view, female perpetrators also used a weapon more frequently than male perpetrators (39% vs. 20% respectively), but were nevertheless arrested somewhat less often than male offenders (18% vs. 24% respectively). It should be noted that, according to Cho and Wilke, police officers' decision to arrest was not influenced by gender of a perpetrator but rather by the level of a victim's physical injury, which (as noted) tends to be less severe when inflicted by a female perpetrator. In addition, Houry and colleagues (2006) found that, in cases of dual

arrests when both partners are arrested in an IPV situation, having a weapon was associated with a heightened likelihood of female IPV-related arrests.

History of perpetrators' victimization. Following research examining the connection between traumatic experience, personality disorders, and the likelihood of IPV perpetration among males and females, Goldenson and colleagues (2007) decided to focus specifically on comparison between female IPV offenders and non-offending female mental health clients engaged in psychotherapy. These authors noted that female IPV offenders tend to display more elevated post-traumatic stress disorder symptoms in comparison with nonoffending women receiving psychological help for depression, anxiety and relationship problems. This symptom profile might stem, in part, from an experience of childhood maltreatment. For example, Swan and Snow (2006) reported in their literature review that childhood experience of physical and sexual abuse was associated with future use of violence by women, as well as with the experience of future sexual victimization. Swan and Snow added that women who used violence in their relationships had experienced emotional abuse in childhood, which correlated with their use of coercive control tactics and avoidance coping strategies later in life.

More recently, Stewart and colleagues (2014) reviewed files of 135 federally sentenced female IPV offenders and found extremely high rates of past victimization in their sample, with abuse occurring both in these suspects' childhood (more than 77%) and in their current or past intimate relationships (59.6%). Having conducted a comprehensive review of studies on male-to-female and female-to-male IPV risk factors, Capaldi and colleagues (2012) reiterated that, indeed, there is an association between exposure to domestic violence when a child, experience of child abuse, and the likelihood of IPV perpetration as an adult for both men and women, but this association

might have been mediated by other factors, such as antisocial behaviour and substance use problems with no significant difference between both genders. Overall, Capaldi and colleagues concluded that support in the family of origin, social support, and interaction with non-aggressive peers tended to have a positive impact on the healthy dynamics of future intimate relationships for both males and females.

Substance use and misuse. Research also has shown a connection between substance use and the likelihood of IPV perpetration for both males and females. Specifically, Crane and colleagues (2014) found that alcohol and cocaine use was associated with the heightened likelihood of IPV perpetration among both males and females. Moreover, they found that male and female IPV offenders with concurrent cannabis and alcohol use disorders were more likely to perpetrate IPV in comparison with offenders with only cannabis use disorder, while also being less likely to offend than perpetrators with only alcohol use disorder. In addition, Friend and colleagues (2011) found co-occurrence between substance use and same-day IPV-related arrests, with these findings being more prominent for men. Interestingly, Gover and colleagues (2011) examined factors influencing domestic violence treatment completion for both male and female IPV offenders and found that, among other factors, being sober at the time of the arrest greatly increased the likelihood of treatment completion for both genders. Finally, Capaldi and colleagues argued that there seemed to be evidence that alcohol was a more significant risk factor for girls and women who perpetrate IPV than for men, which might be explained by a more disinhibitory effect of alcohol on female aggression specifically, male partner's attitude to the female's alcohol use, or the association of alcohol use with various psychopathologies in women. However, Capaldi

and colleagues noted that more research is required into female-specific connection between alcohol misuse and the likelihood of IPV perpetration.

Personality traits. Presence of borderline and/or antisocial personality traits among offenders are often correlated with IPV perpetration (Clift & Dutton, 2011; Dutton et al., 2005; Fatania, 2010; Fox et al., 2019; Goldenson et al., 2007; Henning et al., 2005; Mackay et al., 2018; Mager et al., 2014; Moser, 2012; Sijtsema et al., 2014). Borderline traits capture anxiousness, impulsivity, separation insecurity, emotional lability, relationship instability, and depressive tendencies (Bach et al., 2016), whereas antisocial traits include manipulativeness, deceitfulness, callousness, hostility, risk taking, irresponsibility, and impulsivity (Anderson et al., 2014). Notably, for the purpose of the current study, we will follow Bonta and Andrew's (2017) recommendation to assess traits of personality when appraising risk of criminal behaviour, rather than focusing on diagnostic labels or linking this type of behaviour to psychological disorders. Therefore, for the purposes of the current study, the term "personality trait" will be used to reflect characterological aspects of functioning and this term will be defined as a typical pattern of response to various situations (Bonta & Andrews, 2017). Although our measurement rubric of these characteristics uses clinical descriptions of borderline and psychopathic/antisocial personality trait symptoms, we will look at these traits from a non-clinician perspective and will not strive to fit our sample of people involved in the criminal justice system into DSM-5 diagnostic criteria categories.

The influence of personality traits seems to play a significant role for both male and female perpetrators of IPV (e.g., Hines, 2008; Moser 2012). However, Goldenson and colleagues (2007) concluded in their literature review that difficulties in the personality domain might be more characteristic of female IPV perpetrators in

comparison with male IPV offenders based on the bulk of previous gendered research. To advance these findings, Goldenson and colleagues specifically compared female offenders receiving treatment for IPV with a clinical sample of female non-offenders on attachment patterns, influence of traumas, and personality organization to determine whether personality issues were more representative in female IPV offenders than in clinical samples of females. Goldenson and colleagues found that female offenders had higher scores on Borderline, Dependent, and Antisocial subscales of their self-report personality disorder symptom measures in comparison with non-offending females. These findings showed that women who engaged in IPV perpetration displayed specific challenges with impulsivity, mood swings, unstable relationships, as well as deceitfulness, aggression, and irritability; these women also felt more dependent on their partners than non-offending females. Thus, female IPV offending may be influenced by these personality attributes.

Research (e.g., Armenti & Babcock, 2018; Clift & Dutton, 2011; Hines, 2008; Jackson et al., 2015) has shown that borderline personality disorder (BPD) and borderline personality traits are associated with an increased likelihood of IPV perpetration. One of the landmark studies examining the connection between borderline personality traits and intimate partner aggression was conducted by Hines (2008), who found that borderline personality traits were predictive of IPV for men and women in a non-clinical sample. Specifically, Hines found that personality features consistent with borderline personality (e.g., impulsivity, fear of abandonment, anger, jealousy, emotional instability) each correlated with physical, psychological, and sexual abuse perpetration by both genders. Moreover, Jackson and colleagues (2015) reviewed 29 articles investigating the connection between BPD and IPV offending, emphasizing the

role of offender gender. Jackson and colleagues found that persons with BPD symptomatology tended to engage in more severe and frequent IPV perpetration than those with fewer of these traits. Jackson and colleagues also noted the scarcity of research regarding female IPV offenders. They argued that, despite the fact that women tend to be diagnosed with BPD more frequently than men, it was possible that the actual influence of BPD on IPV perpetration was similar for both men and women.

The relation between personality and IPV extends to psychological forms of abuse. For example, Clift and Dutton (2011) examined a sample of female undergraduate students who had (or used to have) intimate partners and who reported perpetrating psychological abuse or physical IPV at some point in those relationships. They found that borderline personality features were associated with psychological abuse perpetration in dating relationships. Clift and Dutton also found that borderline personality features were associated with parental rejection on the one hand, and fearful attachment, anger and trauma symptoms on the other hand; concluding that unfavourable childhood experiences might lead to the formation of borderline personality, which, in turn, might increase the risk of IPV perpetration. In addition, Armenti and Babcock (2018) examined dispositional risk factors and their connection with borderline personality traits and IPV for males and females. They found positive correlations between borderline personality traits and rejection sensitivity with both physical and psychological aggression. Moreover, anger was found to be a mediating factor specifically between borderline personality traits and psychological violence. Additionally, Mackay and colleagues (2018) recently reviewed 31 studies on female-specific IPV perpetration and concluded that borderline personality traits were strongly associated with IPV perpetrated by women. Generally, female offenders were more

likely to display narcissistic, histrionic, compulsive and borderline personality traits, whereas men were more likely to have higher scores on antisocial traits.

Although borderline traits may more strongly tie to female IPV perpetrators, researchers have also explored the role of psychopathic personality traits in IPV. Specifically, Mager and colleagues (2014) investigated the connection between psychopathic personality traits and IPV in both men and women. Mager and colleagues found that the interpersonal-affective traits (e.g., manipulativeness, callousness, limited empathy) and the impulsive-antisocial traits (e.g., irresponsibility, impulsivity) of the psychopathy personality construct were both related to an increased risk of IPV perpetration, but the association between interpersonal-affective traits and IPV was more prominent for men than for women. Although psychopathic traits overall had a more influential role to play for IPV among men, Mager and colleagues found that the interpersonal-affective traits were impactful particularly in cases of mutual violence involving female perpetrators. Gray and Snowden (2016) also researched the association between psychopathy and crime as a function of gender. Gray and Snowden's study found that psychopathic traits correlated with general criminal and aggressive behaviour for both men and women. Moreover, Moser (2012) found that psychopathic traits were more strongly predictive of IPV recidivism for both genders than a standardized IPV risk instrument, but was especially predictive for female perpetrators. Most notably, Moser found that persistent IPV offenders of both genders exhibited enduring psychopathic characteristics in comparison with less frequent perpetrators.

Overall, borderline and psychopathic/antisocial traits seem to be salient risk factors for IPV perpetration. Thus, such features need to be considered as part of theoretical explanations of IPV perpetration and integrated into the design of risk

assessment tools and risk management policies. In addition to these dimensions of the perpetrator, another crucial element that influences perpetrator's likelihood of IPV perpetration and subsequent recidivism is the severity and the type of violence exhibited by the offender.

Types of Aggressive and Violent Behaviours

Understanding the nature of the violence employed by IPV perpetrators may further assist with not only differentiation between subtypes of perpetrators, but also for informing risk assessment and risk management strategies based on these differences. As with the characteristics of IPV perpetrators, the nature of IPV behaviour is heterogeneous. Incidents of IPV might differ based on the type of violence involved and the severity of aggression exhibited by intimate partners. Broadly speaking, aggression can be defined as purposeful behaviour intended to harm others physically or psychologically (Bowie, 2007). Barratt and colleagues (1999) highlighted that the most common classification of physical aggression separates it into impulsive and non-impulsive forms. According to these researchers, impulsive (reactive) aggression can be characterized as spontaneous, unplanned aggressive actions which represent disproportionate reactions to provocations or can emerge even when unprovoked. Non-impulsive (planned, premeditated, instrumental, proactive, or predatory) aggression does not usually have an emotional component but arises more from a "cold-blooded" intention to cause harm for personal gain or to exert control over others. Barratt and colleagues' own research showed that impulsive and premeditated types of aggression existed independently of each other and that only impulsive aggression was accompanied by the feeling of guilt and remorse.

Based on previous studies highlighting the connection between psychopathic traits and aggression, Blais and colleagues (2014) conducted a meta-analysis to investigate the association between reactive and instrumental types of aggression and psychopathy. These authors examined 53 studies and found that psychopathy was moderately and significantly correlated with both types of aggression. In contrast, Cima and Raine (2009) found that psychopathy was most strongly correlated with proactive (instrumental) aggression rather than with reactive aggression. At the same time, such psychopathy characteristics as alienation and fearlessness were associated with reactive aggression specifically. Thus, certain psychopathic traits may be more relevant to the distinction between proactive and reactive types of aggression than the higher-order level of this personality construct. In addition, Hecht and Latzman (2015) demonstrated that impulsivity was also associated with reactive and proactive aggression. Specifically, these authors concluded that both types of aggression might arise from various facets of impulsivity, such as lack of perseverance, lack of premeditation, and negative urgency (i.e., using behaviours to cope with negative mood states). Generally, these findings emphasize the importance of considering personality traits when assessing aggression used in different domains, including IPV.

In terms of female-specific aggression, Lake and Stanford (2011) attempted to classify female IPV offenders into two groups depending on their scores on a self-report measure of aggression. They found that impulsive and premeditated groups were equally likely to have a history of previous aggression. In addition, women offenders in the premeditated-aggressive group (i.e., non-impulsive aggression) had similar levels of psychopathic traits and resistance to treatment as did women in the impulsive-aggressive group (i.e., reactive aggression). Impulsive-aggressive and premeditated-aggressive

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groups also scored similarly on general psychopathology. Lake and Stanford noted that their results with females were inconsistent with similar research conducted with males, which has typically found differences among male IPV offenders on psychopathic traits and resistance to treatment between the impulsive and premeditated aggression groups. Thus, researchers must be careful about assuming that male derived understandings of criminality, violence, and IPV can be directly applied to females in all aspects. However, Lake and Stanford's work also found that female IPV offenders were similar to male impulsive offenders as described in broader research literature. Such results indicate the need to conduct more research specifically with female offenders to examine more closely the nuances of aggression used by female IPV offenders.

In support of the need for gendered research, Bowie (2007) described a specific type of aggression associated more commonly with women than men, known as relational aggression. This form of aggression captures behaviours that inflict harm through social interactions (e.g., gossiping, starting rumours, name calling, social exclusion) rather than physical aggression. Bowie examined this type of aggression from a developmental perspective, arguing that males tend to be encouraged at a younger age through socialization to show assertiveness and even physical aggression, whereas females tend be reinforced for disguising their overt aggressive impulses and re-directing them to relationships, which can give rise to the use of relational aggression in the social context. Furthermore, relational aggression seems to persist into adulthood. Coyne and colleagues (2017) conducted a 5-year longitudinal study among married couples to assess the link between relational aggression and relationship quality. They concluded that female partners tended to use relational aggression (namely, love

withdrawal and social sabotage) more often than male partners. They also found that as relational aggression increased over time, the marital quality was likely to decrease.

Instead of examining IPV from the perspective of reactive and instrumental aggression, other classifications have been studied to capture heterogeneity in IPV behaviours and motives. There are several classifications of violence (i.e., a term used to define the more extreme forms of aggression) used specifically in the context of intimate relationships. For example, Johnson (1995) subdivided the type of violence used in the family context into patriarchal terrorism and common couple violence. According to Johnson's classification, patriarchal terrorism is perpetrated predominantly by male partners, occurs frequently and escalates over time. Such violence is almost always motivated by the desire to exert control and terrorize partners. In contrast, common couple violence presents a different pattern, in which it can be equally initiated by men and women, it is not likely to escalate in seriousness, and can be mainly described as occasional outbursts of violence that might happen during relationship conflicts. Interestingly, Johnson (2006) subsequently expanded and refined this initial classification by conceptualizing the existence of four types of IPV, namely intimate terrorism, violent resistance, situational couple violence, and mutual violent control. In this upgraded classification, intimate terrorism is committed within relationships, in which only one partner is violent and controlling, and this partner is most commonly male. Furthermore, violent resistance is the type of violence committed primarily by women when female partners violently respond to their male partner's attacks. Situational couple violence closely corresponds to common couple violence and can be perpetrated by both males and females. Lastly, mutual violent control is exerted in relationships, in which both men and women are violent and controlling. Johnson and

colleagues continued to work on refinement of the classification and later presented yet another version of IPV classification, which included coercive controlling violence, violent resistance, situational couple violence, and separation-instigated violence (Kelly & Johnson, 2008). Specifically for this more recent version of their classification, Kelly and Johnson introduced the term "coercive controlling violence" instead of intimate terrorism and defined it as a type of violence which might include different forms of abuse, intimidation, coercive strategies, and assertion of male privileges (Kelly & Johnson). In addition, Kelly and Johnson argued that coercive controlling violence can be characterized by patterns of power and control in the absence of actual physical violence. Kelly and Johnson also discussed separation-instigated violence, which can be perpetrated by both men and women equally as an extreme reaction to separation and divorce.

Straus and Gozjolko (2014) later used Johnson's criteria for identifying intimate terrorism in dating couples and found that, in almost three quarters of these relationships with observed intimate terrorism, both partners could be identified as intimate terrorists. It should be noted, however, that Straus and Gozjolko identified several problems with Johnson's definition of intimate terrorism itself, including a lack of clarity in specifying the severity of assault and the type of coercion needed for the violence to be classified as intimate terrorism. Given this dubious definition of Johnson's intimate terrorism, Straus and Gozjolko argued that the conclusion regarding the application of intimate terrorism to female IPV perpetrators could not be accepted in its entirety. Despite this limitation, Straus and Gozjolko did acknowledge women's use of violence for reasons other than self-defense.

Notably, Farkland and Brown (2014) tested one of the versions of Johnson's typology among 184 homosexual men and women and found patterns of violence consistent with findings on heterosexual violence. Specifically, Farkland and Brown reported that approximately half of their overall sample was non-violent and non-controlling in their IPV dynamics. In addition, these authors identified high rates of mutual violence control (12.5%) and low rates of intimate terrorism (4.4 % of respondents and 6.5 % of their partners), whereas situational couple violence represented the highest rates (13.0 % of respondents and 14.7 % of their partners). Moreover, Farkland and Brown expanded Johnson's typology by adding a non-violent control subtype and found that 7.1 % of respondents and 5.4 % of their partners fell into this category.

