

**VALIDATION AND EXPANSION OF THE ONTARIO DOMESTIC ASSAULT RISK  
ASSESSMENT (ODARA) INSTRUMENT:  
AN EARLY WARNING SYSTEM**

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## EXECUTIVE SUMMARY

Intimate partner violence (IPV) is a widespread public health problem, estimated to occur in 12% to 40% of adult romantic relationships in Canada and accounting for nearly one quarter of violent crimes reported to police (Canadian Center for Justice Statistics, 2011; Statistics Canada, 2006). Police officers are often the first responders to IPV and have the opportunity to offer proactive interventions to reduce the risk of repeat episodes. However, decision-making about which proactive interventions may be most helpful for which type of offender and victim is often not straightforward. Fortunately, instruments have been developed to assist with risk assessment and risk management. One such instrument is the Ontario Domestic Assault Risk Assessment (ODARA), which was developed by Hilton, Harris, and Rice (2004) in Ontario, Canada. Unlike other risk tools, the ODARA is developed specifically for use by police officers and is scored based on information commonly available to them in police records.

Originally, the ODARA was designed for assessing the risk of future physical violence by male perpetrators against their female partners and it has been found to effectively predict whether an offender will reoffend and how quickly he is likely to do so. Although this is the most common circumstance of IPV, this profile only represents one type of IPV offender. Thus, the current research examined a diverse sample of police reports of IPV that also included female offenders, same sex couples, and perpetrators of non-physical violence.

A random sample of 200 offenders was selected from police reports of IPV generated in 2004. These cases were then followed for 6 years to record details of any subsequent IPV offending. Three major research questions were addressed: 1) what is the typical profile of perpetrators of IPV and the contextual details of this violence in the Saint John community, 2) to validate the utility of the ODARA risk instrument for predicting subsequent episodes of IPV in both male and female perpetrators, as well as in cases of non-physical partner abuse, and 3) to evaluate the actions of responding police officers to the index call for service to determine which responses maximized reductions in subsequent intimate partner violence episodes.

Results of this research found that the ODARA was able to discriminate between recidivists and non-recidivists, regardless of perpetrator gender, victim gender, or type of violence committed (physical vs. non-physical). Male and female perpetrators did not significantly differ in their ODARA risk profiles, their frequency of IPV offending, or the amount of injury inflicted on their victims. Using a scale derived from descriptions of offenders' behaviour found within sampled police reports, the current study also found evidence for the role of psychopathic personality traits in IPV offending. When a score based on these traits was added to the ODARA total score, significant improvement was noted in the prediction of whether, how often, and how quickly a perpetrator would reoffend.

The current research also found that police decision to arrest was related to situational factors (e.g., victim injury) rather than to offender risk-level. Although the police officer's need to arrest is recognized, it should be noted that offender arrest was not associated with reductions in IPV recidivism. Rather than relying on "gut instincts" and primarily reactive policing methods to respond to IPV, it is recommended that police formally assess risk to triage offenders and victims into suitable intervention channels based on risk level. Ongoing engagement with, and monitoring of, high risk individuals is likely necessary to reduce future IPV. The delivery of appropriate, effective interventions will require collaboration between police and various outside agencies (e.g., Department of Social Development, Domestic Violence Outreach), to form an integrated community strategy targeting intimate partner violence.

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## **Validation and Expansion of the Ontario Domestic Assault Risk Assessment (ODARA) Instrument: An Early Warning System**

Intimate partner violence (IPV) is the actual or threatened violence that occurs between a victim and perpetrator who are currently, or were formerly, involved in an intimate relationship (Campbell, 2002; Whitaker & Lutzker, 2009). The partners may be male or female, homosexual or heterosexual, living together or separated, and they may or may not be currently involved in a sexual relationship. IPV includes acts of physical violence (hitting, kicking, choking), sexual violence (sexual assault, sexual coercion, rape), psychological/emotional abuse (verbal attacks, isolation, controlling behaviour), stalking (following and harassing of an unwilling target; Matthews, 2004), and/or communicating the threat of physical or sexual violence (Whitaker & Lutzker, 2009).

IPV is now widely recognized as a serious public health concern with painful consequences for victims, their families, and society as a whole (Campbell, 2002; Garcia-Moreno, Jansen, Ellsberg, Heise & Watts, 2006, Howe & Alpert, 2009). Abused women have poorer overall physical and mental health than non-abused women (Ratner, 1993). Injuries, fear, and stress associated with IPV can lead to serious health problems, such as chronic pain, gastrointestinal disorders, gynaecological problems (vaginal bleeding, pelvic pain, urinary tract infections), central nervous system symptoms (fainting, seizures), and a variety of mental health problems, including depression, anxiety, and post-traumatic stress disorder (PTSD; Campbell & Lewandowski, 1997; Campbell & Soeken, 1999; Campbell, 2002; Coker, Smith, Bethea, King, & McKeown, 2000; Golding, 1999; Ratner, 1993, Ruiz-Perez, Plazaola-Castano, & Rio-Lozano, 2007). Furthermore, children who live in a violent home are at increased risk of experiencing direct physical harm, as well as the indirect negative effects of being exposed to such stressful environments. Child abuse is estimated to co-occur in 30% to 60% of adult IPV cases (Kuelbs, 2009).

Roughly one third of women worldwide have experienced some form of abuse by an intimate partner (Garcia-Moreno et al., 2006; Ruiz-Perez et al., 2007). A multi-country study conducted by the World Health Organization (WHO) involved interviewing over 24,000 women in ten different countries confirmed the pervasiveness of IPV across a variety of geographical and cultural contexts. The WHO study reported the prevalence of IPV among women who had ever been in an intimate relationship to be between 15% and 71%, with most sites reporting prevalence rates between 30% and 60% (Garcia-Moreno et al., 2006). Estimates of the prevalence of violence involving intimate partners in Canada range from 12% to 29% for current relationships and from 20% to 40% when based on lifetime estimates (Naumann, Langford, Torres, Campbell, & Glass, 1999; Statistics Canada, 2006). Notably, intimate partner violence accounts for approximately one quarter of all violent crimes reported to police in Canada, with spousal homicides accounting for 47% of all family related homicides (Canadian Center for Justice Statistics, 2011).

Despite these relatively high IPV rates, the fact remains that this type of crime is underreported to the police (Wolf, Ly, Hobart, & Kernic, 2003). Estimates of the proportion of IPV incidents that are actually reported range from 2% to 52% of all IPV cases (Dunford, Huizinga, & Elliott, 1990; Johnson, 1990), meaning that a large number of violent incidents fall below the radar of the criminal justice system. The reasons for which IPV victims choose not to contact police are poorly understood, but may include situational and personal characteristics, prior negative experiences with police, and/or fear of repercussions from the perpetrator (Wolf et al., 2003). Wolf et al. found that victims were reluctant to call police unless the abuse was severe enough to have caused an observable injury. Other victims believed that police would trivialize the matter or take the side of the attacker. Victims reported fear of being blamed and fear of retaliation from the batterer. Still others were embarrassed and ashamed to contact police, especially when they had been sexually abused or raped. It has been argued that police officers should be aware of these concerns when responding to IPV calls and as such, Wolf et al.

(2003) advocated for police training that emphasizes the importance of listening to victims and reassuring them that they are not to blame for the violence and the importance of holding the suspect accountable.

As police officers are often the first to respond to incidents of IPV, they are required to quickly assess the situation and determine a fitting course of action based on the limited information available to them. These assessments tend to be subjective and are based on the officer's appraisal of the immediate danger and their experience with similar situations in the past (Hoyle, 2008). It has been shown, however, that structured assessment tools provide more accurate estimates of the risk of future violence in a given situation than do subjective appraisals of violent events (Andrews & Bonta, 2006; Kropp & Hart, 2004).

The current study assessed the predictive validity of a structured risk assessment tool known as the Ontario Domestic Assault Risk Assessment (ODARA; Hilton, Harris, Rice, Lang, Cormier, & Lines, 2004). The ODARA is specifically designed for use by police officers to inform their decisions about appropriate responses to IPV situations with divergent circumstances, but has yet to be validated in Atlantic Canada. To contextualize the importance of IPV risk assessment and its methods for the current study, the following introduction will provide a discussion of several theoretical approaches to the study of IPV and an overview of risk factors associated with this type of behaviour. This discussion will be followed by an historical overview of the criminal justice system's response to IPV, as well as a discussion about the field of violence risk assessment in general and specific to the prediction of IPV. The limitations of existing risk tools will be discussed and the goals of the current proposed research will be explained.

## **Predictors of IPV**

Despite the divergence in the literature with regards to the definition and causes of IPV, there are a number of well-established factors that increase the risk of violence in an intimate relationship. These factors pertain to the perpetrator, characteristics of the victim, the victim-perpetrator dynamic, and contextual/situational factors.

Perpetrators of IPV are not a homogenous group; they vary on multiple dimensions, including severity and frequency of violence, type of aggressive acts committed, historical and demographic factors, substance use, and mental health. Nonetheless, a number of empirically identified offender characteristics have been consistently related to intimate partner violence. Some of these include age, past violent behaviour, general antisocial behaviour, hostility and alcohol/drug abuse (Hilton et al., 2004). Kingsnorth (2006) examined a sample of IPV arrestees and found that the three perpetrator characteristics most strongly predictive of rearrest for IPV within an 18-month follow up were use of a weapon, the offender's prior arrest for any offence, and the presence of a protective order. Certain sociocultural and demographic features also have been linked to the broader behaviour of domestic violence, including unemployment, low education, a lack of social supports, and having experienced or witnessed domestic violence in childhood (Grann & Wedin, 2002).

Bennett, Goodman, and Dutton (2000) examined the presence of psychological abuse within the relationship and found it to be an important risk factor for IPV. Psychological abuse consisted of dominance, isolation, and emotional/verbal abuse in their study. They found that psychological abuse was predictive of more severe, long term IPV. In particular, high scores on psychological dominance accurately classified over 75% of IPV recidivists. Graham-Kevan and Archer (2008) found that the use of certain controlling behaviours was predictive of physical aggression in IPV. These behaviours consisted economic abuse, the use of coercion and threats, emotional abuse, and isolation. Wallach

and Sella (2008) examined attribution styles of men who had been violent against their partners and found that evasion of responsibility for having committed the offence was associated with an increased risk of future violence. Furthermore, these men failed to recognize the need to take positive action to stop the cycle of violence. Associations have been found between psychopathic personality traits and the commission of domestic violence (Gondolf & White, 2001; Swogger, Walsh & Kosson, 2007). There is also evidence that psychopathy is both a descriptive and predictive construct with respect to IPV perpetrators, with prevalence estimates of psychopathy ranging from 15% to 30% among batterers (Huss & Langhinrichsen-Rohling, 2000). Dutton (2002) argued that IPV perpetrators display an "abusive personality," which is characterized by features reflective of psychopathic personality traits, such as manipulation, impulsivity, anger, and a proclivity for substance abuse and promiscuity. It is important for police to be aware of the presence of these character-based risk factors, which may not necessarily be ascertained through observations of the physical scene alone and require the use of an information gathering tool that will cue police to ask the right questions to ascertain these traits.

Less attention has been given to characteristics associated with IPV victimization than to IPV perpetration; however, some victim vulnerability factors have been identified. Although often met with controversy and criticism, studies have found an increased risk of IPV victimization to be associated with inadequate access to resources, younger age, unemployment/low income, lack of social support, depression, drug/alcohol abuse, inconsistent behaviour/attitude towards the violent partner, and violence in the family of origin (Belfrage & Strand, 2008; Golinelli, Longshore, & Wenzel, 2008; Nixon, Resick, & Nishith, 2004). It is possible that studies on risk factors for repeated abuse often fail to include victim-related variables because of the notion that doing so places blame on the victim. Advocates have worked hard in recent decades to change the institutional culture of blaming the victim. Identifying IPV victim characteristics could be perceived as flying in the face of this progress by suggesting that the victim was somehow at fault. On the other hand, it is important to gain a better understanding of these risk factors if victims are to become empowered and learn how to reduce their vulnerability (Cattaneo & Goodman, 2005).

In addition to perpetrator- and victim-related factors, there are a number of contextual factors associated with IPV. These include elements of the situation in which the violent event occurs and certain features of the victim-perpetrator relationship. The dissolution of a relationship is one of the more well-known contextual risk factors for IPV (Robinson, 2006). Wilkinson and Hamerschlag (2005) examined situational determinants of IPV and discovered that the status of the relationship was significantly associated with violence risk. Specifically, abuse was more frequent and severe after a couple had separated than while they were still involved in a relationship. Furthermore, women who had previously resided with their partner were more likely to be victimized than those who had never cohabitated. Women who sought restraining orders were also more likely to experience subsequent severe abuse compared with women who did not seek protective orders. Finally, women who have recently left a violent relationship are at the greatest risk of homicide by their former partner (Robinson, 2006).

Evidence suggests that IPV is repetitive by nature. Farrell, Buck, and Pease (1993) found that when women called police to report an incident of IPV, they were likely to call again. Furthermore, the probability of a subsequent call to police increased with the number of previous calls. Thirty five percent of households reported a second IPV incident to police within five weeks of the first incident. Within the five weeks after the second incident, 45% of households reported a third IPV incident. It may be possible to predict the likelihood of future IPV incidents based on the number of past incidents that have been reported to police (Mele, 2009). Therefore, the number of previous calls to the police should be taken into consideration when assessing the risk of future IPV and may be a useful benchmark for officers to consider when estimating this risk. In addition, the violence risk assessment

literature may further inform the assessment of risk in IPV situations and highlight response strategies to manage this risk.

### **Historical Overview of Criminal Justice System's Response to IPV**

Intimate partner violence was largely ignored by the criminal justice system during the 1960's. The practice at the time encouraged officers to avoid arrest if possible, opting instead to calm the parties through mediation in an effort to simply prevent a breach of the peace (Belknap & Hartman, 2000; Schneider, 2000). As recently as the 1980's, the general practice within policing was still to discourage arrest and prosecution in cases of IPV (Garner & Maxwell, 2009; Leisenring, 2008). By the late 1980's, however, conventional wisdom concerning the criminal justice response to IPV had begun to change, largely due to the influential Minneapolis experiment conducted by Sherman and Berk (1984). In this experiment, offenders were randomly assigned to one of three police response groups when officers were called to an incident of IPV. The three responses were: 1) to arrest the suspect, 2) to provide counselling to the parties involved, or 3) to bar the suspect from the home for 8 hours. A total of 330 victims were involved in the experiment. Police records were reviewed and victims were interviewed to determine whether or not subsequent IPV episodes occurred over a six month period after the initial incident. Findings indicated that arrest was the most effective method of reducing recidivism, as the number of repeat occurrences was significantly lower among those suspects who were arrested than among those who were counselled or removed.

Sherman and Berk's ground breaking study contributed to large scale changes in police response to IPV, including the implementation of mandatory or pro-arrest policies in several U.S. states and Canadian provinces (Schneider, 2000). Officers, under mandatory arrest policies, are required to arrest a perpetrator if there are reasonable grounds to indicate that IPV has occurred, regardless of whether or not the victim wants to make a formal complaint. Under pro-arrest policies, officers are allowed to use more discretion in their decision, although arrest is encouraged in most cases.

The adoption and implementation of mandatory arrest laws has been controversial (Leisenring, 2008). On the positive side, such policies have been viewed favourably because they remove decision making power from both the victim and the police and send a message that IPV is a serious concern and will not be tolerated. However, critics have argued that mandatory arrest laws strip victims of their power to make decisions regarding their own interest. This also may lead victims to be less likely to involve the police in future IPV incidents because they fear that their partner will be arrested (Leisenring, 2008).

Debate also exists as to whether or not mandatory arrest policies actually contribute to reductions in IPV recidivism. Indeed, studies examining the effectiveness of such policies, including replications of the Minneapolis experiment, have produced contradictory results. Some have even demonstrated a "backfiring" effect of arrest in which violence was escalated (Schmidt & Sherman, 1996). Thus, given the diverse nature of the problem, critics have argued against a uniform policy of IPV response and suggest that police response should be tailored to meet the unique requirements of a given situation (Crenshaw, 1994; Epstein, 1999).

As a result of increased attention to IPV, the number of cases entering the criminal justice system has increased substantially in recent years (Bennett et al., 2000). Despite the widespread implementation of mandatory arrest laws, there is evidence that police are still more lenient with perpetrators of IPV than with perpetrators of other forms of violence. Avakame and Fyfe (2001) found that police were less likely to arrest men who had assaulted their female partners than men who had committed other types of assault. Even if an offender was arrested, there is no guarantee that he/she would be prosecuted and convicted. Garner and Maxwell (2009) examined the extent of prosecution for IPV over five countries and found that only 16.4% of reported IPV incidents resulted in an arrest. Of those cases in

which an arrest was made, only 30% of these offenders were convicted, which supports previously reported findings that prosecution rates for IPV are rare and infrequent (Sherman, 2000; Hartman & Belknap, 2003). The conviction rate is lower still, with only 16.4% of reported IPV incidents and 30.5% of IPV arrests leading to convictions (Garner & Maxwell, 2009). Thus, many police reported IPV incidents do not lead to arrest and only a small proportion of those arrested and prosecuted are ultimately convicted.

Given that the estimated number of IPV incidents reported to police, and the number of subsequent arrests, prosecutions, and convictions are alarmingly low, these data speak to the need for improvements in the criminal justice response to IPV. One means of improving criminal justice response is to adopt a process for identifying those individuals who have the greatest need for intervention and protection. The development of methods to assess risk factors associated with IPV is critical if experts intend to: 1) distinguish low, moderate and high risk IPV cases; 2) develop useful intervention strategies that address identified risk factors at a level that matches the assessed risk level, and 3) successfully reduce the likelihood of future IPV incidents. To achieve these goals, front line professionals would benefit from valid, user-friendly risk assessment tools that are tied to risk management strategies.

### **The Role of Risk Assessment**

Methods developed to reduce IPV should be consistent with the Risk-Need-Responsivity Model (RNR; Bonta & Andrews, 2007), which is used in correctional settings to guide the assessment and treatment of offenders. From a RNR perspective, assessing the risk of violence is the first necessary step in reducing its frequency. Correctional interventions that are designed and implemented according to the RNR approach tend to be more effective in reducing recidivism than treatments that do not rely on these principles (Andrews, Bonta & Hoge, 1990; Bonta & Andrews, 2007).

The first principle of the RNR model is the *risk principle*, which states that the risk of future criminal behaviour can be reliably predicted and that the level of intervention and supervision should be matched to this level of risk. More specifically, higher risk offenders should receive more intensive intervention and supervision, while minimal intervention and monitoring may be appropriate for lower risk offenders.

The *need principle* of the RNR model focuses on the dynamic, or criminogenic, needs of the offender. Criminogenic needs are risk factors that are associated with an increased probability of recidivism, but are also changeable with time and/or intervention. Examples of criminogenic needs are antisocial attitudes/values, criminal associates, and substance abuse. In order to successfully reduce risk, case management plans must be able to facilitate positive change in an offender's criminogenic needs (Bonta & Andrews, 2007; Wong, Gordon, & Gu, 2007).

The final RNR principle is the *responsivity principle*, which is concerned with the readiness and ability of the offender to receive and benefit from treatment. This principle states that an offender's individual characteristics and the context in which the intervention is to occur will influence treatment effectiveness and must be taken into consideration when designing effective case management plans for that individual. These responsivity factors may include cognitive and intellectual abilities, mental health problems, physical disabilities, motivation and readiness for treatment, and cultural or familial influences. The interventions used also must be those that have been empirically shown to reduce risk for the behaviour in question.

