Winter 2014

Using couple-level data to examine the relation between social information-processing and intimate partner violence among men and women in dating relationships

Sarah R. Setchell
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USING COUPLE-LEVEL DATA TO EXAMINE THE RELATION BETWEEN SOCIAL INFORMATION-PROCESSING AND INTIMATE PARTNER VIOLENCE AMONG MEN AND WOMEN IN DATING RELATIONSHIPS

By

Sarah R. Setchell

A Dissertation

Submitted to the Faculty of Graduate Studies

Through the Department of Psychology

In Partial Fulfillment of the Requirements for the

Degree of Doctor of Philosophy at the

University of Windsor

Windsor, Ontario, Canada

2013

Library and Archives Canada

Published Heritage Branch

395 Wellington Street
Ottawa ON K1A 0N4
Canada

Bibliothèque et Archives Canada

Direction du Patrimoine de l'édition

395, rue Wellington
Ottawa ON K1A 0N4
Canada

Your file Votre référence
ISBN: 978-0-494-98647-9

Our file Notre référence
ISBN: 978-0-494-98647-9

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AUTHOR'S DECLARATION OF ORIGINALITY

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ABSTRACT

The aim of the current study was to use couple-level data to examine negative emotions and social information-processing (SIP) abilities as risk factors for intimate partner violence (IPV) among 100 dating couples (N = 200; mean age = 21.45 years). Crick and Dodge's (1994) SIP model was used as a guiding theoretical framework. Participants read a series of hypothetical conflict situation vignettes and responded to questionnaires to assess negative emotions and various facets of SIP including attributions for partner behaviour, generation of response alternatives, and response selection. The Revised Conflict Tactic Scales (CTS2; Straus, Hamby, Boney-McCoy, & Sugarman, 1996) were used to assess how often acts of physical aggression occurred in the preceding year. Bivariate correlations revealed negative emotions and SIP abilities were significantly intercorrelated. A series of negative binomial mixed-model regressions were conducted based on the actor-partner interdependence model (APIM; Kenny, Kashy, & Cook, 2006). Significant results emerged for the response generation and negative emotion models. Results suggested that participants who generated a lower number of coping response alternatives were at greater risk of victimization (actor effect). Women were at greater risk of victimization if they had partners who generated a lower number of coping response alternatives (sex by partner interaction effect). Generation of less competent coping response alternatives predicted greater risk of perpetration among men, whereas generation of more competent coping response alternatives predicted greater risk of victimization among women (sex by actor interaction effects). Finally, two significant actor by partner interaction effects emerged for the negative emotion models. Participants who reported similar levels of negative emotions as their partners were at

lowest risk of perpetration, whereas participants who reported discrepant levels of negative emotions from their partners were at greatest risk of perpetration. Participants who reported low levels of negative emotions were at lowest risk of victimization regardless of their partner's emotions; however, participants who reported high levels of negative emotions were at greatest risk of victimization if they had partners who reported low levels of negative emotions. Results from the current study have implications for researchers and clinicians interested in addressing the problem of IPV.

ACKNOWLEDGEMENTS

First and foremost, I have two very important people to thank for supporting me and keeping me on track over the past ten years of my education: my mom and my dad. Thank you both for the unconditional love and support in the form of phone calls, emails, visits, and care packages. Dad, thank you for emphasizing the importance of pursuing higher education when I was a little girl. I heard your message loud and clear, although I doubt you ever expected me to go to university for ten years. I have felt your loving support and pride every step of the way. Thank you for being my biggest cheerleader. Mom, thank you for being you – a kind, optimistic, and compassionate woman. You have always accepted me without judgment and for that I cannot thank you enough. You are a constant reminder to stay balanced and embrace the lighthearted side of life.

My wonderful girlfriend, Melissa Butler, also has been a major source of support throughout my journey in graduate school. Melissa, thank you for being patient and giving me the time, space, and support I needed to complete my masters and doctoral degrees. Thank you for your unconditional love and acceptance and for always making me smile and laugh.

This dissertation has been a work in progress for over three years and the person for whom I would like to express my utmost gratitude for helping me is my research supervisor, Dr. Patti Timmons Fritz. Patti, I must thank you for your support, belief in my ability to succeed, and encouragement to apply for awards, scholarships, and conferences. You have always made your students a priority, even when your schedule was busy and the demands on your personal and professional life were countless.

Graduate school would not have been the same without you and I can only hope that I will follow in your footsteps as an outstanding supervisor to my students in the future.

There are many other people I would like to thank for a variety of reasons: Drs. Kimberley Babb, Betty Barrett, Dennis Jackson, and Gregory Stuart for being on my dissertation committee; Leyco Wilson, Kassandra Zorzan, Betty Zhang, Alyssa Beaudoin, and Maria van Duinhoven for their help with running participants, coding responses, and entering data; Brianna O'Neil for assisting me with literature reviews; Dr. Amy Holtzworth-Munroe for sharing some of her study measures and procedures with me; and Drs. Joseph Hilbe, David Atkins, and Jeremy Dawson for taking time out of their busy days to lend me their statistical advice. Last, but certainly not least, I'd like to thank Barb Zakoor, our graduate secretary, for making me feel so welcomed when I first began graduate school and for taking such good care of us graduate students.

Lastly, I must thank my amazing friends and colleagues at the University of Windsor: Holly Ambrose, Kelly Anthony-Brown, Anna Arcuri, Vanessa Bruce, Andrea Kapeleris, Bojana Knezevic, and Jen Long. You ladies made my graduate school experience one to remember and I will never forget all of the great times we had together. Despite the growing distance between us as we move on to the next phase of our lives, I know we can always rely on each other for support, encouragement, and friendship. To all my non-graduate school friends – thank you for your understanding, love, and support over the last six years. I promise you will soon never have to hear the words "sorry, I can't…" and "dissertation" in the same sentence again. Cheers to the next chapter!

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CHAPTER I

Introduction

Intimate partner violence (IPV) has been identified as a serious public health concern and has received increasing attention from researchers, practitioners, citizens, and policy-makers (World Health Organization, 2002). IPV has generally been conceptualized as a widespread social problem that affects many people regardless of age; gender; racial, ethnic, or cultural background; sexual orientation; level of physical ability; or socioeconomic status (Archer, 2000; Foshee, Benefield, & Suchindran, 2009; Freedner, Freed, Yang, & Austin, 2002; Jones & Raghavan, 2012; Lipshitz, 2006; Moagi-Gulubane, 2010; Sigelman, Berry, & Wiles, 1984; Stets & Henderson, 1991; Ward, Bosek, & Trimble, 2010; White & Koss, 1991). IPV among young people in dating relationships also has been associated with a number of negative outcomes including school failure, substance abuse, disordered eating, suicidal ideation, sexual risk behaviours, and the use or experience of violence in subsequent dating and marital relationships (Ackard & Neumark-Sztainer, 2002; Carlson, 1987; Follette & Alexander, 1992; Murphy & O'Leary, 1989; O'Leary et al., 1989; O'Leary, Malone, & Tyree, 1994; Roscoe & Benaske, 1985; Silverman, Raj, Mucci, & Hathaway, 2001). Given the pervasiveness and seriousness of IPV, it is important to gain a better understanding of early risk factors associated with dating IPV and intervene while couples are still young and dating with the ultimate goal of preventing future incidents.

The literature on IPV is constantly evolving and researchers have begun to make great strides in identifying the causes and correlates of IPV at both individual- and couple-levels of analyses. There has been growing recognition of the importance of

collecting data from both partners to better understand the causes and correlates of IPV from a couple or relationship perspective (Capaldi & Kim, 2007; Clark, Beckett, Wells, & Dungee-Anderson, 1994; Tolan, Gorman-Smith, & Henry, 2006; Simonelli & Ingram, 1998). Interestingly, however, a recent survey found that less than 25% of the relationship studies surveyed collected data from both members of the dyadic relationship under investigation (Kashy, Campbell, & Harris, 2006). The lack of couple-level research is problematic because a comprehensive understanding of why aggression occurs in romantic relationships requires knowledge of the social context in which it occurs, and this entails a consideration of the characteristics and behaviours of both partners and the interactions between them (Jacobson, Gottman, Waltz, Babcock, & Holtzworth-Munroe, 1994; Murphy & Eckhardt, 2005).

A growing area of research in the aggression literature that lends itself particularly well to a couple-level perspective is the study of social cognition, or social information-processing (SIP). The basic premise of SIP theory is that how one responds to frustration, anger, or provocation depends not so much on the objective social cues in the situation but rather on the ways in which this information is processed, interpreted, or assigned meaning (Crick & Dodge, 1994). For example, researchers have consistently found that children who exhibit a hostile attribution bias (tendency to interpret ambiguous behaviours by others as hostile) are more likely to engage in aggressive behaviours toward their peers (Crick & Dodge, 1996). The vast majority of research guided by SIP theory has been directed toward understanding child and adolescent aggression in the context of peer relationships; however, similar principles may apply to better understand

aggression in adulthood, and in fact, there is an emerging body of research examining the role of SIP abilities in predicting IPV among adults.

Research investigating the association between how adults process and respond to social information and subsequent use of aggression has focused primarily on samples of married men. Studies have shown that violent husbands, in comparison to nonviolent husbands, tend to attribute negative intent to their wives' behaviours, generate fewer and less competent responses, and ultimately respond more negatively and less competently to conflict situations (see Holtzworth-Munroe, 1992, 2000). Few studies have examined the relation between SIP and aggressive behaviour among adult women; however, there is some preliminary evidence to suggest violent women show similar deficits and biases in their marital relationships as well (Anglin & Holtzworth-Munroe, 1997; Clements & Holtzworth-Munroe, 2008).

In addition to research investigating the role of SIP abilities in predicting IPV among married couples, several recent studies also have shown that the way in which people process and respond to social information mediates the relation between earlier developmental experiences, such as witnessing family-of-origin violence, and aggressive behaviour in subsequent adult intimate relationships (Brendgen, Vitaro, Tremblay, & Wanner, 2000; Fite et al., 2008; Jouriles, McDonald, Mueller, & Grych, 2012; Pettit, Lansford, Malone, Dodge, & Bates 2010; Taft, Schumm, Marshall, Panuzio, & Holtzworth-Munroe, 2008). As such, deficient or biased SIP may not only be a risk factor for aggressive behaviour in intimate relationships, but may also be one of the causal mechanisms underlying the intergenerational transmission of family violence. This research highlights the importance of better understanding SIP abilities as risk

factors for IPV and has implications for prevention and intervention efforts aimed at breaking the intergenerational cycle of family violence.

Despite this growing research interest in investigating the role of SIP abilities in predicting IPV and family violence, most studies have followed the general trend in the relationship literature and examined this topic at an individual-level of analysis only. That is, although studies have examined how one's perceptions and behaviours in relationship conflict situations predict their subsequent use of aggression, partner behaviour is often ignored. There is growing emphasis on better understanding the social context in which IPV occurs, and as such, researchers have begun to focus their attention on the characteristics and abilities of both partners within an intimate relationship, as well as the interaction between them. The current study therefore investigated the relations between SIP abilities and IPV at a couple-level of analysis with the goal of informing prevention and intervention strategies aimed at reducing the incident of violent behaviour in adult dating relationships.

CHAPTER II

Literature Review

The following literature review begins with a broad overview of the IPV literature, including conceptual definitions and types of violence, rates of violence among adolescents and young adults, measurement strategies, and sex differences in perpetration and victimization rates. Next, etiological theories of IPV are described including sociocultural, interpersonal, and intrapersonal theories. A more in-depth description of SIP theory is provided and studies examining the role of negative emotions and SIP abilities in predicting aggressive behaviour in romantic relationships are reviewed in detail. Finally, limitations of past research, rationale for the current study, and specific research questions and hypotheses are discussed.

Overview of IPV Literature

Definitions. Many terms have been used to describe the type of violence that takes place in intimate relationships. For example, intimate partner violence, intimate partner abuse, domestic violence, domestic abuse, woman battering, wife abuse, spouse abuse, relationship violence/abuse, courtship violence/abuse, and dating violence are terms often used to describe aggressive behaviour by current or former intimate partners. The implications of how researchers choose to define or conceptualize IPV are widespread and can impact what conclusions are drawn about rates, sex differences, and consequences of IPV, as well as clinical decisions regarding how to treat perpetrators and victims of IPV (Nicolaidis & Paranjape, 2009).

The wide range of terms used to describe violence that takes place between intimate partners has resulted in complex and sometimes inconsistent investigations on

this topic. For example, it has been suggested that the term "violence" has been used interchangeably with similarly vague terms such as "aggression" and "abuse," creating uncertainties about the precise nature of IPV studied (Emery, 1989). In attempt to clarify such definitional uncertainties, some researchers argue that "aggression" refers to the act itself (e.g., yelling or hitting) whereas "violence" refers to the act as well as the resulting consequences (e.g., injury; see Archer, 1994). Other researchers have used the term "abuse" to ensure acts that do not neatly fit within the strict definition of "violence" are included, such as controlling and psychologically demeaning acts (see Belknap & Potter, 2006). There are also researchers who believe the difference between these terms to be simply semantic in nature (see Jackson, 1999), a position more generally adopted in the current study.

For the purpose of the current study, the term "intimate partner violence" or IPV is used to describe any intentional act of *physical* aggression or violence on one partner by the other in a dating relationship in the preceding year (Health Canada, 1995). The term IPV was chosen for the current study because it is gender neutral and because no assumptions are made about the sex of the perpetrator or victim. In addition, it is the most commonly used term in the family violence literature, a body of research devoted to understanding both male- and female-perpetrated IPV, and on which the current study was based.

Similar to the definitional uncertainties associated with IPV, the terms *dating* or *intimate relationship* also have been conceptualized differently across studies. For example, some definitions may explicitly state whether only heterosexual couples were examined whereas others may make no such distinction. In addition to clarifying

whether a study includes same-sex couples, a clear definition must also acknowledge the level of relationship commitment and explicitly state whether it encompasses couples who are living together or who are engaged to be married. Studies must also be clear about the nature of relationships under investigation as IPV can occur at any point in the dating process. For example, IPV can take place when people first meet, on first dates, over the course of their relationships, once they have been dating for several months or years, or even after their relationships have ended. Research has shown, however, that IPV is more likely to occur in committed relationships than in casual dating relationships (Arias, Samios, & O'Leary, 1987; Hanley & O'Neill, 1997; Laner, 1983; Laner & Thompson, 1982; Makepeace, 1989; Pederson & Thomas, 1992), and is more likely to occur when partners live together than when they live separately (Lane & Gwartney-Gibbs, 1985; Magdol, Moffitt, Caspi, & Silva, 1998; Stets & Straus, 1989).

For the purpose of the current study, the definition of a dating relationship included: (a) a range of relationship commitment from casual dating to cohabitation, (b) excluded married couples, and (c) was applicable to heterosexual relationships only. Couples who were engaged to be married were eligible to participate in the current study to increase the number of committed and cohabitating couples, a group known to be at heightened risk of IPV (Lane & Gwartney-Gibbs, 1985; Magdol et al., 1998; Stets & Straus, 1989). In addition, the focus of the current study was narrowed to heterosexual dating couples; however, investigating the negative emotions and SIP abilities as risk factors IPV among same-sex couples would represent a valuable future extension of this work.

Measurement strategies. In addition to differences in how researchers choose to define and conceptualize IPV, measurement strategies also vary across studies. It is important to understand the different measurement strategies researchers use to study IPV because they can impact statistics regarding how frequently these behaviours occur and make it difficult to draw meaningful comparisons of violence rates across studies in the literature (Jackson, 1999; Lewis & Fremouw, 2001). For example, some researchers combine data on physical and psychological aggression into a single composite score (e.g., Hegarty, Bush, & Sheehan, 2005). Other researchers blend perpetration and victimization data, although this practice appears to be less common (Jackson, 1999).

The timeframe in which IPV is measured also is not always consistent across studies. For example, some studies investigate acts of aggression occurring in the previous month, previous six months, previous year, or even across the life span. In addition, many studies do not distinguish between violent acts that occurred in a single or specified romantic relationship and acts that occurred across multiple relationships.

Researchers also differ in their approach to collecting data such that some rely on reports by only one partner whereas others collect data from both partners. Collecting data from only one partner has been common practice in the literature on IPV based on the assumption that couples should generally hold similar perspectives and agree on the events that take place in their relationships. Researchers who collect data from only one partner often cite studies showing that a substantial correlation exists between partner reports on the Revised Conflict Tactic Scales (CTS2; see Straus et al., 1996). In addition to collecting data from only one partner, researchers sometimes collect data from both

partners but then combine this data into a single composite score (Archer, 1999; Jouriles & O'Leary, 1985; O'Leary & Williams, 2006; Schafer, Caetano, & Clark, 2002).

More recently, however, there has been a growing trend toward collecting and analyzing data from both partners in the IPV literature. This trend is based on a growing body of research showing that men and women rarely agree on the occurrence or frequency of IPV in their relationships, and when they do, it is often because they can agree on the non-occurrence of violence in their relationships (Hanley & O'Neill, 1997; Perry & Fromuth, 2005; Simpson & Christensen, 2005; Szinovacz & Egley, 1995). Research on IPV in marital relationships has shown that both husbands and wives tend to report lower levels of aggression for themselves than their partners attributed to them, although some research has shown that this discrepancy generally tends to be stronger for husbands (Archer, 1999; Perry & Fromuth, 2005; Simpson & Christenson, 2005). Combining self- and partner-reports or using data from one partner only may not provide an accurate assessment of the true frequency or severity of violence that occurs within couples' relationships, particularly when sex differences in patterns of reporting occur (Szinovacz & Egley, 1995). As such, many researchers are now advocating for data collection from both partners in a relationship and use of separate self- and partner-reports in data analyses, an approach that was adopted in the current study.

Differences in self-reported rates of IPV also may be attributed to differences in socially desirable response patterns. Many studies rely on self-report measures which can lead to an underreporting of violent experiences, particularly for male respondents (Archer, 1999; Davis & Taylor, 1999; Jackson, 1999; Moffitt et al., 1997). Underreporting may occur for several different reasons including differences in how

individuals define various acts of violence, purposeful distortion strategies aimed at presenting oneself in a more socially favourable manner, cognitive minimization strategies, or perhaps even post-hoc rationalization for aggressive behaviour. In addition, underreporting also may result from awareness of the low social acceptance and societal intolerance of IPV, particularly when women are the perceived victims.

Related to social desirability and self-report issues is the finding that, in comparison to the proportion of women who volunteer to participate in violence research, the proportion of men appears to be significantly lower (Archer, 2000). Although sex differences in research participation may be attributed to a number of factors, there is a possibility that men who are unwilling to participate are those who are most aggression-prone or those who are engaging in aggressive behaviour toward their partners. Biased data in the female direction may result if physically aggressive men are overrepresented among those declining to participate in IPV research. Researchers must therefore acknowledge potential confounding variables and sampling biases when collecting self-report data on IPV perpetration and victimization.

Types of IPV. Despite a lack of consensus regarding conceptual definitions and measurement strategies in the IPV literature, most researchers agree that there are three major types of violence at the most basic level: physical aggression, psychological or verbal aggression, and sexual aggression. Physical aggression in dating relationships often includes, but is not limited to, pushing, shoving, grabbing, slapping, and throwing objects (Riggs, O'Leary, & Breslin, 1990). Psychologically or verbally aggressive behaviours occur most frequently and can often involve insulting, yelling, or swearing at one's partner and name-calling (Stets, 1991). In addition, coercive behaviour meant to

exert power and control over an intimate partner also has been recognized as a form of psychological abuse that may escalate to physical violence for some couples (Johnson & Leone, 1995). Finally, sexual aggression often includes non-consensual or forced kissing, touching, and in its most extreme forms forced intercourse or rape (Abbey, McAuslan, & Ross, 1998). Consistent with the majority of research in the area of SIP and IPV thus far, the scope of the current study was limited to the investigation of physical aggression. Given that the causes and correlates of IPV may differ according to the type of aggression under investigation (i.e., physical, psychological, and sexual), an interesting line of future research would be to examine the role of negative emotions and SIP abilities as risk factors for psychological and sexual aggression in dating relationships.

Rates of IPV. The occurrence of IPV in dating relationships is a significant and widespread social problem regardless of whether it is physical, psychological, or sexual in nature. For example, according to a recent survey conducted by Statistics Canada, close to 23,000 incidents of dating IPV were reported to police in 2008, with IPV in dating relationships representing 7% of all violent crimes and about one quarter of all IPV incidents (28%; Mahony, 2010). According to this survey, young people between the ages of 15 and 24 years were at highest risk of dating IPV, making up almost half of all dating IPV incidents reported to police (43%). It is important to note, however, that police-reported data underestimate the extent to which IPV occurs in the general population because police involvement often only occurs in the minority of cases. In fact, it has been suggested that up to 95% of all IPV cases are not known to police (Kaufman Kantor & Straus, 1990). The 2009 General Social Survey (GSS) on

Victimization found that 6% of the Canadian adult population in common-law and spousal relationships experienced physical aggression at some point in the preceding five years; however less than one-quarter of these incidents were reported to the police (Statistics Canada, 2011). To fully appreciate how many individuals and couples are affected by IPV in the general population, a consideration of more general research surveys is necessary.

Surprisingly high rates of IPV among young adults in dating relationships have been reported in more general research surveys, with approximately 20 to 50 percent of the general population reporting that they engaged in physically aggressive behaviour toward an intimate partner (Magdol et al., 1998; Shook, Gerrity, Jurich, & Segrist, 2000; Silverman et al., 2001). A recent international study examined students at 31 universities in 16 different countries and found that approximately one-third admitted to physically assaulting their intimate partner in the preceding year (Straus, 2004a). Similarly, another study examined prevalence rates of physical aggression in dating relationships among university students in 21 countries and found perpetration rates ranging from 17 to 44% and victimization rates ranging from 14 to 39% (Chan, Straus, Brownridge, Tiwari, & Leung, 2008). It is important to note that estimates of IPV tend to be much higher when psychological or verbal aggression is considered. Numerous studies have found that up to 90% of high school and college students experience psychological aggression at some point in their dating history (Jezl, Molidor, & Wright, 1996; Neufeld, McNamara, & Ertl, 1999; White & Koss, 1991). It has been suggested that psychological or verbal aggression may even be considered normative by young adults given its common occurrence (Harned, 2002).

Research has generally shown rates of IPV increase from adolescence to young adulthood. For example, an early review of the literature found that approximately 12% of high school students and 36% of college students reported physical aggression occurring in their intimate relationships (Carlson, 1987). A more recent cross-sectional study found that rates of physical aggression ranged between 10 to 25% among high school students and increased on average to 20 to 30% among college students (Wekerle & Wolfe, 1999). Longitudinal research also has shown that the rates of IPV generally tend to increase with age suggesting that, over time, dating individuals are more likely to encounter a violent partner (e.g., Halpern, Oslak, Young, Martin, & Kupper, 2001). These findings may reflect the increasing number of partners individuals tend to have over time or that risk of IPV increases as more seriously committed relationships develop over the course of adulthood (Makepeace, 1989). Although more prospective longitudinal studies are needed to better understand how risk of IPV perpetration and victimization unfolds over time and across development, prevalence rates are unarguably quite high among older adolescents and young adults in dating relationships.

Sex differences in IPV rates. One of the most controversial and vehemently debated issues in the literature on IPV surrounds the issue of sex differences in perpetration and victimization rates. Historically, IPV has been framed and understood almost exclusively as gender-based phenomenon, such that the terms "wife battering" and "violence against women" were commonly used to describe partner violence more generally. However, the early widespread assumption that IPV was strictly a women's issue was challenged when the first National Family Violence Survey was published in 1975. This survey found that rates of physical aggression were roughly equal between

men and women in a large representative community sample, with 12.1% reporting husband-to-wife violence and 11.6% reporting wife-to-husband violence (Gelles & Straus, 1988; Straus & Gelles, 1986; Straus, Gelles, & Steinmetz, 2006). Since this historic survey was conducted, hundreds of books and journal articles have been published and two major opposing viewpoints have emerged to the forefront of the literature. Specifically, feminist theorists have argued that IPV is largely male-perpetrated and rooted in the patriarchal traditions of Western society (Dobash & Dobash, 1978). In contrast, family violence theorists have argued that IPV is perpetrated by men and women at roughly equal rates and rooted in everyday relationship conflict (Straus, 1999). These two opposing viewpoints have resulted in an ongoing debate about sex differences in IPV rates in the literature. This debate is rooted in different methodological, conceptual, and sociopolitical perspectives, and both sides tend to be strongly wedded to their respective viewpoints. At a fundamental level, feminist theorists argue that IPV is a gender-based problem that affects women, whereas family violence researchers argue that IPV is a gender-neutral phenomenon that affects men and women. These differing perspectives have implications for understanding sex differences in IPV rates, identifying risk factors for IPV and whether they differ for men and women, and ultimately deciding how to approach the treatment of IPV.

More recently, to reconcile these two opposing viewpoints, Johnson (1995, 2001) proposed that feminist and family violence theorists have been using different sampling strategies and have therefore been studying two completely different types of IPV, namely coercive controlling violence and situational couple violence. Coercive controlling violence and situational couple violence are thought to differ in terms of the

larger control context in which the violence is embedded and are therefore associated with different sex patterns in perpetration and victimization rates.

The first type, coercive controlling violence, tends to be perpetrated by men against women and involves a "pattern of emotionally abusive intimidation, coercion, and control coupled with physical violence" (Kelly & Johnson, 2008, p. 478). Men who engage in coercive controlling violence use physical aggression as one of many possible control tactics to exert power and dominance over their partner in the relationship. The acts of physical aggression tend to be more frequent and severe than other types of IPV, resulting in negative health outcomes for its female victims (Dobash & Dobash, 1978; Ferraro, 2006; Kirkwood, 1993; Sackett & Saunders, 1999; Sutherland, Bybee, & Sullivan, 1998). Women who are victims of coercive controlling violence may also engage in aggressive behaviour themselves; however, this behaviour often takes place as an immediate reaction to their partner's behaviour and is intended primarily to protect oneself or others from injury (i.e., self-defense; Cascardi & Vivian, 1995; Miller, 2005). Coercive controlling violence therefore fits with the feminist perspective on IPV where aggressive behaviour is viewed as one of many possible control tactics men can use against their female partners in the context of their intimate relationships. This type of violence tends to be most common among clinical samples of men and women (e.g., refuges, police, courts, hospitals, and shelters), which are often the focus of feminist research (Johnson, 1995, 2001).

The second type of IPV, situational couple violence, tends to be perpetrated by men and women at roughly equal rates and consists of "violence that is not embedded in a general pattern of controlling behaviours… but occurs when specific conflict situations

escalate to violence" (Johnson & Leone, 2005, p. 324). This type of violence may involve one isolated incident, several sporadic incidents, or regularly occurring incidents, and it tends to be less frequent and severe than coercive controlling violence (Kelly & Johnson, 2008). Gender symmetry in perpetration rates does not necessarily imply that aggressive acts are mutually or reciprocally perpetrated by both partners in the same relationship. Nonetheless, as it pertains to situational couple violence, there is some evidence to suggest that mutual or reciprocal violence is common, occurring in about half of all cases (Ansara & Hindin, 2009; Gray & Foshee, 1997; Kessler, Molnar, Feurer, & Appelbaum, 2001; Straus, 2008; Straus, 2009a; Straus et al., 2006; Whitaker, Haileyesus, Swahn, & Saltzman, 2007). It is important to note that mutual or reciprocal violence suggests that both partners engaged in aggressive behaviour toward each other at some point in their relationship (though not necessarily within the same social exchange or interaction). Situational couple violence therefore fits with the family violence perspective on IPV, in which aggressive behaviour by men and women is viewed as a coping response to everyday relationship conflict. This type of violence tends to be most common among general samples of men and women, including college and university students, which are often the focus of family violence research (Johnson, 1995, 2001).

In summary, sex differences in IPV rates has been a topic of great debate over the past several decades, but Johnson's (1995, 2001) typology has helped to reconcile opposing viewpoints emerging from the feminist and family violence literatures. At present, most researchers tend to agree that IPV is a complex phenomenon, and that the causes and correlates of aggressive behaviour may be different depending on the context in which it occurs. The sampling and measurement strategies that researchers use may in

large part determine what type of IPV they ultimately study. As it relates to the current study, a general sample of young adults in dating relationships was used and at least one partner was recruited from a university setting. Research studies that use large community or national samples, including college and university students, have found that situational couple violence tends to occur in the majority of the cases (89%; Johnson, 2006). It therefore seems reasonable to assume that the most common type of IPV reported by participants in the current study may be situational couple violence. Post-hoc examination of data to examine sex differences in perpetration rates, severity of violent behaviour, and mutuality or reciprocity of aggressive acts will better confirm this assumption.

Theories of IPV. Many different etiological theories and frameworks have been put forth in the literature to better understand risk factors for IPV. Although not always made explicit, most theories pertain to the etiology of becoming a perpetrator, whereas some pertain to that of becoming a victim. Some theories are focused almost exclusively on explaining male-perpetrated IPV (or alternatively, violence against women), whereas others take a more gender-neutral approach. Theories and models of IPV also differ in the extent to which they emphasize proximal or distal risk factors. It is worth noting, however, that a recent meta-analytic study of risk factors for IPV found that effect sizes were smaller (and often nonsignificant) for more distal risk factors and larger for risk factors more proximal to the aggressive or violent behaviour (Stith, Smith, Penn, Ward, & Tritt, 2004). Despite having different emphases, each approach provides a unique explanatory framework and many have received at least some degree of empirical support within the literature. Several broad and sometimes overlapping approaches to identifying

risk factors for IPV are described briefly in the following sections, including sociocultural, interpersonal, and intrapersonal influences. A more detailed discussion of social information-processing (SIP) theory (Crick & Dodge, 1994) follows this section because it was the guiding theoretical framework for the current study.

Sociocultural models. Sociocultural approaches to understanding IPV take a broad approach and emphasize macro-level risk factors for perpetration including community socialization, institutional norms, shared cultural beliefs, and power structures within and outside the family. Theories and models emphasizing sociocultural risk factors differ in the extent to which they view the mechanisms underlying IPV as different for men and women. For example, some models are focused almost exclusively on explaining male-perpetrated violence by emphasizing the sociopolitical and economic forces that endorse and sanction men's power, control, and domination over women at multiple levels of society (Dobash & Dobash, 1978; Mitchell & Vanya, 2009; Walker 1979; Yllo & Bograd, 1988). This gendered approach to understanding IPV remains influential among feminist researchers who are most often interested in violence against women and the sociocultural context in which it occurs.

Other sociocultural models of IPV tend to take a more gender-neutral approach by emphasizing national, racial/ethnic, community, and familial socialization factors that increase the likelihood of perpetration for men and women (e.g., Stets & Straus, 1990; Straus, 2008). Although sociocultural approaches to understanding IPV remain influential in the literature and many have received at least some degree of empirical support (Archer, 2006; Leonard & Senchak, 1996; Smith, 1990; Yllo, 1983), they have not been without criticism. For example, it has been argued that sociocultural approaches

lack of sufficient empirical support, suppress alternative approaches to understanding IPV, and cannot explain women's use of violence against men (Dutton & Corvo, 2006; Dutton & Nicholls, 2005; Felson, 2002; Straus, 2009b). In addition, many researchers, especially within the field of psychology, study more proximal risk factors for IPV that can be easily targeted through individual- and couple-level prevention and intervention programs (e.g., behaviour-based risk factors such as communication patterns or problem-solving skills).

Interpersonal models. A more narrowed approach to understanding IPV involves consideration of interpersonal risk factors, including characteristics and interactional patterns of violent couples, as well as the immediate social context in which aggressive or violent behaviour occurs. Studies have shown that violent couples exhibit more negative behaviours during conflict discussions than do nonviolent couples and also demonstrate more reciprocal patterns of negative communication (Berns, Jacobson, & Gottman, 1999; Burman, Margolin, & John, 1993; Cordova, Jacobson, Gottman, Rushe, & Cox, 1993; Gottman, 1998; Hellmuth & McNulty, 2008; Jacobson et al., 1994; Margolin, John, & Gleberman, 1988). In addition, research has shown that lower levels of relationship satisfaction and higher levels of conflict are key predictors of IPV (Jacobson et al., 1994; Murphy & Eckhardt, 2005; Stith et al., 2004). Specifically, research has shown that problematic couple communication patterns predict verbal arguments and relationship distress, which in turn predict IPV perpetration (Babcock, Waltz, Jacobson, & Gottman, 1993; O'Leary, 1999; O'Leary et al., 1989; Rogge & Bradbury, 1999).

In addition to this couple-focused research, researchers also have begun to consider contextual and situational factors that increase the likelihood of aggressive or

violent behaviour. For example, Bell and Naugle (2008) proposed an integrated model that outlines proximal and distal risk factors for violent episodes including antecedents (e.g., social learning history, individual and relationship characteristics, conflict, stress levels, etc.), motivating factors (e.g., drug/alcohol use, distress, relationship satisfaction), discriminative stimuli (e.g., presence of others, location, availability of weapons), behavioural repertoire (e.g., communication, coping, problem-solving skills), and consequences or outcomes (e.g., positive or negative reinforcement). This integrated model provides a framework for identifying the types of situations that may increase the likelihood of violent behaviour. Interpersonal approaches, and their emphasis on couple interactions and the context in which they occur, may therefore be relevant to understanding risk factors for situational couple violence, or the type of IPV that occurs when relationship conflict escalates into aggressive behaviour by one or both partners in the relationship (Johnson, 1995, 2001).

Although interpersonal models represent a promising approach to understanding the causes and correlates of IPV, few measures exist to assess the social context in which aggressive behaviour occurs. The CTS2 (Straus et al., 1996) is the most commonly used measure of IPV and it consists of act-based questions to assess the occurrence and frequency of physical aggression in a specified time period. Although the CTS2 provides separate measure of perpetration and victimization, it does not yield any information regarding the nature of the conflict, factors that led up to the aggression, who initiated the aggression, whether respondents used aggression in response to their partners' aggression or in self-defense, whether the aggression was mutual or reciprocal within the same social exchange, and finally, whether the aggression was part of a broader pattern of controlling

and psychologically demeaning behaviour. The narrow focus on measuring number of acts of physical aggression and the lack of information regarding the social context in which it occurs is problematic because researchers draw conclusions about "perpetrators" and "victims" without a clear understanding of whether these labels are in fact appropriate for the behaviours of those involved (i.e., it may not be accurate to label someone as a perpetrator if they are using physical aggression in response to their partner's aggression or in self-defense). In addition, although both partners may report similar acts or behaviours on the CTS2 suggesting some degree of interpartner agreement, each partner may be referring to separate or unrelated incidents. These are some of the key methodological issues facing researchers who take an interpersonal approach and rely solely on act-based measures, such as the CTS2, to better understand IPV.