Overall, various types of aggressive and violent behaviours should be considered when developing theoretical models of IPV perpetrators and its dynamics to fully comprehend the complexity of this issue. In addition, such nuances are important for selecting the best risk assessment and risk mitigation strategies to use given that the outcome of IPV might depend on the type of aggression and level of violence involved. An alternative way of conceptualizing IPV perpetrators that would further clarify nuances and sources of heterogeneity in offending patterns and trajectories is to study formal subtypes of IPV perpetrators that go beyond simplistic unidimensional classifications based only on types of motives or the form of aggressive behaviour variations.

Subtypes of IPV Perpetrators

Having a reliable and valid typology of female IPV perpetrators is central for understanding the nature of IPV and developing suitable therapeutic and preventative

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strategies (Holzworth-Munroe & Stuart, 1994). Notably, such classifications are primarily based on the types of violence used by perpetrators, motives for violence, psychopathologies, and their personality profiles and are often limited to male perpetrators.

One of the earlier classifications of male IPV perpetrators was developed by Holzworth-Munroe and Stuart (1994). According to their classification, male IPV perpetrators were divided into family only, dysphoric/borderline, and generally violent/antisocial groups. Holzworth-Munroe and Stuart suggested that family only male offenders engaged in the least severe form of IPV. The type of violence employed by such offenders was restricted mostly to family context and was mainly physical in nature. Moreover, such men exhibited little psychopathology overall. In contrast, men in the dysphoric/borderline group tend to engage in moderate to severe general violence and IPV of a physical, psychological, and sexual nature. These perpetrators can be emotionally volatile, psychologically distressed and display borderline and schizoidal personality characteristics, as well as have problems with alcohol and drug misuse. Finally, generally violent/antisocial perpetrators tended to engage in moderate to severe physical, psychological and sexual violence both within and outside family relationships. Men in this group were likely to have a long history of criminal behaviour, problematic alcohol and drug use, and be diagnosed with antisocial personality disorder or psychopathy.

Thijssen and de Ruiter (2011) used the Brief Spousal Assault Form for the Evaluation of Risk (B-SAFER; Belfrage & Strand, 2012) to validate Holzworth-Munroe and Stuart's typology of abusive men and to examine the connection between these perpetrators' subtypes and recidivism rates. These authors used a mixed sample of male

and female IPV perpetrators, though males made up a larger proportion of the sample (94%). They found that IPV offenders could be classified into the following four categories: family only, generally violent/antisocial, low-level antisocial, and psychopathology.

Thijssen and de Ruiter (2011)'s four IPV subtypes differed on severity of violence, personality disorder/psychopathology, and the overall level of criminality. Specifically, IPV perpetrators in the family only group (37% of the sample) displayed a low-to-moderate level of violence and exhibited low levels of antisocial behaviours, substance use and mental health problems. The generally violent/antisocial subtype (18% of the sample) engaged in severe forms of violence, was likely to have substance use problems, and displayed a moderate level of mental health problems. IPV perpetrators belonging to a low-level antisocial subtype (24% of the sample) committed violent acts of moderate severity and exhibited antisocial behaviour in the past but did not engage in this type of behaviour over the preceding year. These IPV perpetrators did not have alcohol- and/or drug-related problems or mental health issues. Lastly, IPV offenders in the psychopathology group (21% of the sample) were primarily characterized by mental health problems. These IPV perpetrators engaged in violent behaviour of a moderate level, had moderate levels of substance misuse and mental health problems and general criminality.

Thijssen and de Ruiter (2011) added that the B-SAFER had high utility in classifying perpetrators into Holzworth-Munroe and Stuart's four groups. This finding was consistent with Thijssen and de Ruiter's expectations that the generally violent/antisocial subtype would be the most likely to recidivate, whereas the family-only subtype would have the lowest likelihood of re-offending. However, identified

differences in recidivism rates were not statistically significant across the four subtypes. Furthermore, this work could not establish whether the typologies or the B-SAFER worked in the same manner specifically with female perpetrators as Thijssen and de Ruiter did not conduct gendered analyses.

Babcock and colleagues (2003), in their turn, examined how Holzworth-Munroe and Stuart's classification applied specifically to female IPV offenders. These authors categorized female offenders into two groups based on the type of violence they committed: the Generally Violent (GV) female IPV perpetrator group was characterized by using violence against both their partners and other individuals, whereas the Partner Only (PO) female offenders group engaged in violence only against their intimate partners. Babcock and colleagues found notable differences between the GV and PO groups. Specifically, GV female perpetrators tended to be much more violent in their relationship with intimate partners than PO female offenders and they primarily used violence in order to execute control over their partners. GV women not only used violence in a broader context, they also engaged in more instrumental types of violence within their intimate relationship in contrast to PO group. Additionally, Babcock and colleagues found that GV female perpetrators reported more frequent instances of psychological abuse and they tended to blame their partners or a lack of self-control for IPV. Notably, both GV and PO groups reported using self-defense as a motive for their behaviour at equivalent rates. Moreover, GV women were more likely to report trauma symptoms and were more likely to witness their mothers abusing their fathers than PO group; however, GV women and PO women were equally likely to have history of victimization. Finally, GV female offenders in Babcock et al.'s study exhibited a higher level of psychological problems, including memory issues and a desire to harm

themselves. Thus, examining diverse aspects of perpetrators, their motives, and behaviours are useful in distinguishing variations in dynamics of IPV.

Another classification based on Holtzworth-Munroe and Stuart's work with domestically violent men was developed by Fatania (2010) for application to female IPV perpetrators based on degree of criminality and psychopathology. Fatania found that female offenders could be classified into two groups: high-moderate criminality with high-moderate psychopathology and high-moderate psychopathology with low-moderate criminality. Women in the first group were more likely to also engage in non-IPV violence, have a history of childhood behavioural problems, exhibit procriminal attitudes, use instrumental aggression for their own sake, be impulsive and reckless, have a criminal history which started at a young age, have a drug use history, and poor interpersonal skills. In contrast, female offenders in the second group were more likely to be intoxicated by alcohol or drugs during the time of offence, to be undergoing psychiatric treatment at the time of IPV incident, use a weapon to assault their partners, have depression and a history of alcohol misuse, and have attempted to commit suicide or harm themselves.

Overall, it seems evident that female IPV offenders do not constitute a homogeneous group. Further consideration of female perpetrators' subtypes may enhance our understanding of the nature of female-specific IPV offending and inform risk prevention and risk management strategies; however, more of this research is needed given the limited data available on female IPV perpetration. Specifically, research is required to address limitations in the existing literature on female IPV offenders subtypes. For example, Babcock and colleagues' subtype work (2003) focused on only a small sample of female offenders ($N = 52$) who were referred for domestic

violent treatment; thus, their findings might not be generalizable to all female IPV perpetrators. These authors also noted their reliance on perpetrators' reports only; therefore, they lacked victim and witnesses' perspectives on IPV incidents. Fatania (2010) also noted a relative lack of generalizability of her research on female IPV subtypes given that she studied only convicted female IPV offenders, meaning that this classification might not be applicable to less severe cases of female IPV perpetration that may avoid prosecution or that go undetected by courts altogether. The author added that more variables pertaining to the context and nature of IPV violence committed by females should be explored for better understanding of female offenders' subtypes. Both these studies also lacked Canadian context as they were conducted in the USA and the UK, respectively.

Current Study

IPV is a complex and nuanced societal problem. One such nuance is the perpetrator's gender, which has shown to have influence on the nature and frequency of IPV perpetration and recidivism rates. This nuance may also influence the outcome of risk prevention and risk management strategies. However, despite several decades of recognition of deleterious consequences of IPV, female-to-male and female-to-female IPV is still under researched. Thus, the current study aimed to address these limitations in the literature by 1) identifying subtypes of female IPV perpetrators based on the nature of the index IPV behaviour, past IPV, motives, and personality characteristics; 2) examining how these subtypes vary in risk level as assessed by the ODARA and actual IPV recidivism rates, and 3) relying on comprehensive police report data as the foundation for measuring variables of interest that will inform subtype identification. Unlike the single source data used in prior subtype research on IPV, the current study

tapped into multi-source records that contain victim, suspect, and witness perspectives on the behaviours and characteristics of the suspect.

Based on existing literature (Babcock et al., 2003; Fatania, 2010; Holzworth-Munroe & Stuart, 1994; Thijssen & de Ruiter, 2011), it was expected that at least three types of latent clusters of subtypes of female IPV perpetrators would emerge from the data: an antisocial cluster, an emotionally dysregulated cluster, and a self-defensive cluster. These clusters were expected to vary on motive for the index IPV event (i.e., control/dominance vs defensive reaction), nature of IPV (i.e., instrumental vs reactive; severity of violence attempted), and the presence of more frequent patterns of psychopathic/antisocial and borderline personality traits. It was also expected that the more strongly antisocial oriented cluster would yield the highest risk estimates on the ODARA and have the highest risk of re-offending relative to the other clusters that may emerge. Finally, it was expected that these clusters would vary in the amount of time passed prior to subsequent recidivism (i.e., antisocial cluster would re-offend sooner in comparison with emotionally dysregulated and self-defensive clusters).

Methods

Participants

A total of 151 female IPV perpetrator case files were selected for inclusion from two neighbouring police agencies in the province of New Brunswick. To maximize the number of available cases, they were selected from April 2009 to September 2019. These cases were followed for at least 12 months to identify subsequent police contact for IPV as a perpetrator. Cases had to meet certain inclusionary criteria.

Inclusionary criteria. To be included in the current study, and to increase its validity and a reliability of the coding, a case must have met the operational definition of

IPV set at the New Brunswick Roundtable on Crime and Public Safety (New Brunswick, 2012). Specifically, IPV has occurred "when a person who is currently or previously in an intimate personal relationship uses abusive, threatening, harassing or violent behaviour as a means to psychologically, physically, sexually or financially coerce, dominate and control the other member of the relationship" (New Brunswick, 2012, p. 10). Moreover, IPV cases must meet the following inclusionary criteria: 1) the victim and the perpetrator are currently, or were previously, involved in an intimate relationship (i.e., any type of intimate relationships ranging from dating to long-term commitment, such as marriage or common-law relationships); 2) police were called due to a disturbance or altercation (e.g., dispute, assault, domestic call, etc.) between these current or former intimate partners; 3) the roles of the victim and the perpetrator involved in the index event were clearly discernable in the record; 4) the violence used by the perpetrator was clearly directed at their intimate partner; 5) the perpetrator must be an "adult" (i.e., they must be over the age of 18 years); 6) all cases must have been concluded with a certain legal resolution, such as "arrested, found guilty", "found not guilty", "withdrawn, no charges laid", or "not criminally responsible", or closed with no charges. If an IPV case did not meet these inclusionary criteria, then the case was discarded and another case was chosen from the pool of all IPV cases reported to police until the target sample was achieved.

Measures

Coding guide (See Appendix A). A coding guide was used to capture victim and perpetrator's descriptive characteristics including age, gender, ethnicity, employment situation, substance use concerns, and presence of mental health problems. Moreover, the coding guide was employed to record situational details of the index IPV incidents,

including incident type, motives, date, and whether this was a first or a repeated occurrence of IPV by the suspect. In addition, type and length of intimate relationship, and type of abuse committed was identified (e.g., psychological, physical). Most variables were coded as Yes/Present, or No/Absent. This information was extracted based on victim, perpetrator, witnesses, and police officers' accounts of the incident, as well as photo evidence. A certain judgement on the part of the coder was required (e.g., in case of contradictory information relayed by a victim and a perpetrator regarding a type of physical injury inflicted, photo evidence or a police officer's description was used as a more objective source of information).

Inter-rater reliability of the coding guide was assessed using Kappa statistics. Specifically, Kappa values for the coding guide ranged from .70 to 1.00 (e.g., k for Living arrangements = .78; k for Relationship length = 1.00; k for Current jealousy and control = .84); therefore, the coding guide had acceptable reliability.

Psychopathic/Borderline Traits scale (PB-Traits scale; Moser, 2012; see Appendix B). The current study used a modified version of Moser's P-Trait Scale (2012) developed based on the Hare's Psychopathy Checklist-Revised (PCL-R; Hare et al., 1990). Moser selected psychopathy-related variables (e.g., callousness, manipulativeness) and defined them in a way to have them easily identified from police reports narratives without any clinical training and through observations noted by informants in the reports and statements of parties involved. P-Trait items included a lack of empathy (e.g., a suspect makes casual, matter of fact comments such as "the victim got what they deserved" and/or may attempt to humiliate, degrade, or belittle the victim), shallow emotions (e.g., a suspect appears cold and unemotional, or displays of emotion appear fake/insincere and are very short lived when topic changes), and

manipulativeness/deceitfulness (e.g., a suspect exploits weakness in others in order to benefit self). Moser's P-trait scale showed high internal consistency when coded from police report narratives and victim/suspect/witness statements (α = .86) and was strongly predictive of IPV recidivism (AUC = .80). Later, Moser's P-Trait Scale was extended by McTague (2018) to include borderline personality traits based on empirical descriptions of their link to IPV (e.g., Armenti & Babcock, 2018; Goldenson et al., 2007; Jackson et al., 2015) and she referred to this scale as the Psychopathic Borderline trait scale (PB-Trait scale). These new items included emotional instability (e.g., suspect has lots of emotional ups and downs in a short period of time [intense mood swings], very emotionally reactive in general), relationship instability (e.g., suspect has on-and-off again relationships; might swing between extremes of idealizing the victim then devaluing them), suicidal ideation, and fear of rejection and abandonment (e.g., suspect exhibits extreme emotional reaction to relationship break-ups and fear of being alone). As used previously, the PB-Traits scale was scored on a continuous scale from 0 to 2, where "0" = no characteristic or information present; "1" = characteristic is present to some degree; and "2" = clear presence of the characteristic. McTague found that the PB-Traits scale was not predictive for either male or female recidivism (AUC = .59 and AUC = .50 respectively) when using more stringent, clinical criteria for coding personality traits. Notably, McTague's criteria were significantly more stringent than Moser's (2012) original scoring. However, a later study (Gryshchuk, 2019) revised these item definitions using simplified item descriptions to make them more easily identifiable by non-clinicians. This research found acceptable reliability of the PB-Traits scale (α = .70), and this revised version was predictive of IPV for both male IPV perpetrators

($AUC = .71$), and female IPV offenders ($AUC = .82$). This revised PB-Traits scale was used in the current study. Internal reliability of the whole PB-Traits scale in the current study was assessed with Cronbach's alpha and yielded $\alpha = .70$, which met an acceptable level (Bland & Altman, 1997; Tavakol & Dennick, 2011).

Factor analysis using the current sample was conducted to verify whether this scale captured a unidimensional versus bi-dimensional (antisocial vs borderline) aspects of personality. First, such variables as shallow emotions, narcissism, superficial charm, thrill seeking, and parasitic orientation were eliminated from the factor analysis due to their low endorsement; therefore, only 13 variables were entered in the analysis. Four factors collectively accounted for 54.95% of the total variance. Each factor had an eigenvalue higher than 1 (see Figure 1). In addition, Varimax with Kaiser Normalization Rotation method was utilized to identify items with factor loadings more than .33. Several potential subscales were generated based on high item loadings (e.g., antisocial attitudes-criminal versatility-suicidal behaviour-poor anger control scale; blaming others-remorsefulness-callousness scale; fear of rejection and abandonment-manipulativeness-unstable interpersonal relationships scale); however, these scales had low internal reliability ($\alpha < .60$). Given that the remaining items on the PB-Traits scale represented slightly less than a half (45.05%) of the total variance, we decided to utilize PB-Traits scale as a unidimensional measure. All original items ($n = 18$) were included in the scale for further analyses, given that the absence or presence of shallow emotions, narcissism, superficial charm, thrill seeking, and parasitic orientation did not significantly influence the PB-Traits scale reliability.

In the current sample, PB-Traits scale showed good inter-rater reliability. Kappa values for PB-Traits scale items ranged .76 to 1.00; whereas, *ICC* value for the PB-Traits scale total score was .98.

Ontario Domestic Assault Risk Assessment (ODARA; Hilton et al., 2004; 2010; see Appendix C). The ODARA is an actuarial risk assessment tool developed specifically for police use. The ODARA was created using a sample of convicted male IPV perpetrators and was initially intended to be used specifically with physically violent men who were abusive towards their female partners.

The ODARA was scored based on information available from police reports and/or during interviews engaged in by police with IPV suspects, victims, and witnesses. Clinical judgement is not required to score these items. The current study used researcher-scored ODARAs given that previous research identified certain issues with the use of the police-scored ODARA in the field, including instances of miss-scoring or misunderstanding of certain ODARA items on the part of police officers (McTague, 2018). Scoring of the ODARA was based on thorough police record review and use of the detailed ODARA scoring rules.

The ODARA includes 13 items scored on a dichotomous scale, in which "0" = the item is absent; and "1" = the item is present (Hilton et al., 2004; 2010). The ODARA assesses perpetrator's risk factors (e.g., suspect's previous history of domestic or general violence; prior custodial sentence; failure on conditional release; threats to harm or kill during IPV incident), as well as victim's risk factors (e.g., being pregnant at the time of IPV incident; barriers to support; having children whose biological father is not the suspect). These items are summed to provide a total risk score which can range from 0 to 13, with 0-3 = low risk, 4-6 = moderate risk, and ≥ 7 = high risk. Higher scores indicate

a greater likelihood of recidivism, a greater potential for physical harm by the perpetrator, and faster time to re-offend after the index event (Moser, 2012).