Within the context of effective criminal intervention in the RNR model, it is not sufficient simply to predict risk. Rather, the goal is to manage and reduce risk. RNR models of offender rehabilitation

have been applied by correctional services worldwide and have resulted in reduced recidivism rates with adolescent offenders, female offenders, and male offenders (Ward, Melser, & Yates, 2007). There is an abundance of empirical evidence to support the conclusion that these reduced recidivism rates are a direct result of targeting higher risk offenders with more intense treatment that addresses their criminogenic needs and matching rehabilitation programs to the individual offender's characteristics (Andrews & Bonta, 2003; Loesel, 1995; Ward et al, 2007).

### **Risk Assessment Instruments for IPV**

Although progress has been made in identifying risk factors and developing correctional interventions to target IPV (Whitaker, Morrison, Lindquist, Hawkins, O'Neil, Nesiuis et al., 2006), there is a paucity of empirically validated risk assessment instruments for the specific prediction of IPV recidivism as opposed to general violence (Bennett et al., 2000). One of the best known tools is the Spousal Assault Risk Assessment Guide (SARA) developed by Kropp, Hart, Webster, and Eaves (1999) for predicting the likelihood of future IPV. The SARA is perhaps the most empirically studied and supported instrument for measuring IPV risk. It is comprised of 20 risk factors, divided into three categories that require the assessor to evaluate an individual's criminal history, social functioning, and mental health. Summary judgments of risk as low, moderate, or high (i.e., structured professional judgment) are made by a trained professional after considering the assessment data in its entirety.

Although the SARA has been found to have predictive utility, it requires in-depth criminal history and clinical data about the perpetrator, which may not be readily available to front line responders. It also requires the formation of clinical judgments with regards to an offender's mental health. For these reasons, the SARA is not easily implemented or scored by front line police workers or those not trained in the mental health field. With these limitations in mind, Kropp and Hart (2004) modified the SARA to form the Brief Spousal Assault Form for the Evaluation of Risk (B-SAFER). The B-SAFER includes ten risk factors, divided into two categories. The first group of variables is related specifically to spousal assault and the second is related to the psychosocial adjustment of the perpetrator. The B-SAFER boasts two major advantages over the SARA. First, it takes less time and is less resource intensive to administer. Second, the items are comprised of less professional jargon and do not rely on clinical mental health assessments. These modifications permit ease of use by non-mental health professionals (Kropp & Hart, 2004). Despite the promise of the B-SAFER, it requires more research to further establish its validity and use constraints. In addition, some police officers are uncomfortable with the SPJ process and prefer more concrete risk prediction decision aids.

Few advances have been made in the development of risk tools for assessing spousal violence since the development of the SARA and the B-SAFER. One exception is the Canadian-based Ontario Domestic Assault Risk Assessment (ODARA; Hilton et al., 2004). The ODARA is an actuarial risk assessment instrument that was developed using only police report data. Unlike the B-SAFER and the SARA, the ODARA was designed to be scored by police officers using only the information available to them when called to an incident of IPV. The expectation is that officers will use the tool to inform decisions about how best to respond to the situation (Hilton, Harris & Rice, 2010). The ODARA is comprised of 13 items, grouped into five categories: police and criminal record items (domestic violence, general violence, sentence, violation of conditional sentence or protective order); relationship items (children, stepchildren, abused partner during pregnancy, victim fear); assault history items (threats, confinement, IPV incidents outside of the home); substance abuse items (drug and alcohol use/abuse); and victim support items (barriers to victim support; Hilton et al., 2004).

ODARA items are scored dichotomously (present or not present) and the sum of these scores is intended to predict the likelihood reoffending. A score of zero represents the least likelihood of reoffending and a score of seven or higher places a suspect in the highest risk category. Most

offenders fall somewhere between these two extremes. Higher scores indicate that an offender will commit more frequent IPV acts, will commit them sooner and will cause greater injury to their victim than those with lower scores. Research with the ODARA conducted by Hilton and her colleagues has consistently found the tool to have high predictive validity (Hilton et al., 2004; Hilton, Harris, Rice, Houghton, & Eke, 2008; Hilton, Harris, Popham, & Lang, 2010a; Hilton, Harris, & Rice, 2010b).

### **IPV Risk Assessment by Police Officers**

Police officers are now becoming increasingly involved in risk assessment and management practices for IPV as a proactive policing strategy. Their goal is to identify high risk cases that can then be targeted to receive violence prevention interventions (Hoyle, 2008). The major distinction between police officers and other risk assessment experts is that police officers have limited information available to them to assess risk and they are usually not trained in assessment skills. As such, police officers have traditionally relied on "gut feelings" about the risk of future violence when assessing IPV incidents. Based on their subjective appraisal of the risk level, they may choose one of a variety of potential responses, such as arresting the perpetrator, separating the parties, or providing counsel to diffuse the situation. Rarely, however, do they consider the long term risk of future IPV when making these decisions. Instead, they tend to focus on the immediate threat of danger should the two parties remain in close proximity (Hoyle, 2008; Hoyle & Sanders, 2000). There is an abundance of research to support the notion that structured assessment tools are superior to "gut feelings" about future violence decision making among criminal justice-related professionals (Andrews & Bonta, 2006; Grove, Zald, Lebow, Snitz, & Nelson, 2000; Kropp & Hart, 2004; Mossman, 1994).

Various facets of IPV need to be considered when assessing risk, including the severity, imminence, type, frequency, and duration of the violence within the relationship (Douglas & Ogloff, 2003). The implementation of an instrument to aid police officers with these assessments removes subjectivity from the equation and may result in more appropriately delivered responses. Such tools provide a structured way for officers to gather relevant information and, in turn, have the potential to provide better service in response to the victim's specific needs (Robinson, 2006).

Ultimately, risk assessment in IPV aims to identify those victims who are most at risk of experiencing violence in the future and to target resources towards those who present the highest level of risk (Hoyle, 2008; Robinson, 2006). Thus, risk assessment tools for IPV used by police should: 1) be based on the information typically available to police, 2) contain valid risk items based on this information, 3) produce results that meaningfully inform decision making about risk management strategies and police response, 4) be structured and standardized to create consistency across cases, and 5) be user friendly and time efficient. This approach would be consistent with the RNR model of effective correctional intervention.

There is some evidence to suggest that the information contained in police reports of IPV may be sufficient, if not instrumental, in predicting the likelihood of future violence (Messing, 2007; Trujillo & Ross, 2008). Messing (2007) examined police reports of domestic violence to identify factors within that pool of information that were associated with IPV recidivism. Fifty high violence cases were evaluated. Police generated narratives (descriptions of the incident) were examined to determine what type of information was consistently present in police data sources. Identified variables were related to the occurrence of violence, the type of violence, and the level of victim injury. Messing demonstrated that it was, in fact, possible to form meaningful judgments of IPV risk based on police report data. She found a number of independent variables to be significantly associated with increased levels of violence in her sample, including the use of a weapon, cohabitation without marriage and arguments relating to sex, jealousy, and issues of control. The major limitation of her study, however, was the use of point in time data, which eliminated the ability to make judgments about IPV recidivism or escalation over time.

Nevertheless, her research established that it was possible to collect information pertinent to IPV risk from police records and that the unique data contained in police reports can contribute to more accurate prediction of IPV than do other sources of information (Messing, 2007; Trujillo & Ross, 2008). This could represent an improvement in the delivery of intervention and crime reduction strategies as acute front line assessments may be a richer source of information than retroactive assessments conducted after the IPV incident.

## **Current Study**

Given the diverse nature of IPV, police responses need to be adapted to meet the unique requirements of each situation (Crenshaw, 1994; Epstein, 1999). This can be achieved through the use of evidence-based, structured risk assessment protocols that evaluate specific elements of individual cases. The proposed research aimed to validate an existing decision tool designed to assist police officers with the assessment of future risk of intimate partner violence. This was achieved by examining prospective police report data and testing the ability of the ODARA to predict multiple post-index outcomes, including the likelihood of future IPV, the severity of IPV incidents, the escalation of violence, and the level of harm caused to the victim. The utility of the ODARA was also assessed on a broader sample than the one for which it was developed (i.e., males committing physical violence against female intimate partners). Its utility had not previously been validated for females perpetrators of IPV or for suspects who commit non-physical acts of IPV, such as threats or harassment.

The following main hypotheses were tested in the current research study:

- 1) The original ODARA would correctly categorize offenders as low, moderate or high IPV risk, even when the sample includes females and incidents of non-physical violence (threats, harassment). It was also expected to accurately predict the likely time interval before the next IPV incident will occur.
- 2) The level of police response (low, moderate, high) would at least partially match the level of risk of future IPV (low, moderate, high) as determined by the total ODARA score.
- 3) Measures of injury and violence severity change would significantly vary over time in cases of repeat violence and be predicted by the ODARA total score.
- 4) Variables associated with psychopathy, the number of previous calls to police and the willingness of the suspect to take responsibility for his/her actions would add incremental validity beyond the total score of the ODARA for predicting IPV outcomes given that these variables also have been found to predict IPV.

## **Method**

### **Sample**

A random sample of 200 cases was drawn from the 4076 IPV related reports generated by the Saint John Police Force between January 1<sup>st</sup> and December 31<sup>st</sup> of 2004. Cases were selected according to a table of random numbers. Each selected case was reviewed by the first author prior to inclusion in the sample to determine whether it met the operational definition of IPV for the purposes of the current study (described below). If a case did not contain the necessary inclusionary criteria, then it was discarded and a new case was randomly selected to replace it. This screening process continued until 200 appropriate cases were identified. These 200 cases comprised the IPV index events (baseline

events for which initial measurements were taken). For each index event, the perpetrator was identified and it was noted whether the incident was the first reported IPV episode committed by this party. Subsequent files were then reviewed for approximately the next six years (ending December 31, 2009) to identify additional IPV committed by the perpetrator.

The sample included 174 males and 26 females. The mean age of the perpetrators was 35.5 years ( $SD = 10.8$ ). The sample was predominantly Caucasian (94%), with the remaining 6% being represented by First Nations (2%), African Canadians (2%), East Indian (1.5%) and Asian (.5%).

**Inclusionary Criteria.** The operational definition of IPV used in the current study was relatively broad given the uncertainty at the onset of the research regarding the nature, quality and completeness of the information that would be contained in the police reports. The incident reports that were included were required to meet three minimum criteria: 1) the victim and perpetrator were currently, or previously, involved in an intimate relationship, 2) police were called as a result of an issue that directly involved the two parties in the intimate relationship, 3) officers who responded to the call identified the incident as a "dispute" between the intimate partners, whereby the perpetrator's aggression was directed at, or intended to victimize, the other party. Both a victim and a perpetrator were unambiguously identified. If a report did not clearly identify which party played which role, that report was not included in the sample.

Permission to access police records for the purpose of this study was obtained from the Chief of Police, Saint John Police Force, Saint John, New Brunswick, Canada. The first author was a civilian member of the Saint John Police Force and was, therefore, security cleared and authorized to access and review all case files required to carry out this research. All information was reviewed on site, only by the first author and a secondary coder who reviewed 20% of the cases for the purpose of assessing interrater reliability of the coding scheme used to extract information from police records. This second coder was also a civilian member of the Saint John Police Force and, therefore, also had the appropriate security clearance and authorization to review the information contained in the police files. A synopsis of the proposed research was submitted to the Human Ethics Review Board of the University of New Brunswick-Saint John Campus, and received the Board's approval prior to its commencement.

## Measures

**Ontario Domestic Assault Risk Assessment (ODARA;** Hilton et al., 2010b, see Appendix A). The ODARA is an observer-rated risk assessment tool developed for police officers to estimate the risk of domestic assault. It was used in the current study to establish a baseline risk level for each index event. The ODARA provides an overall risk score based on information gathered by police and contained in police reports of domestic incidents. According to the ODARA, a domestic incident is defined as an event in which the man being assessed has assaulted his current or previous female cohabitating partner and/or her children. It is intended to only apply to heterosexual relationships in which the male has committed a physical assault. It does not include assaults by children on parents or by siblings on one another (Hilton et al., 2010b). This definition was modified for the purposes of the current study to reflect a non-gendered definition and the inclusion of homosexual relationships, as well as non-physical incidents of violence (e.g., threats, harassment), but parent-child and sibling-sibling assaults were excluded.

The ODARA consists of 13 dichotomously scored items selected for their ability to predict IPV recidivism. Each item receives a score of 0 (not present) or 1 (present). ODARA items include the following: prior domestic incident; prior nondomestic incident; prior custodial sentence of 30 days or

more; failure on prior conditional release; threat to harm or kill at the index assault; confinement of the partner at the index assault; victim concern; more than one child; victim's biological child from a previous partner; violence against others; substance abuse; assault on victim when pregnant; and barriers to victim support. Scores for each item are tallied to produce a total risk score, representing the likelihood of reoffense. Higher scores indicate that an offender will likely commit a greater number of IPV acts, commit them sooner and cause greater injury to their victim than those with lower scores (Hilton et al., 2004). Based on the score they receive, offenders are categorized as having a low (score 0-2), moderate (score 3-6), or high (score  $\geq 7$ ) risk of IPV recidivism. In the event that information required to score an item was missing or unclear, then that item was not scored and the total score was prorated using a table of adjusted scores provided by Hilton et al. (2010b). This prorating method can only be used when there are  $\leq 5$  missing items.

**Level of Injury Scale** (L-Injury; Messing, 2007, see Appendix B). The amount of injury sustained by the victim at the index event and each subsequent IPV recidivism event during the follow up period was assessed using a 5 level Injury Scale (L-Injury) developed by Messing (2007). Injury scores ranged from 0 (no injury and no complaints of pain) to 4 (broken bones, loss of consciousness, stitches, broken/missing teeth). The descriptor of level 4 injuries was modified to include a broader range of severe injuries than was included in Messing's original scale (e.g., hospitalization); however, the scale still represents the 4 levels of injuries. The types of injuries described by levels 1 to 3 included swelling, scratches, bruising, black eye, bloody nose, etc. Permission was obtained from the original author of the L-Injury scale to use this measure in the current research (J. Messing, personal communication, October 11, 2009).

**Linear Violence Scale** (L-Violence; Messing, 2007, see Appendix C). The form and severity of violence perpetrated by the accused at the index and subsequent IPV incidents in the follow up period were measured using Messing's (2007) Linear Violence Scale (L-Violence). Messing conducted a linear regression with the L-Injury scale as the dependent variable and several violent actions (punch, kick, push, bite) as independent, predictor variables. The results of this regression were used to design a linear scale that measured the severity of violence perpetrated by a suspect. The resulting linear violence scale (L-Violence) classified violent behaviour by the suspect into one of five categories, ranging from 0 (no violence) to 4 (severe violence). Based on the L-Violence scale, acts of aggression by the perpetrator that had the potential to cause more severe injury to the victim were considered to be more violent than actions that had the potential to cause less injury. The L-Violence scale is similar to the L-Injury scale, but it focuses specifically on the action of the suspect and, therefore, captures the level of intended aggression regardless of the actual injury sustained by the victim. For example, a perpetrator may be unsuccessful in making contact when attempting to inflict injury on the victim, yet the level of violence attempted was high. According to the L-Violence scale, punches, bites, and hits with an object represent the most severe category of violence. As with the L-Injury scale, the description of Level 4 violence was modified to include a broader range of violent actions than was originally included in Messing's scale. The items *shoot/attempt to shoot* and *stab/attempt to stab* were included in the most severe category of the L-Violence scale. Strangulation, kicking, stomping, and grabbing were considered moderately violent (level 3). Throwing objects, slapping and punching were minor acts of violence (level 2), while forcible entry into the victim's home and acts of vandalism were considered abuse (level 1). The L-Violence scale corresponds to the L-Injury scale for the severity of harm endured by the victim. Permission was obtained from the original author of the L-Violence scale to utilize this measure in the current research (J. Messing, personal communication, October 11, 2009).

## Procedure

Police files recorded during a six-year period (January 1, 2004 to December 31, 2009) were accessed to obtain information about each IPV event. A detailed coding process was used for each index

incident to capture known victim and suspect characteristics, elements of the situation, and elements of the relationship. The ODARA also was scored in its original form for each index event to capture index IPV risk level. ODARA total scores given to the perpetrator at the index event were used to categorize him/her as low (L), moderate (M), or high (H) risk of IPV recidivism in accordance with scoring instructions for the instrument. L-Injury and L-Violence scores were also obtained for the index events. These scores provided a baseline of violence severity from which to assess escalation (or de-escalation) of violence in subsequent IPV incidents.

**Coding of Index IPV Incidents.** A comprehensive coding guide, based loosely on the content of Messing's (2007) coding scheme, was used during the review of the current police file data. Coded victim and perpetrator variables included such items as gender, race, prior criminal record, probation orders, parole, drug and/or alcohol influence. Contextual elements of the incident were coded, such as the time/day/month the incident occurred, whether the victim or suspect placed the call to police, the reason for the altercation, and whether or not there was a weapon involved.

**Coding of Police Action.** The coding guide also included a variable describing the action of the police in response to each dispute. These responses were examined to determine how they mapped onto the level of risk exhibited by the perpetrator, as determined by the ODARA risk classifications of low (L), moderate (M), or high (H) IPV risk.

**Coding of Recidivism Incidents.** After the index events were coded, each subsequent IPV incident that occurred during the follow-up period was coded for each suspect identified at the index period. The amount of time (in days) before the next IPV incident occurred was recorded, as was the total number of repeat IPV incidents committed by each suspect after the index event. The L-Injury and the L-Violence scales were scored for each subsequent occurrence of IPV to assess whether there was a change in the level of violence and injury that occurred over time.

**Additional Predictor Variables.** Several variables were examined to determine whether they added incremental validity to the original ODARA, one of which was a measure of psychopathic personality traits (P-trait). A link between psychopathy and IPV offending has been repeatedly identified within the literature (Boyle, O'Leary, Rosenbaum, & Hasslett-Walker, 2008; Gondolf & White, 2001; Swogger, et al., 2007). Therefore, the P-trait scale was developed by the authors of the current study to capture features of psychopathic traits and was subsequently coded for index events by the first author. P-trait items were selected by reviewing well established formal measures of psychopathic personality traits and choosing characteristics that would be potentially identifiable and measurable from police contact with an individual. The elements chosen were common to the construct of psychopathy and could be assessed through behavioral observation noted in the files (e.g., hostility, callousness, lack of remorse, dominance, etc.; see Table 1). In-depth descriptions of each item, including examples of behaviors that reflect each characteristic, are provided in the coding guide.

As a result of meeting with members of the Saint John Police Force (Sgt. J. Oliver, personal communication, May 27, 2009), two additional variables were identified as being potentially relevant in the assessment of IPV risk. The first variable was the number of previous calls to the police. According to the Saint John Police Force, in their jurisdiction, the risk of future IPV is elevated for couples who have made several prior calls for service to the police. There is also empirical evidence to support this conclusion. Bannerman (2002) found that serious domestic assaults have, on average, nine previous calls for service. Thus, the number of pre-index calls to police was recorded and evaluated as a risk factor in the current sample.

A second variable of interest identified by the Saint John Police Force was whether the offender was willing to take responsibility for his/her actions. Wallach and Sella (2008) identified a common

attribution style among IPV offenders, characterized by the evasion of responsibility for commission of the violence, and noted that this attribution style increases the risk for future violent behavior. This was also noted by the Saint John Police Force as being consistent with their experience. As a result, the current study included a variable that captured the offenders' willingness to admit wrongdoing and accept responsibility for their violent actions. This variable was coded as 0 (accepts no responsibility whatsoever), 1 (accepts some responsibility, but also uses justifications and rationalizations to divert personal responsibility), or 2 (takes full responsibility for his/her actions).

A number of victim, perpetrator, and contextual variables with potential relevance to the prediction of future IPV events were also included in the coding guide as potential incremental validity variables to the ODARA. These items included such variables as age, gender, and the nature of the victim/perpetrator relationship (married, separated, boyfriend/girlfriend, etc.). When known, variables such as employment and socioeconomic status were coded, as was the victim's level of fear, whether there was violence in the family of origin (both victim and suspect), the victim's behaviour towards the suspect, and the presence of psychological abuse and/or control.