Intrapersonal models. Finally, intrapersonal models represent the most narrow and individually-oriented approach to understanding IPV and are common among researchers in the field of psychology who are often interested in individual characteristics and behaviour. Researchers who build their understanding of IPV on intrapersonal models also tend to use act-based measures of IPV, including the CTS2, to assess the occurrence and frequency of aggressive behaviour in intimate relationships. Unfortunately, and as a result, this body of research also is plagued by methodological problems similar to those described in the interpersonal models section of this paper. Intrapersonal models emphasize factors internal to the perpetrator that increase the likelihood of IPV perpetration. Research has shown that a large number of intrapersonal variables are associated with increased risk of perpetration, including sociodemographic

features, history of family violence including interparental aggression and child abuse, psychopathology and psychological disorders, drug/alcohol abuse, personality characteristics, attachment style, self-regulation including emotion and impulse control, communication and problem solving skills, and personal attitudes and beliefs toward violence (see Capaldi, Knoble, Shortt, & Kim, 2012, for a review; Dutton, 1995; Murray & Kardatzke, 2007). One specific intraindividual variable that has received a great deal of attention in the literature on childhood aggression, and has begun to receive increasing attention in the literature on IPV is social cognition, or alternatively, social information-processing (SIP). Although research examining the association between SIP and IPV is still in its infancy, most published studies in this area have taken an intrapersonal approach by examining how perpetrators of IPV process, interpret, and respond to social information in the context of their relationships. The current study was designed to take a more integrative approach by considering interpersonal and intrapersonal models to better understand the role of SIP in predicting IPV from individual- and couple-level perspectives.

Social Information-Processing (SIP) Theory

Social information-processing (SIP) theory is one of the most widely used frameworks in psychology for understanding aggressive behaviour (Crick & Dodge, 1994; Dodge, 1986; Huesmann, 1988; McFall, 1982). The basic assumption underlying SIP theory is that how one responds to frustration, anger, or provocation depends not so much on the objective social cues but rather on the ways in which this information is processed. Over the past few decades, several well-articulated SIP models have been developed to better understand, assess, and intervene in problems of social adjustment,

including aggressive behaviour (Crick & Dodge, 1994; Dodge, 1986; Huesmann, 1988; McFall, 1982). Crick and Dodge's SIP model was selected to provide a conceptual framework for the current study because it is a well-articulated model that has received considerable empirical support and has been used by many scholars in the literature on aggressive behaviour (see Dodge, 2010).

According to Crick and Dodge's (1994) SIP model, individuals process information about a particular social cue or situation in a cyclical manner by: (a) encoding external and internal cues, (b) interpreting and forming mental representations of those cues, (c) clarifying or selecting a goal, (d) generating potential behavioural response options, (e) deciding upon a response and evaluating the likely outcomes associated with it, and finally, (f) enacting the chosen response (Figure 1).

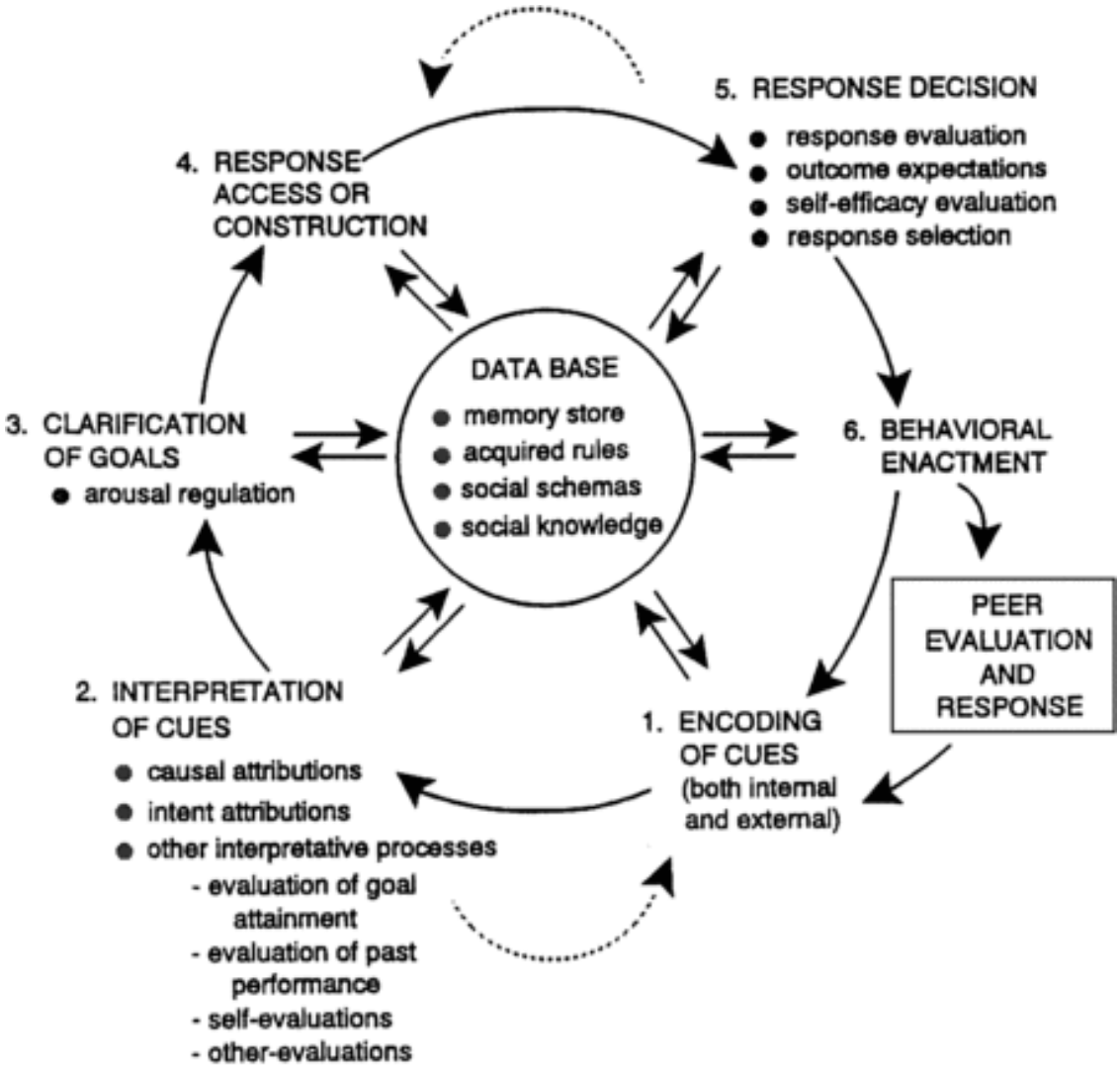

Figure 1. Crick and Dodge's (1994) reformulated model of social information-processing. From "A review and reformulation of social-information mechanisms of children's social adjustment," by N. R. Crick & K. A. Dodge (1994), *Psychological Bulletin, 115*, p. 74. Copyright 1994 by the American Psychological Association (APA), Inc. Reprinted with permission (Appendix A).

At Steps 1 and 2, individuals selectively attend to particular situational and internal cues, encode those cues, and then interpret them. The interpretation process is complex and involves forming mental representations of the social cues, considering events that took place in the social interaction, making inferences about the perspectives and intentions of others in the situation, and considering previous social interaction with others and associated outcomes. During Step 3, individuals select a goal or desired outcome for the situation or continue with a pre-existing goal. The type of goal an individual selects may be a function of the immediate social situation or alternatively, may be more generally related to goal orientations and tendencies that have developed over time and across social situations (e.g., relational versus instrumental goals). Once a goal has been clarified and selected, individuals generate a range of potential behaviours in response to immediate social cues at Step 4. Different individuals may generate different potential behaviours depending on their interpretation of the situation, their goals, and the outcomes associated with previously accessed or constructed responses. At Step 5, individuals are thought to evaluate the range of potential behaviours and responses and select the most promising or positively evaluated option. The type of response individuals select depends on the appropriateness of the behaviour for the given situation, their expectations of what is likely to happen after they behave a certain way, and their confidence in successfully carrying out that particular behaviour. Finally, at Step 6, the selected or chosen response is behaviourally enacted.

Each step is considered a necessary-but-not-sufficient condition for socially competent responding, and as such, deficits and biases at any one or more steps can ultimately lead to socially maladjusted behaviour. For example, individuals may

selectively attend to hostile or aggressive behaviour cues in their social environments. They may also choose to attribute negative intent and responsibility to the ambiguous behaviour of others. Alternatively, individuals may accurately perceive and interpret social information in their environments, but generate and/or select aggressive responses based on past social learning experiences. Even those who generate and select socially competent responses may lack the necessary skills to enact the best response for a particular social situation. Therefore, deficits and biases can occur at any given point in the SIP model and increase the likelihood of socially maladjusted behaviour, including aggression and violence.

The sociocognitive processes in Crick and Dodge's (1994) SIP model are cyclical in nature because information gleaned at one step of the model can serve as feedback for processing at other steps. Therefore, at any given point in time, individuals may be simultaneously engaged in multiple SIP activities (i.e., encoding cues while assigning meaning to them and generating potential behavioural responses). An individual's environment is rich with social information and efficient processing of this information is critical when interacting with others. As a result, individuals develop a complex database of long-term memories, acquired social rules and schemas, and social knowledge based on past experiences and situations. The cognitive structures within this database are continuously shaping and being shaped by SIP processes at various steps and are major determinants of how individuals represent, categorize, interpret, and respond to ongoing social cues and information. The information stored within these structures ultimately helps to guide SIP processes and allows individuals to process social information more efficiently – that is, with very little conscious or reflective thought. The automaticity of

SIP processes may be even more pronounced in situations that evoke strong emotions and aggression-related cognitions (Constanzo & Dix, 1983; Crick & Dodge, 1994; Dodge & Somberg, 1987).

Although the need for methodology to study automatic or "online" SIP processes as they occur more naturally in the brain has been stressed in recent theoretical papers (e.g., Fontaine, 2008; Mize & Pettit, 2008; Orobio de Castro, 2004), research studies have been slow to follow such recommendations. In the child aggression literature, only a small number of studies have applied eye tracking and response time techniques to study SIP as it relates to aggressive behaviour (see Arsenio, 2010). Most studies examining the relation between SIP and aggressive behaviour among children and adults have relied on methodology that requires more reflective thinking and decision-making. For example, standardized vignettes are commonly used in SIP research whereby participants are asked to reflect on and describe how they would perceive, interpret, and respond to various hypothetical social scenarios. These latter methods, though not without their limitations, have been widely used by researchers and proven to be quite useful in understanding the relation between social cognition and aggressive or violent behaviour.

SIP theory and aggressive behaviour. To date, research guided by SIP theory has primarily focused on explaining aggressive and antisocial behaviour among children and adolescents. This research has shown that in comparison to nonaggressive children and adolescents, those who are aggressive pay less attention to relevant social cues while interacting with others, are more likely to attribute hostile intent to socially ambiguous behaviours of others, are more likely to access and select hostile or aggressive responses, and are more likely to evaluate these responses as both easy to perform and likely to lead

to positive outcomes (see Dodge & Crick, 1990, for a review of the literature). Research examining SIP characteristics of bullies and victims have found that both groups respond more emotionally to adverse conditions and also display more SIP deficits and biases in comparison to other children (Camodeca & Goossens, 2005; Camodeca, Goossens, Schuengel, & Meerum Terwogt, 2003; Karatzias, Power, & Swanson, 2002). Therefore, there is some preliminary evidence to suggest that bullies and victims demonstrate similarities in their cognitions and emotions, a finding that may be explained by their common use of reactive aggression against each other (Camodeca & Goossens, 2005). Although there are many studies examining the association between SIP and aggressive behaviour in childhood and adolescence, there is comparatively less research directed toward understanding the role of SIP in aggressive behaviour among adults.

Within the adult literature, some studies have examined how SIP deficits and biases relate to various forms of psychopathology including cognitive disorders such as intellectual and delusional disorders (Basquill, Nezu, Nezu, & Klein, 2004; Bömmer & Brüne, 2006); impulsivity, anger, and aggression (Bailey & Ostrov, 2008; Coccaro, Noblett, & McCloskey, 2009; Feldman & Ridley, 1995; Fite, Goodnight, Bates, Dodge, & Pettit, 2008; Krieglmeyer, Wittstadt, & Strack, 2009); violent and sexual offensive behaviour (Copello & Tata, 1990; Gannon, 2009); and alcohol abuse (Schuckit, Smith, Anderson, & Brown, 2004). More recently, SIP theory has been applied in the adult literature to better understand the role of social cognition in predicting physical aggression in intimate relationships, or IPV.

Thus far, two conceptually similar theoretical frameworks have been applied in the literature on IPV, namely, McFall's (1982) SIP model and Crick and Dodge's (1994)

SIP model. Both models describe a series of steps involved in the processing of social information, however, McFall's model describes three basic steps, whereas Crick and Dodge's model describes six steps. Crick and Dodge's model has been revised and reformulated since it was originally proposed, and more recently, it has been expanded on in the literature to include emotional processing (Lemerise & Arsenio, 2000). Crick and Dodge's model also has received considerable empirical support over the years and therefore tends to be the preferred SIP framework among many researchers. Nonetheless, it is important to note that McFall's model has been used a guiding theoretical framework by a specific group of researchers who have conducted extensive research on the link between SIP and male-perpetrated IPV (see Holtzworth-Munroe, 1992, 2000). To allow for a more consistent and cohesive examination of the literature in this area, the following review has been organized according to steps outlined in Crick and Dodge's model, irrespective of the specific theoretical framework used in each study.

SIP theory and family-of-origin violence. The role of sociocognitive processes and variables, including SIP, has received increasing attention by researchers in the field of IPV who are interested in understanding why individuals aggress against their intimate partners in adulthood. There is strong evidence to suggest that individuals who grew up witnessing or experiencing family-of-origin violence are at increased risk of becoming involved in a violent relationship in adulthood (see Delsol & Margolin, 2004, for a review). The mechanisms underlying this intergenerational cycle of violence are complex and varied; however, there is growing evidence to suggest that children who witness or observe aggressive behaviour between their parents develop SIP deficits and biases which in turn increases the likelihood that they will resort to aggressive behaviour

to solve conflicts in their adult intimate relationships (Fite et al., 2008). Similar findings also have emerged for adults who were victimized by their parents within their family-of-origins (Brendgen et al., 2000; Chen, Coccaro, Lee, & Jacobson, 2012; Taft et al., 2008).

According to social learning theory, children who are exposed to family-of-origin violence may learn that aggressive behaviour is an acceptable way of solving their conflict or interpersonal problems, and over time, this behaviour may become positively or negatively reinforced (Snyder, Reid, & Patterson, 2003). In addition, attachment theory suggests that children who are exposed to family-of-origin violence may accrue social knowledge that contributes to the formation of beliefs, schemas, and scripts used in establishing and sustaining relationships with others (Bretherton, 2005). Over time, this social knowledge, coupled with differential arousal and situational contingencies, influences perceptions and behaviour in adult intimate relationships.

Consistent with these ideas, research has shown that children who have been exposed to high levels of interparental conflict, in comparison to those who have not, may be more attuned to aggressive cues in their social environment (e.g., O'Brien & Chin, 1998), have more positive attitudes toward violence in general (Lichter & McCloskey, 2004; Malik, Sorenson, & Aneshensel, 1997; Reitzel-Jaffe & Wolfe, 2001; Spaccarelli, Coatsworth, & Bowden, 1995), and view aggressive behaviour as a legitimate response to solving interpersonal conflict (Delsol & Margolin, 2004). Taken together, this research highlights the importance of better understanding the role of SIP deficits and biases in understanding risk factors for IPV, with the ultimate goal of informing prevention and intervention strategies aimed at ending the intergenerational cycle of violence.

SIP theory and IPV. There is a growing body of literature devoted to better understanding how deficits and biases at various SIP steps relate to the perpetration of IPV. This research is based on the assumption that strong SIP abilities, including good problem-solving and communication skills, are crucial to the health and adaptability of intimate relationships. These skills and abilities provide a behavioural repertoire to cope with relationship conflict, whereas the absence of these necessary skills may place couples at greater risk for conflict and aggressive behaviour. Different samples and methodologies have been used within this body of literature, resulting in a rather varied, complex set of studies and findings. In general, however, these studies have reliably identified specific SIP deficits and biases as risk factors for the perpetration of IPV. That is, individuals who process, interpret, and respond to social information in a more hostile and less competent manner are more likely to engage in physically aggressive behaviour toward their intimate partners than those who do not (see Holtzworth-Munroe, 1992, 2000). Researchers have yet to investigate the role of SIP abilities in predicting victimization in adulthood, but rather the majority of research has focused on explaining acts of perpetration. These research findings are described in more detail in the following sections of this paper.

Perception and interpretation. The first two steps of Crick and Dodge's (1994) model involves the decoding of, or perception and interpretation of social cues and information. Many different factors can disrupt and distort the decoding of an event, such as inattention and distraction, as well as selective attention to negative cues. Biased perceptions and interpretations of social information may occur because of these disruptions and distortions, therefore increasing the likelihood of maladaptive social

cognitions and behaviour. For example, if individuals tend to focus on hostile or aggressive cues in their relationship, they may be more likely to make negative attributions for their partners' behaviour. In addition, if individuals make negative attributions for their partners' behaviour and believe their partners acted with negative intent, they may be more likely to respond in a way that is consistent with their beliefs (e.g., becoming upset or angry, withdrawing from their partner, and/or responding aggressively). Within the IPV literature, researchers have focused their attention on the role of perceptions, interpretations, and attributions, and more specifically, the role of partner-related attributions.

According to attribution theory, there are two types of cognitive attributions each consisting of three dimensions, namely attributions of causality (internal-external, stable-unstable, and global-specific) and attributions of responsibility (intentional-unintentional, selfish-unselfish, blameworthy-praiseworthy; Heider, 1958; Shaver, 1985). Research has shown that violent men tend to have negative attribution styles that result in minimization of positive events and strengthening of negative events. For example, with respect to causal attributions, studies have shown that violent men tend to view their spouses' negative behaviour as internal (related to dispositional factors within their partner), global (consistent across situations), and stable (consistent across time), whereas nonviolent men tend to view their spouses' negative behaviour as external (related to situational factors), specific (unique to a particular situation) and unstable (unique to a specific point in time; see Wallach & Sela, 2008, for review). Research has shown, however, that attributions of intent and responsibility tend to be more predictive of IPV than causal attributions (e.g., Fincham & Bradbury, 1987; Margolin et al., 1988; Wallach & Sela, 2008).

Early research showed that violent men were more likely than nonviolent men to attribute negative intentions to their partner's behaviour and to behave more negatively in response, for example, with anger or contempt (Dutton & Browning, 1988; Holtzworth-Munroe, 1992; Margolin et al., 1988). A study on batterer typology replicated these findings on the hostile attribution bias for all men in distressed relationships (whether violent or nonviolent), but also found that it was a matter of degree, such that biases tended to be most evident among men who engage in more severe forms of violence (Holtzworth-Munroe & Stuart, 1994a). In addition, studies have reliably shown that violent men are more likely than nonviolent men to make negative or hostile attributions for their wives' behaviour using various methodologies, including standardized conflict situation vignettes and laboratory-based marital discussions (Byrne & Arias, 1997; Clements & Holtzworth-Munroe, 2008; Copenhaver, 2000; Holtzworth-Munroe & Hutchinson, 1993; Holtzworth-Munroe, Jacobson, Fehrenbach, & Fruzzetti, 1992; Tonizzo, Howells, Day, Reidpath, & Froyland, 2000). Another study used a "think-aloud anger induction laboratory task" and found that violent men were more likely than nonviolent-distressed and nonviolent-nondistressed men to spontaneously verbalize hostile attribution statements in response to imagined scenarios that involved their wives (Eckhardt, Barbour, & Davison, 1998).

A benefit of using the standardized conflict situation vignettes is that the stimuli presented to participants are controlled by the researcher. As such, several studies have examined whether any group differences emerge based on the type of behaviour described in the vignettes. One study found that vignettes that involved jealousy (e.g., a man flirting with the wife at a party), rejection from the wife (e.g., the wife not interested

in the husband's sexual advances), or public embarrassment (e.g., the wife wants the husband to cancel plans he made with friends) are most likely to elicit hostile attribution biases among violent men (Holtzworth-Munroe & Hutchinson, 1993). Another study reported that the more provocative the female partner's hypothetical behaviour, the more likely it is that violent men will attribute negative intent and responsibility to her behaviour in comparison to men (Moore, Eisler, & Franchina, 2000). These findings suggest that certain types of partner behaviours and conflict situations may tend to more strongly elicit SIP deficits and biases among violent men.

Taken together, this research suggests that violent men attribute more hostile intent to negative wife behaviour than do nonviolent men in both imagined and real-life conflict scenarios. Although there is comparatively less research aimed at understanding risk factors for female-perpetrated IPV in general, there is some preliminary evidence to suggest that these cognitive biases, including aggressive cognitions and negative attributions for partner behaviours, are characteristic processing patterns of violent women as well. For example, Anglin and Holtzworth-Munroe (1997) found that violent-distressed spouses, whether male or female, generated less competent responses to marital and nonmarital situations than nonviolent-distressed and nonviolent-nondistressed spouses. In an extension of this work, Clements and Holtzworth-Munroe (2008) found that the aggressive cognitions of violent-distressed wives were greater than those of wives who were nonviolent-distressed and nonviolent-nondistressed during actual marital interactions with spouses in the laboratory.

Deficits and biases at the decoding stage may increase risk of IPV when perpetrators believe their behaviour is justified because they view their partner's

behaviour as negative, selfish, and/or blameworthy. Aggression-promoting cognitions and social scripts established through past experiences may lead individuals to assume their partner is behaving with negative or hostile intent when this may not be the case. In turn, selectively attending to negative or hostile cues in the environment and making negative attributions for partner behaviour may then reinforce and strengthen previously established aggressive cognitions and social scripts.

Interestingly, research evidence suggesting that violent individuals have more negative schemas or beliefs in comparison to nonviolent individuals has been mixed. For example, one study found that the level of aggression in automatic thoughts or cognitions was found to be positively associated with perpetration of dating violence among adolescents, even after accounting for adolescents' self-reported attitudes about dating violence (Jouriles, Grych, Rosenfield, McDonald, & Dodson, 2011). Holtzworth-Munroe and Stuart (1994b) compared violent, nonviolent-distressed, and nonviolent-nondistressed men on measures of relationship beliefs and standards. Although distressed men endorsed more dysfunctional relationship standards and assumptions in comparison to nondistressed men, no significant differences emerged between the violent and nonviolent groups. The authors of this study were taken aback by these findings and suggested that future studies be conducted with measures designed to assess cognitions, social scripts, and beliefs more specific to aggressive or violent populations. Future research is necessary to further understand the cognitive schemas and beliefs underlying partner-directed aggressive behaviour.

Response generation and selection. The fourth and fifth steps of Crick and Dodge's (1994) SIP model involve the generation, evaluation, and selection of a

behavioural response. It has been hypothesized that violent men may be deficient, both quantitatively and qualitatively, at generating possible behavioural responses during conflict situations with their wives (Holtzworth-Munroe, 1992, 2000). In support of these hypotheses, several studies found that violent men generate fewer and less competent responses to a variety of problematic marital situations in comparison to nonviolent men (Dutton & Browning, 1988; Holtzworth-Munroe & Anglin, 1991; Holtzworth-Munroe, Meehan, Herron, Rehman, & Stuart, 2000; Holtzworth-Munroe & Smutzler, 1996). In addition, violent men were more likely to select less competent responses when asked what would be the "best thing to say or do in the situation" (Holtzworth-Munroe & Anglin, 1991). Examples of incompetent responses include any behaviour that was likely to not solve the problem and/or to make the situation worse (e.g., making negative verbal comments, using threatening statements, tit-for-tat behaviour, demanding or controlling behaviour, passive-aggressive behaviour, and overt physical aggression). As such, there is evidence to suggest that violent men are more likely than nonviolent men to generate and select fewer and less competent behavioural response options when faced with conflict scenarios and situations.

In an extension of their work, Anglin and Holtzworth-Munroe (1997) designed a study to determine whether violent spouses demonstrated poor decision-making skills in comparison to nonviolent spouses across marital and nonmarital situations (e.g., situations with co-workers, friends, and other family members). Using standardized marital and nonmarital vignettes, this study found that violent spouses, whether male or female, generated less competent responses across all types of social situations, although deficits and biases were most evident in vignettes that depicted marital conflict. This

study suggests that maritally violent men and women may have more global decision-making skill deficits outside of their relationships, but that such deficits may be even more pronounced when interacting with spouses.

Although these studies support the hypothesis that perpetrators of IPV have difficulties generating and selecting competent responses, they do not explain the reason why these deficits occur. Holtzworth-Munroe (2000) proposed two possible explanations to explain why violent individuals have difficulties with the response generation and selection SIP steps. Both explanations are consistent with the social learning theory of IPV (Bowen, 1978; Mihalic & Elliot, 1997). First, violent individuals may have less competent responses to choose from in their behavioural repertoire. For example, individuals who learned maladaptive conflict resolution strategies from their parents or peers growing up may have fewer competent responses to choose from. Second, violent individuals may have a variety of competent responses in their behavioural repertoires but ultimately select an aggressive or incompetent response to enact. This might occur when violent individuals learn that aggressive or incompetent responses lead to desirable outcomes, such as getting something they want (positive reinforcement) or avoiding something they do not want (negative reinforcement). As a result, individuals may evaluate such responses more positively and develop more confidence enacting them, thus increasing the likelihood that they will generate or select an aggressive or incompetent response in the future.

Behavioural enactment. The final step of Crick and Dodge's (1994) SIP model is enactment, or the execution and monitoring of the impact of the chosen response. This final step is an important step to consider because it is possible that one may be able to

successfully decode and interpret a social situation, generate or choose a competent behavioural response, but have difficulties successfully enacting the competent behaviour. Hulbert, as cited in Holtzworth-Munroe (2000), presented violent and nonviolent men with both marital and nonmarital problematic situation vignettes along with a description of a fictional character's interpretation of the situation, feelings in the situation, and the competent response that was chosen. The male participants were asked to role-play and enact the competent response while being videotaped. Results from this study suggested that violent men's enactments were significantly less competent than those of nonviolent men, across all types of situations. In addition, the violent men seemed unaware of their deficits at this level of responding given that they judged their enactments to be just as competent as those of nonviolent men.

A number of other studies have compared the behavioural responses of violent and nonviolent men in real-life marital interactions in the laboratory. These studies used standardized systems to code the behaviours of couples who were directed to engage in a problem-solving discussion. In general, this research found that maritally violent men tend to display more negative affect and behaviour and respond less competently than their nonviolent counterparts (Holtzworth-Munroe, Stuart, Sandin, Smutzler, & McLaughlin, 1997; Margolin et al., 1988).

The role of emotion. Emotional experiences are also key elements in the functioning of intimate relationships. In addition to linking SIP deficits and biases with perpetration of IPV, research has reliably shown positive associations exist between negative affect and emotion, including anger arousal, and aggressive behaviour in intimate relationships (e.g., Dutton & Browning, 1998; Dye & Eckhardt, 2000; Eckhardt,

Jamison, & Watts, 2002; Maiuro, Cahn, Vitaliano, Wagner, & Zegree, 1988). As previously noted, one of the basic assumptions underlying SIP theory is that the manner in which an individual responds to frustration, anger, or provocation, depends not so much on the objective social cues in the situation but rather on the ways in which this information is processed. Crick and Dodge's (1994) SIP theory places a strong emphasis on social cognition, and although the importance of emotions is briefly acknowledged, the model is mostly cognitive in nature. Lemerise and Arsenio (2000) therefore developed a revised SIP model that incorporated emotional processing at each step to provide a more comprehensive understanding of how individuals process social cues in their interactions and relationships with others. According to Lemerise and Arsenio's model, emotion is of central importance to understanding how an individual processes social cues in their relationships with others. For example, the general emotional tone or affective nature of a dyadic relationship plays a key role in how social information is processed and responded to in turn. In addition, the affective characteristics of individuals may also impact or interact with SIP processes, including emotionality and temperament, emotion regulation skills, and moods/background emotions. Finally, specific cognitive processes are involved in the processing of affective social cues, for example encoding and interpretation of another person's facial expressions or emotionally laden behaviour. Lemerise and Arsenio indicated that they developed this revised SIP model so that future researchers who are interested in studying the link between SIP and aggression will consider the important role of emotional processing.

Other theories also suggest that emotions are important in understanding the link between cognition and behaviour, including aggression (e.g., Anderson & Bushman,

2002; Bandura, 1973; Berkowitz, 2003; Eckhardt, Norlander, & Deffenbacher, 2004). A basic tenant of the cognitive model, which had a strong influence in shaping SIP theory, suggests that individuals' emotions and behaviours are influenced by their perceptions of situations and events (Beck, 1964; Ellis, 1962). For example, an individual who perceives their partner's behaviour as negative and blameworthy may feel angry and lash out with aggressive behaviour as a result. In support of this model, research has shown that the relation between anger arousal and aggression is not direct, but rather mediated by attitudes, cognitions, attributions, and faulty beliefs (Cohn & Sugarman, 1982; Dutton & Browning, 1988; see Feldman & Ridley, 1995, for a review). The relations among cognition, emotion, and behaviour are therefore complex and different perspectives exist regarding how emotion impacts cognition and behaviour.

Some aggression theorists argue that negative arousal and emotion function as a motivating or energizing response that interacts with cognitive processes to influence behaviour (e.g., Anderson & Bushman, 2002; Bandura, 1973; Berkowitz, 2003; Eckhardt et al., 2004). For example, one theoretical model suggests that anger facilitates aggression by reducing inhibitions against aggressive responses, thereby increasing cognitive processing of angering social cues or events, priming aggressive cognitions, and facilitating hostile interpretations of ambiguous situations (Anderson & Bushman, 2002). In turn, complex feedback loops are formed whereby cognitive processing of mood-congruent social cues ultimately increases negative arousal and emotions. Other theorists argue that emotions can play an adaptive (or maladaptive) role under conditions of uncertainty and incomplete knowledge by reducing information processing demands so that an individual can decide on a course of action more quickly and with greater ease

(Constanzo & Dix, 1983; Damasio, 1994; Oatley & Jenkins, 1996). This phenomenon is known as "preemptive" or script-based processing and it consists of rapid, automatic, and often irrational processing of social information. Rather than processing information in a step by step fashion, individuals who are engaged in preemptive processing rely mostly on well-established belief systems, social scripts including learned behaviour, and knowledge of past social interactions to guide their behaviour. Based on this perspective, individuals who experience high levels of negative emotions may be too overwhelmed or self-focused to respond to conflict situations in an effective manner. Rather, such individuals may engage in preemptive processing, and respond to conflict with impulsive decisions and acts, thus increasing the likelihood that they behave in an aggressive manner.

Clearly, emotional processing and responses plays an integral role in better understanding how individuals perceive and respond to social cues in their environments, and in turn, these factors may serve as important predictors of aggressive and violent behaviour. The relations among cognition, emotion, and behaviour are complex and warrant further investigation within the literature on IPV. A basic measure of negative affect and emotion was therefore included in the current study to reflect the growing recognition and importance of considering emotion when studying SIP deficits and biases as risk factors for IPV.

Contributions of the current study. The study of emotion and social cognition has proven to be a fruitful area of research thus far with clinical implications for the prevention and intervention of IPV. It is important to better understand risk factors associated with IPV, and in particular situational couple violence, given that it is a

significant and widespread social problem among young adults in dating relationships. To date the majority of research in the area of SIP and IPV has been focused on male-perpetrated violence in marital relationships (see Holtzworth-Munroe, 1992, 2000). It is unclear whether conclusions drawn from this focused line of research are generalizable to better understanding IPV among young adult dating couples, and in particular, those who experience situational couple violence. The aim of the present study was to investigate this topic and better understand the role of negative emotions and SIP abilities in predicting IPV perpetration and victimization among young adult dating couples. In addition to building on previous research in this area, the current study sought to improve upon some aspects of this research as well.

First, and perhaps most importantly, the majority of research in the area of SIP and IPV to date has considered risk factors for perpetration at an individual-level of analysis. That is, researchers examine how SIP variables relate to perpetration for only one partner in the relationship, and most often the focus of this research has been on male perpetrators in marital relationships. Although many researchers rely on an individual-level approach to understanding risk factors for IPV perpetration and victimization, this approach may be problematic for two major reasons. For one, while the characteristics and abilities of one partner are explored, the characteristics and abilities of the other partner are ignored. As it pertains to SIP deficits and biases, the characteristics and abilities of one partner may in large part depend on the characteristics and abilities of the other partner because SIP abilities are heavily based upon past and present social interactions. A great deal of valuable information is lost by studying only one member of the dating dyad. In addition, the interpersonal context in which relationship conflict

occurs is very important for understanding why conflict escalates into aggressive or violent behaviour for some couples and not for others. To fully appreciate the interpersonal context in which IPV occurs, researchers must collect data from both partners and use appropriate statistical procedures that allow for couple-level data and analyses.

Unfortunately, most traditional statistical models and methods do not allow for quantitative analysis of dyadic or interdependent data. It is therefore not surprising that many couple researchers continue to rely on data from only one partner in a relationship. Within the literature on IPV, there has been growing emphasis on the importance of taking a couple-level approach to understanding the causes and correlates of IPV by examining both partners' reports (Capaldi & Kim, 2007; Clark et al., 1994; Tolan et al., 2006; Simonelli & Ingram, 1998). Unfortunately, researchers are not always aware of or knowledgeable about available statistical methods for analyzing couple-level data. As a result, many couple researchers continue to rely on the General Linear Model (GLM) to analyze their data, a problematic approach because the GLM assumes normal distributions and independence of observations.

A variety of statistical methods that allow for dyadic or interdependent data are available to researchers and more recently, some helpful user-friendly resources have been published (see Kenny et al., 2006; Card, Selig, & Little, 2008). Statistical methods also have been developed to analyze couple-level data that have non-normal distributions (e.g., Hilbe, 2011). These modern analytic strategies are especially relevant to researchers who study IPV in nonclinical samples because measures of aggressive acts

and behaviour are often positively skewed and zero-inflated (i.e., there is a preponderance of zeros).

Despite these significant statistical advances, a recent survey of relationship literature found that less than 25% of the studies surveyed collected data from both members of the dyadic relationship under investigation (Kashy et al., 2006). The lack of couple-level research is problematic given that the thoughts, feelings, and behaviours of dating couples are often interrelated and mutually influencing. In addition, because intimate relationships are dyadic and reciprocal in nature and SIP patterns and behaviours are heavily based upon past and present social interactions, a valuable extension of work in this area involves moving toward a couple-level framework. The current study therefore makes a valuable contribution to the literature by being one of the first to investigate the complex role of negative emotions and SIP abilities in predicting IPV among dating partners at a couple-level of analysis.

Second, a great deal of research in the area of SIP and IPV has relied on samples of married men who are known to be at risk of violent behaviour or who are seeking treatment for such behaviour. This research has reliably shown that maritally violent men exhibit SIP deficits and biases in response to hypothetical and real-life wife behaviours (Holtzworth-Munroe, 1992, 2000). Although this research is helpful in understanding the causes and correlates of IPV in a high-risk specific population, it may generalize to less severe types of IPV in young adult populations wherein situational couple violence may be most common. Accordingly, few studies have actually examined whether SIP deficits and biases are predictive of IPV among more general samples of young adults in dating relationships.