The ODARA has been researched predominantly with male IPV perpetrators and has shown acceptable predictive validity across these studies (Graham et al., 2019; Hilton et al., 2004; Hilton et al., 2010; Messing & Thaller, 2013; Olver & Jung, 2017). However, the scarce research with female IPV perpetrators has shown mixed results (Hilton et al., 2014; McTague, 2018; Moser, 2012). Specifically, studies conducted by Hilton and colleagues (2014) and Moser (2012) with smaller samples of female IPV perpetrators ($N = 30$ and $N = 26$, respectively) showed moderate predictive validity of the ODARA ($AUC = .67$ and $AUC = .72$ respectively). In contrast, a study conducted by McTague (2018) with a larger sample of female IPV suspects ($N = 99$) showed that the ODARA was predictive only by chance.

Inter-rater reliability of the ODARA total score and ODARA items exceeded .70. Specifically, in the current sample, ICC for the researcher-scored ODARA total score was .98 and Kappa values for ODARA items ranged from .72 to 1.00.

Level of Injury scale (L-Injury; Messing, 2007; see Appendix C, item 55). The L-Injury scale was utilized to measure physical injury inflicted by an IPV perpetrator during the index, as well as subsequent IPV incidents. A 5-level L-Injury scale was developed by Messing (2007) based on the description of physical injury sustained by an IPV victim; therefore, this scale is used to capture physical injuries only. Level 0 is characterized by the absence of any visible injury and complaints of pain. At Level 1, there are no visible injuries; however, a victim has complaints of pain. Level 2 describes minor injuries that include swelling, scratches and marks. Injuries at Level 3 are moderate and might include black eye, bruising, and cuts which do not require stitches.

Finally, the 4ᵗʰ Level reflects the most severe injuries, such as broken nose, teeth, loss of consciousness, and cuts which require stitches. In the current study, we utilized a modified version of L-Injury scale used by Moser (2012), which expanded the range of injuries sustained by a victim at Level 4 by adding injuries that resulted in hospitalization and death. Inter-rater reliability of the L-Injury scale was excellent, with *ICC* value yielding .99.

Linear Violence scale (L-Violence; Messing, 2007; see Appendix C, item 56). L-Violence scale was utilized to measure the severity of violence perpetrated by IPV offenders. The 5-level L-Violence scale was also developed by Messing (2007) to encompass the instances of physical violence attempted or committed by an IPV perpetrator, irrespective of the level of actual injury caused by a perpetrator. For example, an IPV perpetrator might fail to inflict any injuries despite trying to punch a victim (i.e., misses hurting the victim with punches). Level 0 reflects the absence of any physical violence perpetrated or attempted by an IPV offender. At Level 1, such acts as vandalism or holding victim down may take place. Level 2 is characterized by such behaviours as slapping, throwing objects, and pushing. At Level 3, a perpetrator can kick, slap, or grab a victim. Level 4 was modified by Moser (2012) to capture such serious behaviours as shooting and stabbing and attempts to do so, in addition to the original elements of hitting with objects, biting, and punching. In the current study, inter-rater reliability of the L-Violence scale was excellent (*ICC* = .97).

Psychological violence (see Appendix C item 56 *Emotional Abuse*). Research on psychological violence in IPV is scarce and leads to inconsistent findings about its prevalence, form, and a lack of solid definition (Dokkedahl et al., 2019). Correspondingly, a variety of psychological risk assessment tools exist to assess

psychological violence, including the Profile of Psychological Abuse (Sakett & Saunders, 1999), Psychological Maltreatment of Women Inventory (PMWI; Tolman, 1999), and Revised Conflict Tactics Scale (CTS-2; Straus et al., 1996). However, the nature of these instruments presupposes that: 1) victims are predominantly women; and that 2) real-time access to the victim of IPV (e.g., rely on self-report item ratings). Such limitations rendered it impossible to use these measures of psychological violence in the current study, given its use of archival data; therefore, an item was included in the coding guide that captured aspects of psychological violence, including emotional abuse (rated as present or absent). This categorization is based on the previous research which included dichotomous measures of what has been conceptualized in the abuse literature as psychological violence (e.g., Al-Modallal, 2012; Meekers et al., 2013; Pico-Alfonso, 2005). In the current study, Kappa values for Emotional abuse items ranged from .78 to 1.00 (e.g., k for Constant texting and calling = 1.00; k for Name calling = .87; k for Belittling a victim = .78).

Coding Guide for Violent Incidents: Instrumental Versus Hostile/Reactive Aggression (Cornell et al., 1996; see Appendix D). Cornell and colleagues designed this guide to capture instances of instrumental and reactive aggression as committed by violent offenders. Given that this guide has been tested with a variety of offences, including IPV, we found it suitable for the purposes of the current study (e.g., Cornell et al.; Declercq et al., 2012) This guide was used to classify perpetrators along the continuum representing degree of instrumentality on a 4-point scale (from 1 to 4). We also provided an explanation of each scale item in brackets for coding clarification: "1" = clearly reactive aggression (i.e., instances of clearly expressed reactive aggression); "2" = primarily reactive aggression (i.e., instances which reflect a mixture of both

reactive and instrumental aggression, with reactive aggression being more prominent);

"3" = primarily instrumental aggression (i.e., instances which reflect a mixture of

instrumental and reactive aggression, with instrumental aggression being more

prominent); "4" = clearly instrumental aggression (i.e., instances of clearly expressed

instrumental aggression). In addition, Cornell and colleagues suggested secondary

ratings of specific acts of aggression to supplement the instrumental vs.

hostile/aggressive classification. These ratings include 1) planning (i.e., degree of

preparation or premeditation, such as planning the offence); 2) goal-directedness (i.e.,

motivation for the offence, such as committing crime for power, control, sexual

gratification); 3) provocation (i.e., victim's actions as considered by a perpetrator to be

provocative, frustrating, or threatening); 4) arousal (i.e., perpetrator's experience of

anger); 5) severity of violence (i.e., types of injury inflicted by a perpetrator); 6)

relationship with the victim (i.e., degree of closeness or contact between a perpetrator

and a victim); 7) intoxication (i.e., degree of perpetrator's impairment); and 8) psychosis

(i.e., psychotic symptoms experienced by a perpetrator). Cornell and colleagues noted

that these 8 secondary ratings are intended to refine and conceptualize measurement of

instances of reactive and instrumental violence. Thus, presence of a clearly defined goal,

little or no provocation by the victim, and low levels of emotional arousal are associated

with instrumental aggression; whereas lack of a goal-directedness, little or no planning,

victim's provocation and greater levels of arousal are associated with reactive violence.

Moreover, according to Cornell, reactive violence also often involves long-term partners

or family members. All items (described in Appendix D) were scored on a continuous

scale, with higher scores indicating a higher degree of the instrumentality of the

aggression.

Cornell's coding guide (1996) has been tested in a variety of studies (e.g., Camp et al., 2013; Declercq et al., 2012; Laurell et al., 2010) which highlighted the connection between instrumental violence, as captured by this guide, and psychopathic traits exhibited by the offender. Cornell's guide has shown reliable *ICCs* ranging from .70 to 1.00 (Camp et al., 2013; Cornell et al., 1996; Declercq et al., 2012; Laurell et al., 2010). In the current study, *ICC* values for Cornell's coding guide ranged from .85 to 1.00 (e.g., *ICC* for the Instrumental-Reactive violence scale rating continuum = .85; *ICC* for Provocation supplementary variable = .92; *ICC* for Severity of violence = 1.00).

Procedure

For the purposes of the current study, IPV police files reported from April 2009 to September 2019 were accessed through the police data bases of partnering police agencies to select the cases which qualified for the inclusionary criteria described above. Security clearance to access and review these files was obtained for the primary researchers from the respective police agencies. All files were reviewed on site at the police station.

An ethics application was submitted to the Human Ethics Research Review Board of the University of New Brunswick, Saint John to obtain approval for the larger study from which the data for the current study were drawn (see Appendix E). These data were extracted from police records directly as secondary source of information; thus, there was no need to contact actual participants. Only security cleared researchers were granted access to collected data and police IPV files and all coding occurred on site only. All reviewed police records were treated as confidential information. These records included responding officers' reports of their actions and observations at the scene and follow up work on the file; witness/victim/suspect statements; 911 call details;

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prosecutor information if an arrest was made; legal documents (e.g., arrest warrants, promise to appear forms, etc.); evidence logs; and sometimes photos of injuries and/or damaged property or other evidence.

A master list with perpetrators' names and unique randomly generated case number was created and stored onsite at the respective police stations during data collection to track cases for inclusion and to link recidivism information for each suspect. This master list was destroyed upon the completion of the research. Coding sheets contained only these unique randomly generated case numbers; therefore, no personal identifying information was reflected on the coding sheets. After coding completion, de-identified coding sheets were transported to the main investigator's office on the University of New Brunswick, Saint John campus, and were stored in the locked cabinet for the duration of 5 years. De-identified computerized data were stored on an encrypted memory stick.

Coding of records and recidivism. The coding guide was used to gather all relevant data on victims, perpetrators, incidents of IPV, PB traits, ODARA risk scores, and IPV recidivism. IPV recidivism instances including the same perpetrator (but not necessarily the same victim) were coded using the coding guide. In the current study, recidivism was defined as either a new IPV-related police call, new arrest for IPV behaviour, new charge for IPV behaviour, and/or new conviction for IPV behaviour subsequent to the identified index event. The actual occurrence date of the recidivism event post-dated the index event and any arrest/charges/convictions were tied to the subsequent event and not just delayed legal outcomes to the index event to ensure actual recidivism was captured. In addition, the date and the nature of IPV recidivism were captured (e.g., physical assault, sexual assault, harassment/stalking, threats to cause

harm, etc.). Survival time prior to recidivism was calculated in days and reflected the number of days passed between the index event date and the recidivism event date, minus time spent in custody (remand, incarceration, etc.) to adjust for the opportunity to offend in the community.

Training on the usage of the coding guide was conducted by the supervisor of this thesis project using verbal instructions and practice coding of IPV files. Moreover, depending on the agency involved, the author received training on the use of the electronic system utilized by police in order to be able to extract IPV files for inclusion in the current study.

Inter-rater reliability. Twenty percent of all cases were randomly selected to establish the inter-rater reliability of the coding guide. A volunteer research assistant, upon receiving police clearance, was trained in the use of the ODARA, PB-Traits scale, L-Violence scale, L-Injury scale, Coding Guide for Violent Incidents, and coding guide. This training was conducted by the primary researcher by means of verbal instructions and subsequent practice coding of five cases which were excluded from the sample used in statistical analyses.

Intraclass correlation coefficient (ICC) was utilized to assess the inter-rater reliability for continuous variables included in the coding guide (e.g., ODARA total score, PB-Traits scale total score, age; Koo & Li, 2016; McGraw & Wong, 1996). Given that IPV cases were selected from the pool of all police-reported IPV cases, and that the raters were the raters of interest, a two-way mixed effects ICC model was utilized. The average rater index $ICC_{(3,k)}$ was employed, in which the subscript of 3 referred to the mixed model; and k equaled the number of raters (two in the current study). ICC values can range from 0 to 1.00; a minimum ICC criterion of .70 was required to ensure

acceptable inter-rater reliability (Barrett, 2001). Overall, ICCs in the current study exceeded .70. For example, ICC for the researcher-scored ODARA total score was .98; ICC for PB-Traits scale total score was .98; and ICC for the perpetrator's age was 1.00.

The inter-rater reliability of categorical variables in the coding guide (e.g., ODARA item ratings, gender, other categorical demographic variables and IPV incident details) was evaluated using the Kappa statistic (Viera & Garrett, 2005). Viera and Garrett provided an interpretive guideline of these values, according to which "-1.00" is the complete absence of agreement, "0" is the agreement by chance alone, and "+1.00" is the prefect agreement between observers. Values between .61 and .80 indicate substantial agreement; therefore, a minimum Kappa value of .70 was used to reflect an acceptable level of agreement between raters in the current study for categorical variables. In the current study, inter-rater reliability of categorical variables exceeded the $k = .70$ threshold. For instance, Kappa values for ODARA items ranged from .72 to 1.00; Kappa value for suicidal tendencies was .80; and Kappa values for PB-Traits scale items ranged from .76 to 1.00.

Results

Data Preparation

Prior to conducting the main statistical analyses, data were entered into SPSS (version 26) and examined using descriptive statistics in order to eliminate potential problems that might stem from inaccuracy while entering the data or inconsistencies in the original raw data (Tabachnick & Fidell, 2013). All data errors were corrected. In addition, Missing Value Analysis was utilized to search for patterns of missing data and indicated that the test of Missing Completely at Random (MCAR) was not significant,

$\chi^2(2939)= 2971.8$, $p = .33$. Finally, the data set was screened for potential univariate and multivariate outliers, and no influential outliers were detected.

A latent class analysis (LCA; Geiser, 2013; Kongsted & Nielsen, 2017; Schreiber, 2016) was used to identify potential clusters of female IPV perpetrators based on the antisocial/psychopathic and borderline personality traits exhibited by the perpetrator (PB-Traits scale), level of violence attempted or committed (L-Violence scale), level of injury sustained (L-Injury scale), as well as demographic characteristics of the perpetrator (age, ethnicity). Gudicha, Tekle, and Vermunt (2016) noted that the sample size needed for LCA can vary depending on the number and size of classes, the number of indicators, and the strength of class-indicator associations. Thus, with the increase in the number of classes and the decrease in the number of indicators, the required sample size increases. Overall, Gudicha and colleagues argued that, to obtain a power of .8 with 3 unequally-sized classes, 6 indicators, and medium class-indicator associations, 82 persons are required. Given that we had 12 indicators and a sample size of 151, sufficient power to reach our study goals was expected.

Analyses of Variance (ANOVA) were planned to identify mean group differences between emerged clusters across continuous scores (e.g., PB-Traits scale, total risk score, etc.), whereas Fisher's Exact Tests were planned to be used to compare clusters on categorical variables (e.g., living arrangements, etc.). G-Power analysis for one-way fixed effects ANOVAs with power of .8 (medium effect size), a p-value < .05, and a grouping independent variable with three levels (for the three anticipated cluster subtypes) identified a minimum required sample of 159 persons. Although, a priori power analysis suggested a target $N = 159$, a sample of only 151 IPV cases was collected due to a smaller than expected pool of female-perpetrated IPV cases reported to police.

Therefore, a post-hoc G-power analysis was conducted with the current sample of 151

IPV cases, 3 groups, and a medium effect size (.25). G-Power post-hoc analysis yielded

only a small decrease in power (.78), which was sufficient for conducting the planned

ANOVAs.

Simultaneous logistic regression analysis was used to examine which IPV

characteristics and risk factors were predictive of IPV recidivism for females. Current

relationship problems, relationship jealousy and control, use of alcohol and drugs at the

time of the index event, suicidal tendencies, mental health issues, PB-Traits scale total

score, L-Violence and L-Injury scale scores were entered in the model. A sample size

for logistic regression analysis was calculated following Green's (1991)

recommendations. Green compared several rules-of-thumb for calculating sample sizes

for regression analyses with medium effect sizes. According to Green, a formula $N \geq$

$104 + m,$ where m = number of predictors, has gained some empirical support.

Therefore, for the purposes of the current study, this formula was utilized, and $N = 112$

(104 + 8 predictors) was identified as a minimum required sample.

Descriptive Characteristics of the Sample

Perpetrator characteristics. Suspects ranged in age from 18 to 74 years, with

an average age of 33 years ($SD = 10.89$). Most female IPV suspects were Caucasian ($n =$

136, 90.1%) and approximately one fifth ($n = 31$, 20.5%) were employed at the time of

the index event. Slightly more than a third of the sample used drugs and/or alcohol ($n =$

53, 35.1%) at the time of the index event, whereas 8.6% ($n = 13$) of suspects exhibited

suicidal/self-harming tendencies, which included suicidal ideation, self-harm behavior,

and attempts of suicide within the year before the index event. In addition, 7% ($n = 11$)

exhibited mental health problems, including depression, anxiety, and bipolar disorder.

Characteristics of relationship dynamics. In terms of relationship status, more than a half of female suspects ($n = 87$, 57.6%) were involved in an intimate relationship with the victim at the time of the index event, and slightly more than 40% ($n = 62$) were living with their victims. The length of current intimate relationship ranged from a couple of days to 420 months ($M = 64.84$ months, $SD = 74.09$), or 1.15 years. For former intimate partners separated at the time of the index event, the maximum length of separation was 420 months ($M = 14.14$ months, $SD = 20.87$). The vast majority of current or former intimate partners ($n = 109$, 72.2%) indicated to police that they had been experiencing recent relationship problems (e.g., frequent and serious conflict, relationship break-up, infidelity), and almost one fifth of perpetrators ($n = 29$, 19.2%) exhibited jealousy and/or excessive control of their partners.