**Recidivism Outcomes.** The ability of the ODARA total score to predict a suspect's risk of IPV recidivism was assessed using five dependent measures: 1) whether a subsequent IPV recidivism incident occurred at least once during the follow up period, 2) the length of time (in days) to the first post index IPV incident, 3) the number of subsequent post-index recidivism incidents within the follow up period, 4) the injury severity of each subsequent recidivism incident as measured by the L-Injury scale, and 5) the degree of violence escalation across subsequent IPV incidents as measured by the L-Violence scale. For the purpose of these outcomes, a separate recidivism incident was considered when there has been at least a 24-hour period of no calls to police and there was no file information to indicate that the incident was ongoing and still part of the index event. A recidivism event was operationally defined in an identical fashion to that used to identify the index IPV event from case files (i.e., a dispute or assault in the context of an intimate relationship, either with the same or a different victim intimate partner victim). Thus, a sensitive criterion was used in which the event did not require an arrest, charge or conviction to be labeled as a recidivism event.

**Interrater Reliability of Coded Measures.** Twenty percent (20%) of cases were randomly selected to assess the interrater reliability (IRR) of the coding scheme. A civilian employee of the Saint John Police Force was trained by the primary researcher in the use of the ODARA, the L-Injury scale, the L-Violence scale, and the coding of additional items in the coding guide (e.g., psychopathic personality traits). This training was achieved through verbal instruction followed by practice scoring of four cases that were not included in the research sample.

IRR was assessed using an intraclass correlation coefficient (ICC) for the ODARA total scores, R-ODARA total scores, P-trait total scores, L-Injury and L-Violence ratings. The ICC is commonly used to assess the consistency of measurements made by two independent raters on a continuous variable (Bartko & Carpenter, 1976). A two-way mixed model was used to calculate ICC's and is denoted by  $ICC_{(3,k)}$ , for which "3" refers to the third model (mixed model) and "k" refers to the number of raters (in this case, 1 or 2; McGraw & Wong, 1996). For the purpose of the current study, the single-rater index ( $ICC_{(3,1)}$ ) was used as it is a more conservative estimate of IRR. Absolute agreement was selected to account for systematic variation between the raters. A minimum ICC criterion of .70 was used to reflect acceptable IRR (Barrett, 2001; Gardner, 1995). All variables exceeded this threshold.

Inter-rater agreement for categorical variables was assessed using the Kappa statistic. Kappa provides a quantitative measure of the "true" agreement between observers. This calculation is based on the difference between the amount of actual agreement and the level of agreement that would be expected by chance alone and, therefore, is a more robust measure than a simple percent agreement (Viera &

Garrett, 2005). Based on a commonly cited interpretive guideline, Kappa values of .41 to .60 reflect moderate agreement, values of .61 to .80 indicate substantial agreement, and values of .81 to .99 denote almost perfect agreement (1.00 being perfect; Landis & Koch, 1977; Sim & Wright, 2005; Viera & Garrett, 2005). As with ICC values, a minimum Kappa criterion of  $\geq .70$  was used to determine acceptable IRR for categorical variables (Barrett, 2001; Gardner, 1995). All relevant variables met or exceeded this threshold.

## Statistical Analysis

**Original ODARA.** A receiver operating characteristic curve (ROC) analysis was used to assess the predictive validity of the original ODARA in the current sample of community IPV offenders. The ROC analysis indicated the degree to which total scores on the ODARA were able to predict dichotomous IPV recidivism (i.e., repeat IPV incident/no repeat IPV incident). The analysis was conducted separately for male and female perpetrators.

ROC curves are widely used in the assessment of accuracy of predictions about violent recidivism (Mossman & Somoza, 1991; Rice & Harris, 2005; Swets, Dawes, & Monahan, 2000). The ROC curve was derived from signal detection theory, and is a plot of the true positive rate (percentage of offenders correctly categorized as recidivists) against the false positive rate (percentage of offenders incorrectly categorized as recidivists) for each possible decision threshold of a given instrument. Stated otherwise, it is a plot of the sensitivity (i.e., hit rate for accurately identifying a recidivist) versus 1-specificity (the false alarm rate associated with incorrectly identifying a non-recidivists as a recidivist). The area under the ROC curve (AUC) provides a succinct evaluation of the performance of a risk instrument based on the sensitivity and specificity and is estimated by a score range of 0 to 1.00. The AUC can be interpreted as the probability that a randomly selected recidivist will score higher than a randomly selected non-recidivist. The larger the AUC, the greater the difference between the sensitivity and the specificity of the instrument, and the more accurate the test is in its prediction. If the AUC = .50, the ability of the instrument to make accurate predictions is the same as chance. An AUC of .70 or greater is considered a large effect size, with 1.00 reflecting perfect prediction. Two major advantages of the ROC over other measures used to evaluate prediction tools are that a normal distribution need not be assumed, and the measure is independent of the base rate of the target behaviour in the population. When a phenomenon of interest occurs infrequently in a population, some traditional measures are unable to accurately evaluate risk tools designed to predict this phenomenon. Their accuracy is increased when base rates are high, and decreased when base rates are low (Rice & Harris, 2005). ROC methods, however, provide consistent evaluations, regardless of the base rate.

A survival analysis was conducted to examine the utility of the ODARA to predict the time (in days) to recidivism. Survival analyses are used to model the time from an initial event to the next occurrence of that event. The time between the two events of interest is known as the survival time (Luke & Homan, 1998; Parmar & Machin, 1995). In this case, the survival analysis was used to model the length of time between the index IPV event and a subsequent act of IPV. The hazard ratio (HR) is used to measure the relative survival of more than one group and provides an estimate of the difference between survival curves for each group (Parmar & Machin, 1995). IPV suspects were divided into low (L), moderate (M), and high (H) risk groups based on the ODARA scores. The hazard ratio was then calculated to determine whether time to recidivism significantly differed as a function of risk level. High risk cases were expected to reoffend at a faster rate than moderate and low risk cases. The survival analysis gives an indication of the riskiest time frame during which offenders at each risk level are likely to reoffend. This information is critical to the design and implementation of strategies aimed at reducing IPV recidivism.

**Escalation of Violence.** Two repeated measures Analyses of Variance (ANOVAs) were conducted to determine whether there was a change in the level of injury sustained by the victim (L-Injury scale) and in the level of violence perpetrated by the suspect (L-Violence scale) at subsequent recidivism incidents. The ODARA risk category (L, M, or H) was included as a between subjects variable to determine whether high risk suspects displayed significantly greater escalation of violence than moderate and low risk suspects. A multivariate ANOVA was also conducted to determine whether high risk offenders had a higher mean score on the L-Injury and L-Violence scales than moderate and low risk offenders at the index event.

**Predictive and Incremental Validity of Additional Predictor Variables.** A hierarchical multiple regression analysis was conducted to determine whether additional variables coded from the police file information added any predictive validity to the original ODARA. Individual correlations of items with each recidivism outcome were calculated to determine whether these items were associated with each outcome. Only those items of interest that were individually correlated with at least one recidivism outcome were included in the regression analysis.

**Revised ODARA (R-ODARA).** After finding that the P-trait scale added predictive validity to the original ODARA, this variable was combined with the original ODARA to form a revised ODARA tool (R-ODARA). The ability of the R-ODARA to assess the risk of IPV recidivism was then assessed using similar analyses to those described above to assess the predictive validity of the original ODARA (ROC and Survival Analysis).

## Results

### Context of IPV in Saint John

Most perpetrators in the current sample (97.5%;  $n = 195$ ) were in heterosexual relationships. Only 5 were in same-sex relationships, all of which were female-female couples. Almost half of the perpetrators (43%;  $n = 86$ ) were living common-law with their victims at the time of the index incident. Only 18% ( $n = 36$ ) were married and slightly more than a third (34.5%;  $n = 69$ ) were no longer in a relationship with the victim. A small proportion (4.5%;  $n = 9$ ) of couples were in a relationship, but living separately after having cohabitated in the past. The mean relationship length was 6.7 years ( $SD = 8.5$ ) and ranged from 6 months to 55 years.

**IPV Offender Characteristics.** The index offense was not the first act of IPV perpetrated by most offenders in the sample, regardless of perpetrator gender,  $\chi^2(1) = .24, p = .62$ . Sixty percent ( $n = 104$ ) of male offenders and 65% ( $n = 17$ ) of female offenders had committed at least one prior IPV act with the current or a previous partner (see Table 2). There was no significant gender difference in history of alcohol and/or drug misuse by offenders ( $\chi^2(1) = .09, p = .76$ ), with 63% ( $n = 110$ ) of male and 59% ( $n = 15$ ) of female offenders having abused substances in the past.

Less than one-tenth (8.3%;  $n = 17$ ) of perpetrators were willing to accept full responsibility for their IPV-related actions and over half (53%;  $n = 106$ ) refused to admit any responsibility whatsoever. Males and females displayed the same pattern of unwillingness to be accountable for the violence they had committed,  $\chi^2(1) = 3.79, p = .29$ .

Almost half (41%;  $n = 82$ ) of offenders demonstrated ineffective anger management strategies, as reported by their partners or directly observed by the responding officer during the index event, and this finding did not significantly vary by perpetrator gender,  $\chi^2(1) = .004, p = .95$ . After controlling for

perpetrator age and gender in Block 1 of a hierarchical regression ( $R^2 = .006$ ,  $F(2, 194) = .582$ ,  $p = .56$ ), poor anger control was still found to be a statistically significant predictor of IPV recidivism in Block 2,  $R^2_{ch} = .13$   $F_{ch}(1, 193) = 29.11$ ,  $p < .001$ .

Statistically significant differences were observed in the criminal histories of male and female offenders. Most male offenders had a criminal record (62%;  $n = 108$ ); however, less than a third of females had a record (31%;  $n = 8$ ),  $\chi^2(1) = 8.95$ ,  $p = .003$ . Furthermore, 30% ( $n = 52$ ) of male offenders had served a prior custodial sentence of at least three months, as opposed to only 4% ( $n = 1$ ) of female offenders,  $\chi^2(1) = 7.76$ ,  $p = .005$ .

IPV perpetrators were followed for an average of 3.5 years ( $SD = 2.5$ ) after the index offense. The follow-up period ranged from 1 to 2191 days (approximately 6 years). The mean number of post-index recidivistic incidents committed by the 88 individuals who reoffended was 1.5 ( $SD = 2.6$ ), and ranged from 1 to 18. Over half of these recidivists (53.4%;  $n = 47$ ) committed 1-2 subsequent IPV incidents during the follow up period, while roughly one-third (35%;  $n = 31$ ) reoffending 3-5 times. Nearly 7% ( $n = 6$ ) committed 6-9 recidivistic incidents, and 4.5% ( $n = 4$ ) reoffended 10 or more times post index.

Differences were noted among subgroups of perpetrators in their frequency of pre- and post-index IPV offending. Sixty-one percent ( $n = 122$ ) of the sample had committed at least one pre-index IPV offense with the current or a different partner, while 56% ( $n = 112$ ) did not reoffend during the follow up period. However, for approximately half of the non-recidivists (48%;  $n = 54$ ), the index offense was not their first act of IPV. Only 29% of the total sample ( $n = 58$ ) were categorized as *one-timers*, having had no pre- or post-index allegations of IPV made against them. More than one third of the sample (37%;  $n = 74$ ) was classified as being *moderately persistent*. These individuals either had committed no pre-index IPV incidents but reoffend during the follow up period, or had committed pre- but not post-index IPV. The remaining 34% ( $n = 68$ ) of perpetrators were categorized as *stable persistent*, meaning that they had committed violence towards their partners both prior to and subsequent to the index incident. As shown in Table 3, no statistically significant gender differences were observed in the distribution of these three IPV offender types,  $\chi^2(2) = .08$ ,  $p = .96$ .

*Moderately persistent* offenders had committed, on average, 2 pre-index IPV offenses ( $SD = 2.5$ , *range* = 0-14) and .59 post-index IPV offenses ( $SD = 1.2$ , *range* = 0-6). Almost half of the moderately persistent group (46%;  $n = 34$ ) had committed 1 or 2 prior acts of violence against an intimate partner, while 20% ( $n = 15$ ) had done so 3 to 6 times and 7% ( $n = 5$ ) had committed between 7 and 14 pre-index IPV offenses. Approximately 20% ( $n = 15$ ) of moderately persistent offenders committed 1-2 post-index acts of IPV and roughly 7% ( $n = 5$ ) committed between 3 and 6 post-index acts (see Table 3).

*Stable persistent* offenders committed an average of 4.3 ( $SD = 5.1$ ) pre-index acts of IPV, ranging from 1 to 32 prior incidents. Forty-six percent ( $n = 31$ ) had 1 to 2 previous incidents, with 43% ( $n = 29$ ) having between 3 and 6, 6% ( $n = 4$ ) having 7 to 14, and 6% ( $n = 4$ ) having committed more than 15 prior violent offenses against an intimate partner. They also continued to recidivate a mean of 3.6 times post-index ( $SD = 3.3$ , *range* = 1-18). The post-index offending pattern of the *stable persistent* group was similar to their pre-index pattern, with 47% ( $n = 32$ ) having 1 to 2 post-index incidents, 43% ( $n = 29$ ) having 3-6, 7% ( $n = 5$ ) reoffending 7-14 times and 3% ( $n = 2$ ) committing more than 15 post-index IPV offenses (see Table 3).

**Victim Characteristics.** The victims of IPV were predominantly female (89.5%;  $n = 179$ ) and the vast majority were Caucasian (95.5%;  $n = 191$ ). Other ethnicities represented included First Nations (2%;  $n = 4$ ), African Canadian (1%;  $n = 2$ ), East Indian (1%;  $n = 2$ ) and Asian (.5%;  $n = 1$ ). The mean victim

age was 33.6 years ( $SD = 11.2$ ). Five of the 179 female victims (2.8%) were pregnant at the time of the index offense.

More than 75% of victims were unwilling to press charges against the suspect (77.5%;  $n = 155$ ). This reluctance was observed with equal frequency among both male (76%;  $n = 16$ ) and female (79%;  $n = 141$ ) victims,  $\chi^2(1) = .11, p = .46$  (see Table 4). Some victims (18%;  $n = 36$ ) initially indicated to police that they wanted the suspect charged, but later changed their minds and refused to proceed. Most victims had a history of being in violent relationships (68.2%;  $n = 136$ ), as determined by victim self-reports in case files as well as by police reports of past IPV against the victim. This was equally the case for male (57%;  $n = 12$ ) and female (69.5%;  $n = 124$ ) victims,  $\chi^2(1) = 1.32, p = .18$ . More than three quarters of male (76%;  $n = 16$ ) and female victims (76%;  $n = 136$ ) exhibited a pattern of inconsistent behaviour towards the suspect (i.e., repeated cycle of leaving the relationship then reconciling).

Statistically significant gender differences were observed in the frequency of psychological abuse that victims reported in their relationships. Significantly more females (30.2%;  $n = 54$ ) than males (4.8%;  $n = 1$ ) reported that their partners engaged in coercive or threatening behaviour towards them,  $\chi^2(1) = 6.08, p = .014$ . The same pattern was observed with behaviours intended to demean or belittle, which were reported by 27.4% ( $n = 49$ ) of females and only 4.8% ( $n = 1$ ) of males,  $\chi^2(1) = 5.12, p = .02$ . Forty percent ( $n = 72$ ) of female victims reported that they were fearful of the suspect, however none of the male victims conveyed this fear,  $\chi^2(1) = 13.2, p < .001$ . There were no significant gender differences in the presence of jealousy and/or possessiveness within the relationship. Almost one quarter (24%;  $n = 43$ ) of female victims indicated that the suspect was overly jealous and/or possessive, as did 14.3% ( $n = 3$ ) of male victims,  $\chi^2(1) = 1.0, p = .24$ .

**IPV Offense Characteristics.** Contextual details of the index offenses are displayed in Table 5. The index offense involved physical violence in 76% ( $n = 152$ ) of cases, with injuries being sustained by the victim in 46% ( $n = 92$ ) of these incidents. Index offenses that were not physical in nature consisted of threats (17%;  $n = 34$ ) and harassing phone calls/criminal harassment (7%;  $n = 14$ ). A weapon was present in 8.5% ( $n = 17$ ) of cases and used in 5% ( $n = 10$ ). Weapons of convenience (i.e., beer bottle, ashtray, cane) were the most common weapons implemented in the attacks. A knife was used in five cases and a firearm in two. The perpetrator was under the influence of alcohol and/or drugs in approximately half of the index cases (54.1%;  $n = 108$ ) and victims were under the influence in 29.2% ( $n = 58$ ) of cases. The most common reasons noted for index altercations included alcohol and/or drug use by one or both partners (33%;  $n = 66$ ), jealousy (22%;  $n = 44$ ), termination of the relationship (18%;  $n = 36$ ), and children (13.5%;  $n = 27$ ). Other less common reasons included general stress (5.9%;  $n = 12$ ), money (5.4%;  $n = 11$ ), and sex (2.2%;  $n = 4$ ). In most cases, the call to police was placed by the victim (68%;  $n = 136$ ). Approximately one quarter of calls came from neighbours or other uninvolved parties and only 7% ( $n = 14$ ) of 911 calls were made by a child in the home. Correlations between contextual variables of the index event and IPV recidivism are displayed in Table 6.

Victim injury was measured on a 5-point scale of severity (i.e., L-Injury), ranging from 0 (no injury) to 4 (hospitalization, loss of consciousness, broken bones). Over half of the victims (54%;  $n = 108$ ) reported no physical injury during the index incident. Eight percent ( $n = 16$ ) of victims reported suffering pain despite having no observable physical injuries (L-Injury = 1). Approximately 16% ( $n = 32$ ) suffered abrasions and/or minor scratches (L-Injury = 2), while 17% ( $n = 34$ ) sustained bruising, cuts, a black eye, and/or bloody nose (L-Injury = 3). Five percent ( $n = 10$ ) suffered injuries at the highest level (L-Injury = 4), reflecting broken bones, unconsciousness, lacerations requiring stitches, and/or hospitalization.

The level of violence attempted/committed by the offender was also measured on a 5-point scale (i.e., L-Violence), ranging from 0 (no violence) to 4 (severe violence). Less than one-tenth (7%;  $n = 14$ ) of the index offenses were non-violent, consisting of non-threatening harassment. Seventeen percent ( $n = 34$ ) of offenders were verbally aggressive, made threats, or damaged property during the index incident, corresponding to an L-Violence score of 1. Almost one-third (28%;  $n = 56$ ) scored a 2, reflecting behaviours such as pushing, slapping or throwing objects at the victim. Approximately one quarter (24%;  $n = 48$ ) of perpetrators scored a 3 on the L-Violence scale during the index incident. This is the second highest level of violence, corresponding to behaviours such as grabbing, stomping, choking and slamming. Another 24% ( $n = 48$ ) achieved the highest L-Violence score of 4, reflecting behaviours such as hitting the victim with an object, punching, stabbing, shooting, or attempting to stab/shoot the victim.

The mean L-Injury and L-Violence scores for all cases were 1.11 ( $SD = 1.35$ ) and 2.41 ( $SD = 1.22$ ), respectively. There was no statistically significant effect of suspect gender on L-Injury ( $F(1, 198) = .01$ ,  $p = .91$ ,  $\eta^2 = .00$ ) or L-Violence,  $F(1, 198) = .16$ ,  $p = .69$ ,  $\eta^2 = .001$ . These means included those cases in which the victim sustained no injury and/or the perpetrator used no physical violence. When cases of non-physical violence were removed to examine only those cases in which physical violence was committed and resulted in injury to the victim (i.e., L-Injury  $\geq 1$ ,  $n = 92$ ), the mean L-Injury score increased to 2.40 ( $SD = .91$ ) and the L-Violence score increased to 3.27,  $SD = .77$  (see Table 7). These mean scores were reflective of injuries consisting of scratches, swelling, bloody nose, and/or bruising, inflicted by moderate violence such as grabbing, slamming, choking, stomping, or hitting the victim with an object. Suspect gender did not significantly impact the amount of injury inflicted on the victim ( $F(1, 90) = 1.12$ ,  $p = .29$ ,  $\eta^2 = .01$ ); however, the severity of physical violence perpetrated by females was significantly greater than that perpetrated by males,  $F(1, 92) = 4.68$ ,  $p = .03$ ,  $\eta^2 = .05$  (see Table 8).