Dating IPV, and in particular situational couple violence, is an important phenomenon to investigate given its high prevalence among adolescents and young adults, and because research has shown that these experiences often serve as risk factors for future, more severe aggression in marital relationships (Carlson, 1987; Murphy & O'Leary, 1989; O'Leary et al., 1989; O'Leary et al., 1994; Roscoe & Benaske, 1985). It is also important to note that the SIP framework may be particularly helpful for understanding situational couple violence which tends to occur when relationship conflict escalates into aggressive or violent behaviour. That is, studying how dating partners perceive, interpret, and respond to each others' behaviour, especially in the context of relationship conflict, may be especially helpful in understanding why conflict escalates into violence for some couples and not for others. The current study therefore explores the generalizability of research in the area of SIP and IPV by using a general sample of young adults in dating relationships, including college and university students. A better understanding of early risk factors may help to inform prevention and early intervention strategies designed to target future, more serious incidences of IPV in adulthood.

Third, the vast majority of adult SIP research has focused on explaining aggressive behaviour in men all the while little consideration has been given to explaining aggressive behaviour in women. There is nonetheless some preliminary evidence to suggest that violent women also demonstrate SIP deficits and biases in their relationships in comparison to nonviolent women (e.g., Anglin & Holtzworth-Munroe, 1997; Clements & Holtzworth-Munroe, 2007). There is little consensus in the literature about whether the causes and correlates associated with IPV are similar for men and women, but sex differences in etiology may depend on the type of IPV being studied.

Coercive controlling violence, which is motivated by dominance, control, and power, is most often perpetrated by men suggesting that risk factors for this type of IPV may be sex-specific. In contrast, research has shown that men and women tend to engage in situational couple violence at approximately equal rates (see Archer, 2000, for a review), and it is therefore possible that men and women share some of the same risk factors for this type of IPV. Indeed, research has shown that the most common motivations for violence by women, like motivations by men, are coercion, anger, and punishing misbehaviour by their partner (Cascardi & Vivian, 1995; Fiebert & Gonzalez, 1997; Kernsmith, 2005; Straus, 2010). In addition, there is evidence to suggest that relationship conflict is more likely to escalate into aggressive or violent behaviour when one or both partners, regardless of sex, have difficulties regulating their emotions and behaviours (Ellis & Stuckless, 1996; Johnson, 1995, 2006; Johnston & Campbell, 1993). In contrast, however, some family violence researchers argue that aggressive behaviour by men and women occurs for different reasons and motivations, is displayed differently, and has different outcomes (Muñoz-Rivas et al., 2007; Swan, Gambone, Caldwell, Sullivan, & Snow, 2008; White & Chen, 2002). Researchers who argue for sex differences in the etiology of IPV perpetration generally suggest that men's use of aggression tends to be motivated by power and control, whereas women's use of aggression tends to be motivated by fear and self-defence. What is unclear, however, is whether the distinction between coercive controlling violence and situational couple violence has been considered when making this argument. Clearly, more research is needed to better understand risk factors for IPV and how they may be similar or different for men and

women. The current study therefore expands on past research by examining negative emotions and SIP abilities as risk factors for IPV among men and women.

Fourth, whereas most studies have investigated SIP deficits and biases in relation to acts of perpetration, there is an absence of research investigating these variables in relation to victimization. The study of victimization has been largely ignored by scholars and clinicians and it is sometimes considered politically incorrect to explore the role of victims in violent systems, because doing so has become synonymous with blaming the victim (Zur, 1995). It has been suggested, however, that the current political attitude of nonblame can produce a dangerous scholarly climate in which researchers are hesitant to explore the characteristics and experiences of victims, and therefore ignore the role of the victim altogether. It is important to consider perpetrator and victim characteristics, particularly within the context of situational couple violence, given that this type of IPV is often mutually and reciprocally inflicted by partners within relationships (Ansara & Hindin, 2009; Kessler et al., 2001; Straus, 2008; Straus, 2009a; Straus et al., 2006; Whitaker et al., 2007). As a result, men who perpetrate may also be victims, and women who are victimized may also be perpetrators. This overlap in perpetrator and victim statuses raises a question about whether acting aggressive toward a romantic partner and tolerating aggressive behaviour from a romantic partner may share a common mechanistic pathway. One possibility is that individuals seek out partners who have similar dispositions and backgrounds to them, a phenomenon known as "assortative partnering" (Capaldi, Kim, & Shortt, 2004). Therefore, aggressive men and women may seek each other out, increasing the probability that mutual or reciprocal violence occurs. In addition, it is also possible that some risk factors are common to perpetration and

victimization, for example positive attitudes toward violence or having a family history of violent behaviour (Fite et al., 2008). Although risk factors for perpetration and victimization are often similar (Lewis & Fremouw, 2001), consideration of victim-specific risk factors is crucial for prevention and intervention purposes. The current study therefore investigated SIP deficits and biases in relation to both perpetration and victimization, not with the intent of "blaming" the victim, but rather with the intent of understanding how each partner's characteristics and abilities, as well as the interaction between them, predict experiences of IPV within dating relationships.

The Current Study

The aim of the current study was to use Crick and Dodge's (1994) SIP model to build on and improve previous research in this area by examining the role of negative emotions and SIP abilities in predicting self-reported physical acts of IPV perpetration and victimization among young adult dating couples. It is important to note that although the current study focused on negative emotions and SIP deficits and biases, they represent only one subset of many potential risk factors for IPV. IPV is often multi-determined and caused by a complex array of interrelated personal, family, social, and environmental factors. As such, other variables not investigated in the current study may also serve as risk factors for IPV and therefore, the current study is not meant to provide an all-encompassing review of the causes and correlates associated with IPV.

Data were collected from both partners in each couple and analyzed using dyadic data analyses based on the actor-partner interdependence model (APIM; Kenny et al., 2006). To obtain an adequate assessment of SIP abilities, three processing steps from Crick and Dodge's (1994) model were assessed including interpretation and attribution

(Step 2), response generation (Step 4), and response selection (Step 5). These steps have been the focus of past research in this area, and as such, there are fairly well-developed measures and coding systems to evaluate each of them. Consistent with past research, the current study used standardized hypothetical situation vignettes depicting various relationship conflict issues, each ending with potentially negative partner behaviours. Participants were asked to complete a brief set of measures after reading each vignette to assess negative emotions and SIP abilities at Steps 2, 4, and 5 of Crick and Dodge's model. The remaining steps of Crick and Dodge's model (Steps 1, 3, and 6) were not within the scope of the current study due to lack of appropriate measures and limitations associated with measuring these steps using standardized vignettes.

Research questions. The following research questions were developed based in part on the APIM (Kenny et al., 2006). Analyses based on the APIM allowed for an exploration of actor effects (i.e., the influence of participants' predictor variable scores on dependent variables), partner effects (i.e., the influence of participants' partners' predictor variable scores on dependent variables), and actor-partner interaction effects (e.g., the influence of the interaction of actor and partner effects on the dependent variables). As it pertains to the current study, the influence of both participants' and partners' negative emotions and SIP abilities on physical IPV perpetration and victimization were examined. The following research questions and hypotheses were investigated in the current study.

1. Are measures of participants' negative emotions and SIP abilities at Steps 2, 4, and 5, of Crick and Dodge's (1994) model significantly intercorrelated?

2. Do measures of participants' negative emotions and SIP abilities significantly predict self-reported acts of physical IPV perpetration and victimization (actor effects)?
3. Do measures of participants' partners' negative emotions and SIP abilities significantly predict participants' self-reported acts of physical IPV perpetration and victimization (partner effects)?
4. Does participant sex significantly moderate actor and partner effects (sex by actor and sex by partner interaction effects)?
5. Does the interaction between participant and partner scores on measures of negative emotions and SIP abilities significantly predict participants' self-reported acts of physical IPV perpetration and victimization (actor by partner interaction effects)?

Hypotheses. First, it was hypothesized that significant correlations would emerge among participants' ratings of negative emotions and SIP abilities at Steps 2, 4, and 5 of Crick and Dodge's (1994) model. Participants who reported higher levels of negative emotions were expected to make more negative attributions for their partners' behaviour, generate fewer and less competent coping response alternatives, and ultimately select less competent coping responses to enact. It also was hypothesized that significant correlations would emerge among participants' SIP abilities at Steps 2, 4, and 5. Participants who made more negative attributions for their partners' behaviour were expected to generate fewer and less competent coping response alternatives, and ultimately select less competent coping responses to enact. In turn, participants who generated fewer and less competent coping response alternatives also were expected to

select less competent coping responses to enact. Taken together, this hypothesis was based on research and theory suggesting that cognition, emotion, and behaviour are intrinsically linked and mutually influencing (e.g., Anderson & Bushman, 2002; Beck, 1964; Ellis, 1962). In addition, hypotheses also were derived from consideration of the cyclical nature of the SIP model whereby deficits and biases at earlier steps in the model may lead to deficits and biases at later steps, and in turn, information gleaned from later steps of the model may serve as feedback for processing at earlier steps (Crick & Dodge, 1994).

Second, it was hypothesized that significant actor effects would emerge for each model predicting physical IPV perpetration and victimization from participants' negative emotions and SIP abilities. Participants who reported higher levels of negative emotions, made more negative attributions for their partners' behaviour, generated fewer and less competent coping response alternatives, and ultimately selected less competent coping responses to enact were expected to be at greater risk of physical IPV perpetration and victimization. It is important to note, however, that victimization models in the current study were largely exploratory in nature. There is a large body of literature devoted to better understanding individual risk factors for perpetration; however, much less is known about the causes and correlates associated with victimization. Nonetheless, research has shown that perpetrator and victim status often overlap, and that there is a strong positive correlation between acts of perpetration and victimization in the adult IPV literature (Ansara & Hindin, 2009; Fite et al., 2008; Gray & Foshee, 1997; Kessler et al., 2001; Straus, 2008; Straus, 2009a; Straus et al., 2006; Whitaker et al., 2007). It is possible that acting aggressively toward a romantic partner and tolerating aggressive

behaviour from a romantic partner may share a common mechanistic pathway, especially within the context of situational couple violence. Similar risk factors were therefore expected to emerge for actor effects across perpetration and victimization models in the current study.

Third, it was hypothesized that significant partner effects would emerge for each model predicting physical IPV perpetration and victimization from participants' partners' negative emotions and SIP abilities. One partner's characteristics and behaviour may impact the way that relationship conflict unfolds and ultimately influence the other partner's risk of engaging in or experiencing physical aggression. Specifically, participants were expected to be at greater risk of physical IPV perpetration and victimization if their partners reported higher levels of negative emotions, made more negative attributions for their behaviour, generated fewer and less competent coping response alternatives, and ultimately selected less competent coping responses to enact. It is important to note, however, that the current study appears to be the first study to examine partner effects when investigating negative emotions and SIP abilities as risk factors for IPV, and as such, this research question was also largely exploratory in nature.

Fourth, no hypotheses were put forth regarding whether significant sex by actor and sex by partner interaction effects would emerge across models predicting IPV perpetration and victimization. Rather, this research question was exploratory because researchers have yet to investigate the differential impact of negative emotions and SIP abilities in predicting IPV for men and women, and more generally because there is a lack of research investigating sex-specific risk factors and pathways to aggressive behaviour in intimate relationships.

Finally, no hypotheses were put forth regarding whether significant actor by partner interaction effects would emerge across models predicting IPV perpetration and victimization. Rather, the fifth and final research question was also exploratory because researchers have yet to examine the role of negative emotions and SIP abilities at a couple level of analysis.

CHAPTER III

Method

Participants

Pilot study. A pilot study was conducted to determine whether the hypothetical conflict situation vignettes used to assess participants' negative emotions and SIP abilities were appropriate and effective for young adults in dating relationships. An equal number of male and female undergraduate students from the Psychology Participant Pool at the University of Windsor were recruited for the pilot study ($N = 20$). The Psychology Participant Pool consists of a large group of undergraduate students who can earn bonus credit points toward eligible psychology courses by participating in research studies. Detailed demographic information is summarized in Table 1. Participants ranged in age from 19 to 24 years ($M = 20.65$; $SD = 1.39$). Although participants were eligible to participate in the pilot study regardless of relationship status, the vast majority of participants recruited for the pilot study reported being in a heterosexual dating relationship ($n = 16$; 80%). Among these participants, relationship length ranged between two months to 3.5 years ($M = 1.84$ years; $SD = 1.07$).

Main study. A sample of 100 heterosexual couples (male-female dating dyads; $N = 200$) was recruited for the main study. Couples were recruited using the Psychology Participant Pool at the University of Windsor. Participants were either recruited *directly* from the Psychology Participant Pool at the University of Windsor ($n = 107$) or *indirectly* through their dating partner who was a member of the Psychology Participant Pool ($n = 93$). For seven couples, both members of the dating dyad were recruited through the Psychology Participant Pool. The majority of participants recruited through the

Psychology Participant Pool were female (86.9%), whereas the majority of participants who were recruited indirectly through their partners were male (92.5%).

Detailed demographic information is summarized in Table 1. To maximize the number of couples eligible to participate in the current study, there were no imposed age restrictions. Participants ranged in age from 17 to 38 years (M = 21.45; SD = 3.29), with the vast majority of participants ranging in age from 18 to 25 years (n = 180; 90.0%). With regards to relationship demographics, length of dating relationships ranged between 1 month to 9 years (M = 2.06 years; SD = 1.97). Participants generally reported being very committed to their current dating partner on a scale from 0 (*not at all committed*) to 8 (*extremely committed*; M = 7.39, SD = 0.95; Mdn = 8; Range = 4.00 – 8.00). Participants also generally reported high levels of relationship satisfaction on a scale from 0 (*not at all satisfied*) to 8 (*extremely satisfied*; M = 6.89, SD = 1.25; Mdn = 7; Range = 1.00 – 8.00). Finally, participants generally reported it was very unlikely that they would end their relationship with the current dating partner in the next three months on a scale from 0 (*not at all likely*) to 8 (*extremely likely*; M = 1.53, SD = 2.42; Mdn = 0; Range = 0.00 – 8.00).

For descriptive purposes, data also were collected regarding participants' psychological health and well-being, as well as their alcohol and drug use. Almost 1 in 5 participants reported having a diagnosis of one or more psychological disorders (n = 37; 18.5%). Among these participants, diagnoses included anxiety (n = 10; 5.0%), attention-deficit disorders (n = 7; 3.5%), depression (n = 5; 2.5%), learning disabilities (n = 5; 2.5%), and eating disorders (n = 1; 0.5%). Some participants reported having diagnoses of two or more of the aforementioned psychological disorders (e.g., comorbid anxiety

and depression; $n = 9$; 4.5%). Although the majority of participants reported drinking alcohol and just under half reported using non-medicinal drugs, only a small number of participants reported that their alcohol or drug use provoked complaints from their current dating partner ($n = 23$; 11.5%) and/or created problems in their current dating relationship ($n = 25$; 12.5%). The relation between mental health status and IPV and drug/alcohol complaints and problems and IPV are explored further in the results section of this paper.

Table 1

Demographic Information

Variable	Pilot study		Main study	
	n	%	*n*	%
Highest Level of Education Completed				
Less than high school	0	0.0	2	1.0
High school diploma	**19**	**95.0**	**144**	**72.0**
Vocational / technical school	0	0.0	1	0.5
College diploma	0	0.0	23	11.5
Bachelor's degree	1	5.0	29	14.5
Total	20	100.0	199	99.5
Ethnicity				
Caucasian	**14**	**70.0**	**156**	**78.0**
Arab / Middle Eastern	1	5.0	11	5.5
South Asian	0	0.0	7	3.5
East Asian	3	15.0	6	3.0
Black / African Canadian	1	5.0	3	1.5
Hispanic/Latino	0	0.0	3	1.5
Multiethnic / Biracial	1	5.0	10	5.0
Other	0	0.0	4	2.0
Total	20	100.0	200	100.0
Religion				
Protestant Christian	2	10.0	22	11.0
Roman Catholic	**8**	**40.0**	**78**	**39.0**
Evangelical Christian	1	5.0	3	1.5
Jewish	0	0.0	2	1.0
Muslim	0	0.0	6	3.0
Hindu	2	10.0	3	1.5
Buddhist	0	0.0	1	0.5
Atheist	2	10.0	33	16.5
Agnostic	4	20.0	21	10.5
Other	1	5.0	16	8.0
Total	20	100.0	185	92.5
Sexually active with current partner				
Yes	**14**	**70.0**	**176**	**88.0**
No	1	5.0	22	11.0
Total	15	75.0	198	99.0

Con't

Variable	Pilot study		Main study	
	n	%	*n*	%
Sexual Orientation				
Heterosexual	**20**	**100.0**	**195**	**97.5**
Gay	0	0.0	0	0.0
Bisexual	0	0.0	4	2.0
Other/Unknown	0	0.0	1	0.5
Total	20	100.0	200	100.0
Relationship Type				
Casual dating	2	10.0	11	5.5
Exclusive dating	2	10.0	14	7.0
Committed relationship	**12**	**60.0**	**167**	**83.5**
Engaged to be married	0	0.0	8	4.0
Total	16	80.0	200	100.0
Parents' Combined Income				
Under $20,000	1	5.0	4	2.0
$20,000 to 39,999	1	5.0	11	5.5
$40,000 to 59,000	2	10.0	24	12.0
$60,000 to 79,999	1	5.0	34	17.0
$80,000 to 99,999	4	20.0	47	23.5
$100,000 or greater	**11**	**55.0**	**80**	**40.0**
Total	20	100.0	200	100.0
Parents' Marital Status				
Married	**14**	**70.0**	**120**	**60.0**
Separated / divorced	4	20.0	59	29.5
Never married and not living together	1	5.0	9	4.5
Never married and living together	0	0.0	3	1.5
One or both parents have died	0	0.0	9	4.5
Prefer not to say	1	5.0	0	0.0
Total	20	100.0	200	100.0
Living Situation				
Alone	0	0.0	14	7.0
Dating partner	1	5.0	35	17.5
Friend or roommate	5	25.0	27	13.5
Parent or other family member(s)	**14**	**70.0**	**109**	**54.5**
Other	0	0.0	15	7.5
Total	20	100.0	200	100.0

Con't

Variable	Pilot study		Main study	
	n	%	*n*	%
Frequency of Alcohol Use				
Never	0	0.0	19	9.5
Monthly or less	6	30.0	63	31.5
2 to 4 times / month	**7**	**35.0**	**81**	**40.5**
2 to 3 times / month	5	25.0	29	14.5
4 to 6 times / week	2	10.0	5	2.5
Everyday	0	0.0	0	0.0
Prefer not to say	0	0.0	3	1.5
Total	20	100.0	200	100.0
Typical Amount of Alcohol Consumed				
None	0	0.0	19	9.5
1 or 2 drinks	6	30.0	48	24.0
3 or 4 drinks	2	10.0	**59**	**29.5**
5 or 6 drinks	**8**	**40.0**	34	17.0
7 to 9 drinks	1	5.0	29	14.5
10 or more drinks	3	15.0	8	4.0
Prefer not to say	0	0.0	3	1.5
Total	20	100.0	200	100.0
Frequency of Drug Use				
Never	**9**	**45.0**	**115**	**57.5**
Monthly or less	7	35.0	48	24.0
2 to 4 times / month	3	15.0	6	3.0
2 to 3 times / week	0	0.0	5	2.5
4 to 6 times / week	0	0.0	9	4.5
Everyday	0	0.0	6	3.0
Prefer not to say	1	5.0	10	5.0
Total	20	100.0	199	99.5

Note. The most commonly endorsed response category is presented in bold font. % = percentage of total sample.

Measures

Demographics questionnaire (Appendix B). Participants completed a self-report demographics questionnaire with a variety of personal, family, and relationship-based questions to gain a better understanding of the sample characteristics. Items included general questions about the participants' sex, age, ethnicity, sexual orientation, education level, living situation, as well as participants' parental marital status and combined family income. Additional questions about participants' mental health status and use of alcohol/drugs also were included to better understand characteristics of the current study sample. Participants were asked about the length and type of relationship and whether sex was a part of their relationship. Finally, questions pertaining to how committed participants were to their current dating partner, how satisfied they were in their current relationship, and how likely it was that they would end their relationship within the following three months also were included at the end of the demographics questionnaire.

Marlowe-Crowne Social Desirability Scale Short-Form C (MCSDS Form C). The MCSDS is a 33-item questionnaire that was originally published in 1960 by Marlowe and Crowne (Leite & Beretvas, 2005). Many shorter versions have been developed since then to make the questionnaire shorter and less time consuming. Among the most popular abbreviated versions are the three versions developed by Reynolds (1982) referred to as short forms A, B, and C. The MCSDS Form C, the most commonly used abbreviated version, was used in the current study.

The MCSDS Form C consists of 13 true or false items that are either very socially desirable but untrue of most people or very socially undesirable but very common.

Negatively keyed items were reverse scored and the number of true responses were added together to create a total social desirability score ranging from 0 to 13. High scores on the MCSDS Form C indicated participants were likely trying to present themselves in a more favorable manner. The MCSDS Form C was included in the current study because past research found that participants, and in particular men, tend to underreport their use of aggression in relation to their scores on social desirability response measures (Dutton & Hemphill, 1992; Saunders, 1991; Tolman, 1989). As such, participants' MCSDS scores are often included as covariates in models predicting IPV to partition out variance associated with socially desirable response patterns.

Past research has shown that the MCSDS Form C is a reliable and valid measure of socially desirable response patterns in a variety of populations (see Loo & Thorpe, 2000; Reynolds, 1982; Robinette, 2006). Past research has shown that data from the MCSDS Form C has favourable, but somewhat variable, internal reliability with Cronbach's alphas ranging from .76 (Reynolds, 1982), to .89 (Fischer & Fick, 1993), to .90 (Leite & Beretvas, 2005). In the current study, data from the MCSDS Form C had questionable internal reliability (Cronbach's alpha = .67). An examination of inter-item correlations and item-total statistics did not reveal any problematic items that may have been responsible for compromising the internal reliability of the scale, and therefore total social desirability scores were used in current study analyses.

Hypothetical conflict situation vignettes (Appendices C and D). Participants were presented with nine hypothetical conflict situation followed by a series of questions to assess negative emotions and SIP abilities. A variety of potential relationship conflict issues were depicted across vignettes (e.g., rejection, abandonment, betrayal, jealousy,

and other challenging situations). These vignettes were presented in random order and described a series of problematic situations for couples, each ending with potentially negative partner behaviour. These vignettes were initially developed and used by Holtzworth-Munroe and Anglin (1991). The benefit of using standardized vignettes is that it allows researchers to hold partner behaviours constant for all participants and eliminates the possible confound of different partner behaviours in real life social interactions.

Several changes were made to the original marital vignettes to ensure that they were appropriate for younger dating couples. For example, one of the original vignettes from Holtzworth-Munroe and Anglin's (1991) study was omitted because it described a situation that most young adults in dating relationships would not encounter (i.e., "…when you get home, the house is a mess, things aren't picked up, the television is blasting, dinner isn't ready, and the kids are running around screaming"). This vignette was replaced by another vignette from Anglin and Holtzworth-Munroe's (1997) study, which depicted a more developmentally-appropriate conflict situation for dating couples (see vignette 9; Appendix C).

In addition to this vignette substitution, several minor changes were made to the wording of the vignettes. The nouns and pronouns were changed to reflect the sex of the participant and partner depicted in the vignettes and the word "partner" was used instead of "wife" or "husband." Some of the vignettes were reworded to make them more appropriate for young adults who may attend school rather than be employed (changed "you are relaxing one evening after work" to simply "you are relaxing one evening after a long day"). In addition, vignette 5 was changed from "you and your partner have an

appointment together" to "you and your partners have reservations at a new restaurant in town" because it was more appropriate for dating couples whose daily activities and responsibilities may be somewhat different than those of married couples.

Finally, four vignettes explicitly stated how the respondent would feel in response to the hypothetical conflict situation vignettes (e.g., "you feel very embarrassed and upset" or "you're beginning to feel frustrated"). These "leading" statements were omitted from vignettes in the current study because they had the potential to bias participants' responses to the negative emotions questions presented after each vignette. Overall, although the aforementioned changes to the original vignettes were relatively minor, these changes may be important to consider when interpreting the current study results and comparing them to past research.

The original authors of these vignettes conducted pilot research with undergraduate students in committed relationships to ensure that they met several criteria including: (a) being perceived as realistic, (b) being perceived as moderately important, yet somewhat difficult and uncomfortable to handle, (c) being sufficiently ambiguous to generate a wide range of interpretations and responses from participants (A. Holtzworth-Munroe, personal communication, August 20, 2010). In an extension of their work, Anglin and Holtzworth-Munroe (1997) conducted further pilot work with married heterosexual couples and determined that these same criteria were met for both men and women in their study. As such, there are preliminary data to suggest that the vignettes that were used in this study are appropriate for both men and women in both dating and marital relationships.

Negative emotion questions (NEQ). Participants responded to six questions that were adapted from past research to assess feelings of anger, jealousy, rejection, abandonment, betrayal, and embarrassment in reaction to their partner's hypothetical behaviour in the vignettes (Moore et al., 2000). Similar questions have been used in past research to gauge the provocativeness of the hypothetical conflict situation vignettes (e.g., a vignette that elicits greater feelings of jealousy and betrayal may be considered more provocative than a vignette that elicits fewer of these feelings; Moore et al., 2000). In the current study, these questions were included to assess the extent to which participants would experience negative emotions in response to their partners' hypothetical behaviour across situations. Participants indicated their agreement or disagreement with statements such as, "I would feel angry in this situation" and "I would feel jealous in this situation" using a 6-point Likert-type scale (1 = *disagree strongly*; 6 = *agree strongly*). Participants' responses to each negative emotion question were averaged across all nine vignettes, with higher scores indicating participants experienced higher levels of that particular emotional response.

It is important to note that emotions questions were selected based on themes presented in the hypothetical conflict situation vignettes. Specifically, vignettes 1 and 3 depicted themes of jealousy, vignettes 2 and 4 depicted themes of rejection, vignettes 6 and 8 depicted themes of abandonment, and vignette 9 depicted themes of betrayal. To check whether vignettes provoked the intended emotional responses from participants in the current study, a series of one-sample *t* tests were conducted using an average test value of 4 (*agree somewhat*) and an alpha level of .05. Results from these one-tailed *t* tests suggested that, on average, participants reported significantly more feelings of

jealousy in response to vignettes 1 and 3 (M = 4.44, SD = 1.20), $t(196) = 5.15$, $p = < .001$, rejection in response to vignettes 2 and 4 (M = 4.45, SD = 1.06), $t(194) = 5.98$, $p < .001$, and betrayal in response to vignette 9, (M = 4.21, SD = 1.61), $t(195) = 1.86$, $p = .032$. Participants reported significantly fewer feelings of abandonment in response to vignettes 6 and 8 suggesting these vignettes may have been less provocative (M = 3.77, SD = 1.31), $t(193) = -2.4$, $p = .008$. Taken together, these findings suggest that although some vignettes were more provocative than others, for the most part, vignettes elicited the intended emotions from participants.

There were no previous data on the internal reliability or validity of the NEQ because it was adapted from past research for the purpose of the current study. The internal reliability of the data for the negative emotion questions in the current study within each vignette ranged from acceptable (Cronbach's alpha = .79 for vignette 7) to excellent (Cronbach's alpha = .90 for vignettes 1 and 3), and was considered excellent when reliability coefficients were averaged across all nine vignettes (Cronbach's alpha = .92)

Negative Intentions Questionnaire (NIQ). The NIQ is a 5-item measure that was presented after each hypothetical conflict situation vignette to assess the degree to which participants attributed negative intent to their partners' behaviours in the vignettes. This measure has been used in previous research to assess the interpretation and attribution step of Dodge's SIP model (Step 2; Copenhaver, 2000; Eisler, Franchina, Moore, Honeycutt, & Rhatigan, 2000; Holtzworth-Munroe & Hutchinson, 1993; Moore et al., 2000). The wording of the NIQ was modified to suit the participant's sex (male or female). Participants used a 6-point Likert-type scale (1 = *disagree strongly*; 6 = *agree*

strongly) to indicate the extent to which they believed that their partner's behaviour involved five specific negative intentions: "He/she was trying to… (a) make me angry, (b) hurt my feelings, (c) put me down, (d) get something for him/herself, and (e) pick a fight." The NIQ was used in the current study to assess the extent to which participants attributed negative intent to their partner's hypothetical behaviours across vignettes. Participants' responses to all five items of the NIQ were averaged for each vignette to create composite scores. The composite scores were then averaged across all nine vignettes, with higher scores indicating greater attribution of negative intent. Past research has shown that the NIQ has excellent internal reliability (Cronbach's alpha = .95; Holtzworth-Munroe & Hutchinson, 1993). The internal reliability of data from the NIQ in the current study within each vignette ranged from good (Cronbach's alpha = .82 on vignette 7) to excellent (Cronbach's alpha = .93 on vignette 3), and was considered excellent when reliability coefficients were averaged across all nine vignettes (Cronbach's alpha = .92).

Responsibility Attributions Questionnaire (RAQ). A modified version of the RAQ (Fincham & Bradbury, 1992) was included to assess the degree of responsibility participants attributed to their partners' hypothetical behaviour in each vignette. The modified RAQ is a 4-item measure borrowed from previous research examining the role of partner attributions in marital distress. As such, similar to the NIQ, the RAQ has been used in past research to assess the interpretation and attribution step of Dodge's SIP model (Step 2; Copenhaver, 2000; Holtzworth-Munroe & Hutchinson, 1993). The wording of the RAQ was modified to suit the participant's sex (male or female). Participants used a 6-point Likert-type scale (1 = *disagree strongly*; 6 = *agree strongly*)

to indicate the extent to which they believed that their partner acted with selfish motivation and deserved to be blamed for their behaviour. More specifically, participants rated four statements: "My partner…(a) did this on purpose, (b) did this to have a bad or negative impact on me, (c) deserves to be blamed for acting this way, and (d) was motivated by selfish rather than unselfish concerns." Participants' responses to all four items of the RAQ were averaged for each vignette to create composite scores. The composite scores were then averaged across all nine vignettes, with higher scores indicating greater attribution of responsibility. Past research has shown that the RAQ has acceptable internal reliability (Cronbach's alpha = .79; Holtzworth-Munroe & Hutchinson, 1993). The internal reliability of data from the RAQ in the current study within each vignette ranged from adequate (Cronbach's alpha = .78 on vignettes 4 and 5) to good (Cronbach's alpha = .89 on vignette 3), and was considered excellent when reliability coefficients were averaged across all nine vignettes (Cronbach's alpha = .91).

Coping Response Measure (CRM). The CRM is a measure of participants' response generation (Step 4) and response selection (Step 5) of Crick and Dodge's (1994) model for each hypothetical conflict situation vignette. The original CRM is composed of two open-ended questions: (a) "What are all the possible things that you *could* say or do to handle the situation you just read?" (generation of coping response alternatives) and (b) "What *would* you say or do in the situation you just read about?" (selection of coping response). The *number* and *competency* of participants' open-ended responses were coded by two undergraduate research assistants who were trained to do so using a standardized coding system (Holtzworth-Munroe, personal communication, August 20, 2010). For further details regarding how the standardized coding system was developed,

please see Holtzworth-Munroe and Anglin (1991) and Anglin and Holtzworth-Munroe (1997).

To code the first open-ended question (generation of coping response alternatives), the undergraduate research assistants counted the number of unique responses provided by participants. Separate responses that represented expansions or variations on a theme were not counted as unique responses (e.g., "I would walk away without saying a word" and "I would leave the conversation"), unless they were qualitatively different in terms of competency (e.g., "I would ask my partner one or two questions" as compared to "I would have a lot of questions, but I wouldn't say anything").

After counting the number of responses generated, research assistants used a 4-point scale based on a standardized coding system to code each of the participants' responses according to competency (1 = *competent*, 2 = *slightly competent*, 3 = *slightly incompetent*, and 4 = *incompetent*). According to the standardized coding system, a *competent response* was generally defined as a response that would very likely solve the current problem and make similar problems less likely in the future (e.g., negotiating mutually agreeable compromises, using open and direct communication, or expressing thoughts and feelings in respectful manner). A *slightly competent response* was generally defined as an effective problem-solving response that may nonetheless consist of some negative affect, as well as indirect or vague forms of communication and problem solving (e.g., making light jokes, passively agreeing with partner, hinting at requests, or making indirect attempts at solving a problem). A *slightly incompetent response* was defined as a response that has the potential to make the situation worse and may consist of passive,

negative, or indirect forms of communication, accompanied by a negative emotional tone or lack of tolerance and genuine concern for the partner (e.g., saying or doing nothing, making sarcastic or immature comments, ignoring partner's wishes or feelings, or expressing negative emotions in inappropriate manner). Finally, an *incompetent coping response* was defined as a negative response that would not solve the current problem and would likely escalate or make the situation much worse (e.g., using threatening statements, seeking revenge, calling partner names, or using verbal or physical aggression).

The standardized coding system used by research assistants in the current study was based on McFall's conceptualization of competent decision making (see Gaffney & McFall, 1981; Holtzworth-Munroe & Anglin, 1991; McFall, 1982). Research assistants were provided with general descriptions and specific examples of responses considered to be competent, slightly competent, slightly incompetent, or incompetent for each vignette to facilitate coding of participants' responses. This method and standardized coding system has been used in past research and has yielded good interrater reliability coefficients (i.e., alpha coefficients greater than .80; Anglin & Holtzworth-Munroe, 1997; Holtzworth-Munroe & Anglin, 1991; Copenhaver, 2000).

To code the second open-ended response (selection of coping response), research assistants counted the number of unique responses provided. Most participants (96%) selected more than one coping response for one or more hypothetical conflict situation vignettes ($M = 1.39$, $SD = 0.26$; Range = 1 – 4 responses). After counting the number of responses selected, research assistants coded selected responses on a 4-point competency scale using the standardized coding system previously described. It is important to note

that the number of coping responses selected by participants was not investigated as a risk factor for IPV in the current study as this construct was simply an artifact of the CRM and there was no real theoretical basis for evaluating this construct. Rather, the competency of coping responses selected by participants was included as a key predictor variable in the current study.

The average number and competency of coping response alternatives generated at Step 4, and the average competency of coping responses selected at Step 5 was computed for each vignette, and then these scores were subsequently averaged across all nine vignettes. Therefore, three variables related to participants' responses on the CRM were examined in the current study: (a) average *number* of coping response alternatives generated across vignettes, (b) average *competency* of coping response alternatives generated across vignettes, and (c) average *competency* of coping responses selected across vignettes.

The number and competency ratings on the CRM were evaluated for consistency using measures of relative interrater reliability, namely intraclass correlation coefficients (ICCs; Table 2). All reliability indices were evaluated according to criteria proposed by Cicchetti and Sparrow (1981), wherein the value of ≥ .75 is considered to have "excellent" reliability, .60 to .74 is "good," .40 to .59 is "fair," and ≤ .40 is "poor." ICCs showed good to excellent interrater reliability for counts and competency ratings at both the response generation and response selection steps of the SIP model (Steps 4 and 5, respectively). ICCs were somewhat weaker for number of responses counted at the response selection step, though they were still considered to have good interrater reliability. ICCs were calculated also for aggregate counts/ratings across all nine

vignettes because these scores were used in the main analyses, and interrater reliability was considered excellent (ranging from .86 to .99).