Incident context and history of IPV. Almost one third of female suspects ($n = 52$, 34.4%) were classified as repeat offenders who re-victimized the same person based on information gathered at the index event; however, only 15.2% ($n = 23$) of the previous incidents had been reported to police. Triggers for the index altercation were unknown for 28.5% of cases ($n = 43$); when it was known, the most common triggers included arguments related to children ($n = 37$, 24.5%) and jealousy ($n = 23$, 15.2%). Less common motives included money ($n = 4$, 2.6%), sex ($n = 3$, 2%), infidelity ($n = 6$, 4%), family issues ($n = 3$, 2%), division of labour ($n = 3$, 2%), but miscellaneous reasons accounted for the largest motive category ($n = 49$, 32.5%). This latter mixed category of reasons for altercation included arguing about break-ups, use of cell phone, comments about women, car driving, and relationship status among others. Police classified most index incidents as assault ($n = 118$, 78.1%) and/or family violence ($n = 78$, 51.7%). Other classification types included harassment, dispute, breach of court order, mischief,

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and threats. Only 2% ($n = 3$) of suspects used a weapon, such as an axe and knives, during previous IPV incidents and 10.6% ($n = 16$) used weapons like knives, wine bottles, ash trays, forks, a broom and a broomstick during the index event. Moreover, less than 2% of suspects had history of engaging in forced sex and choking. Emotional abuse perpetrated by female IPV suspects was manifested mostly through constant texting and calling ($n = 50$, 33.1%), name calling ($n = 21$, 13.9%), excessive yelling and screaming ($n = 33$, 21.9%), and belittling victims ($n = 39$, 25.8%).

Victim characteristics. IPV victims constituted a homogeneous group. Most victims were male ($n = 140$, 92.7%) and Caucasian ($n = 144$, 95.4%). Almost one third of IPV victims ($n = 44$, 29.1%) were employed at the time of the index event and approximately one fifth ($n = 32$, 21.2%) had consumed alcohol and/or drugs during or immediately before the incident.

L-Injury and L-Violence scales. L-Injury scale was utilized to identify the level of injury inflicted by the perpetrator during the index event on a 5-level severity scale. Slightly more than a half of the sample ($n = 76$, 50.3%) was coded as inflicting no injury and/or causing no pain for the victim. Collectively, more than 40% of suspects fell into severity levels 2 and 3 (25.8% and 19.2%, respectively), which capture inflicting marks, scratches, bruises, and cuts not requiring stitches.

The level of violence attempted or committed during the index event was scored using L-Violence scale. Slightly more than 40% of female suspects fell into the 4th severity category which captured attempting or perpetrating such acts of violence as stabbing, punching, biting, and hitting with the object. In addition, 13.9% of females were categorized as perpetrating or attempting to commit such violence as pushing,

slapping, and throwing objects (level 2) and 22.5% of perpetrators were coded doing such actions as slamming, choking, and grabbing (level 3).

Instrumental and Hostile/Reactive Aggression. The degree of reactivity to instrumentality exhibited at the time of the index aggressive IPV event was captured via Cornell's coding guide. Sufficient information to code the reactive and instrumental nature of the index aggression used by suspects was only available for one third of the sample ($n = 52$); thus, this variable was used for descriptive purposes and not included in other statistical analyses so as not to reduce statistical power of those analyses. The majority of this sub-sample of female suspects were categorized as utilizing primarily reactive not motivated aggression ($n = 43$, 82.7%), which was perpetrated with little or no planning ($n = 50$; 96.2%). In addition, violence for 45 females in the sub-sample (86.5%) had no apparent goal-directedness and happened with either mild ($n = 26$; 50%) or moderate ($n = 17$, 32.7%) provocation. The level of emotional arousal for most perpetrators ranged from being angry ($n = 33$, 63.5%) to being enraged ($n = 18$, 34.6%).

Psychopathic/Borderline Traits Scale (PB-Traits Scale). Presence of borderline and antisocial/psychopathic traits was coded using PB-Traits scale. The mean score for female suspects was moderate in severity of presence for these traits ($M = 8.72$, $SD = 3.69$). Items of poor anger control, impulsivity, unstable personal relationships, and emotional instability yielded the highest mean item scores ($M = 1.68$, $SD = 0.48$; $M = 1.17$, $SD = 0.42$; $M = 1.56$, $SD = 0.65$; $M = 0.98$, $SD = 0.69$, respectively).

Recidivism. One third of female suspects ($n = 46$, 30.5%) recidivated (i.e., new police contact for IPV perpetration) during the follow-up period, which ranged from 1 to 3856 days (i.e., slightly more than 10 years; $Mdn = 1088$ days, $SD = 855.79$). Out of 46 suspects who recidivated with new police contact, 28 (60.9%) were not arrested or

charged, whereas 18 (39.1%) were at least arrested. This latter group included female

suspects who were arrested but not charged (*n* = 5, 27.8%); arrested and charged (*n* =

12, 66.7%); and arrested, charged and prosecuted (*n* = 1, 5.5%). Suspects with three

arrest levels (i.e., arrested but not charged; arrested and charged; and arrested, charged

and prosecuted) were classified into one recidivism group type representing "at least

arrested" to maximize statistical power in subsequent analyses. The most common types

of re-offence for new police contact and at least arrested groups, when known, were

categorized by police as physical assault (*n* = 3, 20%), harassment (*n* = 3, 20%), and

breach (*n* = 4, 26.7%).

Latent Class Analysis of IPV Female Perpetrators

Latent class analysis (LCA; Kongsted & Nielsen, 2017; Schreiber, 2017) was

utilized to determine potential clusters of female IPV suspects based on the

antisocial/psychopathic and borderline personality traits exhibited by the perpetrator

(PB-Traits scale), level of violence attempted or committed (L-Violence scale), level of

injury sustained (L-Injury scale), as well as demographic and situational characteristics.

The model fit for the optimal number of classes was examined using the Bayesian

Information Criterion (BIC), the Sample-Size Adjusted BIC (SSA-BIC), the Akaike

Information Criterion (AIC), and Lo-Mendel-Rubin likelihood ratio test (LMR) *p*-

values.

Variables included to form these classes were Relationship Type, Current

Relationship Problems, Excessive Jealousy and Control, Perpetrator Age, Current

Alcohol and Drug Use, Suicidal Tendencies, Current Mental Health Issues, Forced Sex

and Choking, PB-Traits total score, L-Injury and L-Violence total scores. The LCA

models were assessed using the robust maximum likelihood method and re-run several

times, progressively increasing the number of initial stage random starts (from 20 to 2000) to conclude whether the best log-likelihood value was replicated. One-, two-, and three-class models were examined and the corresponding fit indices were assessed (see Table 2).

Despite the fact that a three-class model yielded the lowest AIC, SSA-BIC, and BIC values, indicating a better fit for the model, neither a three-class nor a two-class model was chosen as the final model as the best log-likelihood values for both of these models were not replicated consistently, indicating potential problem with local maxima. Although the results obtained might indicate that two- or three-class models represent a good fit for data, the instability of these models precluded acceptance of either of these models as the best fit to the data. Table 2 also provides LMR p-values for two- and three-classes models; however, given the overall problem with log-likelihood values replicability, these p-values should be considered untrustworthy (Nylund et al., 2007).

Overall, only a one-class model was replicated consistently and yielded only slightly higher AIC, SSA-BIC and BIC values in comparison with two- and three-class models. In addition, for the exploratory purposes, it was decided to reduce the number of input variables to only the PB-Traits total score, L-Injury and L-Violence total scores, and to conduct LCA analysis examining fit indices for one-, two-, and three-class models based on these variables. The same procedure was utilized to examine potential classes and the same pattern of results was obtained as described above (see Table 2): a one-class model turned out to be the most stable among the three types of models. Moreover, for the exploratory purposes in the hope of adding greater discriminatory nuances within the LCA models, all PB-Traits item scores were entered into LCA instead of using the PB-Traits Total score, following the same procedure as in the

previous two analyses. However, the LCA yielded similar results, with one-class model being the most stable (see Table 2). Therefore, a one-class model represented the best fit for our sample. Given this conclusion, planned cluster comparisons were not possible.

Supplementary Statistical Analyses of the ODARA

To ensure that the ODARA reliably predicted IPV with females in the current study prior to its use in subsequent analyses, a receiver operating characteristic curve (ROC) analysis (Rice & Harris, 1995; 2005; Swets et al., 2000) was used to assess the predictive validity of the ODARA. ROC analysis is commonly used to determine the predictive accuracy in psychiatry and forensic psychology, as well as in medical diagnostics (Rice & Harris, 2005; Swets et al., 2000). This analysis originates from signal detection theory and presents a plot of true positive probability against false positive probability. Swets and colleagues argued that the accuracy of a tool or diagnosis is higher when true positive probability is greater for a given false positive probability. This probability ratio is displayed in a graph form, and a metric is generated to represent the proportion of the graphic that falls in the area under the curve (i.e., AUC). The AUC is essentially an effect size which estimates the discrimination performance (i.e., recidivist vs non-recidivist) of the instrument and ranges from 0 to 1.00 (Rice & Harris, 2005). The larger the AUC value, the greater the likelihood that a randomly selected score from the diagnostic group (i.e., recidivists) will be higher than a score randomly selected from the non-diagnostic group (i.e., non-recidivists; Rice & Harris, 1995; 2005).

According to Rice and Harris (2005), *AUC* values between .64 and .71 denote moderate predictive validity, and values of .71 and higher identify good or strong predictive validity. Rice and Harris (1995) argued that ROC analysis has several

advantages over other measures used for prediction tools' validity evaluation. One such advantage is that there is no need to assume a normal distribution. Another advantage is that ROC analysis does not depend on the base rate of the target behaviour in the population and will provide consistent results irrespective of whether the target phenomenon is frequent or infrequent (Rice & Harris, 1995).

The ODARA. The ODARA risk assessment tool was used to predict the subsequent risk of re-offence for female IPV suspects and to categorize them into respective risk levels. The mean ODARA total score was 3.41 ($SD = 2.22$). More than half of the sample fell in the moderate risk category ($n = 78$, 51.7%), whereas only 7.3% of females ($n = 11$) were categorized as high-risk suspects. Receiver operating characteristic curve analysis was used to test the predictive validity of the researcher-scored ODARA for female suspects. The ODARA reflected chance prediction for female suspects, $AUC = .522$, *95% CI* [.391, .653]. Phi correlations were conducted for each of the researcher-scored ODARA items and IPV recidivism (see Table 1). None of the 13 items was significantly correlated with recidivism, with correlation values ranging from .016 to .188. Thus, the ODARA reflected poor outcome sensitivity and specificity when used with female suspects.

Supplementary Avenues for Understanding Female IPV Offending Patterns

Given that neither LCA two- and three-class models were a good fit for data to explain variations in types of female IPV suspects, an effort was made to explain the observed variations in their patterns of recidivism. Examination of more nuanced recidivism outcomes may present interesting avenues for further risk assessment conversations and intervention planning for those most vulnerable to new police contacts and new arrests for IPV. The majority of the available research on IPV explores risk

factors and characteristics that can predict new charge or conviction recidivism (e.g.,

Henning et al., 2009; Mackay et al., 2018; Stewart et al., 2014), as well as the influence

of arrest on IPV recidivism patterns (e.g., Fraehlich & Ursel, 2014; Hoppe et al., 2020;

Vigurs et al., 2016). However, to the best of our knowledge, there is no research

examining the difference between groups of IPV suspects based on their patterns of

recidivism that explores risk for new police contact separately from the less common

outcome of being arrested or charged. New police contact provides opportunities for risk

mitigation even if the abusive behaviours of the suspect (e.g., emotional abuse) does not

meet the threshold for an arrestable offence. Looking at the characteristics of groups of

female IPV suspects from the perspective of different patterns of recidivism might

present a more nuanced understanding of the nature of IPV, as well as its persistence.

This examination of female IPV groups based on recidivism patterns is exploratory, and

did not have any pre-planned hypotheses.

Factors contributing to recidivism outcome. Before comparing groups of

female suspects on recidivism outcomes, it was important to first explore what factors

were predictive of IPV recidivism given that the predictive validity of the ODARA was

poor for females in the current sample, especially for predicting new police contact for a

new suspected IPV incident. Based on the research literature of factors predictive of IPV

behaviours (e.g., Mackay, Bowen, Walker, & O'Doherty, 2018; Swan & Snow, 2002;

2006; Clift & Dutton, 2011; Dutton, Nicholls, & Spidel, 2005; Fatania, 2010), several

ROC analyses were conducted to test which PB-Traits scale items (e.g., Goldenson et

al., 2007; Henning et al., 2005) as a measure of psychopathic and borderline traits were

individually predictive of IPV recidivism for female offenders. Detailed description of

these findings can be found in Table 3. Rice and Harris (2005) indicated that *AUC*

values between .64 and .71 identify moderate predictive validity, whereas values higher than .71 represent large predictive validity. Therefore, personality items of unstable relationships, *AUC* = .710, *95% CI* [.628, .791], emotional instability, *AUC* = .702, *95% CI* [.614, .790], manipulativeness, *AUC* = .667, *95% CI* [.570, .763], antisocial attitudes, *AUC* = .627, *95% CI* [.529, .725], fear of rejection and abandonment, *AUC* = .619, *95% CI* [.520, .719], impulsivity, *AUC* = .611, *95% CI* [.510, .712], and criminal versatility, *AUC* = .610, *95% CI* [.509, .711] showed moderate effect sizes for predictive validity. Other items on the PB-Traits scale (e.g., callousness, lack of remorse, poor anger control) were weak, predicting primarily around chance levels, *AUCs* = .500 - .584.

Further, ROC analysis was also used to test the predictive validity of L-Violence and L-Injury scales (see Table 3; e.g., Gavin & Porter, 2015; Henning & Feder, 2004; Lake & Stanford, 2011). The L-Violence scale was not able to discriminate IPV recidivists and non-recidivists (i.e., new police contact and at least arrest) above chance for female IPV suspects, *AUC* = .491, *95% CI* [.385, .597. In addition, the ability of the L-Injury scale to discriminate recidivists from non-recidivists was at chance level, *AUC* = .507, *95% CI* [.405, .610].

Finally, simultaneous logistic regression analysis was conducted to determine which demographic and situational characteristics were predictive of IPV recidivism (i.e., both new police contact and at least arrest) for female IPV suspects. Current relationship problems (e.g., Copp, Giordano, Manning, & Longmore, 2017; Mackay, Bowen, Walker, & O'Doherty, 2018), relationship jealousy and control (e.g., Caldwell et al., 2009), use of alcohol and drugs at the time of the index event (e.g., Crane et al., 2014), suicidal tendencies (e.g., MacIsaac et al., 2017), mental health issues (e.g., McKee & Hilton; 2019; Minieri et al., 2014), PB-Traits scale total score (e.g., Clift &

Dutton, 2011; Dutton, Nicholls, & Spidel, 2005), and L-Violence and L-Injury scale

scores (e.g., Gavin & Porter, 2015; Henning & Feder, 2004) were used in the model.

Table 4 provides the regression coefficients, Wald statistics, Odds Ratios and 95%

confidence intervals for this regression analysis. The full regression model for predicting

female suspects' recidivism was statistically significant, $R^2{}_N = .34$, χ^2 (8, $N = 151$) =

40.93, $p \leq .001$. Among the eight variables in the model, however, only higher PB-Traits

scale total scores significantly predicted IPV recidivism for female suspects, $exp(B) =$

1.53, Wald χ^2 (1, $N = 151$) = 26.09, $p \leq .001$.

Types of female IPV suspects based on recidivism. LCA analysis showed that

one-class model was a better fit for the data. However, based on the pattern of

recidivism as an outcome variable, it was possible to determine three groups of female

IPV suspects. These three groups included females who did not recidivate within the

follow-up period ($n = 105$, 69.5%); females who recidivated but for whom this

encounter with police did not result in arrest and correspondingly no charges were laid

($n = 28$, 18.5%); and women who were at least arrested as a result of the recidivism

event ($n = 18$, 11.9%). Potential differences between these three groups were explored to

identify risk marker nuances for recidivism outcomes for female IPV suspects. Chi-

square analyses were used to examine group differences on categorical variables (e.g.,

relationship status, living arrangements, current relationship problem, etc.). All

categorical variables used in chi-square analyses had to be interpreted with Fisher's

Exact tests because more than 20% of expected cell count were less than 5. It is

acknowledged that the 15 Fisher's Exact test analyses conducted may have elevated the

risk of Type I error issue due to multiple comparisons; however, we decided not to resort

to the use of the Bonferroni correction based on the recommendation of Armstrong

(2014), who argued that Bonferroni corrections procedures should be omitted in cases of unplanned comparisons. Examination of these findings can be then considered hypotheses for future investigation. Given that Fisher's Exact test results are purely exploratory and require further replication to determine their utility as differentiating factors between groups of female IPV suspects, we left obtained *p*-values uncorrected. One-way ANOVAs were used to compare the three groups on continuous variables (e.g., PB-Traits scale total, perpetrator age, length of relationships).