### Utility of the ODARA

The mean ODARA total score for the sample of 200 index cases was 5.17 ( $SD = 2.49$ ), reflecting a moderate level of risk. There was no significant difference between the mean score for male ( $M = 5.28$ ,  $SD = 2.52$ ) and female ( $M = 4.46$ ,  $SD = 2.25$ ) perpetrators of IPV,  $F(1, 198) = 2.4$ ,  $p = .12$ ,  $\eta^2 = .01$ . Higher ODARA total scores were positively associated with IPV recidivism ( $r = .35$ ,  $p < .001$ ). Using the full sample, ROC analysis indicated that the ODARA total score was strongly predictive of IPV recidivism,  $AUC = .70$ , 95%  $CI [.63, .77]$ . When cases of physical violence were removed to examine only cases in which the abuse consisted of threats or harassment ( $n = 48$ ), again a large effect size was found for predicting recidivism,  $AUC = .70$ , 95%  $CI [.54, .85]$ . When separated by gender, a large effect size was found for the prediction of recidivism among males ( $AUC = .70$ , 95%  $CI [.63, .78]$ ), whereas the predictive accuracy for recidivism among females corresponded to a moderate effect size,  $AUC$  of .67, 95%  $CI [.46, .88]$ . However, the  $CI$ 's overlapped for males and females, suggesting that they were sampling the same population parameter. Nevertheless, the  $CI$  for females was substantially wider than it was for males and it crossed into chance prediction, reflecting less precision in predictive accuracy for females (see Table 8). This dispersion may be a function of the low number of female perpetrators in the sample.

A statistically significant correlation was found between higher ODARA total scores and fewer days passed prior to the first new post-index IPV incident ( $r = -.36$ ,  $p < .001$ ). Higher ODARA total scores were also significantly correlated with a higher number of pre-index IPV offenses committed by the perpetrator ( $r = .39$ ,  $p < .001$ ), a higher number of post-index IPV offenses ( $r = .39$ ,  $p < .001$ ), the victim's unwillingness to press charges ( $r = .15$ ,  $p = .03$ ), and the presence of psychological abuse in the relationship ( $r = .40$ ,  $p < .001$ ). Upon examining the entire sample, there was no statistically significant correlation found between ODARA total scores and L-Injury scores ( $r = .12$ ,  $p = .11$ ) or L-

Violence scores,  $r = .11$ ,  $p = .13$ . However, when examining only those cases in which injury and/or physical violence was present, the correlation between ODARA total score and L-Injury increased to  $.24$  ( $p = .04$ ) and increased to  $.36$  ( $p = .002$ ) between ODARA total score and L-Violence (see Table 9). Thus, when physical aggression does occur during the IPV incident, higher ODARA total scores are associated with greater intended harm and actual harm towards the victim.

**ODARA Risk Level Comparisons.** ODARA scores were used to categorize offenders as low (0-2 = low risk), moderate (3-6 = moderate risk), or high risk for recidivism (7-13 = high risk) based on the guidelines of Hilton et al. (2010b). Of the 200 offenders in the current sample, 16% ( $n = 32$ ) fell in the low risk category, with a mean ODARA total score of 1.41 ( $SD = .62$ , range 0-2). The majority of the sample (48%,  $n = 96$ ) fell in the moderate range with a mean score of 4.38 ( $SD = .99$ , range 3-6), and 36% ( $n = 72$ ) fell in the high risk category with a mean score of 7.94 ( $SD = 1.01$ , range 7-11).

The number of female offenders in each risk category was normally distributed, with 23% ( $n = 6$ ) in the low risk category, 50% ( $n = 13$ ) in the moderate risk category and 27% ( $n = 7$ ) falling in the high risk category. Male offenders were also normally distributed across the three risk categories, with 15% ( $n = 26$ ) being low risk, 48% ( $n = 84$ ) being moderate risk, and 37% ( $n = 64$ ) being high risk. Risk category was not significantly dependent on suspect gender,  $\chi^2(2) = 1.57$ ,  $p = .46$  (see Table 10).

Post-index IPV recidivism differed significantly among the three ODARA risk categories,  $\chi^2(2) = 20.33$ ,  $p < .001$ . The low-risk category had significantly fewer recidivists (15.6%;  $n = 5$  out of 32) than the moderate risk category (40.2%;  $n = 39$  out of 96), which in turn had significantly fewer than the high-risk category (62.5%;  $n = 45$  out of 72; see Table 11).

A one-way ANOVA revealed that the number of IPV acts committed by offenders prior to the index offense significantly differed by risk level,  $F(2, 197) = 14.8$ ,  $p < .001$ ,  $\eta^2 = .13$ . Tukey post-hoc comparisons indicated that the high risk group committed significantly more pre-index IPV offenses ( $M = 3.9$ ,  $SD = 4.1$ ) than the moderate ( $M = 1.7$ ,  $SD = 3.6$ ,  $p < .001$ ) or low risk groups, ( $M = .19$ ,  $SD = .74$ ,  $p < .001$ ); however, low and moderate groups did not significantly differ from one another ( $p = .10$ ; see Table 11). As with pre-index events, a statistically significant main effect of risk category was found on total number of post-index IPV events,  $F(2, 197) = 15.5$ ,  $p < .001$ ,  $\eta^2 = .14$ . Tukey post hoc comparisons indicated that this difference reflected a significantly higher number of events in the high risk category versus the low and moderate risk categories ( $p < .001$ ), whereas low and moderate did not significantly differ from each other,  $p = .31$ .

A log-rank (LR) test was used to compare Kaplan-Meier survival curves (time to reoffence) for each risk category. The log-rank test is used to test the null hypothesis that there is no difference between the groups in the probability of an event occurring at any point in time. The analysis revealed that the low, moderate, and high risk offenders significantly differed in the time it took them to commit another IPV incident after the index event,  $LR(2) = 22.2$ ,  $p < .001$  (see Figure 1). Over the approximately six-year follow up, high risk offenders were the quickest to reoffend ( $M = 2.4$  yrs,  $SD = 2.3$ ), followed by the moderate risk ( $M = 3.6$  yrs,  $SD = 2.4$ ) and then low risk ( $M = 4.9$  yrs,  $SD = 1.8$ ) cases (see Table 12). Only 5 out of 32 low-risk offenders (15.6%) recidivated during the 6 year follow up and all 5 had done so within the first 3 years. The first low-risk suspect to reoffend did so 20 days post index, whereas the second case did not reoffend until approximately 4.5 months after the index offense. There was one individual in both the moderate and one in the high risk categories who reoffended the day after the index incident. By 3 months post index, 12% ( $n = 11$ ) of moderate and 23% ( $n = 17$ ) of high risk suspects had reoffended. After 6 months, these rates increased to 23% ( $n = 22$ ) and 37% ( $n = 27$ ), respectively. The rate of reoffending within the moderate risk category was 40% ( $n = 38$  out of 96) and all moderate risk recidivists had reoffended in less than 3 years (32 months) after the index offense.

The recidivism rate among high-risk offenders was 62.5% ( $n = 45$  out of 72) and all these cases had reoffended within 2.2 years (26 months) of the index incident.

L-Injury scores did not initially appear to differ by ODARA risk category,  $F(2, 197) = 2.1, p = .12, \eta^2 = .02$ ; however, finding may have been due to a floor effect on the L-Injury scale given that there was a significant number of cases in which no injury was reported or observed ( $n = 108$ ). Thus, these cases were removed from analysis and a one-way ANOVA was rerun on the remaining 92 cases in which there was injury to the victim ( $L\text{-Injury} \geq 1$ ). This subsequent analysis revealed that when an injury was inflicted, the severity did vary by risk category,  $F(2, 89) = 3.9, p < .05, \eta^2 = .08$ . Tukey post hoc comparisons indicated that the mean L-Injury score for high risk offenders ( $M = 2.7, SD = .82$ ) was significantly elevated compared to low risk offenders ( $M = 2.0, SD = .82; p = .03$ ). There was no significant difference between L-Injury scores of moderate risk offenders ( $M = 2.3, SD = .97$ ) from the low ( $p = .49$ ) or the high ( $p = .14$ ) risk offenders. L-Violence scores did not significantly vary as a function of ODARA risk category ( $F(2, 197) = .90, p = .41, \eta^2 = .01$ ). This remained so even after removing cases in which the violence was non-physical (i.e., verbal aggression, threats;  $F(2, 149) = 1.3, p = .27, \eta^2 = .02$ ). Thus, high risk IPV offenders may cause greater injury against their victims than do low risk cases, but offenders in all three risk groups attempt to inflict similar levels of violence in a given IPV incident.

**Incremental Validity of Psychopathic Traits.** A 17-item scale was coded for each offender to capture the presence of psychopathic traits (i.e., P-Trait). The intraclass correlation coefficient for the P-Trait scale was .71, which exceeded the criterion for acceptable IRR. Internal consistency analysis revealed a Cronbach's  $\alpha$  of .88 for the original scale, suggesting that its items were meaningfully associated with each other. However, tests of multicollinearity identified a strong inter-item correlation ( $r = .79$ ) between two items (*absence of anxiety to police presence*, and *procriminal attitudes/antiauthority*). As such, the item *absence of anxiety to police presence* was removed as it had a lower overall item total correlation than the *procriminal attitudes/antiauthority* item. Removal of this item did not substantially decrease the internal consistency of the scale, which became  $\alpha = .86$ . Three additional items were removed due to low item-total correlations (*superficial charm, r = .19, shallow emotions, r = .09, and parasitic orientation, r = .19*). A final item, *prior breach of conditional sentence*, was removed due to content overlap with an ODARA item that already captures the context of this variable. The internal consistency of the final 12-item psychopathic trait scale remained high,  $\alpha = .86$ . Individual items on this scale were coded on a 3 point scale indicating the degree to which the suspect displayed the trait (0 = no, 1 = somewhat, 2 = yes), resulting in a possible total score range of 0-24 (see Table 1). The mean P-Trait total score was  $M = 6.2 (SD = 5.1)$  and ranged from 0 to 21. There was no significant difference between males and females on this variable,  $t(198) = -.19, p = .85$ . There was a significant positive correlation between P-Trait total score and ODARA total score,  $r = .62, p < .001$ . The P-Trait scores were divided into three equal groups, representing low (0-3), moderate (4-8) and high (9+) psychopathic trait groups. Chi square analysis revealed that P-Trait level varied significantly by ODARA risk category,  $\chi^2(4) = 70.2, p < .001$ . Seventy percent ( $n = 40$ ) of the 58 offenders scoring 9 or higher on the P-Trait were also categorized by the ODARA as being high risk. Twenty-nine percent ( $n = 17$ ) of these offenders with a high level P-Trait score were classified as moderate risk by the ODARA and only 1.7% ( $n = 1$ ) was classified as low risk. There were 66 moderate P-Trait cases, the majority of which (63.6%;  $n = 42$ ) fell in the moderate-risk category on the ODARA and most of the low-risk ODARA cases (87.5%;  $n = 28$ ) scored less than 3 on the P-trait scale.

ROC analysis revealed that the P-Trait scale was strongly predictive of recidivism ( $AUC = .80, 95\% CI [.74, .86]$ ). Two hierarchical multiple regressions were conducted to test the incremental validity of P-Trait over ODARA total score for predicting a) dichotomous post-index IPV reoffending, and b) the number of post-index IPV incidents. Alpha was set at .025 for these analyses to minimize Type I Error. Block 1 of the first analysis contained perpetrator age and gender, which were non-significant as a

block of variables that explained .8% of the variance,  $F(2, 197) = .81, p = .45$ . In Block 2, the ODARA total score significantly explained an additional 12% of the variance in IPV recidivism,  $F_{ch}(1, 196) = 26.7, p < .001$ . P-Trait total was added to the model in Block 3 and had incremental validity over ODARA total by significantly accounting for an additional 16% of the variance,  $F_{ch}(1, 195) = 43.3, p < .001$ . In contrast, ODARA total failed to significantly explain any additional variance in post-index reoffending beyond P-Trait total,  $R^2_{ch} = .00, F_{ch}(1, 195) = .09, p = .77$ .

A second hierarchical multiple regression was performed to test the incremental validity of the P-Trait total score over ODARA total score in predicting the number of recidivistic IPV incidents. Age and gender were included in Block 1 and did not significantly contribute to the prediction of recidivism,  $R^2_{ch} = .01, F(2, 197) = 1.2, p = .31$ . ODARA total score, added in Block 2, significantly explained an additional 14% of the variance in number of post-index IPV incidents committed,  $F_{ch}(1, 196) = 33.8, p < .001$ . When added in Block 3, P-Trait total score had incremental validity over ODARA total score by significantly accounting for an additional 23% of the variance in the number of post-index IPV incidents,  $R^2_{ch} = .23, F_{ch}(1, 195) = 72.9, p < .001$ . ODARA total score had no significant incremental validity over P-Trait total score in predicting this outcome,  $R^2_{ch} < .001, F_{ch}(1, 195) = .01, p = .92$ .

A Cox regression was conducted to investigate the effect of several variables on the time passed, in days, until the first post-index IPV offense or end of the follow-up period in the cases that did not re-offend. Cox regression analyses model the effect of unit increases in a variable on the time it takes for an event to occur (in this case, recidivism). Since this was one of two Cox regressions to be conducted during the data analysis, alpha was set at .025. Age and gender, in Block 1, did not significantly contribute to the prediction of this outcome,  $\chi^2(2) = 1.4, p = .49$ . In Block 2, ODARA total score was a significant predictor of time to first post-index IPV offense ( $\beta = .23, p < .001, \exp(B^1) = 1.26$ ),  $\chi^2_{ch}(1) = 26.1, p < .001$ . P-Trait total was a significant predictor of time to recidivism in Block 3 ( $\beta = .16, p < .001, \exp(B^1) = 1.17$ ), and further improved the predictive ability of the model,  $\chi^2_{ch}(1) = 37.9, p < .001$ . The ODARA total score did not contribute significant incremental validity over P-Trait total in predicting time to first post-index IPV offense,  $\chi^2_{ch}(1) = 1.2, p = .27$ .

Each perpetrator's P-Trait score was added to his/her ODARA total score to create a new R-ODARA total score. ROC analysis indicated that this combination created a large effect size for the prediction of recidivism ( $AUC = .79, 95\% CI [.72, .85]$ ), with only minimal overlap in CI's for the original ODARA total score at the lower bounds,  $95\% CI [.63, .77]$ , (see Table 8). When separated by gender, the R-ODARA was found to be strongly predictive of recidivism for both males ( $AUC = .78, 95\% CI [.72, .85]$ ) and females,  $AUC = .82, 95\% CI [.66, .85]$ . The R-ODARA also demonstrated high interrater reliability with an ICC of .80.

### **L-Injury, L-Violence, and Recidivism over Time**

There was a significant strong positive correlation between L-Injury and L-Violence scores,  $r = .63, p < .001$ , in that the more severe the violence attempted, the greater the victim injury. The correlation between L-Injury and the number of pre-index IPV incidents that a suspect committed was weaker,  $r = .14, p = .04$ . No significant correlation was found between number of pre-index IPV incidents and L-Violence scores,  $r = .10, p = .16$ . Thus, the level of injury and violence at index was not associated with the frequency of past IPV incidents, which suggests that the severity of these factors are driven more by the situational context of the IPV incident itself than by past behaviour.

A mixed ANOVA was conducted to determine if L-Injury and L-Violence scores changed across successive IPV recidivism incidents and as a function of risk level. Measures of L-Injury and L-Violence were compared at three points in time (index, first IPV recidivism event, and second IPV recidivism

event). Adding a fourth point in time to the analysis resulted in too few cases for analyses, as only 27 offenders recidivated more than three times in the follow-up period. For this reason, measurements taken at three points in time (index, first post-index event, and second post-index event) were included in the analysis. Moreover, low-risk offenders were excluded from this analysis, as only 2 offenders in that group recidivated more than once. Therefore, the final analysis included only moderate ( $n = 20$ ) and high risk ( $n = 30$ ) offenders. The mixed ANOVA revealed no significant change in L-Injury scores as a function of time ( $F(2, 96) = .33, p = .72, \eta^2 = .01$ ), nor was there a significant interaction between time and ODARA risk category,  $F(2, 96) = 1.0, p = .36, \eta^2 = .02$ . Risk category itself, however, did have a significant main effect ( $F(1, 48) = 4.9, p < .05, \eta^2 = .09$ ), whereby L-Injury scores were higher for high-risk offenders than for moderate-risk offenders. There was no statistically significant main effect of time on L-Violence scores ( $F(2, 96) = .19, p = .83, \eta^2 = .004$ ), nor was there a significant interaction between time and ODARA risk level,  $F(4, 96) = 1.8, p = .17, \eta^2 = .04$ . Moreover, in contrast to L-Injury, there was no significant between subjects effect of risk category on L-Violence scores,  $F(1, 48) = 1.7, p = .19, \eta^2 = .03$ . Thus, as noted above, the level of harm intended and caused to the victim did not significantly escalate or decrease over time at least across these three incidents of IPV. The intended violence did not vary as a function of risk level, but higher risk offenders tended to be more successful in causing their intended harm towards the victim than low risk offenders.

### **Pre-Index Contact with Police Services**

ROC analysis revealed that the number of prior calls to police was moderately predictive of post-index IPV recidivism,  $AUC = .69, 95\% CI [.62 \text{ to } .77]$ . Upon examination of the cut-points of the ROC curve to determine the number of pre-index calls for service that provided optimal prediction, it was noted that both sensitivity (.77) and specificity (.52) were maximized at just 1 prior call.

Two hierarchical regression analyses were conducted to test the incremental validity of number of pre-index calls over ODARA total score in predicting a) recidivism (Yes/No), and b) number of recidivistic IPV incidents over time. Again, alpha was set at .025 for these two analyses to control for Type I Error. After controlling for age and gender in Block 1 of the first model ( $F(2, 197) = .73, p = .49$ ) and entering ODARA total score in Block 2 ( $R^2_{ch} = .12, F_{ch}(1, 196) = 26.8, p < .001$ ), number of pre-index calls was added in Block 3 and explained an additional 2% of the variance, which was a small but significant portion,  $R^2_{ch} = .02, F_{ch}(1, 195) = 5.2, p = .02$ . However, pre-index calls for service had no significant incremental validity over ODARA total score, as the ODARA total score significantly accounted for an additional 7% of the variance when included in Block 3 ( $F(1, 195) = 15.3, p < .001$ ) beyond pre-index calls in Block 2,  $R^2_{ch} = .08, F(1, 196) = 16.1, p < .001$ .

The second hierarchical regression was conducted with number of recidivistic IPV incidents as the dependent variable. Again, age and gender did not significantly contribute to the post-index predictive ability of the model in Block 1,  $F(2, 197) = 1.17, p = .31$ . ODARA total score explained 14% of the variance in Block 2 ( $F_{ch}(1, 196) = 33.77, p < .001$ ) and number of prior calls, included in Block 3, significantly explained an additional 13% of the variability in the number of post-index IPV incidents committed by the suspect,  $F_{ch}(1, 195) = 36.79, p < .001$ . When Blocks 2 and 3 were reversed so that number of pre-index calls was included in Block 2, this variable significantly explained an additional 24% of the variance in number of post-index IPV incidents beyond suspect age and gender in Block 1,  $F_{ch}(1, 196) = 61.5, p < .001$ . When ODARA total score was added in Block 3, it significantly explained another 4.3% of the variance in the model ( $F_{ch}(1, 195) = 11.8, p = .001$ ). Thus, number of pre-index calls did not have true incremental validity over ODARA total score, as it did not explain any variance beyond that accounted for by ODARA total.