Table 2

Intraclass Correlation Coefficients (ICCs) for Number and Competency of Coping Responses as Rated by Two Independent Coders on the CRM

	Response generation		Response selection	
	Number	Competency	Number	Competency
Vignette	ICC (95% CI)	ICC (95% CI)	ICC (95% CI)	ICC (95% CI)
1	.96 (.95 - .97)	.89 (.86 - .92)	.64 (.52 - .73)	.81 (.75 - .86)
2	.95 (.93 - .96)	.88 (.84 - .91)	.63 (.50 - .72)	.85 (.80 - .89)
3	.95 (.93 - .96)	.87 (.82 - .90)	.59 (.45 - .69)	.84 (.79 - .88)
4	.92 (.90 - .94)	.87 (.83 - .90)	.72 (.63 - .79)	.84 (.79 - .88)
5	.96 (.95 - .97)	.93 (.91 - .95)	.79 (.72 - .84)	.89 (.85 - .92)
6	.93 (.90 - .95)	.87 (.83 - .90)	.70 (.59 - .77)	.84 (.79 - .88)
7	.96 (.94 - .97)	.85 (.80 - .89)	.75 (.66 - .81)	.72 (.62 - .79)
8	.92 (.90 - .94)	.90 (.87 - .93)	.81 (.74 - .86)	.85 (.80 - .89)
9	.95 (.93 - .96)	.83 (.78 - .87)	.64 (.52 - .73)	.86 (.81 - .89)
Total	.99 (.98 - .99)	.96 (.94 - .97)	.86 (.82 - .90)	.95 (.93 - .96)

Note. CRM = Coping Response Measure. ICCs of ≥ .75 are considered to have "excellent" reliability, .60 to .74 are "good," .40 to .59 are "fair," and ≤ .40 are "poor."

Revised Conflict Tactic Scales (CTS2). The CTS2 (Straus et al., 1996) is a 78-item self-report questionnaire that measures the extent to which partners in dating, cohabiting, or marital relationships engage in physically, psychologically, and sexually aggressive behaviours against one another. The CTS2 consists of five subscales (i.e., Negotiation, Physical Assault, Psychological Aggression, Sexual Coercion, and Injury) and is organized in the form of paired questions for each behavioural act: participants' use of aggression (perpetration items) and participants' partners' use of aggression (victimization items).

To limit the scope of the current study and to remain consistent with past SIP research which was mostly focused on physical violence, only the 12-item Physical Assault subscale was examined in the current study. The Physical Assault subscale consists of items that ask about physically aggressive behaviours that range from minor (5 items; e.g., "slapped," "pushed or shoved," "thrown something that could hurt") to severe (7 items; e.g., "kicked," "choked," "used a knife or gun"). In addition, the 6-item Injury subscale was examined for descriptive purposes to gain a better understanding of the extent to which participants' reported inflicting and sustaining physical injuries in their relationships (e.g., sprains, bruises, broken bones).

Participants indicated the frequency with which they had committed or experienced a particular act of physical aggression in the preceding year by choosing one of the following response options: *never* (scored 0)*, 1 time* (scored 1)*, 2 times* (scored 2)*, 3-5 times* (scored 4)*, 6-10 times* (scored 8)*, 11-20 times* (scored 15)*,* or *more than 20 times* (scored 25). An additional response category labeled *not in the past year but has happened in the past* was included as a prevalence measure and scored as *no* (0) or *yes*

(1). The CTS2 was scored by adding the midpoints for the response categories (shown in the brackets above; Straus et al., 1996). Depending on the items endorsed, higher scores on the CTS2 indicate a greater number of acts of IPV perpetration and victimization.

Numerous subscale scores can be computed using CTS2 data (see Straus, 2004b). Two of the most commonly computed scores in the literature on IPV are annual frequency and prevalence scores. Annual *frequency* scores are continuous scores indicating the number of times a respondent committed or experienced one or more acts of physical aggression in the preceding year. Annual frequency scores are often preferred in clinical settings when researchers are interested in better understanding populations known to be perpetrators (e.g., batterer intervention programs) or victims (e.g., women's shelters). Unfortunately, annual frequency scores tend to produce highly skewed distributions for nonclinical or community samples that are easily influenced by outliers and therefore more difficult to interpret. Annual *prevalence* scores are dichotomous scores that indicate simply whether or not the respondent committed or experienced one or more acts physical aggression in the preceding year. Although annual *prevalence* scores are frequently used in research with nonclinical or community samples, they do not differentiate on the basis of how many acts occurred. For example, based on these scores, respondents are sometimes categorized according to the presence and/or severity of aggression in their relationships (e.g., violent vs. nonviolent or mild vs. severe). Using this method, individuals who perpetrated one act of physical aggression and individuals who perpetrated more than 25 acts of physical aggression are grouped into the same "violent" category.

There are advantages and disadvantages to both types of scores. To preserve as much information about the aggressive acts as possible, annual frequency scores were used in this study. In addition, using continuous scores helped to maximize the statistical power in this study and therefore increased the probability of detecting significant relations among variables. Given that annual frequency scores tend to produce highly skewed distributions in nonclinical samples of men and women, statistical procedures that allowed for both nonnormal count and interdependent data were used in the current study.

Finally, the CTS2 can be administered to individuals or couples. Couple-level data were collected from participants in the current study to ensure both partners' perceptions and experiences were adequately assessed and represented. Given the nature of the statistical analyses used in this study, discrepancies in partners' reports, though interesting, bared little impact on the study's findings. Negative emotions and SIP abilities (both at the actor and partner level) were always examined in relation to the participants' self-reported experience of IPV. Given that perpetration and victimization data were collected from both partners, a well-rounded assessment of the types of aggressive incidents that took place was obtained for each couple.

The CTS2 was included in the current study given its widespread use and efficiency in studying acts of IPV, particularly among college-age populations, and the fact that it has shown to be a valid and reliable measure of IPV across a variety of cultures and populations. Numerous studies have provided empirical support for the factor structure, reliability, and validity of the CTS2 (Straus, 2004c; Straus et al., 1996; Vega & O'Leary, 2007). In the current study, the internal reliability of data from the

Physical Assault subscale was questionable for the perpetration subscale (Cronbach's alpha = .64), and acceptable for data from the victimization subscale (Cronbach's alpha = .75). An examination of the inter-item correlations and item-total statistics did not reveal any problematic items that may have been responsible for compromising the internal reliabilities of these subscales, and therefore participants' annual frequency scores were included in analyses. The small number but wide variety of mild to severe aggressive acts represented on the Physical Assault subscale may have been, at least in part, responsible for the lowered internal consistency.

Emotion checklist. An emotion checklist was completed to determine whether participants experienced any negative partner-directed emotions as a result of participating in the study. This checklist has been used in past research to gather more data about the potentially stressful nature of completing questionnaires in couple research investigating IPV (e.g., Clements & Holtzworth-Munroe, 2007, 2009; Holtzworth-Munroe et al., 2000). The emotion checklist consisted of ten emotional states, three of which are classified as positive emotions (i.e., affection/caring, comfortable/relaxed, and happy) and seven of which are classified as negative emotions (i.e., anger/frustrated, contempt/disgust, fear/scared/afraid, sad/discouraged, tense/anxious, jealous, and want revenge/vengeful). Participants were asked to "select a point on the scale that shows your feeling toward/about your partner, at this very moment, as a result of participating in this study today" using a 7-point Likert-type scale (1 = *not at all*; 4 = *somewhat*; 7 = *a great deal*). Participants' responses to the seven negatively-worded items on the emotion checklist were combined to create an overall negative emotion score, whereas their

responses to three positively-worded items of the emotion checklist were combined to create an overall positive emotion score.

Procedures

Pilot study. A pilot study was conducted to determine whether the hypothetical conflict situation vignettes were appropriate and effective stimuli for young adults in dating relationships (as the vignettes were initially developed for use with married couples). Several criteria outlined in previous research using these vignettes were examined, including: (a) being perceived as realistic, (b) being perceived as moderately important, yet somewhat difficult and uncomfortable to handle, and (c) being sufficiently ambiguous to generate a wide range of interpretations and responses from participants (Holtzworth-Munroe, personal communication, August 20, 2010).

Participants who volunteered for the pilot study were invited to the laboratory to complete a short online survey that took approximately 30 minutes to complete. The consent form, which included information about the purpose, procedures, potential risks and benefits, and compensation for participating, was reviewed in detail with each participant (Appendix E). The short online survey consisting of a modified version of the demographics questionnaire, followed by the nine hypothetical conflict situation vignettes presented in random order. Participants were asked to imagine that the situation took place in their current dating relationship or in their most recent dating relationship, depending on their relationship status. Each vignette was followed by six questions adapted from previous pilot research to determine whether the situations were perceived as realistic, moderately important, and sufficiently ambiguous to generate a wide range of

interpretations and responses from participants (A. Holtzworth-Munroe, personal communication, August 20, 2010).

After completing the survey, participants received copies of the research summary form and community resource list (Appendix F). Participants received a bonus credit point toward an eligible psychology course as compensation. Participants who completed the pilot study were not eligible to complete main study with their dating partners.

Main study. Couples recruited for the main study were invited to the laboratory to complete an online survey that took approximately one hour to complete. First, couples were welcomed to the laboratory and directed to take a seat in the common "meeting room" (Figure 2). The consent form was reviewed with each couple and information about the purpose of the study, procedures, potential risks and benefits, and compensation for participating was provided (Appendix G). In addition, participants were informed that all of the information they provide would be kept confidential and would not be shared with their partners. A copy of the consent form was provided to both members of the couple dyad and signatures were required from both members in order for the study to proceed.

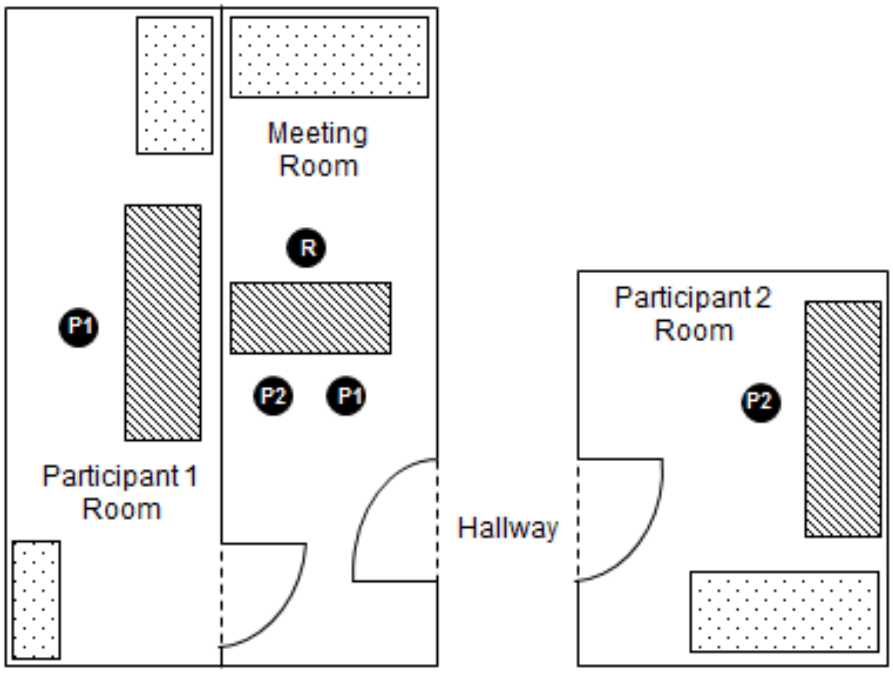

Figure 2. Room configuration.

Following consent procedures, partners were separated into different rooms such that one member of the couple dyad completed the study measures in Participant Room 1 while the other member completed them in Participant Room 2 (Figure 2). The research assistant remained in the meeting room in case either participant had a question during the study procedures. Once in separate rooms, participants were directed to complete an online survey. First, participants completed the demographics questionnaire and the MCSDS Form C. Then all nine hypothetical conflict situation vignettes were presented on the computer in random order with each followed by the NEQ, NIQ, RAQ, and CRM. The questionnaires were presented in the aforementioned fixed order to reflect the ordering of various steps in the SIP model (Crick & Dodge, 1994). Participants completed the CTS2 followed by a positive mood induction procedure to buffer against any of the negative reactions participants may have had a result of participating in the study (Appendix H). Research has shown that positive emotions can act as a resource or buffer when individuals have to confront unpleasant tasks or information (Trope et al., 2001). Finally, participants completed a paper-and-pencil version of the emotion checklist and responded to the following question: "Do you feel safe leaving this study with your partner today?" Participants' responses were coded by participant number and stored separate from any forms with identifying information (e.g., consent forms, receipts, and contact information for the draw).

After completing all of the study measures, participants notified the research assistant they were finished by opening the door to their room. The research assistant then followed the procedures outlined in the safety protocol (Appendix I). First, the research assistant examined participants' response to the safety question. A set of

procedures were developed to intervene with participants who indicated they did not feel safe leaving the study with their partner (Appendix J). Fortunately, however, no participants reported feeling unsafe leaving the study with their partners. Second, the research assistant examined participants' responses to the emotion checklist. Participants who endorsed a score of 5 or higher on any negative items of the emotion checklist (n = 21) were identified as having had a possible negative emotional reaction as a result of participating in the study (rating scale: 1 = *not at all*; 4 = *somewhat*; 7 = *a great deal*). The research assistant discussed the participants' ratings on the emotion checklist with them and used a series of guided problem-solving questions before reaching a satisfactory outcome and reuniting both members of the couple dyad in the meeting room for debriefing and compensation.

Participant debriefing procedures consisted of reviewing the research summary form and list of community resources (Appendix K). If both members of the couple dyad were registered in the Psychology Participant Pool (n = 7 couples), both were compensated with one bonus credit point each toward an eligible psychology course. For couples for whom only one member of the couple dyad was registered in the Psychology Participant Pool (n = 93 couples), those participants were compensated with one bonus credit point and their partners were provided monetary compensation ($10.00) and the opportunity to enter their name and e-mail address into a draw for one of four $25.00 gift certificates to Future Shop (Canada's largest consumer electronics retailer).

CHAPTER IV

Results

Preliminary Analyses

Pilot study. Twenty university students (10 men and 10 women) read the hypothetical conflict situation vignettes and provided feedback on the degree to which they appeared (a) realistic, (b) important, but somewhat difficult and uncomfortable to handle, and (c) sufficiently ambiguous, as part of the pilot study**.** Participant responses to the vignette questions were analyzed separately for men and women. No missing data were present on any measures included in the pilot study.

Based on criteria outlined in the initial pilot study for vignettes (A. Holtzworth-Munroe, personal communication, August 20, 2010), vignettes were considered appropriate for the sample and purpose of the study if the mean rating on the realism scale was less than three (1 = *very realistic*; 5 = *very unrealistic*), and mean ratings were equal to or greater than 2.5 for the importance (1 = *unimportant*; 5 = *extremely important*), difficulty (1 = *extremely easy to handle*; 5 = *extremely difficult to handle*), and comfort scales (1 = *very comfortable*; 5 = *very uncomfortable*).

Mean ratings on the realism, importance, difficulty, and comfort scales were calculated across vignettes for men and women (Table 3). Participants' responses met criteria outlined in previous research (Holtzworth-Munroe, personal communication, August 20, 2010), suggesting on average, vignettes were perceived as sufficiently realistic and moderately important, but also somewhat difficult and uncomfortable to handle. A series of *t* tests were conducted to compare responses provided by men and women across all four scales. Consistent with previous pilot work, there were no

significant differences in how men and women perceived the realism, importance, difficulty, and comfort of handling the hypothetical conflict situations presented across vignettes (Table 3).

Table 3

Mean Ratings across Vignettes on Realism, Importance, Difficulty, and Comfort Scales

		Males (n = 10)			Females (n = 10)			Comparison
Variables	Criteria	*M*	*SD*	Range	*M*	*SD*	Range	*t* (*df*)
Realism	< 3.0	2.73	.97	1.11 – 4.00	2.07	.74	1.00 – 3.44	1.72 (18)
Importance	≥ 2.5	4.02	.59	2.89 – 4.89	3.98	.60	2.89 – 5.00	0.17 (18)
Difficulty	≥ 2.5	2.94	.51	2.11 – 3.89	3.17	.77	2.00 – 4.44	-0.76 (18)
Comfort	≥ 2.5	3.13	.76	2.22 – 4.44	3.14	.86	2.11 – 4.67	-0.03 (18)

*$p < .05$. **$p < .01$.

Finally, for vignettes to meet criteria outlined in previous research (Holtzworth-Munroe, personal communication, August 20, 2010), the situations had to elicit a wide range of responses from participants, based on their responses to the open-ended question "*if this situation occurred, what would you say or do?*" The competency of participants' coping responses was evaluated according to a standardized coding system using the 4-point standardized coding system described above (1 = *competent*, 2 = *slightly competent*, 3 = *slightly incompetent*, and 4 = *incompetent*; Holtzworth-Munroe, personal communication, August 20, 2010). Participants provided a wide range of responses across vignettes with most being rated as *competent* (50.5%), followed by *slightly competent* (22.40%), *slightly incompetent* (14.58%), and *incompetent* (12.50%). Across vignettes in the pilot study, there was no significant difference in competency ratings for men ($M = 1.98$; $SD = 0.82$) and women ($M = 1.73$; $SD = 0.47$), $t(18) = 0.83$, $p = .418$.

Missing Data

The Missing Value Analysis (MVA) module in SPSS 20.0 was used to examine the amount and pattern of missing data in the current main study. There is generally no consensus among researchers regarding the percentage of missing data that is problematic. Researchers have recommended using a range of missing data cutoffs from 5% (Schafer, 1999), to 10% (Bennett, 2001), and up to 20% (e.g., Peng, Harwell, Liou, & Ehman, 2006). In addition to examining the amount of missing data, other researchers suggest examining whether any patterns are present in the missing data that could lead to biased results (e.g., Schlomer, Bauman, & Card, 2010). As such, both the amount and pattern of missing data were examined in the current study.

The vast majority of measures in the current study had a small amount of missing data due to item nonresponse (i.e., less than 5%). It has been suggested that methods of handling missing data generally yield similar results when there is a small amount of missing data (Tabachnik & Fidell, 1996). Amount and patterns of missing data on measures in the current study are provided in Table 4. There were no missing data on the measure of social desirability (i.e., MCSDS). There were minimal missing data on the partner violence measure (i.e., CTS2; 0 to 2%) and SIP-related measures including the negative emotion and negative attribution measures (i.e., NEQ, NIQ, and RAQ; 0 to 3.5%). Finally, the greatest percentage of missing data was present on the open-ended questions of the coping response measure (i.e., CRM; 4.5 to 7.5%). Using the conservative guideline of 5% missing data as set forth by Schafer (1999), only number and competency ratings on the CRM were considered to have a potentially problematic amount of missing data.

In addition to amount of missing data, the pattern of missingness also speaks to the potential biasing impact on the data. Researchers have outlined three patterns of missing data: missing completely at random (MCAR), missing at random (MAR), and missing not at random (MNAR). With MCAR data, there are no patterns of missing data and the missing values are not related to any variables under study or of interest (i.e., missingness is randomly dispersed throughout the dataset). With MAR data, missing data may be related to observed data, or other variables measured in the dataset, but not to missing or unobservable data (e.g., missingness on age may be related to participant sex, such that women may be more likely to leave their age blank than men). Finally, with MNAR data, the likelihood of missingness is related to the score on that same

variable had the participant responded (e.g., missingness on age may be related to participant age, such that older participants may be more likely to leave their age blank than younger participants). The latter pattern of missing data (i.e., MNAR) is considered problematic and missing data must be handled using a more complex set of procedures (e.g., multiple imputation) than if the data are MCAR or MAR.

The Expectation-Maximization (EM) procedure available in the MVA module of SPSS 20.0 was used to examine patterns of missing data in the current study and to determine which methods of handling missing data were most appropriate for the dataset. Little's (1988) MCAR test examines the null hypothesis that missingness is unrelated to the variables in the dataset (i.e., null hypothesis that data are MCAR). A nonsignificant finding on this test suggests missing values are randomly dispersed throughout the dataset and the potential for biased results due to missing data patterns is minimal.

In the current study, items from each subscale/measure were examined separately and results from Little's MCAR tests are presented in Table 4. Nonsignificant findings for Little's MCAR test were found for all relevant subscales/measures in the current study, suggesting there were no problematic missing data patterns. Given the small amount and random pattern of missing data on the CTS2, the 12-item Physical Assault subscale scores were computed by totaling the available item responses provided by participants (as recommended by Straus, 1995). The minimum number of missing items from the Physical Assault subscale did not exceed two per participant. Similarly, given the small amount and random pattern of missing data on most SIP-related measures (i.e., negative emotion and negative attribution measures), and because participants' responses

were aggregated across nine different hypothetical conflict situation vignettes, average composite scores were computed based on available data for these measures.

Finally, given the larger percentage of missing data on the CRM (i.e., 4.5 to 7.5%), missing values were imputed using a maximum likelihood approach for estimating parameters and replacing missing values known as the EM procedure (Dempster, Laird, & Rubin, 1977). The EM algorithm is an iterative procedure that involves two-steps: 1) the expectation step involves estimating parameters on the basis of available data to impute new values for the missing data, and 2) the maximization step involves calculating new values for the parameters using the newly imputed data along with the original data. This procedure repeats itself until the estimates converge and change very little from one iteration to the next (Allison, 2001). The EM procedure is relatively simple to conduct and thought to provide "unbiased and efficient" parameters (Graham, Cumsille, & Elek-Frisk, 2003, p. 94).

Table 4

Amount of Missing Data Due to Item Nonresponse and Patterns of Missing Data as Indicated by Little's MCAR Test

	Item nonresponse		Little's MCAR Test		
Measures	Min (%)	Max (%)	χ^2	*df*	*p*
MCSDS	0.0	0.0	--	--	--
CTS2	0.0	2.0	233.46	298	.998
NEQ	0.0	3.0	1911.98	2004	.929
NIQ	1.0	3.5	1860.18	1781	.094
RAQ	1.0	3.0	1186.84	1244	.875
CRM	4.5	7.5	367.16	332	.089

Note. MCSDS = Marlowe Crowne Social Desirability Scale; CTS2 = Physical Assault Subscale of the CTS2 (Victimization and Perpetration Combined); NEQ = Negative emotion questions; NIQ = Negative Intention Questionnaire; RAQ = Responsibility Attribution Questionnaire; CRM = Coping Response Measure.

Data Reduction

Data from several measures were aggregated to reduce the total number of predictor variables included in the current study. More specifically, there were large, significant correlations among participants' scores on the negative emotion questions ranging from .50 to .86 (Table 5). Participants' responses to the negative emotion questions were therefore averaged to obtain a composite score with higher scores indicating more negative emotional responses overall in response to the hypothetical conflict situation vignettes.

There also was a large, significant correlation between composite scores on the negative attribution measures (i.e., NIQ and RAQ), $r(198) = .89$, $p < .001$, suggesting individuals who attributed more negative intent to their partners' behaviours in the vignettes also tended to attribute more responsibility to their partners' same behaviours. Therefore both the NIQ and RAQ composites were transformed into *z*-scores and combined to create an average composite standardized score reflective of the attribution/interpretation step of Crick and Dodge's (1994) SIP model (Step 2).

Table 5

Intercorrelations among Negative Emotion Questions in Response to Hypothetical Conflict Situation Vignettes

Variables	1	2	3	4	5	6
1. Angry	--					
2. Jealous	.53**	--				
3. Rejected	.72**	.68**	--			
4. Abandoned	.60**	.67**	.86**	--		
5. Betrayed	.67**	.71**	.81**	.81**	--	
6. Embarrassed	.50**	.65**	.60**	.57**	.70**	--

*$p < .05$. **$p < .01$.

Statistical Assumptions

Outliers and influential observations. Following data reduction, key variables in the current study were examined for univariate and multivariate outliers. Using a standard score cut-off of 2.5 standard deviations, standardized residuals were examined to identify univariate outliers on predictor and outcome variables (Table 6). The number of univariate outliers ranged from 0 to 7 on each subscale/measure, with four cases having outliers on more than one subscale/measure. There were two multivariate outliers on the predictor variables as indicated by Mahalanobis' distance scores exceeding 24.32 (cut-off obtained from chi-square table with $p < .001$). There were no influential observations in the dataset as indicated by Cook's values exceeding one. The main analyses were conducted with and without outliers to better understand how their removal would impact the significance of the results and no differences were found. As such, all cases with univariate and/or multivariate outliers were retained to maximize sample size and preserve power in the current study.

Distributions. With respect to the distributional properties of the study variables, visual inspection of histograms revealed normally distributed data on the social desirability, negative emotions, and negative attribution composite scores. Near-normal distributions were observed at the response generation (Step 4) and response selection (Step 5) steps of the SIP model (for both number and competency of responses), though data were observed to be slightly skewed in the positive direction. Finally, as expected, distributions on the partner violence measure (i.e., CTS2) were heavily skewed in the positive direction with a high degree of zero inflation (e.g., more than half of all participants in the current study reported no acts of physical aggression occurring in their

current dating relationship). Appropriate subsequent analyses were selected based on the distributional properties of the current study's variables (e.g., nonparametric tests for skewed distributions).

Multicollinearity and singularity. Multicollinearity and singularity were assessed by examining correlations among actor and partner effects for each proposed model. The absolute magnitude of correlations among predictor variables ranged from .02 to .17 indicating no issues with multicollinearity or singularity (which is typically characterized by correlations exceeding .90). Examination of collinearity statistics also indicated no violations of this assumption (i.e., tolerance was greater than 0.1 and the VIF did not exceed 10 for all variables; Table 6). All covariates and key predictor variables were grand-mean centered prior to the main analyses by subtracting the grand mean from each participant's respective mean score to simplify interpretation of regression coefficients and buffer against any problems associated with multicollinearity when creating interaction terms (Campbell & Kashy, 2002; Kenny et al., 2006).

Table 6

Overview of Univariate Outliers and Collinearity Diagnostics for Predictor and Outcome Variables

Variables	Univariate outliers	Collinearity diagnostics	
	Number of cases	Tolerance	VIF
Predictor Variables			
Social desirability	0	0.76	1.33
Negative emotions	1	0.45	2.23
Negative attributions	1	0.45	2.21
Step 4 (number)	1	0.38	2.62
Step 4 (competency)	0	0.43	2.32
Step 5 (competency)	4	0.66	1.52
Outcome Variables			
IPV perpetration	6	--	--
IPV victimization	7	--	--

Note. Multicollinearity assumption violated if tolerance statistic less than 0.1 and VIF statistic greater than 10.

Descriptive Statistics

Key predictor variables. Descriptive statistics are provided for men and women including mean, standard deviation, median, and range of scores for possible covariates (i.e., age, relationship length, relationship satisfaction, and social desirability) and key predictor variables (i.e., negative emotions, negative attributions, number and competency of responses generated at Step 4, and competency of responses selected at Step 5; Table 7).

Table 7

Descriptive Statistics for Predictor Variables by Participant Sex

Variables	Men			Women		
	M (*SD*)	*Mdn*	Range	*M* (*SD*)	*Mdn*	Range
Age	21.84 (3.59)	21.00	17.00 – 38.00	21.05 (2.92)	20.00	18.00 – 33.00
Relationship length	2.05 (1.99)	1.42	0.17 – 9.00	2.05 (1.96)	1.34	0.08 – 9.00
Relationship satisfaction	6.92 (1.23)	7.00	1.00 – 8.00	6.86 (1.28)	7.00	2.00 – 8.00
Social desirability	6.62 (2.77)	7.00	1.00 – 13.00	6.23 (2.83)	6.00	1.00 – 13.00
Negative emotions	3.09 (0.73)	3.13	1.41 – 4.98	3.56 (0.73)	3.60	1.47 – 5.31
Negative attributions (*z*-score)	-0.16 (0.94)	-0.29	-1.88 – 2.24	0.16 (0.98)	0.11	-1.89 – 2.57
Step 4 (number)	2.00 (0.74)	1.92	1.00 – 4.00	2.65 (0.97)	2.61	1.00 – 6.00
Step 4 (competency)	1.84 (0.42)	1.79	1.12 – 3.10	2.10 (0.48)	2.12	1.15 – 3.10
Step 5 (competency)	1.80 (0.47)	1.68	1.17 – 3.08	1.81 (0.43)	1.72	1.17 – 3.44

IPV. Descriptive statistics for the CTS2 are presented to reflect the type, frequency, and severity of physical aggression reported by participants in their relationships. These descriptive statistics are presented separately for perpetration item/subscales (Table 8) and victimization item/subscales (Table 9). More specifically, means, standard deviations, and range of scores for total number of acts of physical aggression self-reported by men and women in the preceding year are provided, in addition to the percentage of men and women who endorsed at least one act of physical aggression for each item/subscale.

On average, 28% of men reported perpetrating at least one act of physical aggression in the preceding year (with 89% of these men engaging in at least one mild act and 18% engaging in at least one severe act of aggression). The most common and frequent act perpetrated by men was grabbing their partner (18% of men overall; mean number of grabbing incidents in preceding year = 1.40, *SD* = 4.66). On average, 41% of women reported perpetrating at least one act of physical aggression in the preceding year (with 100% of these women engaging in at least one mild act and 34% engaging in at least one severe act of aggression). The most common and frequent act perpetrated by women was pushing or shoving their partner (34% of women overall; mean number of pushing/shoving incidents in preceding year = 1.48, *SD* = 3.68).

Table 8

Descriptive Statistics for Perpetration Items of Physical Assault Subscale of CTS2 by Participant Sex

	Men (n = 100)			Women (n = 100)		
Perpetration items	*M* (*SD*)	Range	%	*M* (*SD*)	Range	%
Mild						
Threw something	0.11 (0.51)	0.00 – 4.00	6	0.38 (1.10)	0.00 – 8.00	17
Twisted arm or hair	0.56 (3.02)	0.00 – 25.00	8	0.65 (3.04)	0.00 – 25.00	12
Pushed or shoved	0.85 (3.89)	0.00 – 25.00	11	1.48 (3.68)	0.00 – 25.00	34
Grabbed	1.40 (4.66)	0.00 – 25.00	18	1.10 (3.48)	0.00 – 25.00	22
Slapped	0.27 (2.52)	0.00 – 25.00	3	0.33 (0.86)	0.00 – 4.00	18
Total Mild	3.19 (10.64)	0.00 – 65.00	25	3.92 (8.58)	0.00 – 58.00	41
Severe						
Used knife or gun	0.00 (0.00)	0.00 – 0.00	0	0.00 (0.00)	0.00 – 0.00	0
Punched or hit	0.00 (0.00)	0.00 – 0.00	0	0.30 (1.28)	0.00 – 8.00	9
Choked	0.12 (0.89)	0.00 – 8.00	2	0.02 (0.20)	0.00 – 2.00	3
Slammed against wall	0.05 (0.41)	0.00 – 4.00	3	0.04 (0.20)	0.00 – 1.00	6
Beat up	0.01 (0.10)	0.00 – 1.00	1	0.05 (0.20)	0.00 – 2.00	3
Burned or scalded	0.02 (0.20)	0.00 – 2.00	1	0.00 (0.00)	0.00 – 0.00	0
Kicked	0.00 (0.00)	0.00 – 0.00	0	0.33 (1.29)	0.00 – 8.00	11
Total Severe	0.19 (0.99)	0.00 – 8.00	5	0.11 (0.34)	0.00 – 2.29	14
Total	**3.38 (10.90)**	0.00 – 65.00	28	**4.66 (10.27)**	0.00 – 66.00	41

Note. % = percentage of participants who endorsed at least one act on item/subscale. Bolded text indicates indices of overdispersion (*SD* > *M*). CTS2 = Revised Conflict Tactic Scales.

With regard to reported victimization, 40% of men reported being victims of at least one act of physical aggression in the preceding year (with 37% experiencing at least one mild act and 14% experiencing at least one severe act of aggression). The most common and frequent act experienced by men at the hands of their partner was pushing or shoving (19% of men; mean number of pushing/shoving incidents in preceding year = 1.71, *SD* = 5.28). Among women, 34% reported being victims of at least one act of physical aggression in the preceding year (with 34% experiencing at least one mild act and 8% experiencing at least one severe act of aggression). The most common and frequent act experienced by women was being grabbed by their partners (20% of women; mean number of grabbing incidents in preceding year = 1.12, *SD* = 3.96).

Table 9

Descriptive Statistics for Victimization Items of Physical Assault Subscale of CTS2 by Participant Sex

	Men (n = 100)			Women (n = 100)		
Victimization Items	*M* (*SD*)	Range	%	*M* (*SD*)	Range	%
Mild						
Threw something	0.61 (2.09)	0.00 – 15.00	16	0.28 (1.22)	0.00 – 8.00	11
Twisted arm or hair	0.86 (3.88)	0.00 – 25.00	12	0.21 (0.74)	0.00 – 4.00	11
Pushed or shoved	1.71 (5.28)	0.00 – 25.00	19	0.94 (3.38)	0.00 – 25.00	20
Grabbed	1.65 (5.27)	0.00 – 25.00	15	1.12 (3.96)	0.00 – 25.00	20
Slapped	0.96 (3.45)	0.00 – 25.00	17	0.06 (0.45)	0.00 – 4.00	2
Total Mild	5.79 (15.24)	0.00 – 81.00	37	2.60 (7.03)	0.00 – 40.00	34
Severe						
Used knife or gun	0.00 (0.00)	0.00 – 0.00	0	0.01 (0.10)	0.00 – 1.00	1
Punched or hit	0.31 (1.32)	0.00 – 8.00	7	0.32 (1.86)	0.00 – 15.00	4
Choked	0.33 (2.62)	0.00 – 25.00	2	0.06 (0.45)	0.00 – 4.00	2
Slammed against wall	0.34 (2.64)	0.00 – 25.00	4	0.09 (0.58)	0.00 – 4.00	5
Beat up	0.09 (0.81)	0.00 – 8.00	2	0.02 (0.20)	0.00 – 2.00	1
Burned or scalded	0.00 (0.00)	0.00 – 0.00	0	0.01 (0.10)	0.00 – 1.00	1
Kicked	0.09 (0.47)	0.00 – 4.00	5	0.15 (0.93)	0.00 – 8.00	7
Total Severe	1.15 (5.38)	0.00 – 50.00	14	0.64 (3.25)	0.00 – 26.00	8
Total	**6.94 (18.18)**	0.00 – 94.00	40	**3.24 (9.50)**	0.00 – 57.00	34

Note. % = percentage of participants who endorsed at least one act on item/subscale. Bolded text indicates indices of overdispersion (*SD* > *M*). CTS2 = Revised Conflict Tactic Scales.

A series of nonparametric Mann-Whitney *U* tests were conducted to compare men's and women's responses to the perpetration and victimization Physical Assault subscales of the CTS2. An alpha level of .05 was used. With respect to acts of physical aggression overall (including mild and severe acts), women reported perpetrating significantly more acts of physical aggression than men, $U = 4291.50$, $Z = -2.04$, $p = .041$, $r = 0.14$. Similarly, women reported perpetrating significantly more mild acts of physical aggression than did men, $U = 4193.50$, $Z = -2.36$, $p = 0.018$, $r = 0.16$, as well as more severe acts of physical aggression than men, $U = 4544.00$, $Z = -2.19$, $p = 0.029$, $r = 0.15$. There were no sex differences in overall victimization scores, $U = 4595.50$, $Z = -1.14$, $p = 0.254$, $r = 0.08$, victimization scores for mild acts, $U = 4748.00$, $Z = -0.72$, $p = 0.471$, $r = 0.05$, or victimization scores for severe acts, $U = 4700.00$, $Z = -1.35$, $p = 0.177$, $r = 0.10$.