Detailed description of statistical comparisons between the three recidivism outcome groups are provided in Tables 5 and 6. As shown in Table 5, Fisher's Exact test found that membership in the three recidivism outcome groups significantly depended on whether the female suspect had current suicidal tendencies, $p = .021$, $V = .21$ (moderate effect size; Rea & Parker, 1992); current mental health issues, $p = .027$, $V = .18$ (weak effect size; Rea & Parker); and previous use of weapon, $p = .015$, $V = .26$ (moderate effect size; Rea & Parker). A group of female IPV suspects who were at least arrested had more instances of suicidal tendencies manifestations (22.2%), more instances of evidence of current mental health issues (16.7%), and more instances of the previous use of weapon (11.1%) in comparison with a group of females who did not recidivate (current suicidal tendencies = 7.6%; mental health issues = 7.6%; previous use of weapon = 0%) and a group of females who had a new police contact but were not arrested (current suicidal tendencies = 3.6%; mental health issues = 0%; previous use of weapon = 3.6%). There was no statistically significant differences between recidivism groups on suspect ethnicity, employment, relationship status, living arrangements, current relationship problems, relationship jealousy and control, alcohol and/or drug use

during the index event, use of weapon during the index event, history of forced sex, choking, and L-Injury and L-Violence scale scores.

As shown in Table 6, the ANOVA identified a statistically significant difference between recidivism outcome groups on the PB-Traits total score, $F(2, 148) = 21.76$, $p \leq .001$, $\eta^2 = .23$. A Tukey's honestly significant difference post-hoc test revealed that the mean score for the group who did not recidivate ($M = 7.59$, $SD = 3.23$) was significantly lower than the mean score for the group whose recidivism resulted in a new police contact ($M = 10.75$, $SD = 2.95$) and the mean score for the group of female suspects who were at least arrested ($M = 12.17$, $SD = 3.85$) at $p < .001$. However, there was no statistically significant difference ($p = .324$) between the PB-Traits total mean scores for the group of female suspects who recidivated with a new police contact and a group of females who were at least arrested. In addition, as shown in Table 5, there was no statistically significant mean score differences between recidivism groups on suspect age, length of relationships, and the ODARA risk score.

In summary, it was not possible to extract three clusters of female suspects based on demographic and situational characteristics, PB-Traits scale total score, or the L-Violence and L-Injury total scores. However, it was possible to examine distinctions between female suspects based on their patterns of recidivism, including the absence of re-offence, re-offence followed up by a new police call without arrest, and re-offence that resulted in at least arrest. The most significant difference between these groups was reflected in PB-Traits means total scores. In addition, PB-Traits scale was significantly predictive of IPV recidivism for female IPV suspects in contrast to other demographic and situational characteristics. Finally, the ODARA was not predictive of IPV

recidivism for female suspects and none of the ODARA items were correlated with IPV recidivism.

Discussion

Despite the fact that IPV is perpetrated mostly by men, a small but significant portion of IPV suspects constitute women (Burczycka et al., 2018; WHO, 2013). In addition, research shows that men can be victimized by their intimate partners at similar rates as women (e.g., Smith, 2017). At the same time, there are gaps in the literature regarding the specificity of female-perpetrated IPV. Therefore, the goal of the current study was to explore risk factors and characteristics specific to female perpetrators of IPV. It was expected that 3 clusters of IPV perpetrators would emerge based on IPV situational characteristics, demographic characteristics, personality traits, and nature of attempted or perpetrated violence. Overall, this hypothesis was not supported by the data given that the results of latent class analysis failed to identify multiple clusters within the dataset. Although multiple clusters were not identified, it was still possible to differentiate between female IPV suspects based on their pattern of recidivism. In addition, statistical analyses confirmed borderline/antisocial personality traits as a significant predictor of IPV recidivism, whereas the ODARA was not predictive of recidivism for females.

Potential Clusters of Female Perpetrators of IPV

Contrary to expectations, the results of latent class analysis did not support the classification of female suspects of IPV into three clusters despite use of an array of situational, personal characteristics, personality traits, and types and severity of violence. These results were in contrast with previous research on IPV perpetrators classifications

(e.g., Babcock et al., 2003; Holzworth-Munroe & Stuart, 1994; Thijssen & de Ruiter, 2011). One of the possible reasons for this inconsistency was that there may not have been enough variability in the current sample to support our hypothesis. For example, L-Injury scale showed that approximately half of suspects fell into the category that was characterized by inflicting no injury at all, whereas the other half was spread among all other L-Injury scale levels. Likewise, L-Violence scale demonstrated that approximately half of perpetrators were classified as falling into the fourth category (i.e., attempting to perpetrate such acts of violence as stabbing, hitting with the object, etc.), whereas the rest of the sample was again spread among all other L-Violence scale levels. In addition, the PB-Traits total mean score for the sample fell in the moderate severity range. Thus, the current sample may have represented a homogeneous group of female IPV suspects.

Previous research (e.g., Cascardi et al., 2018; Swan & Snow, 2002) incorporated the type of aggression used by perpetrators into their classification of IPV suspects. It is possible that inclusion of reactive and instrumentally motivated aspects of aggression would have added to the ability to distinguish groups of female suspects. In addition, classification of female IPV suspects suggested by Babcock and Miller (2003) also explored the type of violence committed by their participants, and both recent traumatic experience and a history of trauma. In fact, Chase and colleagues (2001) even argued that typologies which are based on a reactive-proactive dichotomy model of violence are empirically supported, based on theory, and can provide a solid foundation for suspects' classification. Unfortunately, such information was not included into LCA analysis because it was available for only a third of the sample. Thus, the LCA lacked an important risk factor. Moreover, Kelly and Johnson's (2008) classification of violence, especially coercive controlling violence, might present an interesting avenue for

exploration. Kelly and Jonson argued that coercive controlling violence can be committed by both men and women and can incorporate both physical and non-physical strategies employed by a perpetrator. Therefore, exploration of this type of violence can enhance our understanding of the dynamics of IPV.

Another reason why it was not possible to classify female IPV suspects might include the source of data used in the current study. The information for coding was extracted from records of local police agencies, which might reflect well the local sample of homogenous suspects but might not generalize to other jurisdictions that may have a wide range of female IPV perpetrators. In addition, the vast majority of perpetrators in the current sample either did not re-offend, and if they did, arrest was infrequent as the outcome. Although we had a larger number of recidivism cases in comparison with some previous research (e.g., Menard, 2009), we employed a more liberal definition of recidivism (i.e., any post-index contact with police as a suspect of IPV); therefore, our sample might have reflected less severe cases of IPV that did not meet a legal threshold for criminal activity but still reflected abusive behaviour. Anecdotal evidence from police records in the current study suggested that police were less likely to arrest the suspect when they were pushed or slapped in comparison with cases in which injuries were more pronounced (e.g., stabbed). In general, the IPV literature indicates that instances of serious physical violence are more likely to be followed by arrest and consecutive charges in comparison with instances exhibiting other types of violence (e.g., Trujillo & Ross, 2008). In contrast, previous classification research (e.g., Fatania, 2010; Thijssen & de Ruiter, 2011) retrieved their data from records of probation offices; thus, their data sets consist of convicted female offenders, who were not only arrested but also prosecuted. Overall, having a more diverse sample

of female IPV cases (e.g., a better ratio of less to more severe cases) might have provided a better foundation for LCA.

It should be noted that the current study has examined a broad but by far not exhaustive list of risk factors for female IPV perpetration. For example, a recent meta-analysis (Spencer et al., 2020) has identified 45 unique risk factors for female IPV perpetration with some prominent ones including sexual IPV victimization; physical IPV victimization; emotional, physical and sexual IPV perpetration; avoidant and anxious types of attachment; borderline and antisocial personality disorders; depression; and post-traumatic stress among others. Thus, it seems viable for future research to tap deeper into a perpetrators' history of victimization and perpetration, mental health problems, and dynamics in the family of origin in order to better understand patterns of female IPV perpetration.

Overall, more research is required into the exploration of the heterogeneity of female IPV perpetrators. Further studies should use a larger sample of female suspects of IPV to add to the diversity of this offender group. In addition, there is value in using real-time data collection methods at the point of police contact to best capture the characteristics of female IPV suspects (e.g., field note observations, use of questionnaires and post-event interviews) and then prospectively follow these cases to determine whether subsequent IPV has occurred (whether reported to police or not). Examination of convicted female IPV offenders also has value given the diverse information that tends to be available post-conviction via correctional services or court-ordered assessments if available.

Supplementary Examination of Recidivism and the Use of the ODARA with Female Suspects

The results of the current study include an added section dedicated to the validity of the ODARA. Although this work was not the main goal of the present study, it became evident in the data collection and data analyses that challenges with the use of this tool for female suspect risk appraisal needed to be identified and clarity was needed how it functioned as a risk tool. This understanding is essential for advancing research on risk assessment for females involved as perpetrators of IPV, which to date is still understudied and had yet to produce valid risk tools for females suspects.

As reminder, recidivism in the current study was defined as either a new IPV-related police encounter, a new arrest for IPV, a new charge for IPV and/or new conviction. We decided upon a more liberal definition of IPV recidivism than is used in many recidivism studies as it allowed us to capture more nuanced nature of recidivism among IPV suspects in this sample that may not meet legal thresholds for arrest or conviction but reflect IPV behaviours nevertheless. In addition, new police calls for IPV that did not result in arrests and/or charges should still be of interest for risk appraisal purposes by police or other community agencies, as some IPV-related violence might escalate over time both in frequency and severity (e.g., Piquero et al., 2006) even if not meeting legal thresholds at present.

One third of the current sample of female IPV suspects ($n = 46$, 30.5%) recidivated with an average time to new police contact of almost three years. Moreover, 67.4% of these recidivists had a history of previous IPV perpetration. At first glance, the number of recidivism incidents in this sample was higher than one usually found in previous research on female IPV perpetration (e.g., 15.3% in Henning et al., 2009);

however, this was not surprising given the use of more liberal IPV recidivism definition in the current study. If we utilized a stricter definition of recidivism (i.e., IPV-related charges and convictions), then the number of recidivism events drops to 11.9% ($n = 18$) and is on a par with what is found in other studies. For example, Menard and colleagues (2009) conducted a 5-year follow-up study comparing the differences in recidivism among male and female IPV perpetrators and found that 19% of female IPV suspects recidivated in their sample. These authors defined recidivism as any IPV-related type of crime committed by a perpetrator; however, the source of their data was Douglas County Attorney's office in Nebraska and recidivism cases in their sample included only charges and convictions. Notably, Henning and colleagues (2006) found that women identified as primary aggressors in IPV incidents were more likely to become victims than aggressors in subsequent IPV altercations. Unfortunately, Henning and colleagues did not track post-index IPV victimization in the sample. Thus, it remains unclear as to what degree the suspect-victim contact was present in their sample. Inclusion of such data may have facilitated cluster differentiation given the presence of such group of female suspects who emerged as victims post-index in other studies (e.g., Henning et al., 2009; Reese et al., 2017).

Predictive validity of the ODARA. The ODARA, developed by Hilton and colleagues (2004), was used to assess the risk of recidivism with female perpetrators of IPV. For the purposes of the current study, the researcher-scored ODARA was utilized. The current study utilized a large sample of female IPV suspects ($N= 151$) in which the ODARA's validity has been examined, and these results supported McTague's (2018) findings regarding the predictive validity of this tool. In the current study, the ODARA also achieved only chance prediction for new police contact as an IPV suspect, $AUC =$

.522. The ODARA had equally poor predictive validity when used to assess the risk of arrest/charges, $AUC = .558$. These findings indicate that the ODARA does not work well as a risk appraisal tool for female suspects even when more conservative definition of recidivism is applied.

Overall, the low predictive validity of the ODARA with females was not surprising given that none of the ODARA items correlated with recidivism during the follow-up period in the current sample. Such results were generally consistent with McTague's research which showed that only one ODARA item (i.e., having a prior domestic incident) was correlated with recidivism over 12 months. Thus, the ODARA appears to be a weak predictor for typical female IPV suspects at the pre-arrest, and arrest/charge level of the criminal justice process. This research also suggests that the ODARA does not adequately tap into the risk factors associated with female perpetration of IPV.

Overall, the current results indicated that the ODARA is not effective for capturing the risk of recidivism when used with female perpetrators of IPV despite its validity with males. The researcher-scored ODARAs suggests that this difficulty stems from the fact that the risk factors assessed by the ODARA did not play a vital role in assessing the risk of recidivism specifically among female IPV suspects, as shown by the lack of item correlations with recidivism by female suspects. In addition, despite the ODARA's strengths as an actuarial risk assessment tool, it does have its weaknesses, such as failing to appraise the escalation in risk level over time and assessing mostly static risk factors. In addition, despite tapping into the perpetrator's criminal history, the ODARA focuses mostly on an isolated IPV incident and does not take into the account the continuous nature of IPV reflected in current understandings of IPV (Gill &

Aspinall, 2020). More research is needed to crystallize female-specific risk factors and to find a way to incorporate these factors in risk assessment tools when maintaining a tool's user-friendliness for law-enforcement agencies.

Personality traits as a predictor of recidivism. Given that the researcher-scored ODARA was not successful in assessing the risk of recidivism among female IPV perpetrators, a series of ROC analyses were conducted to identify more valid indicators of subsequent IPV among the range of suspect, relationship, and perpetration variables. Notably, only the aggregate score reflecting psychopathic/antisocial and borderline personality traits emerged as a significant predictor of recidivism. This finding was consistent with an earlier study by Moser (2012) who argued that personality traits were significantly predictive of both male and female IPV recidivism. However, these findings were not supported by McTague's study (2018) whose data found no predictive value in measurement of these personality traits for IPV recidivism. This discrepancy is explained by the fact that McTague used more stringent clinical criteria when coding the presence of personality traits from police files, whereas in the current study, as well as an earlier study by Moser, coding criteria were less clinical in their threshold requirements. Less clinical, but yet descriptive criteria suggestive of the presence of these traits allowed us to capture of a more nuanced personality trait manifestations than required for clinical diagnosis among female IPV offenders in the current sample. Moreover, given that police records were not designed to capture clinical thresholds for personality, the use of a coding guide with less strict criteria allowed us to capture information reflected or inferred from these records in a meaningful way for risk appraisal purposes. Specifically, such personality items as manipulativeness, antisocial attitudes, criminal, impulsivity, unstable relationships, fear

of rejection and abandonment, and emotional instability were individually predictive of IPV recidivism for females. Thus, the informal appraisal of both antisocial and borderline personality traits was important when assessing the risk of recidivism amongst female suspects, although borderline personality traits seemed to play a more significant role within these features.

Overall, personality traits have consistently emerged in the literature as a significant risk factor for both IPV perpetration and IPV recidivism. The correlation between personality traits and the likelihood of IPV perpetration seemed well established and was reinforced by the results of the current study. Despite the robustness of the influence of these traits, personality is rarely accounted for when assessing the risk of recidivism for IPV by tools intended for use by non-clinicians. The PB-Traits scale used in the current study was designed specifically for the use by professionals who do not have a clinical background and who can easily use this scale with the available resources (e.g., police narratives, conversations with victims, perpetrators, and witnesses, etc.). This scale has shown its reliability across several studies (e.g., Moser, 2012; Gryshchuk, 2019) as a predictor of IPV recidivism among both male and female offenders of IPV. Understandably, the PB-Traits scale requires further validation across various samples of female IPV suspects; however, this scale has potential to emerge as at least a useful addition to an existing risk assessment tool, if not as a risk assessment tool by itself.

Supplementary Exploration of Types of IPV Female Suspects Based on Recidivism Patterns

The results of LCA did not allow us to extract clusters of female IPV suspects. However, we decided to explore the obtained sample of IPV suspects further. Specifically, we looked at recidivism patterns of female IPV perpetrators. To the best of our knowledge, none of the studies so far have examined differences between groups based on nuanced recidivism outcome (i.e., beyond charge or conviction recidivism/non-recidivism dichotomy). For the purposes of the current study, we utilized a more liberal definition of recidivism, which encompassed both a new encounter with police, as well as at least arrest for IPV. This approach to exploring recidivism patterns can potentially be beneficial for risk assessment and intervention practices as the difference between groups of IPV suspects based on how they re-offend might provide an important insight into the nature of IPV behaviour.

Data revealed that females in our sample could be conceptually categorized into three distinct groups based on patterns of recidivism, including a large group of females who did not recidivate at all ($n = 105$); females whose recidivism resulted in an encounter with police but was not followed by an arrest ($n = 28$); and females who recidivated and were at least arrested ($n = 18$). Differences between these three recidivism status groups of female IPV suspects were examined. The most prominent group differences occurred for variables capturing suspect suicidal ideation, mental health issues, use of weapon in previous domestic incidents, and severity of antisocial and borderline personality traits.