A Cox regression analysis was conducted to assess the utility of number of prior calls in predicting time to first post-index IPV offense. Given that this was the second of two Cox regressions being

conducted, alpha was set at .025. Suspect age and gender were entered in Block 1 and did not significantly predict time to next IPV offense,  $\chi^2(2) = 1.6, p = .44$ . In Block 2, ODARA total score was a significant predictor of time to first post-index IPV offense ( $\beta = .23, p < .001, \exp(\beta) = 1.3$ ) and significantly improved the predictive ability of the model,  $\chi^2_{ch}(1) = 27.7, p < .001$ . Number of prior calls was included in Block 3 and was not a significant predictor of time to next IPV offense at the stringent  $p < .025$  level, although was significant at the standard alpha level of .05 ( $\beta = .05, p < .05, \exp(\beta) = 1.1, \chi^2_{ch}(1) = 4.7, p = .03$ ). When Blocks 2 and 3 were reversed so that number of prior calls ( $\beta = .07, p < .001, \exp(\beta) = 1.1$ ) was included in Block 2 of the model ( $\chi^2_{ch}(1) = 19.7, p < .001$ ), and ODARA total score ( $\beta = .21, p < .001, \exp(\beta) = 1.2$ ) was added in Block 3, ODARA total score significantly improved the predictive ability of the model ( $\chi^2_{ch}(1) = 19.9, p < .001$ ). Therefore, number of pre-index calls did not add true incremental validity beyond the ODARA total score in predicting time to next IPV offense.

Two hierarchical regressions were conducted to examine the prediction of L-Injury scores and L-Violence scores by number of prior calls for service. Alpha was set at .025 for these two regression analyses. After controlling for age and gender in Block 1 of the first model ( $F_{ch}(2, 197) = .34, p = .71$ ), number of prior calls was included in Block 2 and failed to significantly predict higher L-Injury scores,  $R^2_{ch} = .02, F_{ch}(1, 196) = 4.1, p = .04$ . The second hierarchical regression was conducted with L-Violence as the dependent variable. Variance associated with age and gender was statistically controlled in Block 1,  $F(2, 197) = .18, p = .83$ . Number of prior calls was added in Block 2 but was not found to significantly predict L-Violence scores,  $R^2_{ch} = .01, F_{ch}(1, 196) = 2.0, p = .16$ . Thus, number of prior calls for service did not predict the intended or actual harm caused to the victim at the index IPV incident.

### **Police Response to IPV Events**

For 63% ( $n = 126$ ) of cases in the sample, the police file was forwarded by the responding officer(s) to Records with no further action being taken beyond documentation of the incident. In 30% ( $n = 60$ ) of cases, the suspect was never spoken to by police. This was a result of the suspect having fled the scene prior to police arrival and the police failing to subsequently make contact with him/her. This response was the case even in the high risk group, in which approximately one third (32%;  $n = 23$ ) of high risk offenders had no contact with police in relation to the index incident. There was no significant effect of risk category on officers' decisions to proceed with charges or send the file to records,  $\chi^2(2) = 1.98, p = .37$ . However, the decision to forward the file to records varied as a function of L-Injury. The mean L-Injury score for files sent to records was significantly lower ( $M = .86, SD = 1.3$ ) than for files not sent to records ( $M = 1.6, SD = 1.4, F(1, 198) = 15.2, p < .001$ ). The same was true for L-Violence scores, whereby files sent to records had a significantly lower mean L-Violence score ( $M = 2.2, SD = 1.2$ ) than files not sent to records,  $M = 2.9, SD = 1.0, F(1, 198) = 14.1, p < .001$ . Thus, the decision to send a file to records with no further action depended on the severity of violence and injury at the scene.

An arrest was made in 37% ( $n = 74$ ) of index cases; however, 34% ( $n = 25$ ) of those arrested never went to court. The charge most often laid by police was common assault (81.1%;  $n = 60$ ). Assault with a weapon, assault causing bodily harm, threats and harassment accounted for another 15% ( $n = 11$ ), with the remaining 3.9% ( $n = 3$ ) consisting of harassing phone calls, breach of peace and probation violation. Of the 49 individuals who did go to court, only 16 (32.6%) were convicted. The overall conviction rate for reported IPV index incidents in the sample was 8%. When examining those cases in which an arrest did occur, the conviction rate was 21.6%. Peace Bonds were issued in almost half of the cases (49%;  $n = 24$ ) that appeared before the court. The most frequently imposed sentence was probation (37.5%;  $n = 6$ ), followed by a combination of probation and jail (31.2%;  $n = 5$ ).

**Police Action by ODARA Risk Level.** Level of police action was coded on a three point ordinal scale of increasing intensity of response (1 = spoke to parties/took report only, 2 = removed one party/no charges laid, 3 = arrested/charged suspect). The hypothesis that police action would match risk level, with more intensive responses corresponding to higher risk offenders, was not supported given that there was no significant difference in the intensity of police action score across the three risk categories,  $F(2, 197) = .64, p = .53, \eta^2 = .006$ . This was the case for both male ( $F(2, 171) = .60, p = .55, \eta^2 = .007$ ) and female offenders,  $F(2, 23) = 1.6, p = .21, \eta^2 = .12$ . There also was no difference in police response intensity as a function of recidivism subtype (one-timer, moderately persistent, stable persistent;  $F(2, 197) = .84, p = .44, \eta^2 = .008$ ) and this was true for both male ( $F(2, 171) = 1.4, p = .24, \eta^2 = .02$ ) and female offenders,  $F(2, 23) = .50, p = .62, \eta^2 = .04$ .

For more than half of the cases in each ODARA risk category (low - 53%, moderate - 56%, high - 54%), police action was limited to speaking with the involved parties and taking a report. Arrest rates also did not significantly vary between low (38%), moderate (33%), or high (44%) risk categories,  $\chi^2(4) = 2.6, p = .62$ . Notably, the intensity of police response also did not significantly affect post-index recidivism. Specifically, whether the suspect was arrested or not had no statistically significant effect on whether he/she reoffended ( $\chi^2(1) = .09, p = .77$ ), or on the number of times he/she reoffended during the follow up period,  $F(2, 197) = .57, p = .57, \eta^2 = .006$ .

Overall, there was no significant difference in the police response to male or female suspects,  $F(1, 198) = 1.6, p = .20, \eta^2 = .008$ . The most common police response for both male (52%;  $n = 90$ ) and female (65%;  $n = 17$ ) suspects was to speak with the involved parties. Police arrested 39% ( $n = 68$ ) of male suspects and 27% ( $n = 7$ ) of female suspects. In 9% ( $n = 16$ ) of cases involving male suspects and 7% ( $n = 2$ ) of cases involving female suspects, police removed one party from the scene of the altercation with no charges pending.

A significant correlation was found between the intensity of police intervention and L-Injury scores ( $r = .29, p < .001$ ), indicating that the police were more likely to arrest the suspect when the victim suffered more serious injuries. There was also a significant positive correlation between intensity of police action and L-Violence scores ( $r = .32, p < .001$ ), indicating that police were more likely to arrest the suspect when the intended violence observed at the time of the call was high, rather than low.

A hierarchical multiple regression analysis examined suspect, victim, and IPV context variables in predicting arrest (see Table 13). The overall model explained 43% of the variance in police decision to arrest the suspect. Block 1, containing suspect gender, age, impairment by drugs and/or alcohol, willingness to accept responsibility, and P-Trait score, was not significantly predictive of arrest,  $R^2_{ch} = .09, F_{ch}(5, 74) = 1.4, p = .23$ . Victim variables were included in Block 2, and consisted of victim age, victim gender, impairment by drugs and/or alcohol, and willingness to press charges. This Block significantly explained an additional 29% of the variance in the decision to arrest ( $F_{ch}(4, 70) = 8.2, p < .001$ ), with the only significant unique predictive contribution being made by the victim's willingness to press charges,  $\beta = .56, t = 5.6, p < .001$ . Variables pertaining to the nature of the IPV incident were contained in Block 3, including L-Injury scores, L-Violence scores, and the presence of a weapon. L-Injury was the only significant variable in this block,  $\beta = .39, t = 2.9, p = .006$ . This Block significantly explained an additional 14.4% of the variance in the decision to arrest,  $F_{ch}(3, 67) = 6.7, p < .001$ . ODARA total score was included in Block 4 and did not significantly contribute to the model's prediction of arrest beyond these other variables,  $R^2_{ch} = .002, F_{ch}(1, 66) = .30, p = .58$ .

Collectively, the above results suggest that police response was driven by the circumstances of the specific IPV incident rather than by a perpetrator's risk status of engaging in IPV. However, significant differences were found in the frequency with which police referred victims to alternate services (i.e., Department of Social Development, Victim Services) as a function of offender risk category,  $\chi^2(2) =$

7.52,  $p = .02$ . Significantly more victims in relationships with high risk offenders (63%;  $n = 45$ ) received referrals than victims whose partners were low risk (34%;  $n = 11$ ). The rate of community referrals made at the moderate risk level (53%;  $n = 51$ ) did not significantly differ from either the low ( $p = .17$ ) or high risk groups,  $p = .34$ . Thus, there appears to be recognition of need for additional intervention for high risk cases among police officers.

## Discussion

IPV is a grave social problem, the enormity of which is exemplified by the 44% recidivism rate among perpetrators in the current sample. Physical violence was used in more than three quarters of the IPV episodes examined in the current study and the victim was injured in approximately half of these cases. Accurately predicting IPV risk is the first step in determining suitable responses that effectively reduce the occurrence of partner abuse. Responses should be evidence-based and grounded in the Risk, Need, Responsivity model of case management (Andrews & Bonta, 2010), such that intervention intensity matches offender risk level, intervention focuses on risk factors associated with IPV, and intervention uses research-informed strategies to promote risk reduction. It is critical that police officers, who are often the first responders to IPV incidents, appropriately assess the perpetrator's risk of reoffending in order to best identify the cases requiring more intensive and proactive policing strategies to reduce this risk.

The current research set out to examine a means of facilitating risk-management decision making by police officers responding to cases of IPV in Saint John, New Brunswick. In particular, the current research examined the utility of a newly developed actuarial risk-assessment instrument, the ODARA, as a means of facilitating this type of decision-making. A second goal of the current research was to identify risk factors from archival police reports that were predictive of IPV recidivism to determine whether they added incremental validity to the ODARA. Finally, police responses to IPV incidents were examined to determine whether response intensity matched suspect risk and to identify which strategies, if any, were effective in reducing IPV recidivism over a 6 year follow-up period.

Several Canadian studies have provided empirical support for the utility of the ODARA in making accurate risk classifications for male IPV offenders who have committed physical violence against their female partners (Hilton et al., 2004; Hilton & Harris, 2009; Hilton, Harris, Popham, & Lang, 2010a; Hilton et al., 2010b). The current research is the first study to have demonstrated the ODARA's effectiveness in predicting IPV recidivism in a sample that includes female offenders, same sex couples, and perpetrators of non-physical intimate partner violence. In the current diverse sample, the ODARA was able to discriminate between an offender who would commit another act of violence and one who was less likely to do so, the frequency with which they could be expected to reoffend, and how long it would take before the next incident would occur. Offenders categorized as low risk were least likely to reoffend, committed fewer repeat IPV acts, and took considerably longer to do so than moderate risk offenders, who in turn were less likely and slower to reoffend than high risk offenders. Additionally, the results of the current study provided support for the utility of the ODARA in distinguishing IPV recidivists from non-recidivists regardless of perpetrator gender, victim gender, or type of violence committed (physical vs. non-physical).

In addition to being predictive of recidivism, ODARA total scores were also related to the amount of injury the victim suffered during physical assaults when there was physical aggression present. In cases in which the victim was injured as a result of the violence, more severe injuries were caused by offenders with higher ODARA scores. This is consistent with Hilton et al. (2004; 2010b), who reported an association between elevated ODARA scores and increased assault severity. Assaults, threats, and harassment were attempted with equal frequency at all three ODARA risk levels in the current sample, but high-risk cases were much more successful with their intended goal of causing the victim physical

harm. Victims of low- and moderate- risk offenders were less likely to suffer the intended consequences of the assault. Notably, there was little to no relationship between the amount of violence a perpetrator attempted against his or her partner at any one time and this person's risk of being abusive in the future. Indeed, violence severity was not found to be related to ODARA risk level in the current sample. For several of the repeat offenders, post-index offenses consisted of threats and harassment interspersed with physical assaults. Similarly, there were non-recidivists whose index event involved a high level of violence. Thus, severity of attempted harm is not likely to be a reliable indicator of whether a subsequent IPV incident will occur, and relying on such a factor may lead to over- or under-estimations of risk when responding to calls for service in the future.

The lack of an association between attempted violence and recidivism in the current sample contradicts the popular notion that violence severity escalates over time (Frye, Manganello, Campbell, Walton-Moss, & Wilt, 2006; Zara, Ponsoda, & Carrillo, 2009; Zeeve, 2008). It is possible that the lack of escalation (or de-escalation) was due to the limited number of repeat incidents for many of the offenders in the sample, which restricted the comparison of IPV severity to only three points in time. Following cases over additional incidents may have showed the expected escalation or de-escalation in violence. It also may be that the time between incidents washed out any change in L-Injury and L-Violence over time. Escalation or de-escalation may occur when there is a short timeframe between IPV episodes (i.e., a few days or weeks), but not when the incidents are spaced out (months or years). Alternatively, the current data could reflect the fact that the degree of injury and violence do not change in a linear and predictable fashion. Bennett-Cattaneo, Cho and Botuck (2011) conducted a longitudinal examination of intimate partner stalking and found that severity did not follow a predictable trajectory. Rather, case-specific variables were implicated in the escalation and de-escalation of stalking for individual clients. This may be true in the current sample as well, in that the severity of an individual IPV episode is related to acute, dynamic factors inherent in the situation at the time. Thus, degree of violence in a single incident may not be a useful risk marker for determining whether the behaviour will persist or for gauging the anticipated severity of the next incident. If this is the case, then a more useful and proactive risk management strategy would be to consider the perpetrator and victim's full case history when attempting to predict future IPV rather than base this decision on a single episode.

In addition to validating the ODARA for use in Atlantic Canada, the current research examined a number of factors that were hypothesized to enhance the validity to the ODARA. One of the hypotheses was that the number of pre-index IPV-related calls to police would be predictive of the number of future calls. This hypothesis was partially supported, as a greater number of pre-index IPV calls did predict recidivism. Adding the number of prior calls to the ODARA total score also added to the prediction of whether or not a perpetrator reoffended, but the number of prior calls did not contribute to the prediction of how rapidly the next offense would occur beyond what was already estimated by the ODARA total score. Furthermore, review of sensitivity and specificity data within the ROC analysis indicated that there only had to be one pre-index IPV call to police to maximally increase the likelihood that there would be future calls. This result highlights the importance of intervening with perpetrators and victims of IPV after the first incident in an effort to reduce the risk of future violence, especially in moderate to high risk cases.

Repeat IPV episodes occurred much more quickly for moderate and high-risk offenders in the current sample. Three months after the index offense, more than 10% of moderate risk and 20% of high risk offenders had committed another abusive act. After six months, the recidivism rates increased to more than 20% of moderate-risk and almost 40% of high-risk offenders. It took only 26 months for all of the high-risk recidivists to reoffend. Knowing this trend, front-line professionals may achieve greater effectiveness in responding by adopting a proactive rather than a primarily reactive approach to cases involving IPV. If an offender is assessed as high-risk, repeated follow-ups/check-ins with both parties involved in the IPV episode should be conducted within the first ninety days to circumvent future

violence. These check-ins create opportunities for police to monitor IPV risk, but also opportunities to engage the perpetrator and/or the victim in a way that might facilitate their willingness to seek assistance and participate in community services that address risk factors associated with IPV (e.g., shelters, social services, family/couples therapy, domestic violence-focused interventions, conflict resolution skill building, interpersonal effectiveness training). Partnerships with the community will be key to ensure that there are adequate community services for which perpetrators and victims can be referred and case managed in meaningful ways. Given that only 5 out of 32 offenders in the low-risk category had an instance of repeat violence in the entire 6 year follow up, the need to focus resources and intervention on this group is reduced relative to moderate and high risk cases.

### **The Role of Perpetrator Gender in IPV Risk Assessment**

Perpetrators in the current sample were classified, on average, as having a moderate risk of reoffending, and this was true for both male and female perpetrators. There were also no gender differences found in the mean overall ODARA score, or in the ability of the tool to predict IPV recidivism. This means that male and female perpetrators fell into low, moderate and high risk categories in equal proportions. Further highlighting the gender similarity in IPV, both genders had an equal likelihood of reoffending violently against their partner. The fact that females were represented in all three risk classifications, not just the low-risk category, contradicts the long-standing view that female perpetrated IPV is less severe than that perpetrated by males (Dobash & Dobash, 1979; Dobash, Dobash, Cavanagh, & Lewis, 1998; DeKeseredy, 2006).

The actual injury caused to the victim was similar for male and female perpetrators in the current sample, but females attempted to commit more severe violence than males. Specifically, female perpetrators were more likely to use severe acts of violence, such as punching the victim or hitting the victim with an object, whereas males were more likely to attempt less serious violent actions, such as grabbing or slapping the victim. This finding is consistent with reports that when women do commit IPV, their actions are more severe than those of abusive men. Cho and Wilke (2010) found that, although men were victims of IPV less often and received fewer injuries than females, they were more likely to experience more severe violence by their female abusers. Dutton, Nicholls, and Spidel (2006) conducted a literature review on domestic violence and concluded that females are as abusive as males in intimate relationships. They further concluded that women who commit violence against their partners possess many of the same characteristics and risk factors as male abusers. This perspective contradicts previous views, which state that women are rarely the aggressors in abusive relationships and that they use violence for different reasons than men (i.e., self-defense; Dobash et al., 1998; Henning, Martinsson & Holdford, 2009; Miller, 2001). In fact, a number of studies suggest that women's IPV is often not defensive and that men sometimes use violence in self-defense. A study by Sommer (1994) in Winnipeg, Canada, found self-defense to be the motive for only 10% of female perpetrators and 15% of male perpetrators of IPV.

Examinations of clinical populations, including domestic violence intervention programs, have found that women report similar reasons for their aggression to those reported by men, including anger, jealousy, control, a lack of commitment from their partner, and a means of "getting through" to their partner (Carrado, George, Loxam, Jones & Templar, 1996; Graham-Kevan, 2009; Harned, 2001; Henning, Jones, & Holdford, 2005). In the current study, various reasons for the violence were reported to police, including jealousy, money, children and alcohol. There were no gender differences in the reported reasons for the abuse, with the exception of "breaking up," which was reported significantly more often by female perpetrators than male perpetrators as the reason for their violence. Thus, feelings of "losing control" over a partner, which often has been cited as an explanation for male perpetrated post-separation violence (Brownridge, Chan, Hiebert-Murphy, Ristock, Tiwari, Leung & Santos, 2008; Sev'er, 1997), also contributes to female perpetrated IPV. A review of several studies

that examined gender variations in the relationship of various risk factors to IPV was conducted by Medeiros and Straus (2006). They reported that, in 72% of cases, there were no gender differences in the relationship between a risk factor and IPV between male and female offenders. Specifically, risk factors such as youthfulness, conflict in the relationship, dominance, and having an angry personality were noted with equal frequency in female and male abusers.