Fifty-four of the 100 couples investigated in the current study reported that at least one act of physical aggression took place in their relationship in the preceding year, and within this subsample of "aggressive" couples, 15 couples reported mutual perpetration (i.e., both partners self-reported perpetrating at least one act of physical aggression in their relationship at some point in the preceding year)[1]. It is important to note that this finding regarding mutual perpetration does *not* speak to whether the

[1] The finding that 54 of the 100 couples reported at least one act of physical aggression took place in their relationship in the preceding year was based on individual self-reports of IPV perpetration. That is, at least one member of each couple reported the occurrence of IPV (but not necessarily both). Similarly, the finding that 15 of 54 "aggressive" couples reported mutual perpetration was based on a comparison of matched female and male self-reports of perpetration. Given that a low level of interpartner agreement on rates of IPV is common in this field, mutuality in perpetration also was considered by examining sex-specific reports of perpetration and victimization. Twenty-five couples were considered mutually violent based on men's self-report, whereas 29 couples were considered mutually violent based on women's self-report.

violence was reciprocal whereby one partner initiates aggression and the other partner retaliates with more aggression during the same social interaction.

Descriptive statistics were examined for the 6-item Injury subscale of the CTS2 to gain a better understanding of the severity of violence and extent to which participants reported inflicting and sustaining physical injuries in their relationships. Overall, 3% of men and 4% of women reported injuring their partners at least once in the preceding year, whereas 2% of men and 5.5% of women reported being injured by their partners at least once. The mean number of injuries inflicted in the preceding year was low for men (M = 0.15; SD = 0.67; Range = 0 – 4) and women (M = 0.66; SD = 2.70; Range = 0 – 15). Similarly, the mean number of injuries sustained was low for men (M = 0.11; SD = 0.60; Range = 0 – 4) and women (M = 0.68; SD = 2.66; Range = 0 – 15). The most common injury endorsed by both men and women was classified as "mild" according to the CTS2, and involved inflicting or sustaining "a sprain, bruise or small cut because of a fight."

Mental health and drug/alcohol variables. Mann-Whitney U tests were conducted to determine whether participants' mental health was associated with self-reported levels of IPV perpetration and victimization. Results suggested participants who indicated having at least one mental health or psychological disorder reported significantly more acts of physical IPV perpetration than participants who indicated having no mental health or psychological disorder, U = 2396.00, Z = -2.30, p = .021, r = .16, whereas no significant difference between groups emerged for self-reported levels of physical IPV victimization, U = 2892.50, Z = -0.45, p = .655, r = .03. Taken together, these findings suggest that participants who indicated having one or more mental health

or psychological disorder(s) were more likely to engage in aggressive behaviour toward their partners.

Spearman rank correlation coefficients were conducted to determine whether the frequency with which participants reported drinking alcohol was associated with self-reported physical IPV perpetration and victimization. Participants' drinking behaviour was not significantly correlated with measures of perpetration, $r(198) = -.02$, $p = .751$, or victimization, $r(198) = -.01$, $p = .906$. Mann-Whitney U tests were conducted to determine whether partner complaints and relationship problems associated with participants' drug/alcohol use were significantly associated with self-reported physical IPV perpetration and victimization. Results suggested that participants who indicated that their partner complained about their drug/alcohol use reported significantly more acts of perpetration, $U = 1336.50$, $Z = -2.93$, $p = .003$, $r = .21$, and victimization, $U = 1058.50$, $Z = -4.13$, $p < .001$, $r = .30$, as compared to those who indicated that their partner did not complain about their drug/alcohol use. Similarly, results also suggested that participants who indicated that their drug/alcohol use caused problems in their relationships reported significantly more acts of physical IPV perpetration, $U = 1402.00$, $Z = -3.27$, $p = .001$, $r = .23$, and victimization, $U = 1373.50$, $Z = -3.34$, $p = .001$, $r = .24$, as compared to those who reported no relationship difficulties resulting from drug/alcohol use. Taken together, these findings suggest that drug/alcohol-related complaints and relationship problems were significantly related to increased levels of IPV perpetration and victimization among participants.

Bivariate Correlations

Prior to conducting the main data analyses, a series of bivariate correlations were conducted to determine whether significant relations exist among study variables for men and women. Spearman's rank correlation coefficients were used to examine relations among variables that did not meet normality assumptions associated with Pearson's product-moment correlations (i.e., correlations involving IPV perpetration and victimization scores). Participants' age, relationship length, relationship satisfaction, and social desirability also were included in the correlational analyses to determine whether they should be included in the main analyses as covariates. Three types of correlations were of interest in the current study: interpartner correlations (along diagonal), within-male correlations (below diagonal), and within-female correlations (above diagonal; Table 10).

Table 10

Within-Female, Within-Male, and Interpartner Correlations among Variables of Interest

	Female partner										
Male partner	1	2	3	4	5	6	7	8	9	10	11
1. Age	**.12**	-.02	-.20*	-.06	.04	.16	.18	-.05	.13	-.16	-.18
2. Relationship length	.22*	**.99****	.09	.21*	-.22*	.07	-.05	-.03	.02	-.01	-.02
3. Satisfaction	.06	.12	**.37****	.22*	-.30**	-.12	-.22*	.10	-.38**	-.33**	-.21**
4. Social desirability	-.08	-.10	.10	**.03**	-.24*	-.24*	-.14	-.10	-.37**	-.26**	-.32**
5. Negative emotions	-.10	.02	-.13	-.37**	**.70****	.03	.02	.01	.22*	.12	.09
6. Negative attributions	-.09	-.09	-.19	-.26**	.21*	**.07**	.09	-.02	.30**	.18	.12
7. Step 4 (number)	-.01	.01	-.08	-.09	.14	.19	**.73****	.44**	-.00	.13	-.01
8. Step 4 (competency)	-.07	-.06	-.11	-.11	.26**	.55**	-.02	**.28****	.20*	-.07	-.07
9. Step 5 (competency)	-.06	-.12	-.17	-.27**	.44**	-.20*	.29**	-.03	**.06**	.20*	.23*
10. IPV Perpetration	-.01	-.01	-.25*	-.55**	.32**	.00	.20	-.04	.26*	**.20***	.75**
11. IPV Victimization	-.02	-.05	-.30**	-.44**	.21*	.01	.09	.02	.15	.73**	**.21***

Note. IPV = Intimate partner violence. Interpartner correlations presented along the diagonal (in bold), within-female correlations presented above the diagonal, and within-male correlations presented below the diagonal.
*$p < .05$. **$p < .01$.

Within-male correlations. Among men in the current study, IPV perpetration was associated with less relationship satisfaction, *rs*(98) = -.25, *p* = .013, lower social desirability scores, *rs*(98) = -.55, *p* < .001, greater tendency to make negative attributions for partner behaviour, *r*s(98) = .32, *p* = .001, and selection of less competent coping responses at Step 5 of the SIP model, *rs*(98) = .26, *p* =.010. Male-reported IPV victimization was significantly associated with less relationship satisfaction, *rs*(98) = -.30, *p* = .003, lower social desirability scores, *rs*(98) = -.44, *p* < .001, and greater tendency to make negative attributions for partner behaviour, *rs*(98) = .21, *p* = .037. Finally, male-reported IPV perpetration and victimization were positively and significantly associated, *rs*(98) = .73, *p* < .001, suggesting men who reported perpetrating more frequent acts of physical aggression against their partner also tended to report experiencing more frequent acts by their female partner.

Within-female correlations. Among women in the current study, IPV perpetration was significantly associated with less relationship satisfaction, *rs*(98) = -.33, *p* = .001, lower social desirability scores, *rs*(98) = -.26, *p* = .009, and selection of less competent coping responses at Step 5 of the SIP model, *rs*(98) = .20, *p* = .047. Similarly, female-reported IPV victimization was significantly associated with less relationship satisfaction, *rs*(98) = -.21, *p* = .039, lower social desirability scores, *rs*(98) = -.32, *p* = .001, and selection of less competent coping responses at Step 5 of the SIP model, *rs*(98) = .23, *p* = .024. Finally, female-reported IPV perpetration and victimization were positively and significantly associated, *rs*(98) = .75, *p* < .001, suggesting women who reported perpetrating more frequent acts of physical aggression against their partner also tended to report experiencing more frequent acts by their male partner.

Interpartner correlations. To test for dyadic interdependence, an assumption for using dyadic statistical analyses, interpartner correlations were examined. As reported along the diagonal in Table 10, significant interpartner correlations reveal whether couples' scores on key variables in the current study were interdependent. Interpartner correlations revealed that men's and women's scores were positively and significantly correlated for several covariate/predictor variables including relationship length, $r(98) = .99$, $p < .001$, relationship satisfaction, $r(98) = .37$, $p < .001$, and negative attributions, $r(98) = .21$, $p = .040$. Similarly, positive and significant interpartner correlations were found for self-reported IPV perpetration, $rs(98) = .20$, $p = .043$, and victimization, $rs(98) = .21$, $p = .033$. These results suggest there was some statistical interdependence within couples on several covariate, predictor, and outcome measures, and thus further justify use of couple-level statistical analyses.

Interpartner Agreement

Several indices were used to examine interpartner agreement on reported acts of IPV as recommended by Armstrong, Wernke, Medina, and Schafer (2002). Three different indices are reported in the current study including: (a) percentage of occurrence agreement, (b) kappa statistics to assess agreement about the occurrence of male- and female-perpetrated IPV, and finally (c) correlation coefficients to assess agreement about the frequency of male- and female-perpetrated IPV.

First, percentage of occurrence agreement indicates the percentage of couples who agreed that IPV had or had not occurred in their relationships. Seventy percent of all couples in the current study agreed on the occurrence of male-perpetrated acts of physical aggression, whereas 64% of all couples agreed on the occurrence of female-perpetrated

acts of physical aggression. Among couples who agreed on the occurrence of male-perpetrated IPV, the majority (77.1%) agreed on the nonoccurrence of acts (i.e., agreeing that the male partner did not engage in any physical aggression in the preceding year). Similarly, among couples who agreed on the occurrence of female-perpetrated IPV, the majority (64.1%) also agreed on the nonoccurrence of acts (i.e., agreeing that the female partner did not engage in any physical aggression in the preceding year). Given the low base rates of IPV in the current study sample, agreement between partners was in large part due to agreement about the nonoccurrence of physically aggressive acts.

To avoid inflation of agreement due to aggression nonoccurrence, percentages were calculated only for those couples for whom at least one partner reported the occurrence of IPV. Among 45 couples wherein at least one partner reported the occurrence of male-perpetrated IPV, only 16 couples (35.6%) demonstrated interpartner agreement. Among 57 couples wherein at least one partner reported the occurrence of female-perpetrated IPV, only 23 couples (40.4%) demonstrated interpartner agreement.

The kappa statistic (k) is one of the most widely used measures of interpartner agreement in the IPV literature because it can test whether agreement exceeds chance levels. A known limitation of k, however, is that it tends to be influenced by trait prevalence (distribution) and baserates (Thompson & Walter, 1988). As a result, k statistics are seldom comparable across studies, procedures, or populations, and when low baserate behaviours are examined, such as IPV, k may provide a biased underestimate of interpartner agreement. Despite these limitations, couples in the current study demonstrated fair agreement for the occurrence of both male-perpetrated (k = .30) and

female-perpetrated IPV (k = 0.28) according to interpretation guidelines set forth by Landis and Koch (1977).

Finally, correlation coefficients were used to assess agreement about the frequency of male- and female-perpetrated IPV. Spearman's rank correlation coefficients were used given the nonnormal distributions of IPV perpetration and victimization variables in the current study. Couples' reports were positively and significantly correlated for male-perpetrated IPV, $rs(98) = .34$, $p = .001$, and female-perpetrated IPV, $rs(98) = .31$, $p = .002$, and the magnitude of these correlations suggested only low to moderate interpartner agreement.

Thus far, relative agreement between partners has been emphasized (i.e., agreement about whether a perpetrator is more or less aggressive relative to other perpetrators), but agreement also can be assessed in terms of absolute levels. That is, within each couple, perpetrators and victims may report similar or different absolute levels of IPV in their relationships. To examine whether differential reporting effects existed in the current study, two paired t tests were computed comparing the means of perpetrator and victim reports on the CTS2, divided by sex of perpetrator. Significant t statistics in these paired tests would be indicative of significant differences between perpetrators and their victims in reports of absolute IPV perpetrated in the relationship. No significant differences between perpetrator and victim reports emerged for male-perpetrated IPV, $t(99) = .12$, $p = .903$, or female-perpetrated IPV, $t(99) = -1.26$, $p = .210$. These findings suggest perpetrators and victims, whether male or female, reported similar absolute levels of IPV in the current study.

Overall, indices of interpartner agreement in the current study provided varied estimates of the extent to which couples agreed on the occurrence of IPV in their relationships. Only modest levels of interpartner agreement were observed in the current study which is consistent with past research reporting low to moderate levels of interpartner agreement regarding the occurrence and frequency of IPV (e.g., Archer, 1999; Armstrong et al., 2002; Marshall, Panuzio, Makin-Byrd, Taft, & Holtzworth-Munroe, 2011). As such, the couples' responses to the CTS2 were modeled as two separate outcome variables, for each partner, in the main study analyses.

Main Analyses

Research question 1. Bivariate correlations among negative emotions and SIP variables were examined to evaluate the first research question in the current study (i.e., Are measures of participants' negative emotions and SIP abilities at Steps 2, 4, and 5, of Crick and Dodge's model significantly intercorrelated? Table 11). Bivariate correlations were collapsed across participant sex to investigate this research question (see Table 10 for correlations separated by participant sex).

Consistent with hypotheses, participants who reported more negative emotions in response to the hypothetical conflict situation vignettes also made more negative attributions for their partners' behaviour, $r(198) = .71$, $p < .001$, generated less competent coping response alternatives, $r(198) = .16$, $p = .024$, and ultimately selected less competent coping responses to enact, $r(198) = .27$, $p < .001$. In addition, those who made more negative attributions for their partners' behaviours also generated less competent coping response alternatives, $r(198) = .21$, $p = .003$, and ultimately selected less competent coping responses to enact, $r(198) = .36$, $p < .001$. Finally, and as expected,

participants who generated less competent coping response alternatives also selected less competent coping responses to enact, $r(198) = .24$, $p = .001$.

Contrary to hypotheses, participants who reported more negative emotions also generated a higher number of coping response alternatives, $r(198) = .17$, $p = .017$. Similarly, participants who made more negative attributions for their partners' behaviours also generated a higher number of coping response alternatives, $r(198) = .15$, $p = .037$. Interestingly, and contrary to hypotheses, participants who generated a higher number of coping response alternatives also generated less competent coping response alternatives overall, $r(198) = .69$, $p < .001$. Finally, and also inconsistent with hypotheses, the correlation between number of coping response alternatives generated by participants and the competency of coping responses selected by participants was not significant.

Table 11

Bivariate Correlations among Participants' Negative Emotions and SIP Abilities

Variables	1	2	3	4	5
1. Negative emotions	--				
2. Negative attributions	.71**	--			
3. Step 4 (number)	.17*	.15*	--		
4. Step 4 (competency)	.16*	.21**	.69**	--	
5. Step 5 (competency)	.27**	.36**	-.08	.24**	--

Note. SIP = social information-processing.
*$p < .05$. **$p < .01$.

Research questions 2 to 5. Twelve negative binomial (NB) mixed-model regressions were conducted using the Generalized Estimating Equations (GEE) module in SPSS 20.0 to test the last four research questions. The GEE module was appropriate for analyses in the current study because it allowed for nonnormal predictor and outcome variable scores, as well as mixed effect (i.e., nested) models through specification of a *subject variable* (participant number) and *within-subject variable* (dyad number). NB regression models are similar to Poisson regression models in that they are appropriate for count data (e.g., frequency of physically aggressive acts in the preceding year). However, unlike Poisson regression, NB regression accommodates models in which overdispersion occurs on the count outcome variables (i.e., when the standard deviation is larger than the mean). Overdispersion was observed in the current study given that the variance was larger than the mean for both IPV perpetration and victimization frequency scores (see Tables 8 and 9). As such, NB regression is frequently relied upon when modeling count data that violates the Poisson assumption of equality of mean and variance, typically when data are correlated, interdependent, and/or zero-inflated, as in the current study (Hilbe, 2011).

Separate NB models were used for each of the key predictor variables (i.e., negative emotions, negative attributions, number and competency of responses generated, and competency of response selected) and for each of the dependent variables (i.e., perpetration and victimization of IPV). The following predictor variables were entered in each model: sex, actor, and partner (main effects), and sex by actor, sex by partner, and actor by partner (2-way interactions). Three-way interaction terms (i.e., sex by actor by partner) were excluded from the models due to lack of research and agreement on

available methods for constructing and interpreting them (J. Hilbe, personal communication, June 27, 2012). All predictor variables were grand-mean centered prior to computing interaction terms (Campbell & Kashy, 2002; Kenny et al., 2006) to assist in interpretation of the interactions. Interaction terms were then created by taking the product of the two centered predictors (Hilbe, 2011). Results from the final NB mixed-model regressions are provided in Tables 12 to 16. Five NB mixed-model regressions were conducted for each dependent variable, and as such, a Bonferroni correction was applied to the analyses; all effects were therefore reported at a .01 level of significance. As recommended by Hilbe (2011), however, effects that were significant at the .05 level also were reported provided their confidence intervals did not include the value zero.

Covariates. Relationship satisfaction, social desirability, mental health status, drug/alcohol-related partner complaints, drug/alcohol-related relationship problems, and participants' scores at earlier SIP steps were included as covariates in the preliminary models given their significant correlations with key variables in the current study (Table 10). Mental health status, drug/alcohol-related partner complaints, drug/alcohol-related relationship problems, and participants' scores at earlier SIP steps were not significant predictors of IPV perpetration and victimization in any of the preliminary regression models and were therefore excluded from the final regression models for parsimony (range of p values from .102 to .940). In addition, inclusion of the aforementioned variables did not alter the direction or significance of any of the main study findings.

Relationship satisfaction and social desirability were significant predictors of IPV perpetration and victimization across all 10 models (see rows 2 and 3 in Tables 12 to 16). Results were consistent across models and suggested lower relationship satisfaction and

lower social desirability scores were associated with more self-reported acts of IPV perpetration and victimization (as indicated by negative regression coefficients and risk ratios less than 1.0).

Table 12

Summary of Negative Binomial Mixed-Model Regressions Predicting IPV Perpetration and Victimization from Negative Emotions

	IPV perpetration			IPV victimization		
Negative emotions	*B* (*SE*)	Wald	Exp (*B*) [95% CI]	*B* (*SE*)	Wald	Exp (*B*) [95% CI]
Constant	0.95 (0.28)	11.12**	2.57 [1.48 – 4.49]	0.32 (0.28)	1.31	1.37 [0.80 – 2.35]
Relationship satisfaction	**-0.37 (0.12)**	**10.54****	**0.69 [0.55 – 0.86]**	**-0.38 (0.11)**	**11.36****	**0.69 [0.55 – 0.86]**
Social desirability	**-0.43 (0.08)**	**32.04****	**0.65 [0.56 – 0.76]**	**-0.38 (0.07)**	**30.39****	**0.68 [0.60 – 0.78]**
Sex	-0.70 (0.40)	3.17	0.49 [0.23 – 1.07]	**0.93 (0.34)**	**7.40****	**2.54 [1.30 – 4.98]**
Actor	-0.02 (0.30)	0.01	0.98 [0.54 – 1.77]	0.18 (0.22)	0.66	1.20 [0.77 – 1.84]
Partner	-0.04 (0.29)	0.02	0.96 [0.55 – 1.69]	-0.28 (0.23)	1.43	0.76 [0.48 – 1.20]
Sex x Actor	-0.02 (0.59)	0.00	0.98 [0.31 – 3.13]	0.20 (0.55)	0.14	1.23 [0.41 – 3.63]
Sex x Partner	-0.22 (0.34)	0.39	0.81 [0.41 – 1.58]	0.61 (0.37)	2.72	1.83 [0.89 – 3.77]
Actor x Partner	**-0.47 (0.22)**	**4.71***	**0.63 [0.41 – 0.96]**	**-0.56 (0.25)**	**5.14***	**0.57 [0.35 – 0.93]**

Note. IPV = Intimate partner violence. Reference category for sex variable was female (or sex = 1). Significant findings are presented in bold font.
*$p < .05$. **$p < .01$.

Table 13

Summary of Negative Binomial Mixed-Model Regressions Predicting IPV Perpetration and Victimization from Negative Attributions

Negative attributions	IPV perpetration			IPV victimization		
	B (*SE*)	Wald	Exp (*B*) [95% CI]	*B* (*SE*)	Wald	Exp (*B*) [95% CI]
Constant	1.01 (0.24)	17.38**	2.75 [1.71 – 4.43]	0.48 (0.31)	2.38	1.62 [0.88 – 2.98]
Relationship satisfaction	**-0.33 (0.13)**	**6.63****	**0.72 [0.56 – 0.92]**	**-0.36 (0.15)**	**5.98***	**0.70 [0.53 – 0.93]**
Social desirability	**-0.43 (0.07)**	**40.44****	**0.65 [0.57 – 0.74]**	**-0.38 (0.06)**	**36.84****	**0.68 [0.60 – 0.77]**
Sex	**-0.82 (0.38)**	**4.82***	**0.44 [0.21 – 0.92]**	**0.70 (0.35)**	**3.89***	**2.01 [1.00 – 4.02]**
Actor	0.24 (0.22)	1.23	1.27 [0.83 – 1.94]	0.31 (0.19)	2.49	1.36 [0.93 – 1.99]
Partner	0.20 (0.20)	0.97	1.22 [0.82 – 1.81]	0.04 (0.20)	0.04	1.04 [0.71 – 1.54]
Sex x Actor	-0.25 (0.31)	0.64	0.78 [0.43 – 1.43]	-0.18 (0.30)	0.37	0.84 [0.47 – 1.50]
Sex x Partner	-0.29 (0.32)	0.81	0.75 [0.40 – 1.40]	0.07 (0.37)	0.03	1.07 [0.52 – 2.21]
Actor x Partner	0.05 (0.18)	0.07	1.05 [0.73 – 1.50]	-0.11 (0.18)	0.39	0.89 [0.63 – 1.27]

Note. IPV = Intimate partner violence. Reference category for sex variable was female (or sex = 1). Significant findings are presented in bold font.
*$p < .05$. **$p < .01$.

Table 14

Summary of Negative Binomial Mixed-Model Regressions Predicting IPV Perpetration and Victimization from Number of Responses Generated

	IPV perpetration			IPV victimization		
Step 4 (number)	*B* (*SE*)	Wald	Exp (*B*) [95% CI]	*B* (*SE*)	Wald	Exp (*B*) [95% CI]
Constant	0.96 (0.33)	8.41**	2.61 [1.37 – 4.99]	0.15 (0.41)	0.13	1.16 [0.52 – 2.62]
Relationship satisfaction	**-0.36 (0.11)**	**11.16****	**0.70 [0.57 – 0.86]**	**-0.38 (0.11)**	**12.43****	**0.68 [0.55 – 0.84]**
Social desirability	**-0.43 (0.07)**	**32.98****	**0.65 [0.56 – 0.75]**	**-0.46 (0.07)**	**44.26****	**0.63 [0.55 – 0.73]**
Sex	**-0.90 (0.40)**	**4.90***	**0.41 [0.19 – 0.90]**	0.54 (0.43)	1.59	1.71 [0.74 – 3.95]
Actor	-0.53 (0.30)	3.02	0.59 [0.33 – 1.07]	**-0.66 (0.30)**	**4.89***	**0.52 [0.29 – 0.93]**
Partner	-0.35 (0.22)	2.67	0.70 [0.46 – 1.07]	0.34 (0.21)	2.73	1.40 [0.94 – 2.10]
Sex x Actor	0.37 (0.44)	0.68	1.44 [0.60 – 3.44]	0.13 (0.53)	0.06	1.14 [0.41 – 3.19]
Sex x Partner	0.08 (0.31)	0.06	1.08 [0.59 – 1.97]	**-1.10 (0.35)**	**10.16****	**0.33 [0.17 – 0.65]**
Actor x Partner	-0.15 (0.20)	0.60	0.86 [0.59 – 1.26]	-0.11 (0.26)	0.18	0.90 [0.55 – 1.48]

Note. IPV = Intimate partner violence. Reference category for sex variable was female (or sex = 1). Significant findings are presented in bold font.
*$p < .05$. **$p < .01$.

Table 15

Summary of Negative Binomial Mixed-Model Regressions Predicting IPV Perpetration and Victimization from Competency of Responses Generated

	IPV perpetration			IPV victimization		
Step 4 (competency)	*B* (*SE*)	Wald	Exp (*B*) [95% CI]	*B* (*SE*)	Wald	Exp (*B*) [95% CI]
Constant	1.01 (0.28)	12.87	2.75 [1.58 – 4.78]	0.50 (0.30)	2.67	1.64 [0.91 – 2.97]
Relationship satisfaction	**-0.38 (0.10)**	**14.52****	**0.68 [0.56 – 0.83]**	**-0.44 (0.12)**	**12.98****	**0.64 [0.51 – 0.82]**
Social desirability	**-0.40 (0.06)**	**43.84****	**0.67 [0.59 – 0.75]**	**-0.40 (0.06)**	**44.16****	**0.67 [0.59 – 0.75]**
Sex	**-0.90 (0.33)**	**7.40****	**0.41 [0.21 – 0.78]**	0.49 (0.38)	1.72	1.64 [0.78 – 3.41]
Actor	**1.34 (0.63)**	**4.46***	**3.80 [1.10 – 13.13]**	0.36 (0.53)	0.45	1.43 [0.50 – 4.07]
Partner	0.34 (0.43)	0.30	1.27 [0.54 – 2.95]	0.34 (0.39)	0.76	1.41 [0.65 – 3.04]
Sex x Actor	**-2.51 (0.72)**	**12.07****	**0.08 [0.02 – 0.34]**	**-2.17 (0.76)**	**8.19****	**0.11 [0.03 – 0.50]**
Sex x Partner	-0.89 (0.85)	1.09	0.41 [0.08 – 2.18]	-0.76 (0.92)	0.68	0.47 [0.08 – 2.85]
Actor x Partner	-1.76 (1.04)	2.83	0.17 [0.02 – 1.34]	1.49 (0.98)	2.31	0.23 [0.03 – 1.54]

Note. IPV = Intimate partner violence. Reference category for sex variable was female (or sex = 1). Significant findings are presented in bold font.
*$p < .05$. **$p < .01$.

Table 16

Summary of Negative Binomial Mixed-Model Regressions Predicting IPV Perpetration and Victimization from Competency of Responses Selected

	IPV perpetration			IPV victimization		
Step 5 (competency)	*B* (*SE*)	Wald	Exp (*B*) [95% CI]	*B* (*SE*)	Wald	Exp (*B*) [95% CI]
Constant	0.94 (0.24)	15.27**	2.56 [1.60 – 4.10]	0.41 (0.31)	1.80	1.51 [0.83 – 2.77]
Relationship satisfaction	**-0.36 (0.12)**	**8.51****	**0.70 [0.55 – 0.89]**	**-0.37 (0.12)**	**8.75****	**0.69 [0.55 – 0.88]**
Social desirability	**-0.44 (0.07)**	**45.49****	**0.64 [0.57 – 0.73]**	**-0.41 (0.06)**	**46.69****	**0.66 [0.59 – 0.75]**
Sex	**-0.90 (0.35)**	**6.63****	**0.41 [0.21 – 0.81]**	0.68 (0.37)	3.36	1.98 [0.95 – 4.10]
Actor	0.73 (0.53)	1.91	2.08 [0.74 – 5.85]	-0.13 (0.45)	0.08	0.88 [0.36 – 2.15]
Partner	-0.19 (0.47)	0.16	0.83 [0.33 – 2.08]	0.42 (0.46)	0.84	1.53 [0.62 – 3.77]
Sex x Actor	-0.67 (0.77)	0.75	0.51 [0.11 – 2.31]	-0.24 (0.82)	0.09	0.78 [0.16 – 3.88]
Sex x Partner	-0.42 (0.68)	0.38	0.66 [0.17 – 2.50]	-0.32 (0.83)	0.15	0.73 [0.14 – 3.69]
Actor x Partner	1.26 (0.80)	2.50	3.54 [0.74 – 16.95]	1.15 (0.97)	1.41	3.14 [0.47 – 20.90]

Note. IPV = Intimate partner violence. Reference category for sex variable was female (or sex = 1). Significant findings are presented in bold font.
*$p < .05$. **$p < .01$.

Main effects. Participant sex was found to be a significant main effect in 4 of 5 perpetration models (see row 4 in Tables 12 to 16). The significant main effects for participant sex were consistent across perpetration models, suggesting women, in comparison to men, reported significantly fewer acts of IPV perpetration when other predictor variables were held constant (as indicated by negative regression coefficients and risk ratios less than 1.0). These findings stands in contrast to raw means presented for men and women in Table 8, whereby women reported perpetrating significantly more acts of physical aggression than men.

Participant sex was found to be a significant main effect in 2 of 5 victimization models (see row 4 in Tables 12 to 16). Participant sex predicted IPV victimization in the negative emotions and negative attribution models, such that women reported experiencing significantly more acts of victimization in comparison to men when other predictor variables were held constant (as indicated by a positive regression coefficient and risk ratio greater than 1.0). These findings also stand in contrast to raw means presented for men and women in Table 9, whereby men reported somewhat higher victimization scores than women.

Actor effects. Actor effects were examined across the NB mixed-model regressions to address research question 2 (i.e., Do measures of participants' negative emotions and SIP abilities significantly predict self-reported acts of physical IPV perpetration and victimization?) Two significant actor effects emerged in the current study. First, a significant actor effect emerged in the model predicting self-reported IPV victimization from the *number* of coping response alternatives generated by participants (see row 5 in Table 14). Specifically, and consistent with hypotheses, generation of

fewer coping response alternatives was associated with greater risk of IPV victimization, Wald = 4.89, p = .027, Exp (B) = 0.52. That is, participants who generated a lower number of coping response alternatives were more likely to experience acts of physical aggression at the hands of their partners than participants who generated a higher number of coping response alternatives.

Second, a significant actor effect emerged in the model predicting IPV perpetration from the *competency* of coping response alternatives generated by participants (see row 5 in Table 15). Specifically, and as expected, generation of less competent coping response alternatives was associated with greater risk of IPV perpetration, Wald = 4.46, p = .035, Exp (B) = 3.80. That is, participants who generated less competent coping response alternatives were more likely to engage in physical aggression toward their partners in comparison to participants who generated more competent coping response alternatives. It is important to note, however, that the latter main effect is best understood in the context of a significant sex by actor interaction effect (discussed below in section on sex by actor interactions).

Partner effects. Partner effects were examined across the NB mixed-model regressions to address research question 3 (i.e., Do measures of participants' partners' negative emotions and SIP abilities significantly predict participants' self-reported acts of physical IPV perpetration and victimization?). Contrary to hypotheses, no significant partner effects emerged across models in the current study (see row 6 in Tables 12 to 16). These findings suggest participants' partner's negative emotions and SIP abilities did not significantly predict participants' self-reported levels of IPV perpetration and victimization.

Interaction effects. Numerous interaction effects were investigated in the current study including sex by actor, sex by partner, and actor by partner interactions. Procedures described by Hilbe (2011) were used to probe and interpret significant interaction effects in the current study. Incident risk ratios (IRRs) and 95% confidence intervals were calculated using procedures recommended by Hilbe (2011). Both sex by actor and sex by partner interaction effects were examined across NB mixed-model regressions to address research question 4 (i.e., Does participant sex moderate actor and partner effects?).

Sex by actor interactions. Two significant sex by actor interactions emerged when predicting IPV perpetration and victimization from the competency of coping response alternatives generated (see row 7 in Table 15). The remaining sex by actor interaction effects did not emerge as significant in the models predicting self-reported IPV perpetration and victimization from participants' negative emotions, negative attributions, and competency of coping responses selected. To further examine significant sex by actor interaction effects in the response generation models, regression equations were created for each model whereby nonrelevant main effects and interactions were held constant at their means and a range of scores (-1 *SD*, mean, and +1 *SD*) were substituted for actor SIP ability scores at each level of participant sex (i.e., 0 and 1).[2]

First, the significant sex by actor interaction effect was examined for the response generation model predicting IPV perpetration, Wald = 12.07, $p = .001$, Exp (B) = 0.08 (Table 15). Examination of this interaction revealed generation of less competent coping

[2] Low scores on the CRM indicated more competent responses, whereas high scores indicated less competent (or incompetent) responses (i.e., 1 = *competent*, 2 = *slightly competent*, 3= *slightly incompetent*, and 4 = *incompetent*). As such, -1 *SD* corresponds to higher competency levels whereas +1 *SD* corresponds to lower competency levels.

response alternatives was associated with greater risk of perpetrating more acts of IPV for men, but not women (Figure 3). Risk of IPV perpetration did not differ significantly for men and women when the competency of coping response alternatives generated by participants was held constant at high levels, *IRR* = 0.76, 95% CI = [0.29 – 1.99] (see -1 *SD* along horizontal axis of Figure 3). Conversely, risk of perpetration was significantly higher for men than women when the competency of coping response alternatives generated was held constant at low levels (see +1 *SD* along horizontal axis of Figure 3). More specifically, risk of perpetration was approximately 700% higher for men than women when the competency of coping response alternatives generated was held constant at low levels, *IRR* = 8.00, 95% CI = [3.28 – 19.50].[3]

[3] Given that the reference category for participant sex was female (or sex = 1) across models, results presented in Table 15 suggested that risk of perpetration was approximately 88% lower for women than men when the competency of coping response alternatives generated was held constant at low levels *IRR* = 0.12, 95% CI = [0.05 – 0.30]. To predict which sex was at *increased* risk of IPV perpetration, and to remain consistent in reporting style, results were recalculated with the reference category for participant sex as male (or sex = 0), and this finding is presented above.