Suicidal ideation. For the purposes of the current study, we did not utilize a clinical assessment of suicidal ideation but rather coded this variable based on suspect,

victim, witnesses, and police officers' description of how suspects behaved over the past year pre-index and whether she exhibited any of such types of behaviour as cutting, head banging, skin burning; threats of suicide; suicidal gestures or attempts, etc. Interestingly, despite a low number of females expressing suicidal thoughts to police or witnesses, this characteristic emerged as significant for distinguishing between recidivism status groups, especially among females who were arrested and charged. The connection between suicidal ideation and IPV perpetration has been well documented in the literature (e.g., MacIsaac et al., 2017; Webb et al., 2012; Wolford-Clevenger et al., 2015). Specifically, Wolford-Clevenger and colleagues (2015) studied the prevalence of suicidal ideation among 294 male perpetrators of IPV who were court-ordered to undergo an IPV intervention program for perpetrators. These authors concluded that 22% of their sample experienced suicidal ideation two weeks before starting their intervention program. In addition, Wolford-Clevenger and colleagues argued that symptoms of depression and borderline personality disorder were predictive of suicidal ideation above and beyond physical and psychological IPV victimization and perpetration, whereas symptoms of antisocial personality disorder did not contribute to suicidal ideation variance. Moreover, Webb and colleagues (2012) studied a sample of Danish violent and sexual offenders and found that individuals with a history of violent offences (not limited to IPV only) had an elevated suicide risk, with women being even more at risk than men. These authors also highlighted that suicide risk increases were proportionate to an increase in the level of violence committed by male and female perpetrators (i.e., the more violent crime a perpetrator committed, the more at risk of suicide they were). However, Webb and colleagues added that when the relationship between suicide risk and violent crime perpetration was adjusted for serious

psychological disorders and social circumstances, the suicide rates were similar to that found among non-violent offenders.

   Mental health issues. The three recidivism status groups of female IPV suspects differed significantly on the presence of mental health issues as identified in police records at time of the index IPV event; however, the effect size was small. The coding guide used in the current study did not offer much in the way of details about these mental health concerns, but did allow for coding of mental health issues as being present, present but inconclusive, and not present. Although only 7.3% of the total sample was coded as experiencing mental health issues ("evidence present"), they emerged at a slightly higher rate among females whose recidivism resulted in arrest (16.7%) relative to the other two groups, specifically, no recidivism group (7.6%) and new police IPV-related encounter without arrest (0%). This finding was not entirely surprising given extensive literature on the link between mental health issues and IPV perpetration (e.g., Larsen & Hamberger, 2015; McKee & Hilton; 2019; Minieri et al., 2014). Specifically, Yu and colleagues (2019) conducted a longitudinal study and found significant correlations between IPV perpetration and depressive disorder, anxiety disorder, alcohol use disorder, drug use disorder, attention deficit hyperactivity disorder, and personality disorders among male offenders when compared with their siblings who did not have similar diagnoses. Likewise, Green and colleagues (2016) investigated the prevalence of mental health disorders among incarcerated female perpetrators and found that 67% of their sample had at least one lifetime mental health disorder (e.g., post-traumatic stress disorder, major depressive disorder, bipolar disorder) and 83% had at least one substance use disorder.

The current results indicated that when assessing the risk of recidivism with female suspects, mental health concerns in general emerged as a differentiating characteristic between females who recidivated and females who did not re-offend. Our study was limited to only capturing the most overt manifestations of these issues (obvious enough to be noted in the observations of the responding officers' report or voiced by victims and witnesses in their statements), such as generally indicating whether a suspect had a history of mental health disorder diagnosis or was taking any prescribed psychiatric medication. Understandably, to better assess the level of mental health concerns, appropriate diagnostic tools would have been used; therefore, the findings of the current study are not conclusive with regard to the role of mental health concerns (e.g., nature of the concern, severity) and this risk factor requires more in-depth exploration.

Previous use of weapon. Use of weapon during previous IPV incidents emerged as another significant factor that differentiated between the three recidivism groups of female IPV suspects. There were only three instances of weapon use at the time of a pre-index event, and yet this use was observed among women who recidivated (two instances of a previous weapon use observed in a group of female suspects who were at least arrested, and one instance – in a group of female suspects who had only a police encounter) in comparison with those who did not re-offend. This finding was supported by an earlier study by Henning and colleagues (2006) who indicated that 15.8% of female offenders in their sample threatened/used gun and/or knife in previous incidents of IPV. In addition, previous research with male IPV perpetrators revealed that the use of some sort of weapon was associated with the seriousness of the index IPV-related event and subsequent charges; but neither access to firearm nor the use of weapon was

predictive of IPV recidivism or its severity (Folkes et al., 2012). However, a recent

meta-analysis on IPV risk markers for male and female suspects by Spencer and

colleagues (2020) revealed that access to weapon emerged as a significant risk factor but

only for male IPV suspects. Thus, more research is required on the association between

the use of weapon and the likelihood of IPV recidivism for female IPV suspects.

Personality traits. The PB-Traits total score differed significantly among the

three recidivism groups of female IPV suspects. Specifically, females who did not re-

offend had the lowest mean score ($M = 7.59$) in comparison with females who re-

offended with a new police encounter ($M = 10.75$) and females who were at least

arrested ($M = 12.17$). The bulk of previous studies have emphasized the strong

connection between antisocial and borderline personality traits and the likelihood of

recidivism (e.g., Armenti & Babcock, 2018; Clift & Dutton, 2011; Dutton et al., 2005;

Moser; 2012). Findings of the current study emphasized and supported previous research

that highlighted the correlation between antisocial and borderline personality traits and

the likelihood of IPV perpetration with female IPV suspects specifically (e.g., Hines,

2008; Jackson et al., 2014; Mackay et al., 2018; Moser, 2012).

Females in the current study exhibited a generally moderate level of personality

issues, with the traits of poor anger control, impulsivity, unstable personal relationships,

and emotional instability yielding the highest mean scores. These patterns of findings

suggest that females in the current sample exhibited greater borderline tendencies

(emotional deficits and relationship instability) in comparison with antisocial and

psychopathic tendencies, though anger issues and impulsivity each overlap between

these personality disorders. Overall, the representation of borderline personality features

was not surprising given past research with men and women perpetrators of IPV. For

example, Stuart and colleagues (2006) investigated the prevalence of psychopathology among 103 women who were arrested for IPV perpetration and then court-mandated to undergo intervention programs. These authors found that almost one third of their sample (27%) had borderline personality disorder. Moreover, McKeown (2014) found strong correlations between both borderline and antisocial personality traits and IPV perpetration among 92 female IPV offenders, with this correlation being stronger for borderline personality traits. Finally, Ross (2011) explored self-reported reasons for IPV perpetration among male and female IPV offenders and found that both men and women endorsed emotional dysregulation as a common reason for IPV perpetration. Ross suggested that the reason for IPV to be tied to emotional dysregulation was due to the presence of borderline personality traits; therefore, the more borderline personality traits a suspect exhibits, the more often they indicated difficulty to control their emotions as a reason for IPV regardless of gender.

Strengths and Limitations

The current study investigated the specificity of female IPV perpetration and explored a variety of personal and situational characteristics and personality traits related to this behaviour, as well as the presence and severity of violence and injury inflicted by perpetrators. We extracted information from police records and this allowed us to tap into police officers, victims, perpetrators and witnesses' narratives, which provided detailed information for investigating IPV incidents from different angles. In addition, the maximum follow-up period in the current study was slightly more than 10 years, which is longer than most studies.

Despite the study's strengths, there were several limitations that require consideration. One limitation was a smaller than initially planned sample of IPV female

perpetrators. Although police archives were pulled from as far back as 10 years ago, and we incorporated information from two police agencies in the province of New Brunswick to secure this sample, the pool of available female suspect cases was relatively small. Another limitation was the retrospective coding of police record information. Retrospective coding only allows for the capturing of information as recorded by police in their narratives, legal documentation, and complainant/witness statements. Therefore, it is possible that relevant information pertaining to the past history of IPV, present IPV incident nuances, mental health dynamics, or personality traits manifestation was omitted by police officers and, therefore, unknown to the coder. In these cases, variables had to be coded as either "not present" or "missing" even if such information was in fact relevant but not recorded in the file. Another limitation included the crude operationalization of mental health concerns and suicidal ideation. Given the retrospective design of the study, it was difficult to capture detailed information on mental health issues from police records. Clinical measures would provide a more detailed and valid measure of mental health. Moreover, it was difficult to reliably capture specific instances of psychological violence as available tools usually presuppose interviews with victims and perpetrators; thus, we only coded such instances as present or absent. In addition, information regarding instrumental and reactive aggression was only available for one third of the sample; thus, it was not possible to include it in statistical analyses. Finally, despite a long follow-up period, it was not possible to capture all instances of recidivism if a perpetrator left the province, re-offended under a different jurisdiction, or the incident was not reported to police.

Conclusion and Future Perspectives

The current study highlighted salient information regarding female-specific IPV perpetration and investigated incidents of IPV from various angles, both in terms of characteristics studied and sources used. Although our hypothesis regarding the classification of subtypes of female perpetrators was not supported, it was still possible to investigate significant characteristics that differentiated groups of IPV suspects based on patterns of recidivism, which supported the idea of heterogeneity typical of female IPV suspects. Differentiating characteristics included history of the use of weapon, mental health issues, suicidal ideation, and personality traits. Further exploration of mental health concerns, including suicidal ideation, using suitable diagnostic tools is required in order to see how the assessment of mental health can be incorporated into risk assessment practices. Moreover, a broader list of unique female-specific IPV risk factors tapping into suspects' history of both victimization and perpetration, as well as dynamics within a family of origins should be examined (e.g., Spencer et al., 2020). In addition, the results of the current study showed that an existing risk assessment tool, the ODARA, might not be suitable for the risk assessment with female perpetrators as this tool did not sufficiently capture female-relevant risk factors as shown by the lack of correlation between ODARA items and female recidivism. In contrast, PB-Traits scale emerged as a reliable and user-friendly assessment of the risk of recidivism, specifically for women. Therefore, more research is needed to validate this scale across various samples of female suspects and to potentially modify it to make more appropriate for police settings. Overall, this research calls for further exploration of female-specific IPV risk factors, as well as more suitable tools for the assessment of female IPV recidivism.

Table 1

Phi Correlations Between Researcher-Scored ODARA Item Scores and IPV Recidivism

ODARA items	*r*	*p-value*
Item 1	.163	.135
Item 2	.065	.422
Item 3	.188	.070
Item 4	.103	.207
Item 5	.112	.387
Item 6	.016	.847
Item 7	.107	.424
Item 8	.124	.314
Item 9	.093	.519
Item 10	.041	.882
Item 11	.083	.596
Item 12	.125	.310
Item 13	.042	.875

Note. No statistically significant correlations emerged.

Table 2

Latent Class Analysis Fit Indices

Classes	Log-likelihood	BIC	SSA-BIC	AIC	Entropy	LMR p-value
			Model 1 (all variables)			
1 class	-2311.909	4764.302	4675.685	4679.819		NA
2 classes	-2062.106	4360.024	4211.274	4218.212	.995	.67*
3 classes	-1965.610	4262.361	4053.478	4063.220	1	.54*
			Model 2 (PB-Traits total score, L-Violence and L-Injury scores)			
1 class	-802.232	1654.637	1622.988	1624.464		NA
2 classes	-781.636	1663.617	1600.319	1603.271	.796	.003*
3 classes	-772.238	1694.995	1600.048	1604.477	.751	1.00*
			Model 3 (all variables and PB-Traits scale items scores)			
1 class	-3418.404	7117.775	6940.541	6948.808		NA
2 classes	-3166.917	6795.425	6504.254	6517.835	1	.533*
3 classes	-2962.473	6557.123	6158.346	6176.946	1	.805*

Note. BIC, Bayesian Information Criterion; SSA-BIC, Sample-Size Adjusted BIC; AIC, Akaike Information Criterion; LMR, Lo-Mendel-Rubin likelihood ratio test.

*The solution obtained was likely a local maximum due to the fact that log-likelihood values were not replicated consistently; therefore, LMR *p*-values could not be considered trustworthy (Nylund et al., 2007).

Table 3

Estimates of Predictive Validity of PB-Traits Scale, L-Injury and L-Violence Scales,
Researcher-Scored and Police-Scored ODARAs

Variable	AUC	95% CI	
		LL	UL
PB-Traits scale total score	**.793**	.717	.870
PB-Traits scale item 1 Callousness	.547	.445	.649
PB-Traits scale item 2 Lack of Remorse	.578	.476	.680
PB-Traits scale item 3 Shallow Emotions	.506	.405	.607
PB-Traits scale item 4 Manipulativeness	**.667**	.570	.763
PB-Traits scale item 5 Antisocial Attitudes	**.627**	.529	.725
PB-Traits scale item 6 Poor Anger Control	.584	.487	.681
PB-Traits scale item 7 Blaming Others	.550	.447	.652
PB-Traits scale item 8 Narcissism	.524	.423	.626
PB-Traits scale item 9 Superficial Charm	.500	.400	.600
PB-traits scale item 10 Criminal Versatility	**.610**	.509	.711
PB-Traits scale item 11 Impulsivity	**.611**	.510	.712
PB-Traits scale item 12 Thrill-seeking	.500	.400	.600
PB-Traits scale item 13 Recurrent Suicidal Behaviour	.565	.462	.667
PB-Traits scale item 14 Promiscuous Sexual Behaviour	.525	.423	.626
PB-Traits scale item 15 Unstable Relationships	**.710**	.628	.791
PB-Traits scale item 16 Fear of Rejection	**.619**	.520	.719
PB-Traits scale item 17 Emotional Instability	**.702**	.614	.790
PB-Traits scale item 18 Parasitic Orientation	.539	.436	.642
L-Injury scale total score	.507	.405	.610
L-Violence scale total score	.491	.385	.597
Researcher-scored ODARA	.522	.391	.653
Police-scored ODARA	.314	.082	.546

Note. AUC = area under the curve; CI = confidence interval; LL = lower level; UL =

upper level.

Table 4

Logistic Regression Analysis Predicting IPV Recidivism for Female Suspects

Variables	B	Wald χ^2	Odds Ratio	p-value	95% CI for Odds Ratio	
					LL	UL
Constant	-.83	21.79	.44	≤.001		
Current or recent relationship problems	.2	.49	.82	.48	.46	1.44
Relationship jealousy and control	-.32	1.22	.73	.27	.42	1.28
Alcohol and/or drug use	.06	.08	1.06	.79	.68	1.66
Current suicidal tendencies	-.54	1.95	.59	.16	.28	1.24
Current mental health issues	-.33	.76	.72	.39	.34	1.51
PB-Traits total score	.43	26.1	1.53	**≤.001**	1.3	1.80
L-Injury scale	-.08	.19	.92	.66	.63	1.34
L-Violence scale	-.10	.37	.90	.54	.65	1.26

Note. R^2_N = .336, χ^2 (8, N = 151) = 40.93, p = ≤.001. Odds ratios greater than 1 indicate positive recidivism prediction by for PB-Traits total score and alcohol and/or drug use (i.e., a one unit increase in the predictor indicated recidivism in the outcome); Odds ratio less than 1 indicates negative relationships between a predictor and recidivism (i.e., higher item/presence of item in the predictor predictive no recidivism as the outcome).

Table 5

Fisher's Exact Test Statistics for Three Groups Based on Patterns of Recidivism

Variables	No contact	New contact	At least arrest	*p-value*	*V*
	% (n)	*% (n)*	*% (n)*		
Relationship status				.571	.09
Currently in relationship	60 (63)	46.4 (13)	61.1 (11)		
Previously in relationship	39 (41)	53.6 (15)	38.9 (7)		
Other	1 (1)	0 (0)	0 (0)		
Living arrangements				.278	.18
Living together	45.7 (48)	28.6 (8)	33.3 (6)		
Living separately (and always have)	4.8 (5)	7.1 (2)	11.1 (2)		
Living separately (previously co-habited)	14.3 (15)	32.1 (9)	16.7 (3)		
Living separately (unknown previous)	22.9 (24)	25 (7)	16.7 (3)		
Unknown living arrangements	12.4 (13)	7.1 (2)	22.2 (4)		
Current/Recent relationships problems				.627	.10
No evidence of problems	16.2 (17)	17.9 (5)	22.2 (4)		
Partial evidence	13.3 (14)	3.6 (1)	5.6 (1)		
Evidence of problems	70.5 (74)	78.6 (22)	72.2 (13)		
Relationship jealousy and control				.177	.14
No evidence of problems	68.6 (72)	60.7 (17)	66.7 (12)		
Partial evidence	14.3 (15)	21.4 (6)	0 (0)		
Evidence of problems	17.1 (18)	17.9 (5)	33.3 (6)		
Ethnicity				.973	.09
Caucasian	88.6 (93)	92.9 (26)	94.4 (17)		
Indigenous	2.9 (3)	0 (0)	0 (0)		
Other	6.7 (7)	3.6 (1)	5.6 (1)		
Unknown	1.9 (2)	3.6 (1)	0 (0)		

Table 5 (cont.)