In general, the current research challenges the traditional feminist perspective (Dobash & Dobash, 1979) which views female IPV as a less serious phenomenon than male-perpetrated partner violence. Notably, the current findings suggest that a female abuser is as likely as a male to reoffend against a partner, is as likely to be a high-risk offender, and is as likely to inflict as much harm as a male perpetrator. Furthermore, feminist theory is less able to account for IPV within the context of homosexual relationships, especially in the case of female-female pairings. Examination of the current sample reveals that the only instances of same-sex violence occurred in lesbian relationships. Lie and Gentlewarrior (1991) conducted a large scale survey of over 1000 lesbians and reported that over half (52%) had been abused by a female partner and more than half reported having committed violence against their partner. Similarly, Lie, Schilit, Bush, Montagne, and Reyes (1991) found that women who had been in both lesbian and heterosexual relationships reported higher rates of verbal, physical, and sexual abuse by lesbian partners than by heterosexual partners, which emphasizes the importance of developing a non-gendered theory of IPV rather than adhering to the traditional feminist perspective that explains domestic violence in terms of patriarchal aggression.

Although the ODARA was developed with males, the current study shows that it also can be used to inform the prediction of female IPV recidivism. A moderate effect size was found for the prediction of female recidivism ( $AUC = .67$ ) and this did not substantially differ from the predictive ability the ODARA displayed with male perpetrators ( $AUC = .70$ ). It should be noted that the confidence interval was slightly broader for females (95%  $CI$  [.46, .88]) than for males (95%  $CI$  [.63, .78]), indicating less precision in predicting female recidivism. This variation may be due to the lower number of females in the sample. It also could be that the ODARA is not capturing risk factors for female perpetrators of IPV as well as it should, given that it was developed using male data. Studies have found that there are certain risk factors that may be predictive of IPV recidivism in females, but not in males. Ménard, Anderson, and Godboldt (2009) reported that the severity of the original assault and having previously terminated the relationship with the victim were predictive of repeat IPV by females, but not by males. In contrast, history of probation or parole and unemployment were predictive of IPV recidivism by males. The relationship between gender and risk factors for IPV recidivism needs to be further explored so that risk tools designed for use with male and female offenders can offer greater utility in the prediction of repeated IPV episodes. The identification and addition of gender sensitive IPV risk items should enhance the ability of the ODARA to predict female perpetrated IPV acts.

### **Relevance of the IPV Context to Assessment of Risk**

One of the original goals of the current research was to identify additional suspect, victim, and contextual variables beyond those scored by the ODARA that would enhance the validity of the tool as a means of predicting IPV recidivism. Several variables, including suspect/victim age and gender, level of suspect/victim impairment by alcohol/drug, presence of a weapon, length of relationship, type of relationship (i.e., common-law, married, etc.), and suspect willingness to take responsibility for his/her actions, were examined for their potential influence on IPV recidivism, but few of these variables were found to explain any additional variance beyond that which was already explained by the ODARA. The lack of incremental predictive or discriminative power of these factors may have stemmed from the fact that many of these characteristics were present in the majority of IPV episodes. For example, whether or not a perpetrator was willing to take responsibility for the violence he or she had committed was not found to be predictive of recidivism. This lack of predictive power likely stemmed from the fact that over

90% of perpetrators in the sample refused to take full responsibility for their actions. Despite the inability of this variable to predict IPV recidivism over and above the ODARA, it appears to be a key element of the IPV offender profile relative to individuals who do not engage in violence. Henning et al. (2005) identified denial and/or minimization of the violence and blaming the victim as significant risk factors for both male and female partner abuse reoffending and argued that these factors should be important targets for treatment.

Despite not adding incremental validity to the ODARA, several contextual variables were significantly correlated with IPV recidivism. Suspect characteristics, such as poor anger control, jealousy, possessiveness, and having a criminal record, were all significantly correlated with IPV recidivism in the current study. Certain victim characteristics, such as a history of abusive relationships and inconsistent behaviour towards the suspect were also associated with recidivism. Although the inclusion of these offender and victim-oriented variables did not enhance risk prediction above information captured by the ODARA, they are relevant to risk management and should be targeted for intervention to reduce risk.

Interestingly, the suspect's level of substance-induced impairment was not correlated with recidivism, despite the fact that approximately 60% of the offenders in the sample had a history of substance abuse and more than half were under the influence of drugs or alcohol at the time of the index offense. Although alcohol and/or drug use was not predictive of IPV recidivism or of the amount of injury and violence that occurred, it was a common element of most IPV cases in the current sample. This was true whether the suspect was male or female and regardless of risk level. This finding adds to a large body of contradictory findings with respect to the role of substance misuse in domestic violence. The inhibiting effects of substances and their influence on one's problem solving and emotional functioning likely contribute to the occurrence of IPV. Although addictions do not justify the use of violence, substance abuse may precipitate conflict and impair an individual's ability to use appropriate coping skills (Florsheim & Moore, 2008; Orford, Velleman, Copello, Templeton & Ibanga, 2010; Smyth & Wiechelt, 2005). Given this fact, it is likely that IPV offenders with comorbid addictions would benefit from substance abuse treatment programs in addition to IPV-focused interventions. Indeed, studies have found that offenders who receive treatment for their substance abuse show greater reductions in IPV following IPV-focused interventions than those whose addictions are left untreated (O'Farrell, Fals-Stewart, Murphy & Murphy, 2003; Stuart, Ramsey, Moore, Kahler, Farrell, Recuperco, & Brown 2003).

Fals-Stewart, Leonard, and Birchler (2005) discovered that drinking alcohol was more strongly associated with the likelihood of severe IPV among men with antisocial personality disorder (ASPD) compared with those without ASPD who drank. It could be that personality organization rather than alcohol consumption is the more relevant risk factor for intimate partner abuse. Indeed, antisocial personality characteristics may be a strong predictor of IPV recidivism (Harris, Hilton, & Rice, 2011). Recent research suggests that IPV offending is more influenced by stable, long-term traits than by situational factors (Nicholls, 2011; Norlander & Eckhardt, 2005; Storey et al., 2009) and that enduring antisociality may in fact play a causal role. Harris et al. (2011) were able to significantly account for long term IPV recidivism using measures of psychopathy (PCL-R score), antisociality (symptom count for DSM-IV Antisocial Personality Disorder) and criminal history (e.g., prior correctional sentences, past non-domestic violence). This domain of enduring antisocial traits explained a significantly greater portion of the variance ( $R = .417$ ) in long-term IPV offending than domains reflecting neighbourhood characteristics ( $R = .205$ ) or relationship variables ( $R = .303$ ). Moreover, in a meta-analysis, Norlander and Eckhardt (2005) reported higher levels of anger and hostility in IPV perpetrators than in non-violent individuals. They further noted that IPV perpetrators scoring in moderate- to high-risk categories displayed more anger and hostility than did low- to moderate-risk IPV subtypes. These findings are consistent with the current study in which poor anger control by perpetrators, as reported by the victims or directly observed by the responding officer, was predictive of IPV recidivism.

Although there is considerable evidence to support the role of psychopathy in interpersonal violence (Boyle et al., 2008; Felson & Lane, 2010; Hilton et al., 2008; Harris et al., 2011; Walsh, Swogger, O'Connor, Schonbrun, Shea, & Stuart, 2010), most formal assessment measures of psychopathy require a high level of clinical training to administer. As such, the utility of this construct for first-responders to IPV incidents (e.g., police officers) has been of limited value. Hilton et al. (2010b) identified the measurement of psychopathy in front-line context as a challenge for future research. In response to this challenge, the current study identified a group of observable and measurable traits that could be gleaned from police and victim descriptions of the offender's behaviour. The resulting P-trait scale included items such as the expression of procriminal attitudes, poor anger control, impulsivity, callousness, and deceitfulness. These traits were found to be strongly predictive of IPV recidivism in the current sample. The addition of P-trait total score to the ODARA total score created the R-ODARA, and significantly improved the prediction of whether, how often, and how quickly an offender would reabuse his or her partner relative to use of the ODARA in its original form. Findings indicated that the more psychopathic personality traits an offender displayed, the greater his or her likelihood of committing future IPV. Furthermore, high-risk offenders displayed significantly more psychopathic traits than did low- or moderate-risk offenders. Stable persistent offenders also displayed more psychopathic personality characteristics than did less prolific IPV offenders. Taken together, this evidence suggests a role for stable, enduring personality characteristics in IPV, which may account for the fact that many of the situational variables examined in the current study did not contribute to the prediction of recidivism. These traits can be informally assessed from police records, and should inform risk assessment in cases of IPV.

### **Victims and Revictimization**

There has been much research attention devoted to perpetrator characteristics that influence risk of IPV reoffending, yet there is a relative paucity of data on victim vulnerability factors despite indications that certain factors can increase one's risk of being victimized by an intimate partner (Belfrage & Strand, 2008; Golinelli, et al., 2008; Nixon et al., 2004). This deficit is partially due to society's reluctance to "blame the victim"; however, some research suggests that characteristics of both parties and their relationship dynamic influence IPV risk (Moffitt, Robins, & Caspi, 2001). To maximize the reduction of future violence, comprehensive IPV intervention and prevention strategies need to address both victimization risk factors and perpetrator risk factors (Nicholls, 2011). Thus, a greater understanding of victim and victim-perpetrator dynamic risk factors is required to inform such interventions.

Almost 75% of victims in the current research had a history of being in violent relationships. Hoyle (2008) argued that many victims tend not to behave in rational, harm-reducing ways after being victimized. Through intervention, victims can become empowered and inform themselves about ways to make better choices about and within their intimate relationships and, thereby, minimize their risk of further victimization. It is important for victims to be aware of risk factors that are in their control so that they can make informed changes in their life and escape the cycle of violence (Cattaneo & Goodman, 2005). Based on the current research, a history of being in violent relationships among victims was predictive of violent recidivism by their current partner. In other words, victims who were abused by previous partners were likely to be repeatedly abused by their current partner. This was especially true for victims in relationships with high-risk, stable-persistent offenders. These victims also displayed significantly more inconsistent behaviour towards their partners than did victims in relationships with less prolific IPV perpetrators (i.e., one-timers). This inconsistent behaviour by a victim, defined as repeated cycles of breaking up and reconciling with his or her abuser, also was found to predict repeated violence. It is critical for victims to recognize this pattern when they are trying to escape from an abusive relationship so that the pattern can be broken.

Victim age, gender, and criminal record were not predictive of revictimization. The predictive ability of several other contextual variables such as the victim's employment, education, and the availability of supportive peers, could not be assessed in the current sample because these factors were rarely mentioned in the context of police reports. Future research on IPV risk factors should explore the influence of these variables. Dynamic victim characteristics, such as alcohol/drug use and pregnancy, were not linked to repeat victimization either. Revictimization, like IPV recidivism, may be influenced more by internal traits rather than by dynamic, context-specific factors. This argument is in line with the model proposed by Foa, Cascardi, Zoellner, and Feeny (2000), in which psychological difficulties, such as PTSD, depression and anxiety put women at risk of revictimization, whereas resilience (defined by Foa et al. as an ability to adjust to and recover from adverse circumstances) serves to reduce the risk of revictimization. Further research is needed to clarify the interrelationship among IPV, psychological difficulties, and resilience.

Although few gender differences were found relating to the perpetration of IPV in the current sample, there was a gender difference noted among victims. Several variables were identified that reflected the presence of psychological abuse within the relationship. Male and female victims reported equal levels of jealousy and possessive behaviour by their partners, but there were significant gender differences in the reporting of other types of emotional abuse. Significantly more females than males reported that their partners engaged in coercive or threatening behaviour towards them. Females also reported higher rates of belittling and demeaning conduct by their partners. Almost half of the female victims reported to police officers at the scene that they feared their partner, whereas none of the male victims admitted to being fearful of their female abuser. This latter finding is inconsistent with other data, given that female perpetrators caused as much injury to their victims as did male perpetrators and committed more serious violent actions. It is possible that male victims underreported their fear of an abusive female partner due to stereotypical gender expectations of masculinity (Cercone, Beach & Arias, 2005; Stanko & Hobdell, 1993).

## **Police Response**

The hypothesis that the level of police response would match the level of perpetrator risk was not supported by the current findings. Offender risk category had no relation to the action of the police in response to the index IPV event. In more than 60% of cases, police response consisted simply of talking with the involved parties and generating a police report. Arrests were made in just over a third of cases, regardless of the offender's risk level. Police were just as likely to arrest a suspect who was at a low risk of reoffending as they were to arrest one who was high-risk. Furthermore, perpetrator gender did not appear to influence the decision to arrest. Although slightly fewer women (27%) than men (34%) were arrested, this difference was not found to be significant. This lack of an arrest-bias on the part of the Saint John Police Force is noteworthy as it challenges the frequently reported tendency for police to arrest a disproportionate number of males for domestic violence offences relative to females (Capaldi, Shortt, Kim, Wilson, Crosby, & Tucci, 2009; Hamel, 2011).

It was concerning that approximately one third of suspects were never spoken to by police, as they had left the scene prior to police arrival and were not subsequently contacted. This occurred with equal frequency among high- and low-risk offenders and is consistent with research that has found a key factor in police decision to arrest is whether the suspect has left the scene (Buzawa & Hotaling, 2000; Robinson, 2000). Obviously, it is difficult to make an arrest if the suspect is not present, but in cases of IPV, it is rare for police to be unaware of the suspect's identity or unable to ascertain his or her whereabouts. Of further concern is the fact that over 60% of cases received no police intervention beyond the officer attending the scene and taking a report. This could be due in part to the fact that in Canada, there are no nationally legislated procedures governing police response to IPV. Notably, this

response is not unique to the Saint John Police Force. Recent research has found similar rates of non-intervention by officers attending domestic violence incidents throughout the 10 Canadian provinces. Barrett, St. Pierre, and Vaillancourt (2011) examined a subset of survey data from Canada's 1999 General Social Survey. The selected respondents were females who reported experiencing physical or sexual IPV by a male perpetrator. Fewer than half of these women stated that police attended the scene, took a report, and/or initiated an investigation and in roughly 75% of cases, the police left the perpetrator in the home.

Although approximately one third of offenders in the current sample were arrested by police, only one third of those arrested subsequently appeared in court and even fewer were convicted of an offense. The overall conviction rate for reported IPV index incidents in the current sample was 8%, which is consistent with other reports of IPV convictions being rare and infrequent (Garner & Maxwell, 2009; Hartman & Belknap, 2003; Sherman, 2000). Thus, arresting IPV perpetrators is not likely to have a long-term impact on subsequent IPV episodes if most cases are never prosecuted and no other interventions are provided. Proactive police-based responses and community interventions may prove more impactful. Officers were significantly more likely to refer victims of high-risk perpetrators to alternate community resources, such as Victim Services or the Department of Social Development. This finding indicates that, although police arrest decisions were not influenced by risk level, these officers may have intuitively viewed high-risk offenders as more dangerous and provided victims with more options and resources in those cases. Seith (2005) reviewed 126 case files and interviews with police officers and found that even when arrest did not take place, officers would often provide information about legal rights and procedures, refer victims to relevant institutions, and suggest safety measures.

Perhaps the police feel that their hands are tied in terms of what they can do in situations in which their "gut feelings" tell them that there is an elevated level of threat in the absence of observable evidence. They may not feel justified enacting a formal arrest if they cannot observe evidence of a physical assault or cannot prove that a crime has been committed. Even if the police do exercise their right to make an arrest against the victim's will, without a reasonable probability of conviction, the crown prosecutor may not proceed with the charge and the case is likely to be dropped before reaching the level of the courts. Seasoned officers who have had the frustrating experience of making an arrest and conducting an investigation only to have their case not approved by the crown are less likely to make the same effort in the future. This frustration leads to disillusionment and even detachment for some police officers who have experienced the revolving door of domestic violence, whereby they repeatedly deal with the same victims and suspects with little support from the courts (Horwitz, Mitchell, LaRussa-Trott, Santiago, Pearson, Skiff, et al., 2011). Despite this frustration, when officers sense that the victim is in a dangerous situation, they provide him or her with options for resources or safety planning measures in hopes of improving the victim's circumstances.

Another reason that police may choose to arm the victim with information rather than arresting the suspect is their uncertainty regarding sustained victim cooperation. An officer may be hesitant to invest a lot of time and effort into an investigation when the victim is wavering in his or her decision to support the charges. Even though officers have the authority to make an arrest without being requested to do so by the victim, without a formal complaint and statement from the victim indicating his or her desire to press charges against the suspect, the probability of conviction is very low (Garner & Maxwell, 2009; Hartman & Belknap, 2003; Sherman, 2000). Conceivably, police officers may feel that empowering the victim to make a change in the situation is more likely to reduce the chances of future violence than would trying to target the suspect's behaviour. Police may feel that arresting the suspect is not going to do anything to improve the situation. This notion was indeed supported and reinforced by the current findings, given that whether or not police made an arrest had no bearing on whether a suspect committed a repeat episode of IPV during the follow up period. Although this seems to contradict the

reasoning behind the highly popular pro-arrest policies currently practiced by many police forces (Schneider, 2000; Sherman & Berk, 1984), it is actually not surprising. If police are encouraged to make an arrest when an assault occurs, regardless of a suspect's risk, the action would not be expected to have a noticeable effect given that everyone is being treated the same way. The fact of the matter is that low-risk offenders probably will not reoffend, whether they are arrested or not, and high-risk offenders probably will.

Despite Sherman and Berk (1984)'s initial conclusion that arrest was effective in reducing recidivism, subsequent replications have not found the same results and reviews of their study cite numerous methodological problems, such as officers did not always make the responses that they were supposed to as part of the study protocol and victim reports lacked credibility (Binder & Meeker, 1988; Lempert, 1989; Mederer & Gelles, 1989). Mixed and conflicting findings since have been reported in the literature regarding the impact of arrest, with some research reporting no effect or even a negative effect in which arrest has been linked to increases in recidivism (Berk, Campbell, Klap & Western, 1992a; 1992b; Sherman, 1992; Sherman & Smith, 1992). Despite these contradictory findings, and the fact that the original research was fundamentally flawed, the results of Sherman and Berk's (1984) study have become the most widely cited in the field and provided a basis for recommendations that law enforcement agencies develop policies requiring arrest as the preferred response for domestic violence (Buzawa & Buzawa, 2003). The implementation of pro-arrest and mandatory arrest policies throughout much of the United States and Canada followed.

Perhaps the most reasonable interpretation of the mixed findings surrounding the impact of arrest is that arrest alone will not reduce recidivism because additional intervention is required to address the factors contributing to the violence. Although the idea that arrest is effective on its own has intuitive appeal, it rests on the assumption that the offender considers arrest to be a deterrent to the criminal act (Buzawa & Buzawa, 2003). Deterrence depends on the offender's ability to weigh the costs and benefits of his or her behaviour and to determine that the costs outweigh the benefits. This would require that, in the moment before committing a violent act, the perpetrator has considered that: a) the police may be called, b) the police may attend and arrest him or her, and c) that the long term negative consequences of being arrested would outweigh the short term "benefits" of committing the violence, despite a low probability of a conviction. If the threat of arrest and conviction is not salient to the perpetrator, then these consequences will not deter the violent behaviour, especially in the case of repeat IPV offenders who have abused their partners in the past without being "caught", or have been treated leniently by the criminal justice system. This being said, arrest should not be abandoned as an option by police. Police obviously need to maintain a means of regaining control of dangerous situations and individuals, protecting victims, and responding to the commission of a crime, but making an arrest in the absence of intervention to address the broader context of the perpetrator and victim's risk of subsequent IPV is unlikely to have the desired effect of reducing future violence.

Risk assessments have long been used in the criminal justice system to inform bail, sentencing and parole release decision-making. Given the heavy reliance on such methods by other areas of the criminal justice system, it makes sense for police to incorporate risk assessments into their practices to promote proactive policing responses intended to prevent future crime before it occurs. When victims of violence are seeking help, police represent the first point of contact with the criminal justice system. Rather than relying on "gut feelings" about the dangerousness of a situation and subsequent risk of future violence, police could benefit from a tool that provides an unbiased, objective assessment of the risk to inform their decision-making. Their resulting response should involve proactive police measures in keeping with the principles of contemporary evidence-based methods of community policing, which support community partnerships and problem-solving techniques (Parent & Whitelaw, 2008).