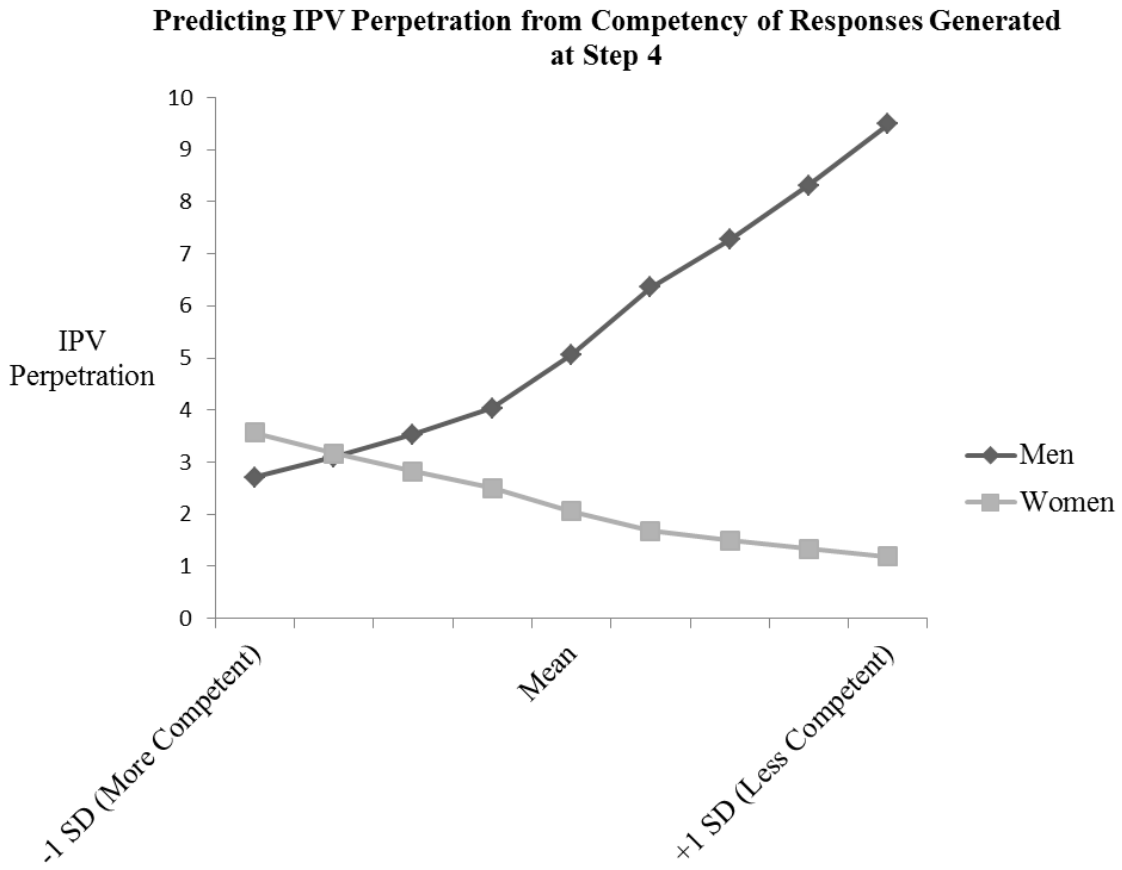

Figure 3. Examination of significant sex by actor interaction effect predicting IPV perpetration from competency of coping response alternatives generated by participants.

Note. IPV = intimate partner violence. Multiple data points were plotted on the graphs to illustrate the distribution of scores.

Second, the significant sex by actor interaction effect was examined for the response generation model predicting IPV victimization, Wald = 8.19, $p = .004$, Exp (B) = 0.11 (see row 8 in Table 15). Examination of this interaction revealed generation of more competent coping response alternatives was associated with greater risk of IPV victimization for women, but not for men (Figure 4). Risk of victimization did not differ significantly for men and women when the competency of response alternatives generated by participants was held constant at low levels, *IRR* = 0.44, 95% CI = [0.16 – 1.19] (see +1 *SD* along horizontal axis of Figure 4). Conversely, risk of victimization was significantly higher for women than men when the competency of coping response alternatives was held constant at high levels, (see -1 *SD* along horizontal axis of Figure 4). More specifically, risk of victimization was approximately 235% higher for women than for men when the competency of coping response alternatives was held constant at high levels, *IRR* = 3.35, 95% CI = [1.20 – 9.34].

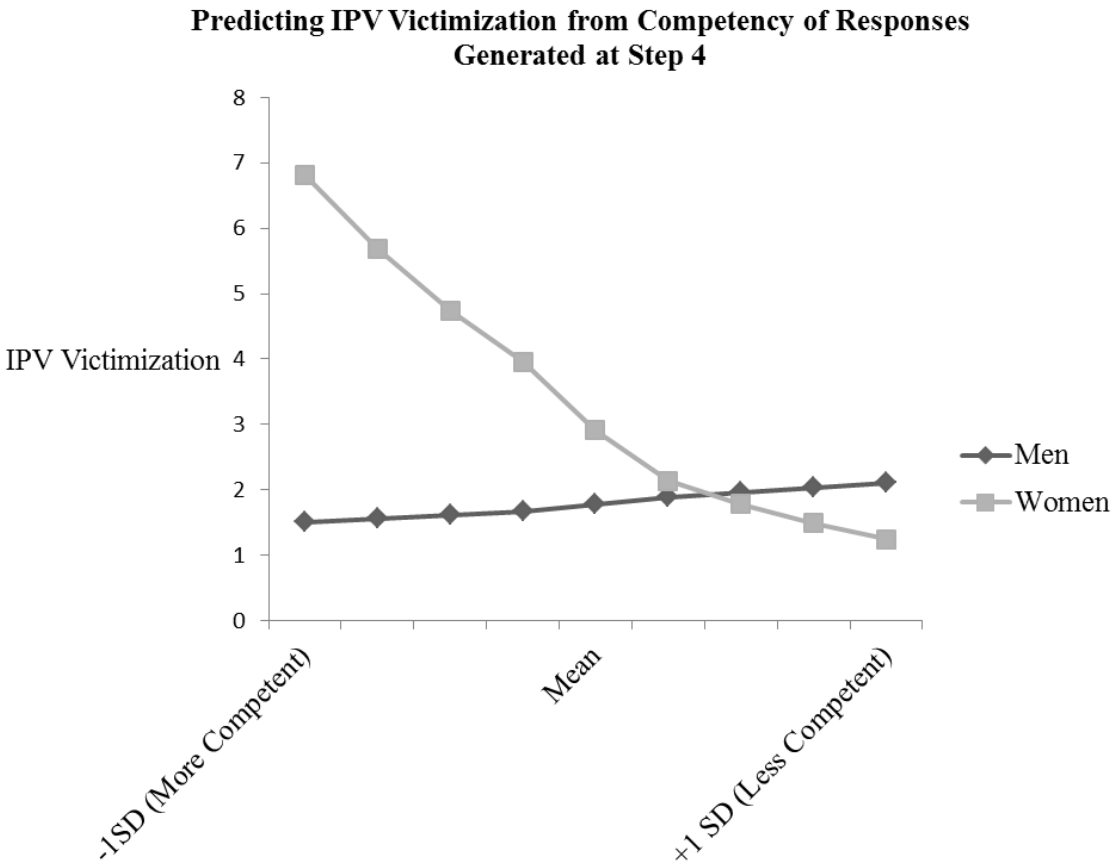

Figure 4. Examination of significant sex by actor interaction effect predicting IPV victimization from competency of coping response alternatives generated by participants.

Note. IPV = intimate partner violence. Multiple data points were plotted on the graphs to illustrate the distribution of scores.

Sex by partner interactions. A significant sex by partner interaction emerged when predicting IPV victimization from the number of coping response alternatives generated by partners in response to the hypothetical conflict situation vignettes, Wald = 10.16, $p = .001$, Exp (B) = 0.33 (see row 8 in Table 14), whereas the nine remaining sex by partner interaction effects were nonsignificant in models predicting IPV perpetration and victimization from negative emotions, negative attributions, and competency of coping responses selected. To further examine the significant sex by partner interaction effect, a regression equation was created whereby nonrelevant main effects and interactions were held constant at their means and a range of scores (-1 *SD*, mean, and +1 *SD*) scores were substituted for partner SIP scores at each level of participant sex (i.e., 0 and 1). Examination of this interaction revealed generation of fewer coping response alternatives by participants' partners was associated with greater risk of IPV victimization for women, but not men, *IRR* = 0.62, 95% CI = [0.28 – 1.37] (see +1 *SD* along horizontal axis of Figure 5). Risk of victimization did not differ significantly for men and women when the number of coping response alternatives generated by participants' partners was held constant at high levels, IRR = 0.62, 95% CI = [0.28 – 1.37] (see +1 *SD* along horizontal axis of Figure 5). Conversely, risk of victimization was significantly higher for women than for men when the number of coping response alternatives generated by participants' partners was held constant low levels (see -1 *SD* along horizontal axis of Figure 5). More specifically, risk of victimization was approximately 372% higher for women than for men when their partners generated a lower number of coping response alternatives, *IRR* = 4.72, 95% CI = [1.36 – 16.41].

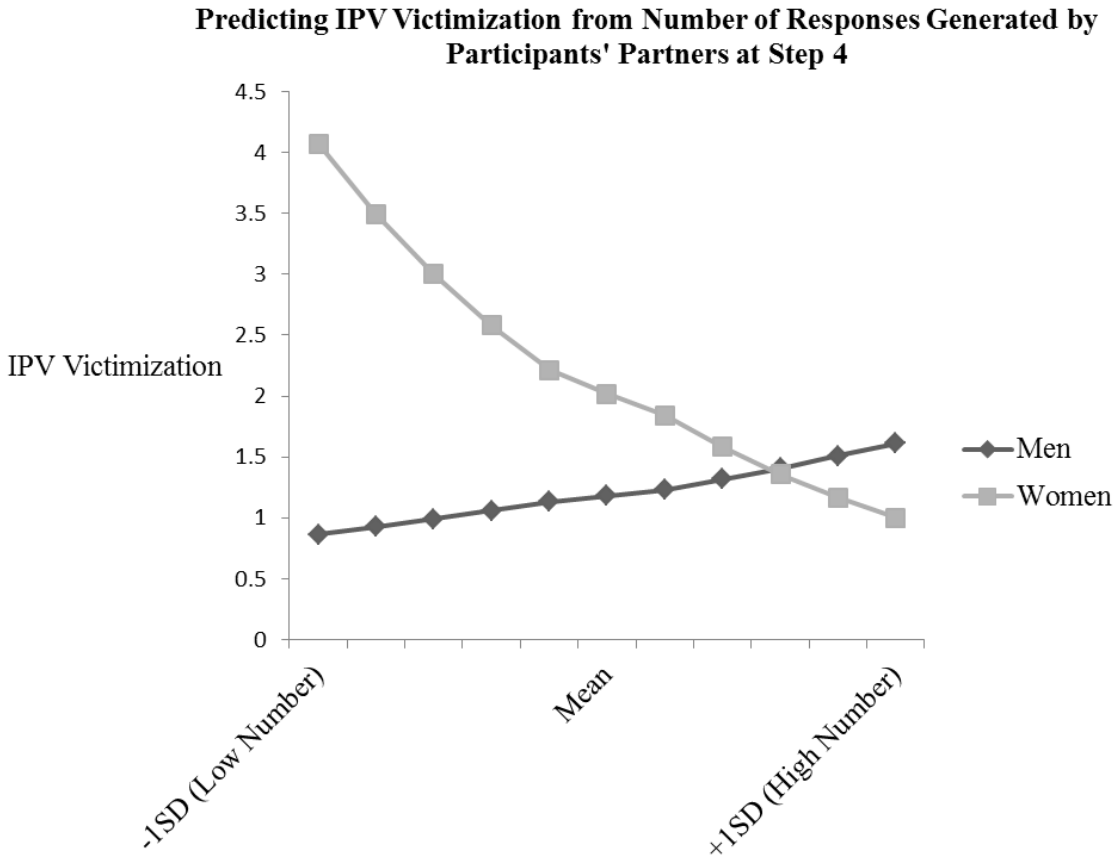

Figure 5. Examination of significant sex by partner interaction effect predicting IPV victimization from number of coping response alternatives generated by participants' partners.

Note. IPV = intimate partner violence. Multiple data points were plotted on the graphs to illustrate the distribution of scores.

Actor by partner interactions. To address research question 5 (i.e., Does the interaction between participant and partner scores on measures of negative emotions and SIP abilities predict participant risk of physical IPV perpetration and victimization?), actor by partner interaction effects were examined across NB mixed-model regressions. Two actor by partner interaction effects emerged as significant in models predicting self-reported IPV perpetration and victimization from participants' negative emotion scores (see row 9 in Table 12). The remaining actor by partner interaction effects were nonsignificant in models predicting IPV perpetration and victimization from negative attributions, number and competency of coping response alternatives generated, and competency of coping responses selected.

First, the significant actor by partner interaction effect was examined for the IPV perpetration model, Wald = 4.71, p = .030, Exp (B) = 0.63 (Figure 6). Visual inspection of this interaction revealed risk of perpetration was greatest for participants who reported experiencing negative emotion levels that were discrepant from their partners (e.g., low actor scores with high partner scores and high actor scores with low partner scores). More specifically, when participants' negative emotion scores were held constant at low levels (see -1 *SD* along horizontal axis of Figure 6), risk of perpetration increased by approximately 38% for every one unit increase in partner negative emotion scores, *IRR* = 1.38, 95% CI = [0.72 - 2.64]. In contrast, risk of perpetration was lowest participants who reported experiencing negative emotion levels that were similar to their partners (i.e., low actor scores with low partner scores and high actor scores with high partner scores). Specifically, when participants' negative emotion scores were held constant at high levels (see +1 *SD* along horizontal axis of Figure 6), risk of perpetration decreased

by approximately 33% for every one unit increase in partner negative emotion scores, *IRR* = 0.67, 95% CI = [0.35 - 1.28].

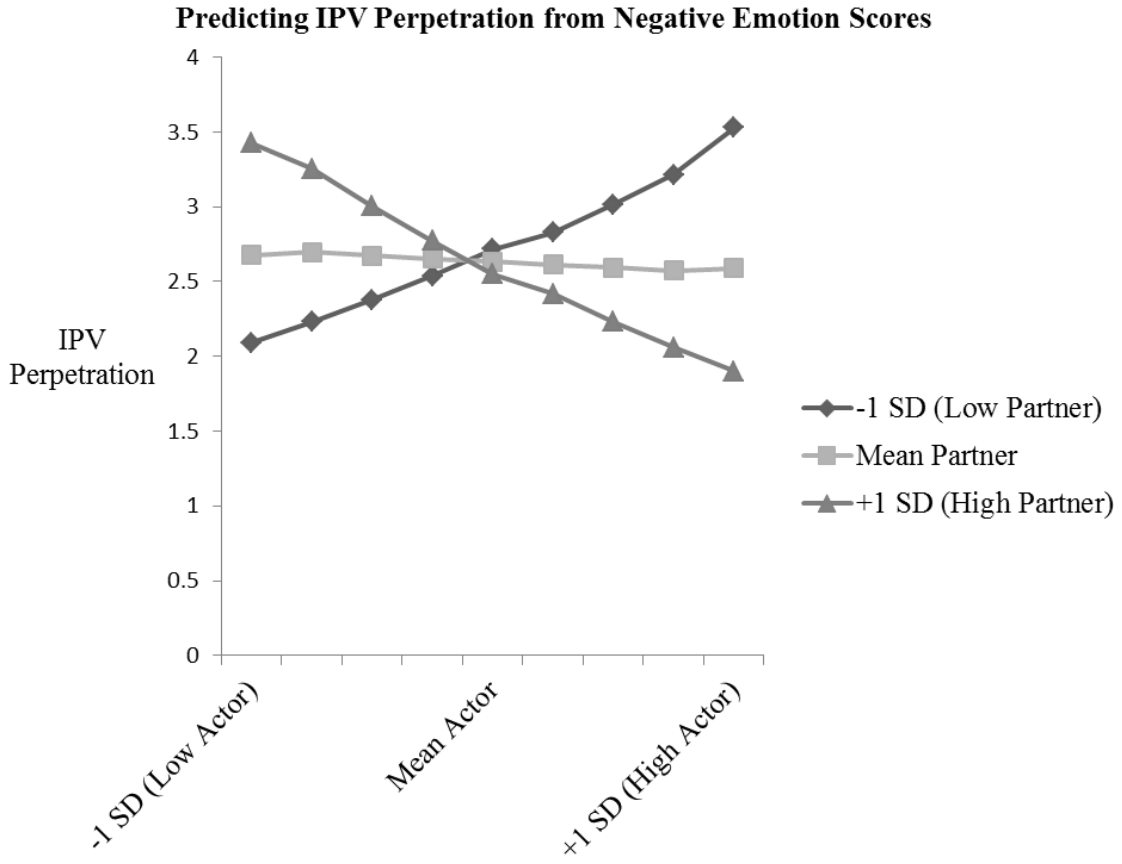

Figure 6. Examination of significant actor by partner interaction effect predicting IPV perpetration from negative emotions.

Note. IPV = intimate partner violence. Multiple data points were plotted on the graphs to illustrate the distribution of scores.

Second, the significant actor by partner interaction effect was examined for the IPV victimization model, Wald = 5.14, p = .023, Exp (B) = 0.57 (Figure 7). Visual inspection of this interaction revealed predicted levels of victimization were greatest among participants who reported experiencing high levels of negative emotions and whose partners reported experiencing low levels of negative emotions (i.e., high actor scores with low partner scores). Specifically, when participants' negative emotion scores were held constant at high levels (see +1 *SD* along horizontal axis of Figure 7), risk of victimization decreased by approximately 51% for every one unit increase in partner negative emotion scores, *IRR* = 0.49, 95% CI = [0.27 – 0.89]. Interestingly, risk of victimization remained lowest for participants who reported experiencing low levels of negative emotions, irrespective of their partners' negative emotion scores. More specifically, when participants' negative emotion scores were held constant at low levels (see -1 *SD* along horizontal axis of Figure 7), risk of victimization increased by 16% for every one unit increase in partner negative emotion scores, *IRR* = 1.16, 95% CI = [0.64 – 2.10].

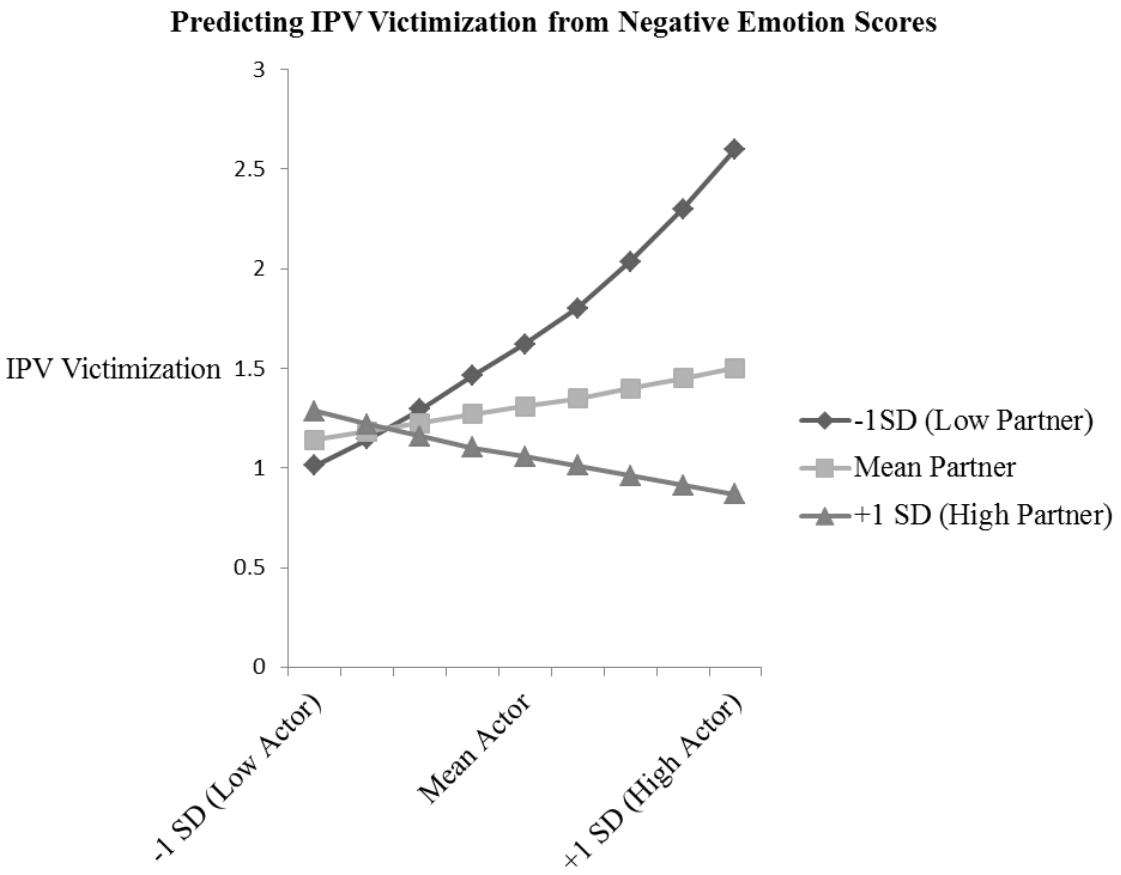

Figure 7. Examination of significant actor by partner interaction effect predicting IPV victimization from negative emotions.

Note. IPV = intimate partner violence. Multiple data points were plotted on the graphs to illustrate the distribution of scores.

Summary of Main Analyses

Overall, there was mixed support for study hypotheses and several interesting and novel findings emerged. A summary of the main results in relation to research questions and hypotheses is presented in Table 17.

Table 17

Summary of Results in Relation to Research Questions and Hypotheses

Research question and hypotheses	Findings	Consistent with hypotheses?
Research question 1: Are measures of participants' negative emotions and SIP abilities at Steps 2, 4, and 5, of Crick and Dodge's (1994) model significantly intercorrelated? Hypothesis 1: It was hypothesized that negative emotions and SIP deficits and biases (as indicated by greater tendency to make negative attributions, generation of fewer and less competent coping responses, and selection of less competent coping responses) would be significantly interrelated.	• Participants who reported higher levels of negative emotions made more negative attributions, generated less competent coping response alternatives, and selected less competent coping responses to enact.	Yes
	• Participants who made more negative attributions generated less competent coping response alternatives and selected less competent coping response to enact.	Yes
	• Participants who generated less competent coping response alternatives also selected less competent coping responses to enact.	Yes
	• Participants who generated a higher number of coping response alternatives reported higher levels of negative emotions, made more negative attributions, and generated less competent coping response alternatives.	No
	• The correlation between number of coping responses generated and competency of responses selected to enact was not significant.	No

Con't

Research question and hypotheses	Findings	Consistent with hypotheses?
<u>Research question 2:</u> Do measures of participants' negative emotions and SIP abilities significantly predict self-reported acts of physical IPV perpetration and victimization (actor effects)? <u>Hypothesis 2:</u> It was hypothesized that significant actor effects would emerge across models predicting IPV perpetration and victimization. Specifically, participants who reported higher levels of negative emotions, made more negative attributions, generated fewer and less competent coping response alternatives, and ultimately selected less competent coping responses to enact were expected to be at greater risk of physical IPV perpetration and victimization.	• Generation of a lower number of coping response alternatives was associated with greater risk of physical IPV victimization.	Yes
	• Generation of less competent coping response alternatives was associated with greater risk of physical IPV perpetration.	Yes
	• No significant actor effects emerged when predicting physical IPV perpetration and victimization in the negative emotion, negative attribution, and response selection models.	No

Con't

Research question and hypotheses	Findings	Consistent with hypotheses?
<u>Research question 3:</u> Do measures of participants' partners' negative emotions and SIP abilities significantly predict participants' self-reported acts of physical IPV perpetration and victimization (partner effects)? <u>Hypothesis 3:</u> It was hypothesized that significant partner effects would emerge across models predicting IPV perpetration and victimization. Specifically, participants with partners who reported higher levels of negative emotions, made more negative attributions, generated fewer and less competent coping response alternatives, and ultimately selected less competent coping responses to enact were expected to be at increased risk of physical IPV perpetration and victimization.	• No significant partner effects emerged when predicting physical IPV perpetration and victimization in the negative emotion, negative attribution, response generation, and response selection models.	No

Con't

Research question and hypotheses	Findings	Consistent with hypotheses?
<u>Research Question 4:</u> Does participant sex significantly moderate actor and partner effects (sex by actor and sex by partner interaction effects)? <u>Hypothesis 4:</u> This research question was exploratory.	• Generation of less competent coping response alternatives was associated with greater risk of IPV perpetration for men, but not women (sex by actor effect). • Generation of more competent coping response alternatives was associated with greater risk of IPV victimization for women, but not men (sex by actor effect). • Generation of a lower number of coping response alternatives by participants' partners was associated with greater risk of IPV victimization for women, but not men (sex by partner effect). • No significant sex by actor or sex by partner interaction effects emerged when predicting IPV perpetration and victimization in the negative emotion, negative attribution, or response selection models.	N/A

Con't

Research question and hypotheses	Findings	Consistent with hypotheses?
<u>Research Question 5:</u> Does the interaction between participant and partner scores on measures of negative emotions and SIP abilities significantly predict participants' self-reported acts of physical IPV perpetration and victimization (actor by partner interaction effects)? <u>Hypothesis 5:</u> This research question was exploratory.	• A significant actor by partner effect emerged for the negative emotion model predicting IPV perpetration. Participants who reported discrepant levels of negative emotions from their partners were at greatest risk of perpetration, whereas participants who reported similar levels of negative emotions as their partners were at lowest risk of perpetration. • A significant actor by partner interaction effect emerged for the negative emotion model predicting IPV victimization. Participants who reported low levels of negative emotions were at lower risk of victimization irrespective of their partners' emotional reactions. Participants who reported high levels of negative emotions were at greater risk of victimization if they had partners who reported low levels of negative emotions. In contrast, participants who reported high levels of negative emotions were at lower risk of victimization if they had partners who also reported high levels of negative emotions. • No significant actor by partner interaction effects emerged for the negative attribution, response generation, or response selection models.	N/A

Note. SIP = social information-processing; IPV = intimate partner violence.

Additional Analyses

Safety question. All participants (N = 200; 100%) reported that they felt safe leaving the study with their partners after completing the survey. As such, the personalized safety plan (Appendix J) was not used at any point during data collection.

Emotion checklist. Participants completed an emotion checklist at the end of the study and indicated the extent to which they felt various emotions toward their partner as a result of participating in the current study (1 = *not at all*, 7 = *a great deal*). Twenty-one participants (15 men and 6 women; 10.5% of overall sample) rated at least one negative emotion item over the designated threshold of 5, with "tense/anxious" being the most commonly endorsed item among these participants. Data were heavily skewed on each composite score of the emotion checklist such that participants reported experiencing few negative emotions (M = 1.41, SD = 0.65; Mdn = 1.14) and many positive emotions (M = 6.29, SD = 0.79; Mdn = 6.50) toward their partner as a result of participating in the study.

Mann-Whitney U tests were selected to compare men and women's composite scores on the emotion checklist because data did not meet the normality assumption for t tests. An alpha level of .05 was used. There were no significant differences between men's and women's reported levels of negative emotions, U = 4513.50, Z = -1.25, p = .213, r = .09, or positive emotions, U = 4893.00, Z = -0.27, p = .787, r = .02, suggesting men and women responded similarly and favourably to the emotion checklist.

Mann-Whitney U tests were also used to compare participants who reported engaging in at least one act of physical aggression in the preceding year to their nonaggressive counterparts on emotion checklist scores. There were no significant differences between men who reported at least one act of aggression and men who

reported no aggressive acts on reported levels of negative emotions, $U = 935.00$, $Z = -0.58$, $p = .561$, $r = .06$, and positive emotions, $U = 813$, $Z = -1.55$, $p = .121$, $r = .15$. Similarly, there were no significant differences between women who reported at least one act of aggression and women who reported no aggressive acts on reported levels of negative emotions, $U = 971.50$, $Z = -1.77$, $p = .077$, $r = 0.18$; however, women who reported at least one act of aggression ($M = 6.01$, $SD = 0.88$; $Mdn = 6.00$) reported experiencing lower levels of positive emotions toward their partners as a result of participating in the study in comparison to women who reported no aggressive acts ($M = 6.47$, $SD = 0.66$; $Mdn = 6.67$), $U = 811.50$, $Z = -2.88$, $p = .004$, $r = .28$. It is important to note that despite significant results, the difference between aggressive and nonaggressive women was small and both groups of women reported experiencing high levels of positive emotion overall.

CHAPTER V

Discussion

The discussion section that follows begins with a brief summary of the main results followed by a more comprehensive consideration of their meaning and significance in light of previous theory and research in this area. Next, strengths of the current study are reviewed, as well as limitations, suggestions for improvement, and directions for future research. Finally, some important research and clinical implications are discussed.

Review of Main Results

Type of IPV. The aim of the current study was to use Crick and Dodge's (1994) Social Information-Processing (SIP) model to investigate negative emotions and SIP abilities as risk factors for physical IPV perpetration and victimization at a couple-level of analysis. These relations were examined using a general sample of young adult dating couples. Given the sample and methodologies used in the current study, it was assumed that research findings would be most applicable to better understanding situational couple violence, a type of IPV that characterized by gender symmetry in perpetration rates (Johnson, 2006).

Consistent with this assumption, both men and women in the current study reported engaging in acts of physical aggression in their relationships, with raw data suggesting that women perpetrated more acts than men. It is important to note, however, that when other important variables were held constant in regression models, including social desirability, men were actually found to be at increased risk of perpetration relative to women. Regardless, comparable rates of IPV for men and women in combination with

data suggesting acts of aggression were mostly mild in nature, rarely resulting in physical injury, suggest that findings from the current study may indeed be most applicable to understanding risk factors for situational couple violence. Coercive controlling violence, which tends to be more frequent, severe, and perpetrated by men, may have a distinct and separate etiology rooted in male dominance, control, and power. Although it can be broadly assumed that results from the current study are most applicable to research on situational couple violence, the possibility that some participants in the current study engaged in aggressive behaviour more characteristic of coercive controlling violence cannot be ruled out.

The lack of clearly defined constructs and methods to assess various types of IPV in the literature is problematic. Unfortunately, some of the most commonly used measures yield little information regarding the nature, context, and motivation of aggressive behaviour (DeKeseredy & Schwartz, 1998). For the purpose of the discussion section that follows, it was generally assumed that the type of IPV most commonly reported by participants in the current study was consistent with situational couple violence; however, development of more refined assessment methods, including measures of coercive control, would be helpful in identifying the exact nature or type of violence under investigation in future work.

Intercorrelations among negative emotions and SIP abilities. The current study investigated the relations among participants' negative emotions and SIP abilities at Steps 2, 4, and 5 of Crick and Dodge's (1994) model. It was hypothesized that negative emotions and SIP deficits and biases (as indicated by greater tendency to make negative attributions, generation of fewer and less competent coping responses, and selection of

less competent coping responses) would be significantly intercorrelated. Results from the current study were generally consistent with these hypotheses.

To begin, participants who reported higher levels of negative emotions, including more feelings of anger, jealousy, rejection, abandonment, betrayal, and embarrassment, made more negative attributions for their partners' behaviour, generated less competent coping response alternatives, and selected less competent coping responses to enact (see Table 11). These findings suggest that individuals who respond to conflict in their relationships with more intense negative emotions may be more prone to cognitive biases when perceiving and interpreting their partners' behaviours. For example, they may view their partners' ambiguous behaviours as more negative, intentional, selfish, and blameworthy. In addition, these findings suggest that individuals who experience higher levels of negative emotions may generate less effective solutions to relationship conflict and ultimately respond to conflict situations in a less competent manner. Generally, these results are consistent with research demonstrating an association between negative affect and emotion, including anger, and tendency toward making hostile attributions and engaging in negative or aggressive behaviour (e.g., Dutton & Browning, 1998; Dye & Eckhardt, 2000; Eckhardt et al., 2002; Epps & Kendall, 1995; Maiuro et al., 1988; Wilkowski & Robinson, 2008)

It is important to note, however, that significant correlations do not allow for causal inferences. The question therefore remains regarding the directionality of these findings – do high levels of negative emotions lead to SIP deficits and biases, or do SIP deficits and biases lead to high levels of negative emotions? Theory and research suggest that the relations among emotion, cognition, and behaviour are complex and often

bidirectional or mutually influencing (e.g., Anderson & Bushman, 2002; Bandura, 1973; Beck, 1964; Berkowitz, 2003; Eckhardt et al., 2004; Ellis, 1962). In addition, there is some preliminary research evidence to suggest that cognitions (including negative attributions) mediate the relation between negative emotions and aggressive behaviour (see Feldman & Ridley, 1995, for a review). Regardless of the directionality of these results and mechanisms underlying them, results from the current study suggest that negative emotions play an important role in understanding SIP deficits and biases typically associated with IPV. Further research is necessary to better understand how emotion and cognition interact to predict aggressive behaviour, particularly at a couple-level of analysis.

In addition to uncovering significant correlations between negative emotions and various facets of SIP, the current study also found that SIP abilities at Steps 2, 4, and 5 of Crick and Dodge's (1994) model were significantly intercorrelated (see Table 11). Consistent with hypotheses, participants who made more negative attributions for their partners' behaviour generated and selected less competent coping responses. This finding suggests that individuals who view their partners' ambiguous behaviours as more negative, intentional, selfish, and blameworthy may generate less effective strategies to cope with relationship conflict and ultimately respond to conflict in a less competent manner. In addition, and perhaps not surprisingly, participants who generated less competent coping response alternatives also tended to select less competent coping responses to enact. Taken together, the current study found significant intercorrelations among various facets of SIP, such that deficits and biases at earlier steps were correlated with deficits and biases at later steps.

Interestingly, and contrary to hypotheses, results from the current study suggested that participants who generated a higher number of coping response alternatives experienced higher levels of negative emotions, made more negative attributions for their partners' behaviour, and generated less competent coping response alternatives in response to the hypothetical conflict situation vignettes (see Table 11). These findings stand in direct contrast to research suggesting that the ability to generate a high quantity of coping response alternatives is a critical skill to successful problem solving (D'Zurilla & Goldfried, 1971; Krasnor & Rubin, 1981). Individuals who are more careless or impulsive in their response style may fail to take in all relevant cues and information in their environment, generate only a few alternative solutions, and ultimately select the first solution that comes to mind. It was therefore surprising that participants who generated a higher number of coping response alternatives were more likely to demonstrate SIP deficits and biases in other areas. A closer look at the correlations may help to shed some light on these unexpected study findings.

First, although the number of coping response alternatives generated by participants was significantly correlated with participants' negative emotions and negative attributions, the magnitude of these correlations was small (Cohen, 1992; see Table 11). In addition, when these same correlations were examined separately for men and women, they did not emerge as significant for either sex (see Table 10). As such, the practical significance of these findings is questionable given small effect sizes and inconsistency of results when correlations were examined separately for men and women. From a problem-solving perspective, however, it is also possible that heightened levels of negative affect and emotion may have motivated participants to generate a large number

of potential behavioural responses and take a more detailed-oriented and systematic information processing approach (Fielder, 2001). This explanation does not, however, explain the link between negative emotions and other SIP deficits and biases.

Second, although there was a significant positive correlation between the number and competency of coping response alternatives generated by participants (see Table 11), a different set of findings emerged when this correlation was examined separately for men and women (see Table 10). Specifically, the correlation between the number and competency of coping response alternatives generated by participants was significant for female participants, with an effect size ranging between medium and large (Cohen, 1992), whereas the correlation was nonsignificant for male participants. This finding suggests that the original correlation between number and competency of coping response alternatives generated by participants was largely driven by female data. One possible explanation for this finding is that women were more invested than men in identifying "all" the possible things they could say or do in the situation, and as a result, they tended to generate a wider range of responses than men, including less competent response options and solutions. Further research is clearly necessary to better understand the response generation process and to determine whether the number of coping response alternatives generated is an important problem-solving skill to assess, particularly when predicting aggressive behaviour in intimate relationships.