Fisher's Exact Test Statistics for Three Groups Based on Patterns of Recidivism

Variables	No contact	New contact	At least arrest	*p-value*	*V*
	% (n)	*% (n)*	*% (n)*		
Employment problems				.316	.13
No evidence of problems	84. 8 (89)	71.4 (20)	94.4 (17)		
Partial evidence	10.5 (11)	17.9 (5)	5.6 (1)		
Evidence of problems	4.8 (5)	10.7 (3)	0 (0)		
Alcohol/drug use problems				.078	.19
No evidence of problems	66.7 (70)	60.7 (17)	50 (9)		
Partial evidence	0 (0)	7.1 (2)	0 (0)		
Evidence of problems	33.3 (35)	32.1 (9)	50 (9)		
Suicidal tendencies				**.021**	**.21**
No evidence of problems	91.4 (96)	85.7 (24)	77.8 (14)		
Partial evidence	1 (1)	10.7 (3)	0 (0)		
Evidence of problems	7.6 (8)	3.6 (1)	22.2 (4)		
Mental health issues				**.027**	**.18**
No evidence of problems	81.9 (86)	78.6 (22)	55.6 (10)		
Partial evidence	10.5 (11)	21.4 (6)	27.8 (5)		
Evidence of problems	7.6 (8)	0 (0)	16.7 (3)		
Previous use of weapon				**.015**	**.26**
No evidence of problems	100 (105)	96.4 (27)	88.9 (16)		
Evidence of problems	0 (0)	3.6 (1)	11.1 (2)		
Use of weapon during index event				.412	.11
No evidence of problems	90.5 (95)	89.3 (25)	77.8 (14)		
Partial evidence	1 (1)	0 (0)	0 (0)		
Evidence of problems	8.6 (9)	10.7 (3)	22.2 (4)		

Table 5 (cont.)

Fisher's Exact Test Statistics for Three Groups Based on Patterns of Recidivism

Variables	No contact	New contact	At least arrest	*p-value*	*V*
	% (n)	*% (n)*	*% (n)*		
History of forced sex				.075	.19
No evidence of problems	99 (104)	89.3 (25)	100 (18)		
Partial evidence	1 (1)	3.6 (1)	0 (0)		
Evidence of problems	0 (0)	7.1 (2)	0 (0)		
History of choking				.77	.06
No evidence of problems	97.1 (102)	96.4 (27)	100 (18)		
Partial evidence	1.9 (2)	3.6 (1)	0 (0)		
Evidence of problems	1 (1)	0 (0)	0 (0)		
L-Injury scale				.797	.14
0 level	49.5 (52)	53.6 (15)	50 (9)		
1 level	3.8 (4)	0 (0)	0 (0)		
2 level	27.6 (29)	25 (7)	16.7 (3)		
3 level	16.2 (17)	21.4 (6)	33.3 (6)		
4 level	2.9 (3)	0 (0)	0 (0)		
L-Violence scale				.19	.19
0 level	9.5 (10)	21.4 (6)	22.2 (4)		
1 level	5.7 (6)	10.7 (3)	0 (0)		
2 level	27.6 (29)	7.1 (2)	16.7 (3)		
3 level	14.3 (15)	14.3 (4)	11.1 (2)		
4 level	42.9 (45)	46.4 (13)	50 (9)		

Note. Percentages are reported by column, as a function of recidivism outcome.

Table 6

Descriptive Statistics and One-Way ANOVA Analyses for Three Groups Based on Recidivism

Variable	*M*	*SD*	*F ratio*	*df*	*p-value*	η^2
PB-Traits scale			**21.76**	**2, 148**	**≤ .001**	**.23**
No recidivism	7.59[a]	3.23				
New contact	10.75[b]	2.95				
At least arrest	12.17[b]	3.85				
Suspect age (years)			.34	2, 148	.71	.01
No recidivism	33.35	10.74				
New contact	31.54	12.16				
At least arrest	33.72	10.05				
Length of relationships (months)			.55	2, 70	.58	.02
No recidivism	67.06	77.46				
New contact	69.43	75.44				
At least arrest	34.5	24.95				
ODARA risk level			2.18	2, 148	.12	.03
No recidivism	.64	.59				
New contact	.86	.71				
At least arrest	.50	.51				

Note. Superscript "a" and "b" notations for variables were used to denote post-hoc comparisons between groups for variables with an overall statistical effect. Mean values that significantly differed from each other were denoted by use of different superscripts,

whereas the same superscript means the means was not significantly different from each other.

Figure 1

Factor Analysis of the PB-Traits Scale
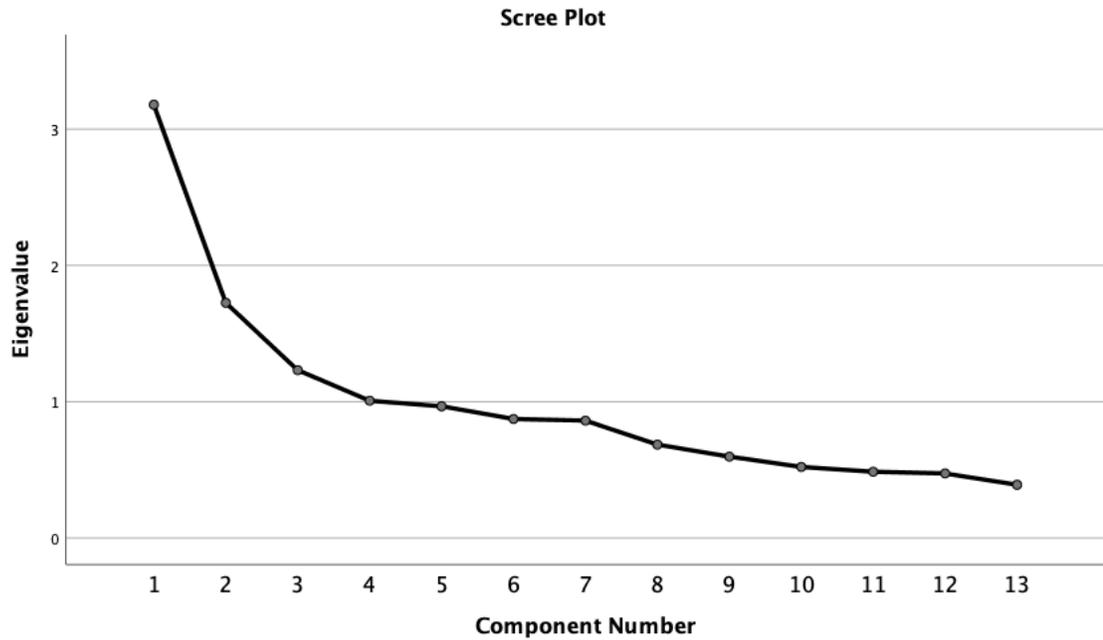
Note. Four factors had eigenvalues higher than 1 and accounted for 54.95% of the total variance.

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Appendix A

Coding Guide for IPV Incidents (modified Aug 2018)

ID #: _____

Coder's Initials: _____

Inclusion criteria:
- ✓ File is in English
- ✓ Perpetrator and victim can be unambiguously identified
- ✓ Both parties were over the age of 18 at the time of the index event
- ✓ The victim and perpetrator were either currently or previously in an intimate relationship
- ✓ Police intervention was a direct result of an issue between the two parties in the intimate relationship
- ✓ Responding officer indicated there was some form of domestic dispute, with the perpetrator's aggression intentionally directed at the victim
- ✓ The domestic dispute must meet the operational definition of IPV used in the current study.
  - ➢ "An event in which a current or former spouse, common-law partner, or dating partner abuses or threatens to abuse their intimate partner by use of physical, sexual, psychological (including blackmail and stalking), emotional, or financial abuse."
- ✓ No more than 5 items missing from the ODARA

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1. **FOR DATA ENTRY PURPOSES**: Which offence is this?

   __ Index (the first IPV-related incident recorded for the study for this suspect)

   __ Recidivism event (same perpetrator, IPV event is subsequent to the Index)
   *Which # (1, 2, etc.)? ___

INCIDENT DETAILS:

2. **Incident Date (yyyy/mm/dd):** _____ **Time (call to 911 or police):**_____	**Incident**

3. **Is the perpetrator a repeat IPV offender at the time of the index event?**
 __ Unknown
 __ First ever IPV offender
 __Repeat IPV offender
       – If recidivism, how many previously (if known)? _____
       - If recidivism, previous IPV reported to police before now? __Y __ N
 __Unknown	

4. **If this is a repeat incident, is the victim the same as at the index event?** __Not Applicable __ Same victim __ Different victim __ Unknown/no information in file	

5. **Has there been a pattern of escalation in the IPV behaviours and severity (i.e., pattern of IPV becoming more severe and/or more frequent over time, especially within the past few months)?**
   __Not Applicable
   __ No evidence in file   __ Partial/inconclusive evidence   __ Evidence of recent escalation
   __ De-escalation pattern (IPV becoming less severe and/or less frequent over time)

6. **Incident Classification (as defined by the police force – select all that apply):**

   __ Assault   __ Harassment   __ Dispute (No Offence)
   __ Sexual Assault   __ Breach of Court Order   __ Damage to Property
   __ Threats   __ Family Violence   __ Unknown/no information in file
   __ Other 1: _____ __Other 2: _____   ___ Other 3: _____

7. **Alleged reason for altercation (select all that apply):**

   __Money   __Sex   __ Children   __ Jealousy
   __ Alcohol use   __ Drug use   __ Gambling   __ In Laws/Family issues
   __Division of labour   __ Infidelity   __ Unknown   __ Other: _____

8. **Type of Relationship (at time of the IPV):**
   __ *Currently in an intimate relationship*   vs.   __ *Previously in an intimate relationship*
   __living together (married or common-law)   __still living together (married or common-law)
   __living separately and <u>always have</u> (dating)   __living separately and <u>always have</u> (dated)
   __living separately but formerly lived together   __living separately but formerly lived together
   __living separately, unknown previous arrangements   __living separately, unknown previous
   __unknown living arrangements   __unknown living arrangements

   __ Unknown/no information in file
   __ Other: _____

9. **Length of relationship (e.g., if off and on for six years, enter "6 years" as the length of the relationship):**
   _If known, specify (months/years): _____ _ Unknown/no information in file

10. **Length of time since separation (if no longer in a relationship at the time of the IPV):**
   __Not Applicable

__If known, specify (months/years): _____ __ Unknown/no information in file

11. **Indications of current or recent (within past year) relationship problems?**
__ No evidence in file __ Partial/inconclusive evidence __ Evidence of problems, such as:
    • Current or recent separation/break up/divorce
    • Frequent and serious conflict (i.e., mutual conflict, disagreements that lead to arguments/fighting)
    • One partner wanting to end relationship (i.e., prior to the current IPV offence)
    • Repeated infidelity (on part of suspect, victim, or both)

12. **Current or recent (within past year) indications of suspect excessive jealousy or control of victim?**
__ No evidence in file __ Partial/inconclusive evidence __ Evidence of jealousy/control, such as:
    • verbal expressions of excessive jealousy
    • obsessive checking in on victim
    • becomes angry/hostile in response to victim's associations with other people
    • accuses victim of being unfaithful without any grounds for the accusation
    • controls most or all of victim's daily activities
    • attempts to control victims' behaviour (e.g., using victim's children, threats to end relationship, privilege and punishment, blackmail, threats of harm/vandalism/etc.)
    • isolates victim from friends and family

RELATIONSHIP DETAILS:

VICTIM CHARACTERISTICS:

13. **Age:** ___ (in years) DOB: _____ (yyyy/mm/dd) __ Unknown/no information in file
14. **Gender:** __ Male __ Female __ Other: _____ __ Unknown/no information in file
15. **Ethnicity:** __ Caucasian __ Indigenous __ Other: _____ __ Unknown/no information in file
16. **Education:** __ High school diploma or less __ More than high school __ Unknown/no information in file
17. **Employed (or on a retirement/disability pension)?** __ Yes __ No __ Unknown/no information in file __ Other: _____
18. **Consumption of alcohol or drug use leading up to and/or during IPV incident?** __ No evidence in file __ Partial/inconclusive evidence __ Evidence of alcohol or drug use

19. **Was the victim pregnant *during* IPV incident?**
__ No evidence in file   __ Partial/inconclusive evidence   __ Evidence that victim was pregnant
__ Victim was male: not applicable

PERPETRATOR CHARACTERISTICS:

20. **Age:** ___ (in years) DOB: _____ (yyyy/mm/dd) ___ Unknown/no information in file
21. **Gender:** __ Male __ Female __Other: _____ __ Unknown/no information in file
22. **Ethnicity:** __ Caucasian __ Indigenous __Other: _____ ___ Unknown/no information in file
23. **Education:** __ High school diploma or less __ More than high school __ Unknown/no information in file
24. **Employed (or on a retirement/disability pension)?** __Yes __ No __ Unknown/no information in file   Other:

25. **Evidence of current or recent (within past 12 months) employment and/or financial problem?**
__ No evidence in file __ Partial/inconclusive evidence __ Evidence for problems, such as:
   • recently laid off or fired
   • long periods of unstable employment
   • low or no income
   • use of community resources to meet basic needs (e.g., housing, clothing, food)
   • failure to seek employment despite financial stress

26. **Consumption of alcohol or drug use leading up to and/or during IPV incident?** __ No evidence in file __ Partial/inconclusive evidence __ Evidence of alcohol or drug use

27. **Recent (past year) suicidality/self-harm behaviours/gestures on part of suspect?**
__ No evidence in file __ Partial/inconclusive evidence __ Evidence for suicidality, such as:
   • Cutting, head banging, skin burning, etc.
   • Threats of suicide
   • Suicidal gestures or attempts
   • Feigned suicide gestures or attempts

28. **Does the perpetrator have a history of mental health problems or mental illness? (depression, anxiety, paranoia, etc.)** __ No evidence in file __ Partial/inconclusive evidence __ Mental health problems / illness Assume yes, if references made to suspect attending rehab, AA/NA, anger management or mental health services or counseling of some kind (record diagnosis/problem if noted in record?: _____
29. **Has the perpetrator ever _previously_ used a weapon against the victimized partner or threatened the victim with a lethal weapon (gun, knife, etc.,) – type of weapon(s)?** _____ **(exclude use of household objects)**

__ No evidence in file weapon use/threats	__ Partial/inconclusive evidence	__ Evidence of previous
30. **Did the perpetrator use e a weapon or use a blunt object to threaten or harm victim during the <u>index</u> incident?**		
__ No evidence in file Type of weapon? _____	__ Partial/inconclusive evidence	__ Evidence of weapon -
31. **Has the perpetrator ever forced sex on the victimized partner in prior incidents?**		
__ No evidence in file	__ Partial/inconclusive evidence	__ Evidence of forced sex
32. **Has the perpetrator previously attempted to strangle or choke the victimized partner?**		
__ No evidence in file attempts to choke/strangle	__ Partial/inconclusive evidence	__ Evidence of previous

Appendix B

PERPETRATOR PERSONALITY CHARACTERISTICS:
33. **Rate the extent to which the perpetrator exhibits each of the following behaviours and characteristics according to its degree of presence as follows:**
   0 = no evidence of this characteristic being present;
   1 = some evidence of this characteristic being present, but unclear or contradictory info also present; and
   2 = clear evidence that this characteristic is present.

Trait	No evidence in file (0)	Partial/ unclear evidence (1)	Evidence for Enduring Trait (2)
Callous / Lack of Empathy (e.g., suspect has no appreciation for the anguish of others. May mock those suffering from some misfortune. Makes casual, matter of fact comments such as "they got what they deserved." May attempt to humiliate, degrade, or belittle victim. Uncaring, cruel).			
Lacks Remorse / Guilt (e.g., lack of concern for negative consequences of own actions on others. Concerned more with own suffering than that of victim).			
Shallow Emotions (e.g., appears cold and unemotional, or displays of emotion appear fake/insincere and are very short lived when topic changes).			
Manipulative / Deceitful (e.g., uses scams or lying to con others to achieve personal gain. Exploits weakness in others in order to benefit self. May have history of fraud, embezzlement, impersonation; caught lying to police; uses blackmail or threats of harm/vandalism to manipulate/control victim).			
Antisocial (i.e., procriminal) Attitudes / Antiauthority (e.g., sees crime as legitimate way to get what they want; see crime as a natural part of life/world; violates police or court ordered conditions; opposed to police presence; may state police have no business being there; may be confrontational with officers).			
Poor anger control - may be described as short-tempered or hot headed; takes offense easily and becomes angry over trivial things. Anger may seem inappropriate within the context that it occurs; Frequent displays of temper, constant anger, recurrent physical fights; May use a lot of sarcasm, bitterness, and verbal aggression outbursts.			
Blames others for Problems. Examples: indicates that "the victim deserved it". Suspect may feel that he/she is being judged unfairly, that extenuating circumstances or			

other people caused them to behave the way they did; blame "the system" for their current circumstance (e.g., assaulted cop because he used excessive force).			
Narcissism / Conveys Self as Superior to Others (e.g. has inflated sense of self-importance). May claim to be respected, feared or envied by others. May demand special treatment or act entitled to special consideration. May only want to talk to officer's supervisor; believe they are superior to others; extreme self-interest/selfishness; grandiose views of their talents/abilities/importance).			
Superficial Charm (e.g., tries to be charming to manipulate others; amusing and entertaining, but appears "too smooth" to be entirely believable).			
Criminal Versatility (e.g., commits many different types of crime, such as property crimes, violence, drug crimes, fraud, weapons offences, etc.).			
Impulsive (e.g., appears unpredictable, acting in unpremeditated ways. Seems to lack any reflection or forethought. Acts without consideration of consequences). Do **not** include suicidal gestures or self-harm.			
Thrill-Seeking (i.e., does things for the rush or excitement) - expresses interest in taking chance, "living on the edge," and doing things that are risky or challenging. May have a pattern of continuously starting and stopping new activities because easily bored. May use drugs/alcohol often and in excess for the thrill of it.			
Recurrent suicidal behaviour – gestures, threats, attempts, etc. to die or kill oneself			
Impersonal / Promiscuous Sexual Behaviour (e.g., frequent casual liaisons, frequent infidelities, maintenance of several sexual relationships at one time).			
Unstable and intense interpersonal relationships – has had numerous marital/cohabitating relationships; on-and-off again relationships; might swing between extremes of idealizing the victim then devaluing them; very volatile relationships, such as: • get close to people very quickly, spending a lot of time with them and telling them many personal details about their lives, quickly fall in love • quickly switches to devaluing the person, feeling like they are not "there" for them/don't care enough/don't give them enough			
Fear of Rejection or Abandonment – such as: excessive/paranoid jealousy; attempts to			

control/manipulate/guilt the victim into staying in the relationship; extreme emotional reaction to relationship break-ups; overreactions (e.g., despair, fury, panic) to regular, time-limited separations or unavoidable changes in plans; intolerance of fear of being alone/lonely			
Emotional instability – lots of emotional ups and downs in a short period of time (intense mood swings), very emotionally reactive in general (anger, sadness, anxiety, irritability) – easily upset. Emotional instability must **not** be limited to poor anger control.			
Parasitic Orientation (e.g., "mooches" off of others unnecessarily when capable of supporting self).			