Police have considerable discretionary power in the decision to make a formal report, to make arrests, and to lay charges. Research shows that when police attend calls of domestic violence, they respond in such a way that minimizes the danger present at the time, often by separating the parties and, sometimes, arresting the aggressor. Rarely, however, are these decisions based on considerations of long-term risk (Hoyle, 2008; Hoyle & Sanders, 2000; Trujillo & Ross, 2008). Police tend to use situational decision-making, focusing on the immediate threat of danger should the two parties remain in close proximity. This approach is consistent with traditional reactionary policing, whereby officers respond to situations after they have happened, with evidence and facts playing a prominent role in the investigation process.

This reactive tendency was observed in the current sample, whereby police action relied heavily on what they saw before them at the time of the incident. In fact, almost half of the variance in the decision to arrest the suspect came from two situational variables. The strongest predictor of arrest was whether the victim requested that the suspect be arrested, in which case the police would almost always oblige. Similarly, there were many cases in which the suspect was not arrested at the victim's request, in spite of the fact that the police would have been justified in pressing charges. The next best predictor of arrest, consistent with past research (Hilton et al., 2004; 2010b), was observable injury to the victim. The more serious the victim's injury, the more likely the police were to arrest the suspect. This practice makes sense and is what would be expected, but the broader risk context must still be considered in an officer's response. Sometimes injury was not inflicted in high risk cases, yet the threat of harm to the victim remained high. By intervening more formally and intensely situations involving high risk perpetrators (even in incidents in which injury has not occurred), police could potentially prevent a serious or lethal injury from taking place in the future.

Exclusive use of reaction-based policing contradicts the newly emerging model of intelligence-led policing, which emphasizes future behaviours and responding with proactive interventions (Carter & Carter, 2009). By incorporating a risk assessment instrument, such as the ODARA or R-ODARA, into their response, police officers enhance their ability to identify high-risk cases in the absence of observable evidence, such as injury. From a practical view, prior to attending the scene of a suspected domestic violence call for service officers should obtain background information on the parties involved either via Canadian Police Information Centre (CPIC) or in-house records. This can be done quickly while en route to the call via the dispatch centre or mobile data terminal (MDT) in the police car. This information would then be used to formulate a preliminary risk assessment and help to inform and structure potential responses prior to police arrival at the scene. Once on scene, the officer must then respond to the situational demands at hand, being cognizant of all the contextual variables contributing to the IPV episode that may modify the initial risk assessment and associated intensity of response. When subsequently preparing the official police report, the officer would take a few moments to formally score the risk assessment instrument. Scoring of the ODARA and R-ODARA does not require any information outside of what police routinely collect when responding to IPV incidents, therefore the time commitment to complete the assessment is minimal. Once the total score is obtained, the offender's risk level should be noted and included in the file so that the next officer to receive a call involving that party can use the risk information to inform his or her response. It may also be time efficient to create a mechanism in which in-vehicle computers include software that calculates total risk scores from an officers' ratings and includes risk management response options based on the identified IPV risk level.

To ensure its valid use and to maximize its role in decision-making, police officers would be required to receive training on the administration and scoring of the selected risk tool, its appropriate uses and its limitations.

## **IPV Risk Management and Intervention**

The challenge is to determine which police responses, other than arrest, would work to effectively reduce IPV recidivism. Identifying interventions for intimate partner abusers needs to be done with consideration of evidence-based practices. Interventions must target factors that have been empirically linked to the perpetration of partner abuse if they are to have long-term impact (Andrews & Bonta, 2010). Rather than focusing solely on restoring the peace in the moment, a long-term strategy would be for police to gather and make use of intelligence gained from witnesses, victim, suspect, and prior dispute calls for service to inform responses that will decrease the likelihood of police having to respond to subsequent IPV events involving one or both parties. The evidence suggests that rather than targeting situational factors, which are not linked to IPV offending, it would be more beneficial to target enduring, long-term personality traits that contribute to IPV behaviour.

From a policing intervention perspective, innovative strategies are required. Davis, Weisburd and Hamilton (2010) evaluated the effect of a second responder program offered by police for the prevention of repeat domestic violence. In their study, victims who called the Redlands, California Police Department to report domestic violence were randomly assigned to receive: a) a second response within 24 hours, b) a second response within one week, or c) no second response. Reviews of police records, victim interviews and surveys conducted six months after the initial complaint revealed no reduction in domestic violence in any of the three conditions. In fact, second-response conditions were associated with increased domestic violence but the recidivism data is difficult to interpret because increased reporting could be a function of victims feeling more comfortable reporting subsequent abuse as a consequence of their increased contact with police.

Stover, Berkman, Desai, and Marans (2010) found that women who received a Domestic Violence Home Visit Intervention (DVHI) from police following a domestic dispute reported greater satisfaction with police and were more likely to report future domestic disputes the 12-month follow up period. Unfortunately, despite having a more positive view of the police than women in the control group, there were no reductions in severity or frequency of subsequent domestic violence. If the goal is to increase victim's willingness to reach out to police for assistance, or to help victims engage with relevant community resources, then police home visit programs seem to be a viable means of achieving that outcome. However, if the goal is to facilitate genuine reductions in intimate partner violence, then interventions need to go much further and address underlying antecedents of the behaviour via greater community resources and partnerships to provide the necessary interventions.

Cavanaugh, Solomon, and Gelles (2011) conducted a pilot study of a theoretically-grounded intervention for IPV that uses a psychoeducational and behavioural approach. Dialectical Behaviour Therapy (DBT) is a treatment approach for individuals who react in a dysfunctional way to intense emotional experiences that negatively influence their interpersonal relationships and are associated with problematic personality dispositions (Linehan, 1993; Linehan, Armstrong, Suawrez, Allmon, & Heard, 1991). This emotional dysregulation leads to a feeling of being out of control, resulting in drastic coping measures that could include violent and controlling behaviour, substance abuse, and/or self-harm. DBT has demonstrated effectiveness in the treatment of individuals with borderline personality disorder (BPD; Linehan, 1993; Linehan et al., 1991). As previously discussed, perpetrators of intimate partner violence share many characteristics with individuals with BPD and BPO (Albertson, 2009; Dutton, 2005; Ehrensaft et al., 2006; Holtzworth-Munroe, 2000; Marshall & Holtzworth-Munroe, 2010; Stuart et al, 2006). Conceivably then, DBT might be an effective method of intervention for reducing risk of recidivism in perpetrators of IPV.

In their evaluation, Cavanaugh et al. (2011) compared a Dialectical Psychoeducational Workshop (DPEW) to a standard anger management workshop (AMW) delivered in the context of IPV offender

treatment. Self-report questionnaires were given to participants in both programs at baseline and at program termination. There was a significant difference in all post-treatment scores, whereby the DPEW group showed significant improvements in adaptive coping skills, anger management skills, empathy skills, and decreased potential risk for expressions of physical violence relative to the AMW group. Given that their study was limited by a small sample size and the absence of data on actual recidivism, it is unclear whether this type of program would lead to a veritable reduction in partner violence. However, it is certainly promising given that improvements were noted in those personality features that have been empirically linked to IPV offending behaviour.

The delivery of clinical IPV intervention program requires training and staffing resources that go beyond those of most policing agencies, which is where partnerships with Public Safety, Social Services, Mental Health, and non-profit community agencies become crucial. Police can become a voice in advocating for better evidence-based IPV interventions in their communities so that these communities have resources to which they can refer both perpetrators and victims. Integrated community responses to IPV may be more effective in reducing perpetrator violence and increasing victim safety than traditional reactive policing strategies because these strategies address multiple aspects of the problem (Alpert & Moore, 1993; Pennington-Zoellner, 2009; Reuland, Schaefer Morabito, Preston & Cheney, 2006).

No single agency can provide all of the services required to meet the diverse needs of victims and perpetrators. Research by Horwitz et al. (2011) provided police officers with an opportunity to participate in a focus group to discuss their experiences with, opinions of, and responses to, domestic violence. Officers viewed themselves as “one thread in a complex interwoven fabric, limited by scope of practice to make long-term changes without an effective link to other professionals” (p. 623). Officers expressed the need for greater collaboration between the criminal justice system and community service providers. Different agencies that focus on individual aspects of the IPV issue should come together to form multidisciplinary teams to case manage victims and perpetrators and deliver appropriate support services. An example of such a team could include representatives from the police, public safety, emergency shelters, mental health services, domestic violence outreach services, and intervention programs for perpetrators.

There are a number of jurisdictions throughout the United States that have developed coordinated responses between police and women’s shelters or other family violence outreach agencies (Reuland et al., 2006). For example, police in Arlington, TX, Huntsville, AL, and Broward County, FL, engage in on-scene collaboration with IPV support workers who are available 24-hours a day to attend domestic violence calls with officers. The support workers are dispatched at the request of officers and provide crisis intervention, information to victims about services available to them, assistance with safety planning, helping with witness statements, transportation of victims and their children or pets to shelters, and follow-up support and referrals for legal, financial or counseling agencies. The presence of victim support workers allow police to concentrate on investigation of the crime that took place and dealing with the perpetrator. Case studies of these programs have found them to be successful in achieving the goals of enhanced victim services and safety, while less success has been noted for reductions in the frequency of domestic violence incidents (Reuland et al., 2006).

Another innovative approach to IPV responding was implemented in 2000 in the Logan River Valley, Queensland, Australia (Foelz, 2002). The Queensland Police Service, in conjunction with community agencies, developed an integrated community response to domestic violence. One phase of this response strategy is known as the Fax-Back project. When police attend a call of domestic violence, the officer asks the victim if he/she wants to be contacted by a support worker at an outreach agency. If the victim says yes, then they must sign the “fax-back” referral form to authorize police to fax the form to the outreach service. Police also leave the victim with a brochure about the service, general

information on IPV, and useful phone numbers. When the outreach worker receives the fax from police, they contact the victim by phone as soon as possible after receiving the referral (usually within 24 hours). The outreach worker talks with the victim to learn his or her specific needs and concerns with the goal of linking the victim with the services relevant to their needs. The fax-back worker provides support and information on legal services, housing/emergency accommodation, income support, child services, counseling, and assistance with the development of a safety plan. The rationale is that victim feelings of fear and isolation will diminish through being connected with a supportive network of resource providers. Police are not given the option of taking a discretionary approach in delivering this response. The fax-back service is offered in all cases of IPV, regardless of the details of the situation at hand. One unpublished external evaluation of the program (Elliott, 2001) reported that the service was effective in improving safety and security of victims, assisting victims with addressing their needs for support, and enhancing victim's access to resources.

Although attending to the needs of the victim is a critical aspect of the IPV problem, the initiatives described above focus on victim support and are, therefore, unlikely to directly achieve reductions in IPV perpetration by offenders. Hagemann-White (2006) argued that although a necessary part of the response to IPV, providing support and protection for victims is not sufficient to reduce future violence. In order to achieve reductions in IPV, responses must also contain a rehabilitative component through interventions such as perpetrator education programs (Hoyle & Sanders, 2000). Depending upon whether a perpetrator poses an immediate risk to the victim, court mandated programs can be implemented as a sentencing option. Other sentencing options (e.g., custodial sentences) do not reduce recidivism and victims often want the suspect to "get help" rather than be punished (Barrett et al., 2011).

IPV interventions are generally conducted in a group format and are derived from one of two models: the feminist perspective or the cognitive-behavioural therapy (CBT) model (Healey, Smith, & O'Sullivan, 1998). Despite the overwhelming amount of evidence that domestic violence is not solely a male-perpetrated phenomenon, this awareness has not yet translated into the clinical practice of delivering gender-inclusive interventions for IPV offenders. The majority of contemporary psychoeducational IPV-related programs remain grounded in feminist theory. Feminist-based IPV treatment programs, such as the popular Duluth model, posit that men abuse women as a means of exerting their power and control. Men are encouraged to critically examine their sexist assumptions and the methods they use to control their partners and work towards changing these values and beliefs.

Despite the fact that the Duluth model has received virtually no empirical support, it remains the most commonly used, court sanctioned intervention for male domestic batterers in Canada and the United States (Corvo, Dutton & Chen, 2009). This model targets stereotypes and social beliefs, while leaving the underlying antecedents of partner abuse, namely dysfunctional emotions and cognitions, unexamined (Dutton, 2002). Additionally, this model fails to account for female partner violence against males, or abuse within same-sex relationships.

In contrast to the Duluth model, interventions based on the CBT model are gender neutral and rest on assumptions that IPV perpetrators have deficits in anger control, relationship skills, and communication. These programs teach conflict-reducing communication, anger management strategies, and relationship skills. There have been few empirical evaluations of the effectiveness of various types of IPV offender programs. The few studies that have been conducted generally report small, non-significant effects in reducing IPV. Babcock, Green, and Robie (2004) conducted a meta-analysis of 22 batterer intervention studies that included comparison control groups. They concluded that men referred to intervention programs as part of their criminal justice sanction were 5% less likely to reoffend than men who received traditional sanctions (probation or community service). There was no difference found in recidivism rate as a function of the type of therapy (feminist vs. CBT). Feder and

Wilson (2005) conducted a subsequent meta-analysis on only the 10 most rigorous studies, which included control groups, randomization and official reports to measure recidivism. They found a 7% reduction in recidivism for offenders in batterer treatment programs; however, when partner reports of recidivism were used as the outcome measures rather than official police reports, there was no difference between the treatment group and controls. Thus, more research is required to develop evidence-based IPV interventions.

One possible contribution to the low effectiveness of IPV interventions may relate to the ongoing controversy over whether participation in these programs should be mandated or voluntary (Hagemann-White, 2006; Stuart, Temple & Moore, 2007). Some argue that perpetrators who are forced into treatment may be unwilling or unmotivated to change. Indeed, the current research found that most offenders denied responsibility for the abuse and, therefore, may be less willing to take steps to change their behaviour. However, treatment engagement and therapeutic gains may be enhanced by incorporating motivational interviewing and non-confrontational strategies into these programs in an effort to meet clients at their current state of readiness and to assist them in realizing their own reasons for change.

Methods of increasing motivation are based on the transtheoretical model of behaviour change developed by Prochaska and DiClemente (1983), which proposes that change is a process that involves at least five stages starting with pre-contemplation (no consideration of change), through contemplation, preparation, action, and maintenance (finding ways to prevent relapse). Miller and Rollnick (1991) used the transtheoretical model as a foundation from which they developed motivational interviewing. The stages of change model (SCM) was originally implemented as a method of treating addictions; however, Murphy and Baxter (1997) took these concepts and principles and applied them to the treatment of IPV. Program facilitators trained in motivational interviewing techniques foster a supportive relationship with abusers, which has the effect of decreased defensiveness and increased willingness to explore the need for change. Cismaru and Lavack (2011) reviewed 16 IPV interventions in Canada, the United States, the UK, and Australia and concluded that the most successful programs were those that emphasized the beneficial reasons for perpetrators to improve their domestic relationships and focused on enhancing their confidence in their ability to change. Research has shown that this approach can be integrated fairly easily into current IPV treatment programs and has the effect of increasing session attendance and reducing post-treatment recidivism (Taft, Murphy, Musser, & Remington, 2004).

As IPV is often addressed only after serious injury occurs to the victim and/or police become involved with the perpetrator, the majority of individuals in treatment for abusive behaviour are court mandated to attend (Gondolf, 2002). Roffman, Edleson, Neighbors, Mbilinyi, and Walker (2010) proposed a protocol for encouraging self-referrals to treatment by abusers who have not yet become involved with the criminal justice system. Roffman et al. outlined how the SCM has been applied to addictions treatment programs and has been successful with individuals who are contemplating, but not yet committed to, behaviour change. They argued that these strategies may be promising for improving outcomes with perpetrators of IPV. Follow up research examined a community sample of non-treatment-seeking IPV offenders and found motivational enhancement therapy (MET) to be effective in prompting non-court-mandated perpetrators to self-refer into treatment (Mbilinyi, Neighbors, Walker, Roffman, Zegree, Edleson et al., 2011).

Mbilinyi et al (2011) recruited men through various forms of media advertisement aimed at capturing the attention of IPV perpetrators who were concerned about their behaviour, but who were not currently involved in criminal justice proceedings. Men in the MET group received a telephone-delivered, individual feedback counselling session using motivational interviewing techniques. Personalized feedback was provided, focusing on specific behaviours that the client had reported and the definite

consequences of those behaviours for the individual's life and family. In contrast, the control group received educational material by mail that discussed general consequences of domestic violence, but provided no personal feedback for individual circumstances. Participants receiving MET showed superior motivation to change, increased willingness to attend treatment, and a greater reduction in self-reported IPV. MET has the innovative potential to reach an underserved population of IPV perpetrators and circumvent the continuation or escalation of their violent behaviour prior to it reaching the level of the criminal justice system.

Given that IPV occurs within a dyad and often in response to relationship discord, there is a growing body of evidence that IPV treatment approaches should involve both the victim and the perpetrator (Hamel & Nicholls, 2007; O'Farrell & Fals-Stewart, 2006; O'Leary & Cohen, 2007; Stith, Rosen, & McCollum, 2004). Treating the perpetrator without involving the victim may have less of an impact than treating the pair as a unit to address the relationship issues (Stuart, Temple & Moore, 2007). Stith et al. (2004) reported significant improvements in marital satisfaction and attitudes about partner abuse and significant reductions in aggression among participants in a multi-couple IPV treatment group compared to a no-treatment control group. The same attitude improvements were not reported in the individual couples-therapy group (i.e., one couple per therapist as opposed to a group of couples); however, when partner reports of reabuse was used as the dependent measure, the researchers found that men who participated in either of the two couples treatment programs were less likely to recidivate than men in the no-treatment group at both the 6-month and 2-year follow up.

O'Leary and Cohen (2007) argued that the best candidates for couples IPV intervention are those in relationships characterized by psychological aggression and mild physical aggression. For these individuals, physical aggression is often confined to the relationship and their relationships tend to be characterized by problematic communication methods and poor anger control. Couple therapy may be most appropriate in situations in which the couple has a history of low or moderate levels of violence, and the victim independently agrees to participate and does not express fear of consequences for openly discussing the problems in the relationship (Stuart et al., 2007). Indeed, the principles of SCM outlined above may be applicable to both victims and perpetrators. Brown (1997) argued that victims of IPV go through various stages of contemplation regarding their decision to remain in the violent relationship and to seek different levels of support. Programs aimed at empowering victims to regain control and/or leave a violent relationship may achieve greater success by incorporating principles of SCM and MET into their agendas.

In summary, the evidence presented in the current study, along with results from previous research (Holtzworth-Munroe & Stuart, 1994; Stuart, 2005) make it clear that IPV offenders are a heterogeneous group for which no one-size-fits-all method of intervention is appropriate or effective. The motives for which people commit IPV are abundant and varied and perpetrators differ in their risk of being violent in the future. For some perpetrators, committing an abusive act against a partner is an isolated episode for which they feel great remorse. For others, violent behaviour is a deep-rooted response to negative emotions and occurs with regularity in their interpersonal relationships. The types of interventions best suited to reducing violent behaviour in these varied circumstances must be tailored to the needs of the respective perpetrators and victims involved.

Risk assessment tools, such as the ODARA, are able to differentiate between sub-groups of IPV offenders based on their level of need for intervention. Those categorized as low risk may require minimal, or no intervention, as they are unlikely to reoffend even in the absence of treatment. Those categorized as moderate risk may be best suited to conjoint therapy or psychoeducational workshops that incorporate motivational interviewing techniques to increase the client's recognition of the problems and their desire to change. Interventions using an intensive DBT approach targeting behavioural

change through the reparation of long-standing, dysfunctional patterns of emotion regulation and problematic personality characteristics may be best suited to high-risk offenders.