Negative emotions. The current study investigated the role of negative emotions in predicting physical IPV perpetration and victimization among young adult dating couples. A range of effects were examined within each model including the influence of participant and partner emotion ratings, the interaction between them, as well as sex

differences in these effects. Contrary to hypotheses, no significant actor or partner main effects emerged in the negative emotion models. Two significant actor by partner interaction effects emerged in the perpetration and victimization models and when probed further, some interesting and unexpected findings emerged (see Figures 6 and 7).

First, participants who reported low levels of negative emotions were at lower risk of IPV perpetration and victimization if they had partners who also reported low levels of negative emotions. Interestingly, however, couples wherein both partners reported high levels of negative emotions were also among those at lowest risk of IPV perpetration and victimization. Taken together, these findings suggest a protective role for couple similarities as it relates to self-reported levels of negative emotions in response to conflict situations. This protective factor seems to apply regardless of whether couples responded with low levels or high levels of negative emotions. These findings are in line with a large body of literature on mate selection which suggests that people tend to choose and be more satisfied with partners who are relatively similar to them in terms of demographic factors (e.g., age, race, religion, ethnicity, and education; see Surra, Gray, Boettcher, Cottle, & West, 2006). As it relates to emotional similarities among couples, research also suggests that there may be some benefits. Anderson, Keltner, and John (2003) proposed that couples who are emotionally similar possess three relational advantages in comparison to couples who are emotionally dissimilar: (a) emotional similarity helps coordinate a couples' response to the environment; (b) emotional similarity facilitates partners understanding of each other's emotional states; and (c) emotional similarity is validating to both partners because each perceives that his or her own emotions are shared by an important other. These benefits apply to couples who

demonstrate emotional similarities independent of mean levels of emotional experience. Thus, according to this theory and research, emotionally similar couples are at an advantage even if both partners respond with high levels of negative emotion. It is important to note, however, that the benefits of emotional similarities may only exist up until a certain point. As explained by Gonzaga, Campos, and Bradbury (2007), emotional similarities may be associated with few benefits among couples who interact in an extremely volatile manner characterized by a spiral of increasing negative emotions. The intensity of participants' emotions in the current study as elicited by the hypothetical conflict situation vignettes was likely much lower than the intensity of emotions they would experience if those situations occurred in real life, which is important to consider when interpreting these findings. Overall, research has shown that couple similarities are generally predictive of relationship success and satisfaction; however, little is known about the affective and cognitive manifestations of couple similarity and how couple similarities relate to experiences of relationship conflict and violence. The current study provides some insight into this matter, although future research would be helpful to better understand how similarities and differences predict relationship conflict and violence in real-life situations and scenarios.

If couple similarities in levels of negative emotion are predictive of reduced risk of IPV perpetration and victimization, then how do couples fare when they report dissimilar levels of negative emotions? Results from the current study generally suggest that couples who reported discrepant levels of negative emotions were at greatest risk of IPV perpetration and victimization. More specifically, participants who reported high levels of negative emotions were at greater risk of IPV perpetration and victimization if

their partners reported low levels of negative emotions. Similarly, participants who reported low levels of negative emotions were at greater risk of IPV perpetration if their partners reported high levels of negative emotions. This finding did not hold true for the victimization model, however, which will be discussed in the following paragraph.

There are several different explanations for why couples who reported discrepant levels of negative emotions were at increased risk of IPV in their relationships, and most relate back to the relational advantages of emotional similarities described by Anderson et al. (2003). If similarities in emotions allow couples to coordinate a response to conflict in their environment, then one might assume that emotional dissimilarities must lead to different goals and behaviours that ultimately make it more challenging to solve a particular problem or conflict. As such, a mismatch in emotion may create a situation where the emotional reaction of one partner appears to exert more control over the course of the interaction than does the emotional reaction of the other partner, and this may lead to higher levels of distress and conflict (Escudero, Rogers, & Gutierrez, 1997). In addition, emotional dissimilarities may lead to discrepant behavioural patterns, including the demand-withdraw relationship patterns described by Eldridge and Christenson (2002). Demand-withdraw relationship patterns occur when one partner (the demander) criticizes, nags, and makes demands, while the other partner (the withdrawer) avoids confrontation, withdraws, and becomes defensive. These behaviours are thought to stem from different levels of arousal and emotional experiences (Baucom et al., 2011), and perhaps not surprisingly, couples who exhibit demand-withdraw relationship patterns are at greater risk of relationship distress, conflict, and violence (e.g., Babcock et al., 1999; Berns et al., 1999; Eldridge, Sevier, Jones, Atkins, & Christensen, 2007). Therefore, one

possible explanation is that couples who experience discrepant levels of negative emotions in their relationships tend to behave or interact in such a way that puts them at increased risk of IPV. Another possible explanation for why emotional dissimilarities may be related to IPV is that individuals within these relationships may feel misunderstood by their partners. This lack of emotional understanding and validation on the part of both partners may lead to a host of negative emotions and behaviours that may ultimately lead to increased risk of IPV.

There is one exception to the findings related to emotional dissimilarity in the current study. Participants who reported low levels of negative emotions were at lowest risk of victimization, regardless of their partners' emotional responses. That is, participants who responded with low levels of negative emotions in response to the hypothetical conflict situation vignettes, but whose partners responded with high levels of negative emotions, were at a similarly low risk of IPV (comparable to that of couples wherein both partners responded with low levels of negative emotions). These findings suggest that low levels of negative affect and emotion in response to conflict situations may ultimately serve as a protective factor against IPV victimization. More broadly, this finding may also suggest that individuals who report experiencing low levels of emotion in response to conflict situations have better emotion regulation skills. Indeed, emotional experiences have been used as a proxy for emotion regulation in past research (see Langer & Lawrence, 2010). Individuals who possess stronger emotion regulation skills may behave more calmly and less provocatively during conflict with their partners, and as a result, problematic situations may never fully escalate to aggressive or violent behaviour on their partner's part (thereby reducing their risk of IPV victimization).

Further research is clearly needed to replicate these findings before any firm conclusions are drawn regarding their meaning and/or significance. Additional studies would be helpful as well to gain a better understanding of the mechanisms underlying the association between emotional experiences and risk of IPV perpetration and victimization.

Negative attributions. The current study also investigated the role of negative attributions in predicting physical IPV perpetration and victimization among young adult dating couples. Interestingly, and contrary to hypotheses, no significant findings emerged across negative attribution models. This finding suggests that risk of physical IPV perpetration and victimization did not vary according to participants' or their partners' tendencies to make negative attributions for behaviours depicted in the hypothetical conflict situation vignettes. These findings were unexpected because research has reliably shown that negative attributions, including the hostile attribution bias, predict IPV, particularly among male perpetrators (Byrne & Arias, 1997; Clements & Holtzworth-Munroe, 2007; Copenhaver, 2000; Eckhardt et al., 1998; Holtzworth-Munroe & Hutchinson, 1993; Holtzworth-Munroe et al., 1992; Tonizzo et al., 2000).

There are a few potential explanations for the lack of significant findings that emerged across negative attribution models. First, it is possible that the averaging methods used to create negative attribution composite scores may have been problematic. Participants' responses to the RAQ and NAQ (measures of negative attributions) were averaged and combined for each hypothetical conflict situation vignette, and in turn, these composite scores were averaged across all nine vignettes. The variance associated with participants' scores on the negative attribution measures may have therefore been

reduced through the averaging process, thereby making it more challenging to detect significant results.

Next, certain types of partner behaviours and conflict situations may tend to elicit negative attributions more strongly than others, and detection of significant results may have been more challenging in the current study because participant ratings were averaged across all nine vignettes. For example, one study found that vignettes that involved jealousy, rejection, or public embarrassment were most likely to elicit hostile attribution biases among violent men (Holtzworth-Munroe & Hutchinson, 1993). Another study found that the extent to which violent men made negative attributions for their female partners' behaviours was related to the provocativeness of her behaviour (Moore, Eisler, & Franchina, 2000). It would be interesting if future researchers examined the role of negative attributions in predicting IPV at a couple-level of analysis using subsets of situations and scenarios that are known to provoke or elicit such cognitive biases.

Finally, it is also possible that the association between negative attributions and IPV is most pronounced among at-risk individuals who present with other risk factors (e.g., impulsivity, poor emotion and behaviour regulation, history of drug and alcohol abuse, exposure to family-of-origin violence, and so on). Indeed, researchers have begun to explore moderating and mediating factors within this line of research on SIP and IPV (e.g., Brendgen et al., 2000; Feldman & Ridley, 1995; Fite et al., 2008; Jouriles et al., 2012; Pettit et al., 2010; Taft et al., 2008). In addition, another possible method of improving prediction of IPV may involve investigating the interactions among SIP steps. For example, prediction of aggressive behaviour may be improved when the interaction

between negative attributions and generation/selection of coping responses is considered, rather than investigating each SIP step in isolation. Overall, further research is necessary to gain a better understanding of the role of negative attributions in predicting IPV perpetration and victimization, particularly from a couple-level perspective.

Response generation. The current study investigated the role of response generation in predicting physical IPV perpetration and victimization. Specifically, two aspects of response generation were investigated in the current study: (a) the number of potential behavioural responses generated by participants (quantity), and (b) the competency of potential behavioural responses generated by participants (quality). A range of effects were examined within each model including participant and partner response generation, the interaction between them, as well as sex differences in these effects. The response generation models proved to be the most robust and predictive models in the current study, with several different effects emerging from the study data including two significant actor effects, two significant sex by actor interaction effects, and a sex by partner interaction effect. Significant findings are discussed below.

First, it was hypothesized that participants who generated a lower number of coping response alternatives in response to the hypothetical conflict situation vignettes would be at greater risk of IPV perpetration and victimization than participants who generated a higher number of potential behavioural responses. This hypothesis was based in part on past research showing that violent husbands tended to generate fewer coping response alternatives to a variety of problematic marital situations in comparison to nonviolent husbands (see Holtzworth-Munroe, 1992, 2000); however, to date, research has yet to examine whether this same finding holds true for female perpetrators.

Findings from the current study suggest the number of coping response alternatives generated by participants, regardless of their sex, did not predict perpetration behaviour. Interestingly, however, and consistent with hypotheses, participants (including men and women) who generated a lower number of coping response alternatives were at greater risk of IPV victimization in comparison to participants who generated a higher number of coping response alternatives. This finding suggests that individuals who struggle to generate a wide range of potential options or solutions for handling conflict with their partners may be at greater risk of victimization in their relationships. Although the current study is the first to examine the response generation construct in relation to risk of victimization, past researchers have noted that poor problem-solving skills may be associated with increased risk of victimization (Lewis & Fremouw, 2001).

There are challenges associated with understanding risk factors for victimization, however, because some so-called "risk factors" may simply reflect outcomes associated with victimization. For example, it is possible that victims of IPV learn to rely on a narrow behavioural repertoire that consists of specific solutions to specific problems given their past experiences with conflict in their relationships. Perhaps individuals who are victimized by their partners know exactly how they need to respond to a particular situation in order to avoid conflict escalation and aggressive behaviour by their partner. Further research is needed, however, to test this potential explanation given the lack of research in this area. Overall, this finding highlights some of the challenges inherent to the investigation of risk factors for IPV victimization, especially when risk factors are examined post-victimization.

Next, although partner effects were expected to emerge as significant in the current study, only a sex by partner effect emerged as significant in relation to the number of coping response alternatives generated by participants. Results suggested that generation of fewer coping response alternatives by participants' partners was associated with greater risk of IPV victimization for female participants, but not male participants (see Figure 5). That is, women were at greater risk of victimization when they dated men who generated a lower number of coping response alternatives (in comparison to women who dated men who generated a higher number of coping response alternatives). This finding fits with the literature suggesting that male perpetrators tend to generate fewer coping response alternatives when faced with conflict situations in comparison to their nonviolent counterparts (see Holtzworth-Munroe, 1992, 2000), which by logical extension, suggests that the female partners of these violent men should be at increased risk of victimization. This finding suggests that a differential impact exists for men and women when predicting IPV victimization from the number of response alternatives generated in response to relationship conflict.

In addition to examining the number of coping response alternatives generated by participants, the current study also examined the competency of coping response alternatives generated by participants. Based on previous research, more competent coping responses were expected to solve the current problem and make similar problems less likely in the future, whereas less competent (or incompetent) coping responses were expected to escalate or make the situation much worse (Anglin & Holtzworth-Munroe, 1997; Holtzworth-Munroe & Anglin, 1991). It was hypothesized that participants who generated less competent coping response alternatives would be at increased risk of IPV

perpetration and victimization. Partially consistent with this hypothesis, a significant actor effect revealed that generation of less competent coping response alternatives was associated with increased risk of IPV perpetration.

Interestingly, however, this effect was qualified by a significant sex by actor interaction effect which showed that this relation was mostly applicable to understanding men's use of violence, and not women's. That is, men who generated less competent coping response alternatives were at greater risk of physical IPV perpetration relative to women who also generated less competent coping response alternatives (see Figure 3). These findings fit with previous research in the area suggesting that male perpetrators of IPV tend to generate less competent coping response alternatives to a variety of problematic marital situations in comparison to nonviolent men (Anglin & Holtzworth-Munroe, 1997; Dutton & Browning, 1988; Holtzworth-Munroe & Anglin, 1991; Holtzworth-Munroe et al., 2000; Holtzworth-Munroe & Smutzler, 1996). Although Anglin and Holtzworth-Munroe (1997) found that violent women also tended to generate less competent coping response alternatives, the current study suggests that this risk factor was characteristic of violent men only, thus highlighting the importance of collecting data from men and women, and also considering sex differences when studying risk factors for IPV perpetration and victimization.

Finally, an additional sex by actor effect emerged as significant when predicting IPV victimization from the competency of coping response alternatives generated by participants. As previously noted, it was hypothesized that participants who generated less competent coping response alternatives would be at increased risk of IPV perpetration and victimization, although it was unclear whether this effect would vary by

participant sex. Results from the current study suggest that generation of more competent coping response alternatives was associated with greater risk of IPV victimization for women, but not men (see Figure 4). Although men's risk of victimization did not depend on the competency of coping response alternatives they generated, women who generated more competent, effective solutions were found to be at greater risk of experiencing physical acts of aggression in their relationships.

Although this finding was unexpected and somewhat counterintuitive, there are several different explanations to consider. First, women's use of more effective problem solving skills during conflict situations may present as a threat to some men, particularly to those who are sensitive to issues of power and control in their relationships. When these men are faced with a conflict situation in their relationship that their partner appears to be handling particularly well, some may feel threatened by her behaviour and resort to aggressive or violent behaviour as a way of regaining authority or control over that particular situation. Indeed, research has shown that violence is most like likely to occur in the context of disagreements about who should have dominant influence and make decisions in the relationship (Kelly, 2006; Johnson, 1995).

Second, there is also a possibility that women who have been victimized in the past by their partners are hypervigilant about responding to conflict situations in a competent manner. Women who have a history of victimization may attempt to reduce their risk of revictimization by generating competent solutions to problems in their relationships and ultimately keeping their partners calm and satisfied. This explanation, if upheld in future research, may suggest that generation of competent coping response alternatives is an outcome associated with past victimization (rather than a risk-factor for

future victimization). Given the overall lack of research examining risk factors for victimization, further research is needed to replicate these findings and also to understand them better within the context of young adult dating relationships.

Taken together, significant sex by actor and sex by partner interaction effects in the response generation models of the current study suggest there may be different pathways associated with risk of IPV for men and women. There is little agreement in the literature regarding similarities and differences in risk factors for men and women, especially as it pertains to the understanding of situational couple violence. It could be that men and women share some of the same risk factors for IPV and that these shared pathways can help explain why perpetration rates are roughly equal for both sexes. Alternatively, the current study found sex differences in risk factors for IPV such that the less competent coping response alternatives were associated with increased perpetration among men and more competent coping response alternatives were associated with increased victimization for women. Thus, as it relates to the response generation step of Crick and Dodge's (1994) SIP model, risk pathways toward IPV perpetration and victimization may in fact be different for men and women. These findings have implications for informing the larger methodological and sociopolitical debate surrounding sex differences in the field of IPV and also have implications for the prevention and intervention of IPV.

Response selection. Contrary to hypotheses, no significant findings emerged across response selection models, suggesting that risk of physical IPV perpetration and victimization did not vary according to the competency of coping responses selected to enact by participants' or participants' partners. These nonsignificant findings are

somewhat puzzling in light of the correlation patterns shown in Table 10. As can be seen, selection of less competent coping responses to enact was associated with higher levels of perpetration among men and women, and higher levels of victimization among women at the bivariate level. As noted in the section on negative attributions, nonsignificant findings may have emerged in the current study due to methodological and conceptual challenges. The extent to which self-report measures of SIP abilities provide an adequate representation of real-life processes and experiences is questionable, and use of measures may be particularly problematic when assessing the response selection step of Crick and Dodge's (1994). In research studies, participants are given ample time to select or choose their preferred response, a luxury that is not always afforded in real-life situations. Future researchers may wish to consider adding a time component when assessing the response selection step so that participants are forced to make their decisions somewhat faster and in a manner that parallels real-time processing in social situations.

An additional explanation for nonsignificant findings in the current study, including those at the response selection step, involves the possibility that effects were not significant above and beyond the other predictor variables that were included in the study models. Past research did not control for many of the variables that were a part of the current study, including participant sex, partner effects, and also important covariates, such as relationship satisfaction and socially desirable response patterns. It is therefore possible that the relations between various facets of SIP and IPV are simply nonsignificant when these other effects and variables are controlled for in regression models. Clearly, further research is needed before any firm conclusions can be drawn

regarding the role of response selection difficulties in the prediction of IPV perpetration and victimization among men and women in dating relationships.

Strengths of Current Study

The current study provided novel insights regarding the role of negative emotions and SIP abilities as risk factors for physical IPV perpetration and victimization among young adult couples in dating relationships. Strengths of the current study include its focus on individual- and couple-level risk factors, its exploration of risk factors for both sexes, its consideration of risk factors for both perpetration and victimization, and finally, the inclusion of negative emotions as possible risk factors for IPV.

First, the current study appears to be the first of its kind to investigate the role of negative emotions and SIP abilities in predicting IPV perpetration and victimization at an individual- and couple-level of analysis – that is, by collecting and analyzing data from both partners. There is a recent trend in the literature on IPV toward collecting couple-level data and using specialized statistical analyses to better understand risk factors at a dyadic or interpersonal level (Capaldi & Kim, 2007; Clark et al., 1994; Simonelli & Ingram, 1998; Tolan et al., 2006). Despite this recent trend, there are many practical limitations associated with collecting couple-level data including difficulties with recruitment and research costs, and therefore, many researchers continue to examine risk factors for IPV at an individual-level of analysis. The current study therefore builds on the existing body of literature devoted to understanding SIP deficits and biases as risk factors for IPV by investigating how they operate at a couple-level of analysis.

The importance of taking a couple-level perspective becomes apparent when one considers the interpersonal nature of IPV and associated risk factors. As it pertains to the

study of IPV, the interpersonal context in which relationship conflict occurs is very important for understanding why conflict escalates into aggressive or violent behaviour for some couples and not others. Researchers must therefore collect data from both partners and examine how various individual-level risk factors interact to predict relationship conflict and IPV. In addition, research has shown that there are often significant discrepancies in couples' reports on the occurrence and frequency of aggressive acts that took place in their relationships (e.g., Archer, 1999; Armstrong et al., 2002; Marshall et al., 2011). Consistent with this research, only modest levels of interpartner agreement were observed in the current study. To ensure both partners' perceptions and experiences were adequately assessed and represented in the current study, perpetration and victimization data were collected from both partners and included in statistical analyses as separate constructs.

The study of negative emotions and SIP abilities as risk factors for IPV also is amenable to a couple-level perspective because the characteristics and abilities of one partner may in large part depend on the characteristics and abilities of the other partner. An individual's thoughts, feelings, and behaviours are heavily based upon past and present social interactions, and as such, it is important to consider how these variables operate and interact at a couple-level of analysis. Although many researchers have focused their attention on identifying intrapersonal variables associated with perpetration, research has shown that relationship factors may be more important than individual factors in determining whether a relationship becomes violent or not (Harned, 2002). As such, a major strength of the current study was that it examined risk factors for IPV at a couple-level of analysis, considering both participant and partner characteristics and

abilities, as well as the interaction between them, critical to understanding why conflict escalates into aggressive and violent behaviour for some couples.

Second, as a result of adopting a couple-level perspective which involved collecting data from both partners, the current study investigated risk factors for men and women. Most research in the area of SIP and IPV has focused on identifying risk factors for male perpetrators; however, there is a growing body of literature showing that perpetration rates are about equal for men and women (see Archer, 2000). As such, there is a need to determine whether models that help explain male-perpetrated IPV are applicable to female-perpetrated IPV, or whether male and female violence differ in their causes and correlates (Holtzworth-Munroe, 2005). Although there is some preliminary evidence to suggest that maritally violent women show similar deficits and biases in comparison to their violent male counterparts (Anglin & Holtzworth-Munroe, 1997; Clements & Holtzworth-Munroe, 2007), this has yet to be explored in the context of dating relationships. Gaining a better understanding of sex differences in risk factors for IPV seems to be particularly relevant to the study of situational couple violence, which tends to be perpetrated equally by men and women and often occurs when one or both partners have difficulties regulating their emotions and/or resolving conflict in their relationship (Ellis & Stuckless, 1996; Johnson, 1995, 2006; Johnston & Campbell, 1993). The current study therefore made a valuable contribution to the literature by investigating risk factors for men and women, and how these pathways may differ depending on the sex of perpetrators and victims.

Third, risk factors for IPV perpetration and victimization were identified in the current study, which stands in contrast to the vast majority of research focused mostly on

perpetrator characteristics and typologies. Researchers tend not to study risk factors for victimization, because identifying characteristics of victims has often become synonymous with blaming the victim (Zur, 1995). The current study investigated negative emotions and SIP abilities as risk factors for perpetration and victimization, not with the intent of "blaming the victim," but rather with the intent of understanding how each partner's characteristics and abilities, as well as the interaction between them, predict physical acts of IPV within dating relationships. The study of risk factors for perpetration and victimization was particularly relevant to gaining a better understanding of situational couple violence, given that it tends to be mutual and reciprocally inflicted by partners within relationships (Ansara & Hindin, 2009; Kessler et al., 2001; Straus, 2008; Straus, 2009a; Straus et al., 2006; Whitaker et al., 2007). As such, the current study investigated negative emotions and SIP abilities as risk factors for IPV perpetration and victimization at a couple-level of analysis, a valuable extension of previous research in this area which has primarily focused on risk factors for perpetration.

Finally, an additional strength of the current study was that negative emotions, including feelings of rejection, abandonment, betrayal, jealousy, and embarrassment, were included as possible risk factors for IPV in the current study. Consideration of the role of negative emotions is consistent with recommendations made by researchers who suggest that any investigation of SIP abilities should be complemented by a consideration of the role of emotion processing (e.g., Lemerise & Arsenio, 2000). The current study investigated negative emotions as a risk factor for IPV in isolation, and showed that the interaction between participant and partner emotional reactions were important predictors of IPV perpetration and victimization. It is unclear, based on results in the current study,

however, whether the relation between negative emotion and aggressive behaviour is direct, or whether it is mediated by some other third variable. For example, there is evidence to suggest that social cognitions (including negative attributions) mediate the relation between negative emotions and aggressive behaviour (see Feldman & Ridley, 1995, for a review). As such, future research is necessary to uncover the complex interaction between cognition and emotion in predicting risk of IPV perpetration and victimization, particularly at a couple-level of analysis.

Limitations and Future Directions

Despite the aforementioned strengths, the current study also has several limitations, which need to be considered when interpreting the findings. Limitations of the current study include reliance on self-report measures to predictor and outcome variables, limited generalizability of study findings given sample characteristics and recruitment methods, lack of cause-and-effect conclusions given the correlational nature of data in the current study, the potential impact of unmeasured extraneous variables on study findings, the possibility of spurious findings as a result of Type I error, and finally, its narrowed conceptual focus on predicting physical acts of aggression from negative emotions and each SIP step in isolation.

First, the most obvious limitation of the current study was its reliance on self-report methods to assess frequency of IPV in dating relationships and use of standardized vignettes to measure negative emotions and SIP abilities. Researchers often rely on self-report and survey methods to measure IPV, however, their use have been challenged for a number of different reasons including their emphasis on retrospective reporting and their susceptibility to social desirability biases (Archer, 1999; Davis & Taylor, 1999; Dutton &

Hemphill, 1992; Jackson, 1999; Moffitt et al., 1997; Saunders, 1991; Tolman, 1989). Consistent with past research, the current study found that participants who reported fewer acts of physical aggression on the CTS2 tended to present themselves in a more socially favourable manner on the MCSDS – Form C. This finding suggests that individuals may tend to minimize or underreport the extent to which they engage in aggressive behaviour in their intimate relationships, which may not come as a surprise given that IPV is an intensely personal, private, and often shameful experience (Lewis & Fremouw, 2001). Although researchers are generally aware of the impact of socially desirable response patterns can have on the accuracy of self-report measures of IPV, they do not always control for this variable in their studies. As a result, self-reported perpetration and victimization rates may represent underestimates and by extension, study findings associated with these variables may be misleading and inaccurate when social desirability is not measured or controlled for. The current study included a measure of social desirability as a covariate in the main regression analyses, thus allowing for a clearer picture of the relations between negative emotions, SIP abilities, and IPV perpetration and victimization.

The type of self-report measure used to assess IPV may also impact the accuracy and honesty of respondents' reports. Respondents may be especially hesitant to report that they engaged in physical aggression toward their intimate partner if they are not provided an opportunity to explain why the aggressive acts took place and under what set of circumstances (e.g., responding to aggression initiated by their partner or engaging in self-defense). The lack of information regarding the context, meaning, and motives of aggressive behaviour on most self-report measures of IPV is extremely problematic. As

noted in the introductory section of this paper, the CTS2 measures the frequency of specific acts or behaviours, but does not consider the circumstances under which those acts occur. Thus, it is possible that participants who were labeled as "perpetrators" in the current study were among those who used aggression in self-defense or to protect themselves from their aggressive partner. Alternatively, given the reciprocal and often back-and-forth nature of situational couple violence, it is also possible that "perpetrators" engaged in aggressive behaviour in the context of aggression that was first directed toward them by their partners. The lack of information regarding the context, motivation, and meaning associated with aggressive behaviour on act-based measures of IPV has been an ongoing problem in the literature and until more refined assessment methods are developed, researchers will continue to struggle with understanding the exact nature or type of violence under investigation as well as the reasons for why it occurred.

An additional limitation associated with act-based measures of IPV is that couples do not always agree on the occurrence or frequency of physical aggression in their relationships (Hanley & O'Neill, 1997; Perry & Fromuth, 2005; Simpson & Christensen, 2005; Szinovacz & Egley, 1995). Consistent with these research findings, the current study found low to moderate levels of interpartner agreement on the CTS2. Different respondents may perceive, remember, or conceptualize aggressive behaviour in different ways and be more or less prone to underreporting aggression as a result. The fact that couples often provide discrepant accounts or reports on the CTS2 is a significant problem, and it is therefore important for researchers to question the accuracy and validity of their data when it is collected from only one partner in the relationship. The current study collected data from both partners and used separate self- and partner-reports

in data analyses to ensure a well-rounded assessment of IPV to ensure both partners' perspectives were included and investigated in relation to key study variables.

Taken together, there are clearly many limitations associated with using self-report measures of IPV and although the CTS2 is one of the most widely used measures of partner violence, it is important to acknowledge the limitations and constraints that it places on researchers in this field. Unfortunately, there is a lack of alternative methods available to researchers at this point in time. Thus, to improve the internal validity of research in this area, development of multimodal methods of assessment is recommended, including questionnaires, interviews, behavioural observations, and other laboratory assessment methods. Researchers will continue to rely on act-based measures until more refined methods are available to provide a clearer picture of the context in which relationship conflict occurs and the conditions under which conflict escalates into aggressive behaviour for some couples.

The current study also used self-report methods and standardized vignettes to assess participants' negative emotions and SIP abilities. Although standardized vignettes are commonly used in SIP research and have proven to be quite useful in understanding the relation between SIP abilities and aggressive or violent behaviour among adults, this type of methodology is not without limitations. The types of hypothetical conflict situation vignettes used in the current study provide minimal context and generally elicit relatively simplistic responses. The types of reactions and responses experienced by participants when reading through the vignettes may not always generalize to real-life situations, thus limiting the ecological validity of the study findings. That is, participants' SIP abilities are measured by presenting hypothetical conflict situation

vignettes in a lab setting where responses and their immediate and future consequences are only hypothetical. In contrast, similar real-life situations tend to unfold continuously and require fast identification of elements, processing of large amounts of information, and often complex responses. Thus, SIP abilities as measured by the hypothetical conflict situation vignettes and follow-up questionnaires require self-awareness, reflective thought, and rational decision-making, and therefore these processes may not always map onto those that would be observed in a real-life argument or conflict.

Furthermore, participants may be compelled to present themselves in a favourable manner when reporting on their SIP abilities as suggested by negative correlations between socially desirable response patterns and self-reported levels of negative emotions, negative attributions, and competency of coping responses selected (see Table 10). Alternatively, participants' responses may have also been influenced by the wording of questions presented to them. For example, the NIQ and RAQ consisted of negatively-worded items (e.g., partner was trying to make me angry, hurt my feelings, or pick a fight) and participants were not provided any neutral or positive attribution options. In real-life situations, individuals are not asked any leading questions before assigning meaning to their partners' behaviours and as such, it is important to consider the possibility that questionnaires may have led to biased response patterns for some participants.

Although the need for methodology to study automatic or "online" SIP processes as they occur more naturally in the brain has been stressed in recent theoretical papers (e.g., Fontaine, 2008; Mize & Pettit, 2008; Orobio de Castro, 2004), research studies have been slow to follow such recommendations. Only a handful of studies within the child

aggression literature have applied eye-tracking and response-time techniques to study SIP abilities (see Arsenio, 2010), and to date, the adult literature has relied solely on self-report and observational methods. A direction for future research involves movement toward more ecologically valid approaches, whereby conditions stimulated in the laboratory better reflect real-life conditions.

As previously noted, behavioural observation has been used in the adult IPV literature when assessing coping and communication styles, and typically such methods involve observation and coding of real-time couple discussions and interactions in the laboratory. Observational methods allow for a more realistic investigation of how emotions and SIP processes unfold and interact during real-life conflict situations; however, it can be challenging to make inferences about what somebody is thinking or feeling based on their observable behaviour alone. An additional challenge associated with behavioural observation is that the researcher has limited control over the interaction and therefore differences in SIP abilities may emerge due to differences in the stimuli confronted by participants (e.g., it could be argued that violent participants display more SIP deficits and biases than nonviolent participants because they are confronted with more negative partner behaviour).

In contrast, when standardized stimuli are used, differences in SIP abilities cannot be attributed to differing stimuli; rather, differences must be attributed to the variables of theoretical interest (Anglin & Holtzworth-Munroe, 1997). Specific vignettes were chosen for the current study because they depicted common themes associated with relationship conflict and were therefore expected to elicit specific emotion reactions from participants (e.g., feelings of jealousy, rejection, abandonment, and betrayal). Although

some vignettes were found to be more provocative than others, in general, vignettes generally elicited intended emotions from participants. This finding suggests that use of hypothetical conflict situation vignettes may indeed be provocative enough to elicit a range of emotions, thoughts, and behavioural response from participants, thus providing further support for their utility and potential real-world applicability when investigating negative emotions and SIP abilities.

Regardless of whether self-report methods or behavioural observation methods are used to assess SIP abilities, some evaluative judgment must always be made regarding the quality or competency of participants' responses. Given that competence does not actually reside in the response itself, but rather, is an evaluation of the response by someone else (often research assistants), it is subject to error, biases, and judgmental influences. In addition, behaviour judged as competent in one situation may be judged as incompetent in another situation, depending on individual and couple characteristics; however, coding systems tend to use a more generalized rubric. For example, the CRM classifies passive behaviour such as "doing nothing" or "leaving" as incompetent coping responses (Anglin & Holtzworth-Munroe, 1997; Holtzworth-Munroe & Anglin, 1991); however, depending on the situation and characteristics of individuals involved in the conflict, these passive coping responses may be most effective, resulting in safe and nonviolent outcomes. Therefore, one size may not fit all when it comes to making judgments about the competency of participants' responses; however, researchers must use the assessment tools that are available to them, and ultimately acknowledge the strengths and limitations of using such tools when interpreting results.

In summary, there are clear methodological challenges inherent to the assessment of psychological processes and private behaviours. There are strengths and limitations to every assessment method, and perhaps the best set of procedures entails an integrated approach that includes self- and other-reports, interviews, behavioural observation, and other laboratory-based assessment methods. Researchers must therefore develop new assessment methods that provide a window into real-life couple interactions and factors that lead to aggressive or violent behaviour in intimate relationships.

Second, the generalizability of the current study findings was limited to a rather homogeneous sample of participants, consisting mostly of White young adults from middle to upper-class family backgrounds. A convenience sample of university students was used for the current study, with at least one partner from each couple being recruited from the University of Windsor. It is therefore unclear whether findings from the current study can be generalized to a sample of young adults from more varied ethnic, socioeconomic, or educational backgrounds. It is also important to note that couples recruited for the current study included only those who volunteered and provided consent to participate. It is possible that these couples were qualitatively different from couples who chose not to participate. For example, research has shown that in comparison to the proportion of women who volunteer to participate in violence research, the proportion of men appears to be significantly lower (Archer, 2000). Although this finding may be attributed to a number of factors, there is a possibility that men who are unwilling to participate are those who are most prone to aggression or those who are engaging in aggressive behaviour toward their partners. Biased data in the female direction may result if physically aggressive men are overrepresented among those declining to

participate in IPV research. Limitations associated with convenience samples and sampling biases are common and often unavoidable in psychological research, however, these issues represent limitations in the current study nonetheless. Future replication of the current study findings using random sampling methods and a more representative sample of young adults may therefore improve the generalizability of study findings.

Third, some cause-and-effect questions remain unanswered given the correlational nature of statistical analyses conducted in the current study. That is, the directionality of associations between predictor and outcome variables cannot be assumed, and rather, it is necessary to consider the possibility of bidirectional study findings. For example, as it relates to understanding perpetration behaviour, do SIP deficits and biases precipitate one's use of aggression toward a dating partner, or are these deficits and biases an inherent outcome associated with aggressive behaviour over time? According to Crick and Dodge's (1994) SIP model, early experiences play a large role in information processing, and early, latent mental structures for social situations tend to become more rigid across development as mental pathways are repeatedly traversed and reinforced over time. As such, maladaptive cognitions and behaviours may be shaped early on, and eventually lead to ineffective conflict resolution skills, including use of aggressive or violent tactics. In turn, SIP deficits and biases associated with aggressive behaviour may become reinforced over time, for example, through desired changes in the environment (e.g., partner compliance). This bidirectional association between predictor and outcome variables also may exist as it relates to understanding victimization; however, the possibility that SIP deficits and biases emerge as a result of experiencing aggressive behaviour may be even more likely. For example, victims may

become hypervigilant to aggressive social cues in their environment, make negative attributions for their partner's behaviour (which may often be accurate), and potentially respond to conflict situations in ways that would be considered less competent, but may nonetheless reduce their risk of becoming further victimized (e.g., saying or doing nothing, leaving the situation, or giving in and doing what their partner wants). Clearly, more prospective, longitudinal research is necessary to determine cause-and-effect relations between risk factors, including negative emotions and SIP abilities, and IPV perpetration and victimization.