Appendix C

ACTION OF POLICE:
Instructions: Write "**Y**" if they did this action, "**N**" if they did not attempt to, "**A**" if they attempted to but could not, and "**NA**" if this action was not applicable (e.g., no witnesses, no children to warrant calling DSD).

34.	**Official Criminal Justice Actions: How did the police officially respond to the IPV incident? Select all that apply:** __ Gathered official information about suspect's criminal history (i.e., an official background check) __ Completed ODARA __ Interviewed suspect __ Interviewed victim(s) __ Interviewed witnesses (other than suspect or victim) __ Removal of victim from the scene or N/A (victim had already left the scene prior to police arrival) __ Removal of the suspect from the scene or suspect voluntarily left the scene with encouragement from police to do so, but not arrested or N/A (suspect had already left the scene prior to police arrival) __ Arrested suspect __ Arrested victim __ Recommended to Crown that charges be laid against suspect __ Recommended to Crown that suspect given pretrial detention (i.e., no bail) __ Recommended or issued conditions for the suspect to follow, such as on a Promise to Appear (PTA) or recognize order (if yes, indicate which): __ no contact with victim __restricted from victim's residence __keep the peace __ no possession of weapons __do not attempt to locate victim __no drugs and alcohol __report to bail supervisor __good behaviour towards victim __ promise to appear in court __other: _____other: _____ __ Conditions were unspecified __ Recommended suspect for further mental health/ psychological and/or risk assessment __ Other: _____

35.	**What other actions did the police take in response to the IPV incident? Select all that apply:**

A) Unofficial Victim-Directed Actions

__ Gave information/instructions to victim about applying for/accessing court procedures (e.g., family court, restraining orders, etc.)

__ Gave information about/assisted victim with obtaining legal aid

__ Explained how criminal justice system works (e.g., will press charges even if you don't give statement, court appearances, etc.)

__ Referred to Victim Services through the police organization or via the province or an outside agency providing such services

__ Referred/provided information to victim about appropriate formal community services (if yes, indicate which):

    __ Dept. of Social Development   __ Shelter/safe house __ Mental Health Services

    __ other 1: _____   __other 2: _____   __ Service referrals unspecified

__ Developed or reviewed a safety plan with victim (e.g., what to do if perp returns, etc.)

__ Brought or offered to bring victim to safe house/shelter or other safe place to stay the night

__ Called victim post-incident to check in (e.g., well-being check, encourage to give a statement)

__ Provided education about IPV and risk to victim (e.g., shared results of ODARA, explained the seriousness of IPV)

__ Established/confirmed a victim support person

__ Established a police contact person for the victim

__ Made referral or personally helped improve security at victim's home (e.g., referred a contractor or security company, helped fixed a broken window or install a home alarm system)

__ Other: _____

B) Unofficial Suspect-Directed Actions

__ Met with suspect post incident to check-in

__ Referred suspect to community services (if yes, indicate which services):

__ Dept. of Social Development   __ Mental Health Services   __ Addiction services

__ Anger management group __ other 1: _____   __other 2: _____

__ Other: _____

C) Other Actions

__ Drove by residence post-incident to monitor situation

__ Visited residence to check in post-incident

__ Reported event to Dept. of Social Development

__ Other:

36.	**What was the resolution of the index case?**
	__ No arrest, no charges, no further action
	__ Suspect arrested, no charges pursued: Indicate if __ police decision or __ crown's decision not to pursue charges
	__ Suspect arrested and charged, but not prosecuted (all charges withdrawn)
	__ Arrested, charged and prosecuted, but found not guilty of IPV-related charges
	__ Arrested, charged, prosecuted and convicted
	__ Information not available
	__ Other: _____
37.	Did the victim request no charges or was uncooperative with the investigation? __Yes __No ___Unknown __ Not applicable

ODARA Item ? = Unknown 0 = No evidence in file 1 = Evidence present for this item	Mark X when police scoring error noted	As Scored by Police	Coder Scored
38. 1: Suspect has a prior domestic incident in police or criminal record			
39. 2: Suspect has a prior non-domestic violent incident in police or criminal record			
40. 3: Suspect a prior custodial sentence of 30 days or more			
41. 4: Suspect has failed on prior conditional release (bail, parole, probation, no-contact order, etc.)			
42. 5: Suspect made threats to harm or kill during the event (e.g., threatens victim, police, witness, child)			
43. 6: Suspect confined the victim during the event			
44. 7: Victim concern about future violence			
45. 8: Victim or suspect has more than one child			
46. 9: Victim has a biological child from a previous partner			
47. 10: Suspect is violent towards others outside of this relationship (regardless of if it was reported to police)			
48. 11: Two or more indicators of suspect substance abuse problems			
49. 12: Suspect has assaulted the victim when she was pregnant			
50. 13: Victim has at least one barrier to support (child <18, no phone/transportation, isolated, substance use)			

51. **ODARA total (range 0-13):**		
52. **Number of missing items:**		
53. **Prorated score:**		

ODARA Original Scoring – Proration Table

Raw Score	Number of Missing Items (Max. of 5)				
	1	2	3	4	5
0	0	0	0	0	0
1	1	1	1	1	2
2	2	2	3	3	3
3	3	4	4	4	5
4	4	5	5	6	7+
5	5	6	7+	7+	7+
6	7+	7+	7+	7+	7+

54. **Level of Injury Scale (L-Injury):** Circle the highest score that best applies to the IPV incident based on the information available in the file about the injuries sustained by the victim. If the injuries sustained are not included on the list, circle the option that is closest in severity.

Description of Level of Injury	Score
No injury or complaints of pain SEP	0
No visible injury, but complaints of pain SEP	1
Mark, swelling, scratches SEP	2
Bruising, black eye, cut (no stitches), bloody nose SEP	3
Broken bones, loss of consciousness, cut with stitches, missing/broken teeth, internal injuries, hospitalization, death	4

55. **Linear Violence Scale (L-Violence)**: Circle the highest score that best applies to the IPV incident based on the information available in the file about the type of violence completed or <u>attempted</u> by the perpetrator (regardless of whether or not the attempt was successful). For example, if the offender threw a lamp at the victim, then attempted to punch them but missed, you would circle the score "4." If the IPV actions used are not included on the list, circle the option that is closest in severity.

Description of Violence (or Attempted Violence)	Score
No violence attempted or completed	0
Forced entry, held down, vandalism, ripped clothing	1
Push, slap, throwing objects	2
Slam, choking, kicking/stomping, grabbing	3
Shoot, stab/slash/cut, punch, bite, hitting with an object	4

56. **Indicate which of the following types of abuse were perpetrated during the index event. Select all that apply by clearly circling the behaviour.**

Emotional Abuse	Physical Abuse	Other
• Constant texting/calling • Name calling (e.g. "whore") • Threats (to harm the victim, vandalism, kill, harm family/friends) • Excessive yelling and screaming at victim • Belittling the victim • Instilling fear in the victim • Humiliates the victim • Controlling behaviours (limit access to money, friends, family; continuous monitoring) • Mind games (Trying to make the victim doubt themselves (memory or perception) of past or current events/information) Other (specify): _____ _____ _____ _____ _____	• Ripping clothing • Confinement or holding victim down • Throwing objects • Slapping • Hitting/punching/beating with hands • Hitting/beating with an object • Hitting head off things • Kicking/stomping • Thrown to the ground • Hair pulling • Grabbing • Pushing • Slamming into the victim or slamming the victim into something • Biting • Choking • Shoot • Stab/Slash with something sharp • Spit on victim	Stalking/Harassment • Repeated, unwanted attention and contact making the victim fearful for their safety; • sending gifts, repeated unwanted texts, email, phone calls; • showing up in places the victim is at; • sneaking into victim's home • following Sexual Abuse • Unwanted sexual touching, non-penetration • Rape or forced penetration Vandalism • damaging victim's property • Forced entry Financial abuse • parasitic lifestyle (financially relying on victim, being a drain on their finances) • fraudulent financial behaviour that impacts the victim • missing bill payments on

		accounts in victim's name • stealing from victim or their children

Appendix D

VIOLENT INCIDENT CODING SHEET

Instrumental v Reactive/Hostile (code actual event, not just subject's claim)
4 - Clearly instrumental aggression
3 - Primarily instrumental, some reactive qualities
2 - Primarily reactive hostile aggression, some instrumental qualities
1 - Clearly reactive hostile aggression
Planning (include plans for robbery, burglary, etc.)
4 - extensive planning (detailed plan or preparation, rehearsal)
3 - moderate planning (contemplation of action for more than 24 hours)
2 - some planning (action within 24 hours, some plan or preparation)
1 - very little or no planning (acts during argument or fight, no preparation)
Goal-Directedness (consider goals like financial gain, not just revenge)
4 - Clear, unequivocal goal-directedness (include shooting during crimes)
3 - Primary goal-directedness, with presence of other motives
2 - Secondary goal-directedness, in presence of other primary motives
1 - No apparent goal-directedness (motive to injure victim, retaliate, defend)
Provocation (includes provocation prior to incident, use subject's perception)
6 - Exceptionally strong provocation (repeated assault, severe abuse)
5 - Very Strong provocation (assault)

4 - Strong (break-up of a romantic relationship, threat of major life change)
3 - Moderate provocation (serious argument or dispute, threat of assault)
2 - Mild provocation (insult, minor argument, confrontation with police)
1 - No apparent provocation
Arousal (mental state, primarily code anger, but also consider other affects like fear)
4 - Enraged, furious, described as "out of control" or "irrational" or panicked (brief state)
3 - Angry, mad, extremely frightened (can be protracted state)
2 - Excited, very nervous, anxious, scared
1 - Calm or tense at most
Severity of violence (consider actual harm to victim, not subject's intention)
7 - Extreme homicide (multiple victims or multiple fatalities, mutilation)
6 - Homicide
5 - Severe injury (e.g., lasting impairment or life-threatening injury, some rapes)
4 - Serious injury, requiring substantial hospital treatment (e.g, broken limb, rape, gunshot)
3 - Minor injury (e.g., bruises, minor medical treatment, attempted rape)
2 - Assault without injury
1 - No assault (e.g., threatened with weapon)
Relationship with victim (if 2 or more victims, code highest)
5 - Very close relationship (immediate family member, romantic partner)
4 - Close relationship (friend, relative, dating partner, etc.)
3 - Specific relationship (teacher, babysitter, etc.) or Between friend and acquaintance
2 - Acquaintance
1 – Stranger
Intoxication
4 - Severe intoxication (large quantities of alcohol or drugs, very impaired)
3 - Intoxicated
2 - Mild intoxication (e.g., 1 or 2 drinks)
1 - Not intoxicated
Psychosis (reality testing, not mood)
4 - Substantial psychotic symptoms (e.g., bizarre or pervasive delusions
3 - Moderate psychotic symptoms (intermittent voices or delusions)
2 - Non-psychotic disturbance (e.g., depersonalized)
1 - Not psychotic

IPV recidivism

1. No – no new IPV police calls for service involving the same suspect of interest
   Yes – subsequent IPV-related incident involving the same suspect of interest
   - New police call
   - New arrest of IPV-behaviour
   - New charge for IPV behaviour (even if all were later dropped, note if initially charged)
   - New conviction for IPV behaviour (regardless of whether other charges may have been withdrawn or found not guilty, as long as one stuck)

2. Date of the new IPV incident : _____ (dd/mm/yy)

3. Record nature of the new IPV incident:
   Physical assault
   Sexual assault
   Harassment/stalking
   Threats to cause harm
   Threats to break/destroy property
   Breach of court order/recognizance/promise to appear/undertaking
   Dispute, no assault
   Other :

   _____

   _____

Appendix E

Dr. Mary Ann Campbell
Psychology Department
UNBSJ

Dear Mary Ann,

As Chair of the Research Ethics Board at the University of New Brunswick (Saint John), I have reviewed your application (*Police Use of the ODARA: Validation and Police Response in a Municipal Police Force* **-- REB File #025-2019**) for its compliance with Tri-Council Policy (TCP) and with UNB Policy (UPRIH). On the basis of the review, I am pleased to inform you that, in my opinion, your project now appears to be in compliance with TCP and UPRIH. Accordingly, please consider this E-mail to represent official notification of REB approval of your project for a period of three years from the date of this email notification. Thank you for including the additional support letter which was requested to complete your application. I have printed the letter and added it to your file.

If you require an official hard copy letter to satisfy a funding body please inform our REB office (reb@unb.ca) as soon as possible. If the funds for this research project are held until REB approval, you will have to inform the Office of Research Services at UNB of this approval in order to release your funds.

Please note that, in the future, if you find that you must make any changes to your protocol, those changes must be considered and approved by the REB before they are implemented. To initiate changes, please submit the REB Case Modification Request form, available online through the Research Ethics page of the Office of the VP (Research).

Annual Reports for this project are due on the 15th of January each year, provided that this date is at least six months after the date of project approval. Final reports are due 90 days after project completion. Both of these reports can be found on our website at http://www.unb.ca/research/ors/forms/index.php#ethics.

If you have not already done so, please send an e-mail copy of your project summary (your answer to question # 1 of the ethics application form) to reb@unb.ca as soon as possible, including your REB File# in the subject line. Thank you for your co-operation in this matter.

Best wishes for the successful completion of your research project.

Dr. Beth Keyes, Chair
UNBSJ Research Ethics Board

Curriculum Vitae

Candidate's full name: Olena Gryshchuk

Universities attended: Donetsk National University, Donetsk, Ukraine, 2007-2011
Bachelor of Philology with honours
Donetsk National University, Donetsk, Ukraine, 2011-2012,
Master of Philology with first class honours
University of New Brunswick, 2016-2019, BA(Hons)
University of New Brunswick, 2019-2020, M.A. Candidate

Conference Presentations: Gryshchuk O., Campbell M.A., McTague J., deJong E. (2019, March 21-22). *Utility of the ODARA with Female Suspects of Intimate Partner Violence*. [Poster presentation]. The 26th Annual Graduate Research Conference, Fredericton, NB, Canada.

Gryshchuk O., & Campbell M.A. (2019, May 6-7). *Validation of the ODARA for male and female IPV perpetrators and personality traits* [Paper presentation]. Annual Science Atlantic Psychology Conference, Sackville, NB, Canada.

Gryshchuk O., Campbell M.A., McTague J., & deJong E (2019, May 31-June 2). Utility of the ODARA with female suspects of intimate partner violence. In M.A. Campbell (Chair) *Ontario Domestic Assault Risk Assessment Tool: Validity and Influence on Police Response* [Symposium]. The 4th North American Correctional and Criminal Justice Psychology Conference, Halifax, NS, Canada.

Campbell M.A., deJong E., McTague J., & Gryshchuk O. (2019, September 20). *Use of the ODARA in NB by Police: A summary of research findings in New Brunswick (so far)* [Presentation]. New Brunswick Association of Chiefs of Police Annual Meeting, Saint John, NB, Canada.

Gryshchuk O., Campbell M.A., deJong E., & McTague J. (2019, October 9-10). *Consideration of personality traits as predictors of subsequent IPV* [Paper presentation]. Muriel McQueen Fergusson Centre for Family Violence Research Conference *Ending Gender Based Violence: Harnessing Research and Action for Social Change*, Fredericton, NB, Canada.

Gryshchuk O., Campbell M.A., Brunelle C. (2020, June 1-5). *Vulnerability to mental illness as a function of organizational stress and first responder role*. [Poster presentation]. Atlantic Health Exploration and Discovery's Spring 2020 Collaborative Health Research Week, Saint John, NB, Canada.