All of these interventions must be delivered within the context of appropriate criminal justice sanctions in order to hold the offender accountable for the crime he or she committed and to ensure the safety of the victim. In some cases, probation or community service may be an appropriate penalty but protective orders or custodial sentences should be imposed on higher risk offenders. In cases of low-risk individuals with no prior criminal history, community service or monetary fines may suffice. It is important to emphasize that any act of violence against another person is a crime and perpetrators must be held accountable for this behaviour; however, the criminalization of IPV can be upheld within the context of a rehabilitative model. Penalties should be imposed for the behaviour in conjunction with the delivery of risk-reducing interventions.

Police and probation officers must engage in strict monitoring of moderate- and high-risk offenders to ensure their compliance with conditions, including protective orders and court-ordered batterer programs. Those who do not comply should be subject to additional, more severe consequences. The more information sharing that occurs among agencies, such as probation, police and victim services, the more effective this monitoring will be in the end. Offenders must be held accountable for their actions and victims deserve to feel validated and protected by the criminal justice system. Proactive police engagement strategies that build relationships with victims and perpetrators may facilitate their access to, and participation in, appropriate community interventions to reduce IPV risk for both parties.

### **Conclusion**

The current study demonstrated that the ODARA was effective in distinguishing between low, moderate, and high risk male and female IPV perpetrators, regardless of whether the violence was physical or non-physical. Although ODARA identified high risk perpetrators were similar to low and moderate risk offenders in the level of violence that they attempted to inflict on their partners in a given incident, it was the high risk offenders who caused the greatest level of injury to their victim. The disconnect between attempted violence and risk level may be due to the fact that the nature of the violence committed is driven by situational factors relevant during a given IPV incident, while the perpetrator's propensity to cause harm is driven more by stable, personality-based characteristics. The current research also found that female perpetrators of IPV were similar to male perpetrators in their risk profile and IPV offending patterns, which contradicts feminist theories of IPV. Indeed, female perpetrators in the current sample engaged in more severe violence than did males. These findings challenge the utility of traditional feminist-based models of IPV offender intervention (i.e., the Duluth model), as these treatments are unable to address the issue of female-perpetrated abuse and do not target factors for treatment that have been empirically linked to IPV offending.

It is noteworthy that police officers' decision to arrest the perpetrator in the current sample showed no relationship with the offender's risk of IPV. This is problematic given evidence in the literature that high-risk offenders are more likely to repeat the violence and to cause harm. It is also of note that arrest had no effect on recidivism, and would have had minimal impact in changing the outcomes of high risk offenders anyway. This is not to suggest that arrest should be abandoned as a response to IPV, but rather it should be used as a first step in a course of action intended to reduce offender risk. From a police perspective, it is not the immediate response of the officer (e.g., making an arrest) that will lead to a reduction in IPV offending. Rather, it is the process that the officer initiates with his or her response that will ultimately lead to change.

The problem of intimate partner violence cannot be eradicated simply by arresting and convicting a perpetrator, or by empowering a victim through the provision of information, options and resources.

Nevertheless, both of these steps can serve the short-term goal of reducing or eliminating the pressing danger in a situation and facilitating greater victim engagement. If, however, the perpetrator possesses certain stable, enduring personality traits, then he or she is a high risk to become violent again regardless of the situational circumstances at the time. By using a standardized risk-assessment tool to identify those offenders who are at a high risk of future violence, police can triage cases and facilitate access for IPV perpetrators who require interventions that will address the core elements contributing to their violent behaviour. The delivery of these interventions requires collaboration with agencies such as Mental Health or Public Safety, which employ professionals trained in the delivery of psychoeducational and DBT focused therapies. In this sense, police become part of an integrated community strategy grounded in strong partnerships with multiple agencies.

IPV is a multifaceted issue that must be dealt with through the collaborative efforts of a variety of professional and community services. Law enforcement is an important piece of the solution; however, the actions of police are of little long-term value if not part of an overall response to IPV that addresses the underlying causes of the problem.

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## Appendix A

### *Ontario Domestic Assault Risk Assessment (ODARA)*

Variable	Score (0 = absent; 1 = present)
1. Has a prior domestic incident	0 or 1
2. Has a prior nondomestic incident	0 or 1
3. Has a prior sentence of 30 days or more	0 or 1
4. Has failed on prior conditional release (bail, parole, probation, no-contact order)	0 or 1
5. Made threats to harm or kill during the index event	0 or 1
6. Confinement of the partner at the index event	0 or 1
7. Victim fears repetition of violence	0 or 1
8. Victim and/or offender have more than one child	0 or 1
9. Victim has biological child from previous partner	0 or 1
10. Offender is violent outside of this relationship	0 or 1
11. Indicator of substance abuse problem	0 or 1
12. Offender has assaulted victim when she was pregnant	0 or 1
13. Victim has at least one barrier to support	<u>0 or 1</u>
<b>Raw Score (sum of items)</b>	

*Note.* From Hilton et al. (2004)

## Appendix B

### *Level of Injury Scale (L-Injury)*

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

*Note.* As described in Messing (2007)

### *Linear Violence Scale (L-Violence)*

Variable	Score
• No violence	0
• Entry, held down, vandalism, ripped clothing	1
• Push, slap, throwing objects	2
• Slam, choke, kick, stomp, grab	3
• Shoot, stab, punch, bite, hit with object	4

*Note.* As described in Messing (2007)

Table 1

*P-Trait Scale for the Measurement of Psychopathic Personality Traits*

Item	Mean (SD) Score (0 = no; 1 = somewhat; 2 = yes)
Callous/lacks empathy	.35 (.57)
Lacks remorse/guilt	.43 (.67)
Manipulative/deceitful	.43 (.64)
Antiauthority/procriminal attitude	.54 (.76)
Poor anger control	1.2 (.74)
Blames others for problems	.57 (.73)
Narcissism/sees self as superior	.22 (.52)
Commits many types of crimes	.87 (.96)
Thrill seeking behaviour	.38 (.50)
Impulsive	.42 (.51)
Promiscuous sexual behaviour	.15 (.46)
Unstable intimate relationships	.65 (.79)
Total (0 to 24)	6.2 (5.1)

Note. P-Trait = Psychopathic Traits Scale. Chronbach's  $\alpha = .86$ . No gender difference in P-Trait total score,  $t(198) = -.19, p = .85$ .

Table 2

*Offender Characteristics*

Variable	% Males ( $n = 174$ )	% Females ( $n = 26$ )
Committed pre-index IPV offense(s)	60 (104)	65 (17)
Committed post-index IPV offense(s)	45 (78)	36 (9)
History of drug/alcohol misuse	63 (110)	59 (15)
Unwillingness to accept responsibility	54 (94)	47 (12)
Has a criminal record	62 (108)	31** (8)
Prior jail sentence of at least 3 months	30 (52)	4** (1)
IPV Recidivism Subtype:		
One-Timers	29 (50)	31 (8)
Moderately Persistent	37 (65)	35 (9)
Stable Persistent	34 (59)	35 (9)

Note. IPV = Intimate partner violence. \* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

Table 3

*Percentage of Pre- and Post-Index IPV Offending Events Committed by Moderately-Persistent and Stable-Persistent Offender Subtypes*

Offender Type	% committing given number of IPV Events ( <i>n</i> )			
	1-2 Events	3-6 Events	7-14 Events	15+ Events
Pre-Index Events				
Moderately Persistent	45.9 (34)	20.4 (15)	6.8 (5)	n/a
Stable Persistent	45.6 (31)	42.7(29)	5.9 (4)	6.0 (4)
Post-Index Events				
Moderately Persistent	20.3 (15)	6.9 (5)	n/a	n/a
Stable Persistent	47.1 (32)	42.6 (29)	7.4 (5)	3.0 (2)

*Note.* IPV = Intimate partner violence. Moderately persistent: *n* = 74. Stable persistent: *n* = 68.

Table 4

*Victim Characteristics*

Variable	% Males ( <i>n</i> = 21)	% Females ( <i>n</i> = 179)
Unwilling to press charges against suspect	76 (16)	79 (141)
History of violent relationships	57 (12)	69.5 (124)
Pattern of inconsistent behavior towards suspect	76 (16)	76 (136)
Coerced/threatened by partner	4.8 (1)	30.2 (54)**
Demeaned/belittled by partner	4.8 (1)	27.4 (49)*
Fears suspect	0	40 (72)***
Partner is jealous/possessive	14.3 (3)	24 (43)

*Note.* \**p* < .05. \*\**p* < .01. \*\*\**p* < .001.

Table 5

*Index Offense Characteristics for Male and Female Perpetrators*

Variable	% Overall ( <i>N</i> = 200)	% Male ( <i>n</i> = 174)	% Female ( <i>n</i> = 26)
Physical violence	76 (152)	76 (132)	73 (19)
Threats	17 (34)	18 (31)	12 (3)
Non-threatening harassment	7 (14)	6 (10)	15 (4)
Victim suffered injury	46 (92)	45 (78)	50 (13)
Weapon present	8.5 (17)	8 (14)	12 (3)
Weapon used	5.0 (10)	4.0 (7)	12 (3)
Offender was impaired	54.1 (108)	54.7 (95)	50 (13)
Victim was impaired	29.2 (58)	29.8 (52)	24 (6)

*Note:* There were no statistically significant gender differences on any variables. *p* > .05

Table 6

*Correlations between contextual variables of the index event and IPV recidivism*

Variable	Correlation coefficient
Presence of a weapon	-.09
Victim is pregnant	-.05
Victim displays inconsistent behaviour towards suspect	.19*
Victim has been in abusive relationships in the past	.26***
Victim wants suspect arrested	.06
Victim fears suspect	.07
Victim is impaired	.02
Suspect is impaired	-.07
Suspect has a criminal record	.28**
Suspect is on probation	.18*
Suspect displays jealous/possessive behaviour	.19**
Suspect is demeaning/belittling towards victim	.16*
Suspect uses coercion/threats	.13
Suspect displays poor anger control <sup>†</sup>	.34***
Suspect is unwilling to take responsibility for behaviour <sup>†</sup>	.19*

Note. \* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ . Phi coefficients were used because variables are dichotomous. <sup>†</sup>Point biserial correlations were calculated for scale variables.

Table 7

*L-Injury and L-Violence Scores for Male and Female Offenders*

Measurement Instrument	Full Sample	M (SD)	
		Male	Female
L-Injury - all index cases	1.11 (1.35)	1.11 (1.37)	1.08 (1.26)
L-Injury – cases with L-Injury $\geq 1$ <sup>†</sup>	2.40 (.91)	2.44 (.92)	2.15 (.90)
L-Violence - all index cases	2.41 (1.22)	2.40 (1.17)	2.50 (1.53)
L-Violence – cases with L-Injury $\geq 1$ <sup>†</sup>	3.27 (.77)	3.20 (.77)	3.69 (.63)

Note: L-Injury = Level of Injury Scale; L-Violence = Level of Violence Scale. <sup>†</sup> Only includes cases with L-Injury score  $\geq 1$  ( $n = 92$ ;  $n = 79$  males,  $n = 13$  females). There were no significant gender differences in L-Injury scores. \* $p < .05$ .

Table 8

*Predictive Validity of ODARA Total Score for Predicting IPV Recidivism as Measured by ROC Curve Analyses*

Measurement Instrument	AUC (95% CI)		
	Full Sample (N = 200)	Males (n = 174)	Females (n = 26)
ODARA total score	.70 (.63, .77)	.70 (.63, .78)	.67 (.46, .88)
P-Trait total score	.80 (.74, .86)	.80 (.73, .86)	.85 (.70, 1.0)
R-ODARA total	.79 (.72, .85)	.78 (.72, .85)	.82 (.66, .98)

*Note.* ODARA = Ontario Domestic Assault Risk Assessment (Hilton et al., 2004); IPV = intimate partner violence; ROC = Receiver Operator Characteristic; AUC = Area Under the Curve; P-Trait = Psychopathic Trait Scale; R-ODARA = Revised Ontario Domestic Assault Risk Assessment.

Table 9

*Pearson Correlations Between ODARA Total Score and IPV Characteristics*

IPV Characteristic	ODARA total (r)
Number of pre-index IPV offenses	.39***
Recidivism (yes = 1, no = 0)	.35***
Number of post-index IPV offenses	.39***
Days to first post-index IPV offense	-.36***
Victim unwillingness to press charges at index (yes = 1, no = 0)	.15*
Presence of psychological abuse in relationship at index (yes = 1, no = 0)	.40***
Index L-Injury total score	.11
Index L-Violence total score	.11
Index L-Injury total score <sup>†</sup>	.24*
Index L-Violence total score <sup>†</sup>	.36**

*Note.* \* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ . <sup>†</sup> Only includes cases with L-Injury score  $\geq 1$  ( $n = 92$ ). ODARA = Ontario Domestic Assault Risk Assessment (Hilton et al., 2004); IPV = intimate partner violence; L-Injury = Level of Injury Scale; L-Violence = Level of Violence Scale.

Table 10

*Total ODARA Scores by ODARA Risk Category and Perpetrator Gender*

ODARA Ratings	M (SD)		
	Overall	Male	Female
ODARA Total score	5.17 (2.49)	5.28 (2.52)	4.46 (2.25)
Low Risk	1.41 (.62) <sup>a</sup>	1.38 (.64) <sup>a</sup>	1.50 (.55) <sup>a</sup>
Moderate Risk	4.38 (.99) <sup>b</sup>	4.40 (1.02) <sup>b</sup>	4.23 (.83) <sup>b</sup>
High Risk	7.94 (1.01) <sup>c</sup>	8.00 (1.04) <sup>c</sup>	7.43 (.54) <sup>c</sup>

*Note.* ODARA = Ontario Domestic Assault Risk Assessment. Low risk:  $n = 32$ , moderate risk:  $n = 96$ , high risk:  $n = 72$ . Within columns, significant differences at the  $p < .001$  level are denoted by the use of different letter superscripts. There was also no significant difference between male and females on ODARA total score,  $F(1, 198) = 2.4, p = .12$ .

Table 11

*ODARA Risk Level Comparisons for Pre- and Post-Index IPV Offending*

Risk category	Mean (SD) # of pre-index IPV offenses	% committing post-index IPV ( $n$ )	Mean (SD) # of post-index IPV offenses
Low ( $n = 32$ )	.19 (.74) <sup>a</sup>	15.6 <sup>a</sup> (5)	.22 <sup>a</sup>
Moderate ( $n = 96$ )	1.7 (3.6) <sup>a</sup>	40.2 <sup>b</sup> (39)	.95 <sup>a</sup>
High ( $n = 72$ )	3.9 (4.1) <sup>b</sup>	62.5 <sup>c</sup> (45)	2.70 <sup>b</sup>

*Note.* Within each column, significant differences between risk categories at the  $p < .001$  level denoted by use of "a", "b", "c". ODARA = Ontario Domestic Assault Risk Assessment (Hilton et al., 2004); IPV = intimate partner violence.

Table 12

*Mean Survival Time by ODARA Risk Category*

	ODARA Risk Category		
	Low	Moderate	High
Mean (SD) time (years)	4.9 (1.8) <sup>a</sup>	3.6 (2.4) <sup>b</sup>	2.4 (2.3) <sup>c</sup>

*Note.* Significant differences between risk categories at the  $p < .001$  level denoted by use of "a", "b", "c". ODARA = Ontario Domestic Assault Risk Assessment (Hilton et al., 2004).

Table 13

*Summary of Multiple Regression Analysis for Suspect, Victim, and IPV Context Variables in Predicting Arrest*

Variable	<i>B</i>	<i>SE B</i>	$\beta$
Block 1 - Suspect characteristics			
Gender	-.15	.16	-.10
Age	-.01	.01	-.13
Impairment by alcohol/drugs	.17	.17	.18
Willingness to accept responsibility	-.08	.09	-.10
P-Trait total score	.01	.01	.14
Block 2 - Victim characteristics			
Gender	.49	.52	.34
Age	-.00	.01	-.09
Impairment by alcohol/drugs	.07	.17	.06
Willingness to press charges	.63	.11	.56***
Block 3 - IPV context characteristics			
Weapon involved	-.29	.18	-.16
L-Injury score	.14	.05	.39**
L-Violence score	.03	.05	.06
Block 4 - ODARA total score			
	.02	.03	.09

*Note.* \* $p < .05$ . \*\*\* $p < .001$ .  $R^2 = .03$  for Block 1.  $\Delta R^2 = .29$ \*\*\* for Block 2.  $\Delta R^2 = .14$ \*\*\* for Block 3.  $\Delta R^2 = .002$  for Block 4. IPV = intimate partner violence; P-Trait = Psychopathic Traits Scale; L-Injury = Level of Injury Scale; L-Violence = Level of Violence scale.

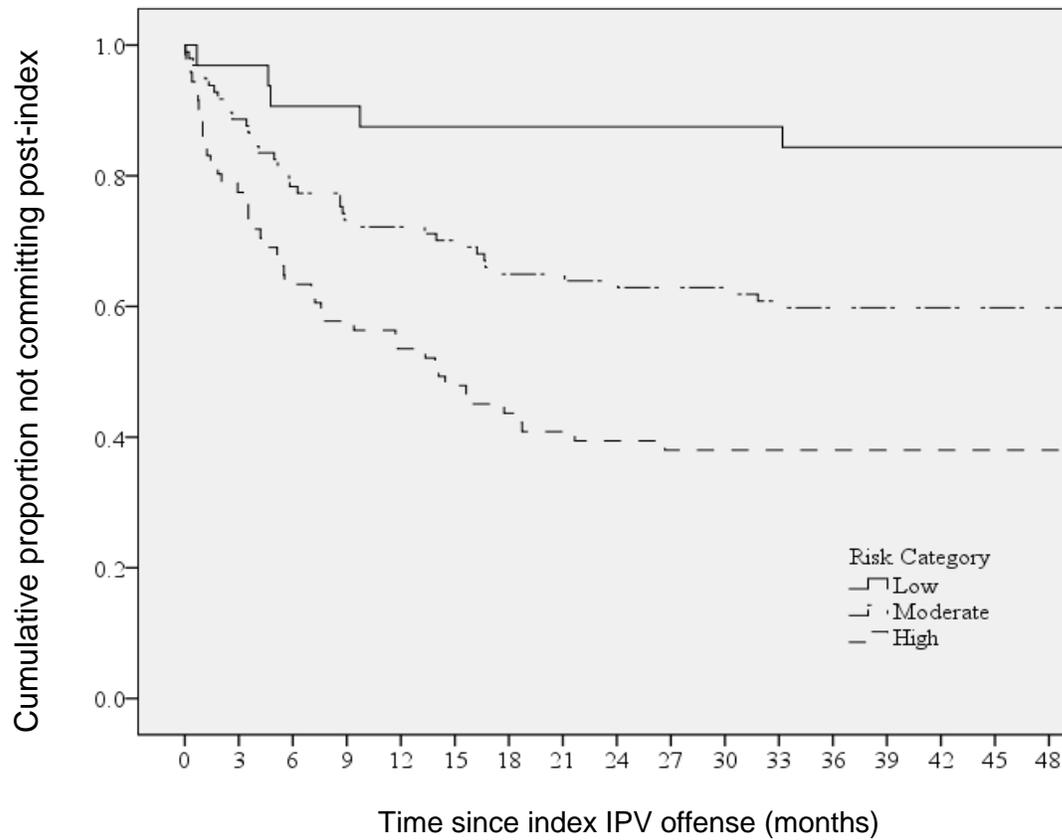


Figure 1. Kaplan-Meier survival curves for ODARA risk categories. Low, moderate and high risk offenders significantly differed in the time it took them to commit post-index IPV,  $LR(2) = 22.2$ ,  $p < .001$ . IPV = intimate partner violence.