Fourth, although many important variables were included in the current study and some potential confounds were controlled for in regression analyses including relationship satisfaction and socially desirable response patterns, it remains a possibility that some important extraneous variables were omitted. There is reason to believe that the association SIP deficits and biases and aggressive behaviour may be stronger for some groups of adults in comparison to others. For example, Fite et al. (2008) found that impulsivity moderated the link between SIP and aggressive behaviour in a general sample of adolescents, such that the relation between SIP and aggressive behaviour was significant only among participants who had medium and high levels of impulsivity. The relation between SIP and aggressive behaviour was not significant for participants who had low levels of impulsivity. In addition, numerous researchers have shown that SIP deficits and biases mediate the relation between earlier developmental experiences, such as witnessing family-of-origin violence, and aggressive behaviour in adult intimate relationships, suggesting the link between SIP and IPV may be stronger for individuals who were exposed to violent behaviour growing up (Brendgen et al., 2000; Fite et al.,

2008; Jouriles et al., 2012; Pettit et al., 2010; Taft et al., 2008). Future researchers may therefore wish to consider the important role of moderating variables and compare the strength of the association between SIP and IPV for low- versus high-risk groups.

Fifth, a large number of statistical analyses were conducted to address research questions and hypotheses in the current study. Most of the study findings were reported and interpreted at a .05 level of significance to preserve power given that many of the regression models included complex interaction effects. A number of different strategies were also used to preserve statistical power in the current study as well (e.g., aggregating data to reduce multicollinearity or redundancy among predictor variables, using reliable measures, including covariates such as length of relationship and social desirability scores, using continuous frequency scores on the CTS2 rather than dichotomous prevalence scores, and limiting the number of dependent variables and associated statistical models). Despite these efforts, it is nonetheless possible that some spurious findings may have emerged as significant in the current study because of type I error. Future researchers may wish to use a larger sample size or narrow the scope of their investigation when studying the role of negative emotions and SIP abilities in couples-level experiences of IPV (e.g., investigate the role of response generation in more detail given that it was the most robust and predictive model in the current study). Ultimately, researchers must strive to find an appropriate balance between Type I and Type II errors and acknowledge the potential for false conclusions when either type of error is present.

A final limitation of the current study was its narrowed conceptual focus on predicting physical acts of aggression from negative emotions and each SIP step in isolation (without considering interactions among negative emotions and SIP abilities in

predicting IPV). Given that the causes and correlates of IPV may differ according to the type of aggression under investigation (i.e., physical, psychological, and sexual), the focus of the current study was narrowed to acts of physical aggression. This narrowed focus on physical aggression was also consistent with past research in the area of SIP and IPV and also helped to limit the number of statistical analyses in the current study. Future research is therefore necessary to determine the role of negative emotions and SIP abilities as risk factors for psychological and sexual forms of IPV.

In addition to a narrow focus on physical aggression, the current study focused on only three of six SIP steps from Crick and Dodge's (1994) model (i.e., Steps 2, 4, and 5). There was a lack of available methods to measure SIP at Steps 1, 3, and 6 given that stimuli were presented on paper in the form of hypothetical conflict situation vignettes. Although SIP abilities across various processing steps were significantly correlated in the current study, they are conceptualized as distinct constructs within Crick and Dodge's model, and were therefore tested independently in separate models. Within the child literature, research has yielded small effect sizes when predicting aggressive behaviour from a single SIP process; however, a multicomponent approach whereby multiple SIP processes were combined to predict aggressive behaviour yielded larger effect sizes (see Dodge & Crick, 1990). As such, future researchers may wish to investigate the multiplicative role of SIP processes in predicting IPV perpetration and victimization. In addition to studying the interaction among SIP steps, it also would be interesting to investigate the interaction between negative emotions and SIP abilities when predicting IPV, as negative emotions may act as a catalyst for cognitive biases and subsequent aggressive behaviour. Overall, with more complex statistical analyses, including

structural equation modeling (SEM), the interactions among key study variables in the current study may be investigated at a couple-level of analysis in future research.

Research Implications

Findings from the current study may have broader implications for informing the debate around whether male and female aggression share similar correlates, risk factors, and predictors. The current study was mostly focused on understanding risk factors for situational couple violence, a type of IPV that is commonly perpetrated by men and women in general samples of young adults in dating relationships. Although perpetration and victimization rates were similar for men and women in the current study, there appeared to be sex-specific pathways associated with risk of perpetration and victimization. Specifically, the current study found that men who generated *less* competent coping response alternatives were at greater risk of IPV perpetration whereas women who generated *more* competent coping response alternatives were found to be at greater risk of IPV victimization. Interestingly, women's risk of perpetration and men's risk of victimization was not related to the competency of coping response alternatives generated at Step 4 of Crick and Dodge's (1994) model. These findings challenge the assumption that men and women may share similar risk factors for situational couple violence given that they tend to perpetrate at roughly equal rates. Rather, findings from the current study seem to suggest that men and women may share some risk factors, whereas other risk factors may follow more sex-specific pathways.

In addition to informing the broader sex debate around understanding the causes and correlates of IPV, the current study also raises a question about whether control-related variables may play a role in understanding situational couple violence. Many

family violence researchers who are interested in studying situational couple violence tend to ignore the role of power, control, and dominance, because these risk factors have been historically linked with coercive controlling violence, a type of IPV that is most often perpetrated by men. Interestingly, however, the finding that woman were at greater risk of victimization if they generated more competent coping response alternatives raises a question about whether aggressive male partners may sometimes feel threatened by their partners' strong problem-solving abilities and resort to aggressive behaviour to regain control over their partner and the situation at hand. This finding suggests that power and control variables may indeed play a role in situational couple violence, and by extension, raises a question about whether the etiology underlying coercive controlling violence and situational couple violence may overlap for some couples.

Clearly, findings from the current study have implications for informing the larger methodological and sociopolitical debate surrounding sex differences in the field of IPV. Researchers must continue to ask whether male and female aggression share similar correlates, risk factors, and predictors and investigate sex-specific risk pathways associated with situational couple violence. Taken together, this research has implications for the prevention and intervention of IPV as well.

Clinical Implications

The overall aim of the current study was to examine negative emotions and SIP deficits and biases as risk factors for IPV at an individual- and couple-level of analysis with the ultimate goal of informing prevention and intervention programs. The limited efficacy of existing treatment models for IPV highlights the need for more refined basic research aimed at identifying proximal risk factors for aggressive behaviour that are

amenable to change through treatment (see Babcock, Green, & Robie, 2004). The current study examined negative emotions and SIP abilities because these variables are directly linked to behaviour and may show promising results when targeted though cognitive-behavioural intervention. Indeed, most intervention programs use some combination of feminist, psychoeducational, cognitive-behavioural, and/or skills training components, but unfortunately, many of the current available strategies lack empirical support and show little evidence of affecting long-term behavioural change (Babcock et al., 2004). It is therefore important to consider that a one-size-fits-all approach to treatment may not meet the needs of all couples, and therefore different treatment strategies may be necessary for different couples and types of IPV.

For example, although feminist theories may be helpful in guiding batterer intervention programs for individuals who engage in coercive controlling violence, a different approach may be necessary for couples who experience situational couple violence. Given that situational violence tends to occur when couple interactions escalate out of control and one or both partners resort to aggressive or violent tactics to regain control over the situation, treatment models focused on relationship factors may prove most promising for this type of IPV. In addition, because situational couple violence is often mutually or reciprocally perpetrated, it is important to consider risk factors in a broader sense, including relationship factors that may be associated with perpetration and victimization. Indeed, conjoint treatment models have been identified as a promising approach for less severe forms of IPV, including situational couple violence, given their emphasis on relationship factors including couple interactions and dynamics (see Stith & McCollum, 2011). Situational couple violence is the most common type of IPV seen by

couple therapists, suggesting some couples who experience this type of violence believe that couple-focused treatment will be helpful to them (Simpson, Doss, Wheeler, & Christensen, 2007). It is important to note, however, that conjoint couple's therapy has been considered inadvisable for couples who experience more frequent or severe acts of IPV in their relationships (Heru, 2007).

Consistent with this emphasis on relationship factors in understanding and treating situational couple violence, the current study identified individual- and couple-level risk factors for IPV perpetration and victimization among young adult dating couples. First, at an individual level, challenges associated with response generation were associated with increased risk of IPV perpetration and victimization. Men and women who generated a lower number of coping response alternatives in response to conflict situations with their partner were at increased risk of victimization, suggesting skill deficits in this area may put men and women at risk of experiencing aggression at the hands of their partners. In addition, men who generated less competent coping response alternatives were at increased risk of perpetration, although this same finding did not hold true for women. Interestingly, women who generated more competent coping response alternatives were at increased risk of victimization, a finding that was unexpected, difficult to explain, and may ultimately bare little impact on treatment recommendations. Overall, however, the current study suggests that challenges at the response generation step may be associated with increased risk of IPV perpetration and victimization for some individuals and couples. Teaching problem-solving skills and strategies for nonviolent conflict resolution may therefore prove to be a helpful strategy

in reducing risk of aggressive and violent behaviour among couples experiencing situational violence.

From a couple's level perspective, the current study found that couples who responded to conflict situations in an emotionally discrepant manner were at greatest risk of IPV perpetration and victimization (with one exception, such that individual who reported low levels of negative emotions were at lowest risk of IPV victimization regardless of their partners' emotions). In contrast, those who react in an emotionally similar manner were at lowest risk of IPV perpetration and victimization. As it relates to the current study, it may not only be helpful to teach couples strategies for coping with difficult emotions so that they experience anger and other negative emotions at a lower level of intensity, but it may have even more of an impact to facilitate emotional understanding within relationships. That is, individuals would benefit from learning more about their partner's emotional experiences, including how their partner feels when various conflict situations occur in their relationship. During these discussions, it may be helpful to point out whether any similarities exist in the way that each partner feels, and whether they express similar emotions in different ways, with the goal of attaining greater levels of emotional understanding and empathy in the relationship.

Clearly, it is an empirical question whether targeting negative emotions and response generation skills may be effective components of IPV treatment. Future research is necessary to identify who is at risk of perpetration, victimization, or both, under what set of circumstances, and what treatment strategies are most effective for whom. The current study suggests that couple-level risk factors are important to consider

and that future research should be devoted to gaining a better understanding of the dynamics and interactions that put couples at risk of experiencing IPV.

Conclusions

In conclusion, findings from the current study illustrate the importance of taking a couple-level approach to better understanding risk and protective factors associated with IPV. Relationship dynamics and the interactions that take place between dating partners are critical factors in understanding why some couples resort to aggressive or violent behaviour during conflict in their relationship. Although researchers in the field of IPV have a fairly good understanding of individual-level risk factors associated with perpetration, and to some extent victimization, more research is needed to understand how these risk factors operate at a couple-level of analysis. The current study shed some light on the complex relations between negative emotions, SIP deficits and biases, and IPV perpetration and victimization, when investigated from a couple-level perspective.

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Appendix A

Permission to Copy Figure

RE: Permission to reprint SIP model figure from 1994 article

Kenneth Dodge <dodge@duke.edu> Mon, Jul 29, 2013 at 2:18 PM
To: Sarah Setchell <setchel@uwindsor.ca>

Sarah,

Thank you for your note and wishes. Yes, you have my permission to include the model figure. I with you the best with your work.

Ken

From: Sarah Setchell [mailto:setchel@uwindsor.ca]
Sent: Monday, July 29, 2013 2:17 PM
To: Kenneth Dodge
Subject: Permission to reprint SIP model figure from 1994 article

Hi Dr. Dodge,

I am currently working on my doctoral dissertation which is examining the link between social information-processing (SIP) deficits and biases and partner violence. I would like to include your reformulated SIP model figure which was printed in your Crick and Dodge (1994) SIP article. Could I please have your permission to do so?

Also my condolences regarding the loss of your friend and colleague, Nicki Crick.

Many thanks in advance,

Sarah Setchell, M.A.
Ph.D. Candidate, Clinical Psychology
University of Windsor

APPENDIX B

Demographics Questionnaire

1. Are you male or female?
   - Male
   - Female
   - Other (specify)

2. How old are you?

3. Are you currently enrolled as a student at the University of Windsor?
   - Yes
   - No

4. Are you currently enrolled as a student at another college or university?
   - Yes (specify)
   - No

5. What is the highest level of education you have completed?
   - Less than High School
   - High School Diploma
   - Vocational / Technical School
   - College Diploma
   - Bachelor's Degree
   - Master's Degree
   - Doctoral Degree
   - Professional Degree (e.g., MD)
   - Other (specify)

6. What is your racial or ethnic identity (check all that apply)?
   - Arab / Middle Eastern
   - Black / African Canadian
   - East Asian
   - Aboriginal / Native Canadian
   - Hispanic / Latino
   - South Asian
   - White / Caucasian
   - Biracial / Multiethnic (specify)
   - Other (specify)

7. What, if any, is your religious affiliation (check all that apply)?
   - Protestant Christian
   - Roman Catholic
   - Evangelical Christian
   - Jewish

Muslim
Hindu
Buddhist
Atheist
Agnostic
Other (specify)

8. What is your sexual orientation (check all that apply)?
   Heterosexual
   Gay
   Bisexual
   Other (specify)
   Unknown

9. What is your own yearly income?
   Under $20,000
   $20,000 to $39,999
   $40,000 to $59,999
   $60,000 to $79,999
   $80,000 to $99,999
   $100,000 or Greater

10. Have you ever been diagnosed with any of the following conditions (check all that apply)?
    Mental Retardation / Developmental Disability
    Learning Disability
    Attention Deficit Disorder (ADD) or Attention Deficit / Hyperactivity Disorder (ADHD)
    Schizophrenia
    Dysthymia / Major Depressive Disorder
    Bipolar Disorder
    Anxiety Disorder (e.g., Generalized Anxiety Disorder / Panic Disorder / Specific Phobia / Obsessive-Compulsive Disorder / Post-Traumatic Stress Disorder)
    Anorexia Nervosa / Bulimia Disorder
    Other (specify)
    Unknown

11. How often do you have a drink containing alcohol?
    Never
    Monthly or less
    2 to 4 times a month
    2 to 3 times per week
    4 to 6 times per week
    Everyday
    Prefer not to say

12. How many drinks containing alcohol do you have on a typical day when you are drinking?
    1 or 2
    3 or 4
    5 or 6
    7 to 9
    10 or more
    Prefer not to say

13. Have you used drugs other than those required for medical reasons?
    Yes
    No
    Prefer not to say

14. How often have you used drugs other than those required for medical reasons?
    Never
    Monthly or less
    2 to 4 times a month
    2 to 3 times per week
    4 to 6 times per week
    Everyday
    Prefer not to say

15. Does your current dating partner ever complain about your alcohol or drug use?
    Yes
    No
    Don't know

16. Has your alcohol or drug use created problems between you and your current dating partner?
    Yes
    No
    Don't know

17. What is your parents' current marital status?
    Married to each other
    Separated
    Divorced
    Never married to each other and not living together
    Never married to each other and living together
    One or both parents have died

18. What is parent 1's highest level of education?
    Less than high school
    High School Diploma
    Vocational / Technical School

College Diploma
Bachelor's Degree
Master's Degree
Doctoral Degree
Professional Degree (e.g., MD)
Other (specify)
Don't know

19. In question 18, who is parent 1?
Mother
Father
Grandparent
Other (specify)

20. What is parent 2's highest level of education?
Less than high school
High school graduate
Vocational/technical school
College
Bachelor's degree
Master's degree
Doctoral degree
Professional degree (e.g., MD)
Other (specify)
Don't know

21. In question 20, who is parent 2?
Mother
Father
Grandparent
Other (specify)

22. What is your parents' combined income (make your best estimate)?
Under $20,000
$20,000 to $39,999
$40,000 to $59,999
$60,000 to $79,999
$80,000 to $99,999
$100,000 or Greater
Don't know

23. Who do you currently live with (check all that apply)?
Nobody
Dating partner
Roommate(s) who is not my current dating partner.
Parent(s) or other Family Member(s)

Other (specify)

24. Is your current dating partner male or female?
    Male
    Female
    Other (specify)

25. How long have you been in this relationship with your current dating partner?
    _____ Years
    _____ Months

26. How would you classify your relationship with your current dating partner?
    Casual Dating
    Exclusive Dating
    Committed Relationship
    Engaged
    Married
    Other (specify)

27. Is sex a part of your relationship with your current dating partner?
    Yes
    No
    Prefer not to say

28. How committed are you to your relationship with your current dating partner?

0	1	2	3	4	5	6	7	8
Not at all Committed								Extremely Committed

29. How satisfied are you with your relationship with your current partner?

0	1	2	3	4	5	6	7	8
Not at all Satisfied								Extremely Satisfied

30. How likely is it that you will end your relationship with your current partner in the next three months?

0	1	2	3	4	5	6	7	8
Not at all Likely								Extremely Likely

APPENDIX C

Hypothetical Conflict Situation Vignettes

Note: The nouns and pronouns were changed to reflect the sex of the participant and partner depicted in the vignettes. Vignettes presented below were for male participants.

Vignette #1

You're home alone and answer the telephone. A man asks for your partner by her first name; he seems to know her. You tell him that she's not home and you offer to take a message. But, he says "No, I'm – huh--a-a friend. I'll call back some other time." He then hangs up, without giving his name. When your partner gets home, you tell her about this. She seems to think about who it might be, but doesn't say anything except, "Thanks for the message". Then she goes about her business.

Vignette #2

You and your partner go to bed for the night. You are feeling very romantic and you start to make sexual advances. However, your partner doesn't really respond much or seem to be interested. You think that maybe she just needs some extra "warming up", so you go ahead and make some more advances. This time she says, in a pretty nasty tone of voice, "Look I'm just not interested." She pushes your hand away and rolls away from you.

Vignette #3

At a social gathering, you notice that your partner has been talking with an attractive man for almost half an hour. They seem to be having fun; both are laughing and smiling. She seems very interested in what he has to say. You think, from the man's action that <u>he</u> is flirting with her.

Vignette #4

You need to make an important decision today and are feeling anxious about it. You decide to discuss it with your partner, to get her opinion. As you approach her, you see that she is busy. When you tell her that you would like to talk with her about something important, she keeps working, saying, "uh huh, wait a minute." She doesn't even look up from her task. You wait a few minutes and then say "Honey, I need to talk with you. I've got to make this decision today and I'd like your opinion. Can we talk about it now?" This time, she agrees and looks up from her task. You begin to explain things. Part way through, you look at her and see that she's no longer looking at you; she seems to be concentrating on her work again. You ask her something, expecting an answer, but she doesn't answer. Then you ask her if she is listening, and she says, "of course"; but she still seems to be thinking about her work instead of what you're saying.

Vignette #5

You and your partner have reservations at a new restaurant in town. You really want to be on time because it took several weeks to book the reservation. However, when it is time to leave, your partner isn't ready. You ask her to hurry, reminding her that you're going to be late; if you leave within the next 5 minutes, you should still make it. However, 15 minutes later, she still isn't ready. Now, you are definitely going to be late. You ask her what is going on and she says that she'll be a few more minutes.

Vignette #6

You and your partner have both been very busy recently. You haven't had much time together. You've noticed this and are beginning to get upset about it. You feel as if the two of you need more time together. You're willing to cancel a few of your activities and assume that she'll be willing to do the same. Unless someone gives up something, you two just won't be able to have time together. You suggest some time when the two of you might spend time together, but she says that she already has things scheduled during the times you suggest. When she tells you what she'll be doing then, you don't think that they are that important; she should be willing to miss at least some of them to be with you. You tell her this, but she insists that she really doesn't want to miss them.

Vignette #7

Your friends ask you to do something fun with them. You are really looking forward to it, since it's a special event. But when you tell your partner about it, she begins to get upset. She says that she wanted to spend time with you. You explain that these are special plans and you are looking forward to them; you tell her that you'll make some other time to spend with her. However, she continues to be upset; she says that she wants you to cancel your plans so that you can be with her.

Vignette #8

You are relaxing one evening after a long day when your partner mentions that she would like to develop more independent activities; she thinks the two of you spend too much time together as a couple. You don't feel that way – you like your time with her and tell her so. But she says that she's been thinking about this for a while and thinks that the two of you should begin separate activities, as individuals, as soon as possible.

Vignette #9

You're out with a group of good friends and everyone is sharing old stories; everyone is having a good time. However, your partner begins to tell a very embarrassing story about you; you don't want her to tell the story. You signal her to stop and you can tell that she saw your signal; but she continues with the story anyway. Everybody looks in your direction as they laugh at the story.

From "The competency of responses given by maritally violent versus nonviolent men to problematic marital situations," by A. Holtzworth-Munroe & K. Anglin (1991), *Violence and Victims, 6*, 257-269. Reprinted and adapted with permission (see Appendix D)

APPENDIX D

Permission to Copy Hypothetical Conflict Situation Vignettes

University of Windsor

RE: permission to include hypothetical conflict situation vignettes in dissertation

Holtzworth-Munroe, Amy <holtzwor@indiana.edu> Thu, Sep 12, 2013 at 3:38 PM
To: Sarah Setchell <setchel@uwindsor.ca>

OK. You have my permission as long as you give some citation/reference to our work with the vignettes.

Thanks.

Amy Holtzworth-Munroe

From: Sarah Setchell [mailto:setchel@uwindsor.ca]
Sent: Thursday, September 12, 2013 2:42 PM
To: Holtzworth-Munroe, Amy
Subject: permission to include hypothetical conflict situation vignettes in dissertation

Dear Dr. Holtzworth-Munroe,

I am completing a doctoral dissertation at the University of Windsor (entitled "using couple-level data to examine the relation between social information-processing and intimate partner violence among men and women in dating relationships"), and I would like your permission to include the nine hypothetical conflict situation vignettes you sent to me in a previous email a year or two ago.

My dissertation will be deposited to the University of Windsor's online theses and dissertations repository (http://winspace.uwindsor.ca) and will be available in full-text on the internet for reference, study and/or copy.

I will also be granting Library and Archives Canada and ProQuest/UMI a non-exclusive license to reproduce, loan, distribute, or sell single copies of my dissertation by any means and in any form or format. These rights will in no way restrict republication of the material in any other form by you or by others authorized by you.

Please confirm that these arrangements meet with your approval.

Sarah Setchell, M.A.
Ph.D. Candidate, Clinical Psychology
University of Windsor

APPENDIX E

Consent Form (Pilot Study)

CONSENT TO PARTICIPATE IN RESEARCH

Title of Study: **Dating Couples Pilot Study**

You are asked to participate in a pilot study conducted by Sarah Setchell, a graduate student in the Department of Psychology at the University of Windsor. Information gathered from this study will be used as part of her doctoral dissertation. This research will be supervised by Dr. Patti Timmons Fritz, a professor in the Department of Psychology at the University of Windsor.

If you have any questions or concerns about the research, please feel to contact:

Sarah Setchell
E-mail: setchel@uwindsor.ca

Dr. Patti Timmons Fritz
E-mail: pfritz@uwindsor.ca
Phone: 519-253-3000 ext. 3707

PURPOSE OF THE STUDY

The purpose of this study is to pilot hypothetical conflict situations that both men and women may encounter in their dating relationships. In addition, we are also interested in how people respond to these situations. The subsequent study will consider the influence of different variables on dating couples' experiences of conflict and partner violence.

PROCEDURES

If you volunteer to participate in this study, we would ask that you come to our lab in the Psychology Department at the University of Windsor. The study procedures consist of completing an online survey. Several other participants may complete the online survey during the same timeslot; however, you would complete the study independently and in separate rooms. More specifically, you would read a series of hypothetical situations, imagine that they took place, and answer a series of questions about them. You would

also respond to a series of demographic questions. The study procedures should take approximately 30 minutes to complete.

POTENTIAL RISKS AND DISCOMFORTS

Potential risks associated with this study are minimal; however, due to the sensitive and personal nature of this study, you may experience negative thoughts or emotions (e.g., anxiety, sadness, embarrassment, anger) related to some of your past or current experiences in dating relationships. Should you experience any form of distress following your participation in this study, please either contact someone from the community resource list that will be provided to you at the end of the study or contact Sarah Setchell or Dr. Patti Fritz.

POTENTIAL BENEFITS TO SUBJECTS AND/OR TO SOCIETY

By participating in this study, you will help increase our knowledge about how young adults perceive, interpret, and respond to various types of conflict that may occur in their dating relationships. This research may ultimately inform treatment programs aimed at improving relationship quality and satisfaction among young dating couples.

PAYMENT FOR PARTICIPATION

You will receive 0.5 bonus points for 30 minutes of participation toward the psychology participant pool, if registered in the pool and enrolled in one or more eligible courses

CONFIDENTIALITY

Any information that is obtained in connection with this study and that can be identified with you will remain confidential and will not be disclosed without your permission, except as may be required by the law or professional guidelines for psychologists. These limits to your confidentiality include: a) if you were to report or be observed to be at imminent risk of harming yourself or another person and/or b) if you were to report anything related to child abuse. Your name will never be connected to your results or to your responses on the questionnaires; instead, a number will be used for identification purposes. Any form that requires your name (e.g., this consent form) will be stored separately from the other data and study material. Information that would make it possible to identify you or any other participant will never be included in any sort of research report or publication. Only the researchers working on this project will have access to the information that is provided. The consent forms and tickets for the draw will be stored in a locked filing cabinet. The study data will be stored for a minimum of five years following publication of their results. The consent forms, tickets for the draw, and online data will be destroyed and/or deleted once it is no longer necessary to store the data.

PARTICIPATION AND WITHDRAWAL

You can choose whether to be in this study or not. If you volunteer to be in this study, you may withdraw at any time without consequences of any kind – however, if you choose to withdraw prior to signing this consent form, you will not receive compensation. You may also refuse to answer any questions you don't want to answer and still remain in the study. The investigator may withdraw you or your data from this research if circumstances arise which warrant doing so.

FEEDBACK OF THE RESULTS OF THIS STUDY TO THE SUBJECTS

It is expected that the results of this study will be available on the University of Windsor Research Ethics Board (REB) website (http://www.uwindsor.ca/reb) by fall of 2012.

SUBSEQUENT USE OF DATA

These data may be used in subsequent studies.

RIGHTS OF RESEARCH SUBJECTS

You may withdraw your consent at any time and discontinue participation without penalty. If you have questions regarding your rights as a research subject, contact: Research Ethics Coordinator, University of Windsor, Windsor, Ontario N9B 3P4; Telephone: 519-253-3000, ext. 3948; e-mail: ethics@uwindsor.ca

SIGNATURE OF RESEARCH SUBJECT/LEGAL REPRESENTATIVE

I understand the information provided for the **Dating Couples Pilot Study** as described herein. My questions have been answered to my satisfaction, and I agree to participate in this study. I have been given a copy of this form.

_____
Name of Participant

_____ _____
Signature of Participant Date

SIGNATURE OF INVESTIGATOR

These are the terms under which I will conduct research.

_____ _____
Signature of Investigator Date

APPENDIX F

Research Summary (Pilot Study)

Thank you for participating in this pilot study. We are interested in studying factors that are related to experiences with violence in dating relationships. In particular we are focusing on how people interpret and respond to difficult situations and conflict in dating relationships. By participating in this study, you have helped us better determine whether the methods we are using for a bigger study will be effective. Please take a look at the list of resources that is provided to you below. This list contains contact information for various community services in case you wish to contact someone to talk about some of your current or past dating experiences.

Student Counseling Centre, University of Windsor

The Student Counseling Centre (SCC) provides assessment, crisis, and short term counseling. If longer term therapy is indicated, the SCC will provide a referral to the Psychological Services Centre. All services are confidential and offered free to students. The SCC is open Monday to Friday (8:30 – 4:30). The SCC is located in Room 293, CAW Centre.

519-253-3000, ext. 4616 or email at *scc@uwindsor.ca*

Psychological Services Centre, University of Windsor

The Psychological Services Centre offers assistance to University students in immediate distress and to those whose difficulties are of longer standing. They also seek to promote individual growth and personal enrichment.

519-973-7012 or *519-253-3000, ext. 7012*

Teen Health Centre

The Teen Health Centre is dedicated to helping Essex County's young people achieve physical and emotional health and well-being through education, counseling, and support.

519-253-8481

Sexual Assault / Domestic Violence & Safekids Care Center

This care center is located in the Windsor Regional Hospital and provides assessment, counseling, and treatment for domestic violence, sexual assault, and child abuse. It is open Monday to Friday (8 – 4), or 24 hours, 7 days a week through emergency services.

519-255-2234

Hiatus House

Hiatus House is a social service agency offering confidential intervention for families experiencing domestic violence.

519-252-7781 or *1-800-265-5142*

Distress Centre Line Windsor / Essex

The Distress Centre of Windsor-Essex County exists to provide emergency crisis intervention, suicide prevention, emotional support and referrals to community resources by telephone, to people in Windsor and the surrounding area. Available 24 horus, seven days a week.

519-256-5000

Community Crisis Centre of Windsor-Essex County

A partnership of hospital and social agencies committed to providing crisis response services to residents of Windsor and Essex counties. Crisis center is open Monday to Friday (9 -5) at Hotel-Dieu Grace Hospital in Windsor, ON.

519-973-4411 ext. 3277

24 Hour Crisis Line

24 Hour crisis telephone line provides an anonymous, confidential service from 24 hours, 7 days a week. The 24 Hour Crisis Line serves Windsor and Leamington areas.

519-973-4435

Assaulted Women's Helpline

The Assaulted Women's Helpline offers 24-hour telephone and TTY crisis line for abused women in Ontario. This service is anonymous and confidential.

1-866-863-0511 or 1-866-863-7868 (TTY)

Neighbours, Friends, & Family

Neighbours, Friends, and Families is a public education campaign to raise awareness of the signs of woman abuse.

http://www.neighboursfriendsandfamilies.ca/index.php

Thank you for your participation!

APPENDIX G

Consent Form (Main Study)

CONSENT TO PARTICIPATE IN RESEARCH

Title of Study: **Dating Couples Study**

You are asked to participate in a research study conducted by Sarah Setchell, a graduate student in the Department of Psychology at the University of Windsor. Information gathered from this study will be used as part of her doctoral dissertation. This research will be supervised by Dr. Patti Timmons Fritz, a professor in the Department of Psychology at the University of Windsor.

If you have any questions or concerns about the research, please feel to contact:

Sarah Setchell
E-mail: setchel@uwindsor.ca

Dr. Patti Timmons Fritz
E-mail: pfritz@uwindsor.ca
Phone: 519-253-3000 ext. 3707

PURPOSE OF THE STUDY

The purpose of this study is to better understand young adults' dating behaviour. More specifically, this study will investigate how men and women perceive, interpret, and respond to various types of conflict that may occur in their dating relationships. We are primarily interested in better understanding heterosexual dating behaviour (that is, the interactions that take place between and a man and woman in a dating relationship). Although not within the scope of this study, we consider same-sex dating behaviour to be an equally important research topic worthy of further investigation.

PROCEDURES

If you volunteer to participate in this study, we would ask that you and your dating partner come to our lab in the Psychology Department at the University of Windsor. You and your partner would complete the study procedures at the same time, but in separate rooms. The study procedures consist of completing an online survey. More specifically, you would read a series of hypothetical situations, imagine that they took place in your

relationship, and answer a series of questions about them. You would also respond to a series of questions pertaining to you and your relationship with your partner toward the end of the study. The study procedures should take approximately one hour to complete.

POTENTIAL RISKS AND DISCOMFORTS

There are some potential risks or discomforts that may come from your participation in this study that are important to note. Due to the sensitive and personal nature of this study, you may experience negative thoughts or emotions (e.g., anxiety, sadness, embarrassment, anger) related to some of your past or current experiences in dating relationships. In addition, you may want to know how your partner responded to the study questionnaires and in turn, your partner may want to know how you responded to the study questionnaires. We encourage you and your partner to keep your responses private; however, you ultimately choose whether or not you will share your responses with your partner. Please keep in mind that discussing your responses could lead to disagreement and/or conflict in your relationship. Should you experience any form of distress following your participation in this study, please either contact someone from the community resource list that will be provided to you at the end of the study or contact Sarah Setchell or Dr. Patti Fritz.

POTENTIAL BENEFITS TO SUBJECTS AND/OR TO SOCIETY

Although the potential benefits of participating in this study vary from person to person, research has found that some individuals report feeling closer to their romantic partners after participating in couple research. By participating in this study, you will help increase our knowledge about how young adults perceive, interpret, and respond to various types of conflict that may occur in their dating relationships. This research may ultimately inform treatment programs aimed at improving relationship quality and satisfaction among young dating couples.

PAYMENT FOR PARTICIPATION

You will receive one bonus point for 60 minutes of participation toward the psychology participant pool, if registered in the pool and enrolled in one or more eligible courses. If your partner asked you to participate in this study and you are not signed up for the participant pool and/or do not attend the University of Windsor, you will receive $10.00 (cash) and the opportunity to enter a draw for one of four $25.00 gift certificates to Future Shop.

CONFIDENTIALITY

Any information that is obtained in connection with this study and that can be identified with you will remain confidential and will not be disclosed without your permission, except as may be required by the law or professional guidelines for psychologists. These limits to your confidentiality include: a) if you were to report or be observed to be at imminent risk of harming yourself or another person and/or b) if you were to report

anything related to child abuse. Your name will never be connected to your results or to your responses on the questionnaires; instead, a number will be used for identification purposes. Any form that requires your name (e.g., this consent form) will be stored separately from the other data and study material. Information that would make it possible to identify you or any other participant will never be included in any sort of research report or publication. Only the researchers working on this project will have access to the information that is provided. The consent forms and tickets for the draw will be stored in a locked filing cabinet. The study data will be stored for a minimum of five years following publication of their results. The consent forms, tickets for the draw, and online data will be destroyed and/or deleted once it is no longer necessary to store the data.

PARTICIPATION AND WITHDRAWAL

You can choose whether to be in this study or not. If you volunteer to be in this study, you may withdraw at any time without consequences of any kind – however, if you choose to withdraw prior to signing this consent form, you will not receive compensation. In addition, if you provide consent but your partner does not, the study will not proceed and both you and your partner will not receive compensation. Both you and your partner must provide consent in order to complete the study and receive compensation. You may also refuse to answer any questions you don't want to answer and still remain in the study. The investigator may withdraw you or your data from this research if circumstances arise which warrant doing so.

FEEDBACK OF THE RESULTS OF THIS STUDY TO THE SUBJECTS

It is expected that the results of this study will be available on the University of Windsor Research Ethics Board (REB) website (http://www.uwindsor.ca/reb) by fall of 2012.

SUBSEQUENT USE OF DATA

These data may be used in subsequent studies.

RIGHTS OF RESEARCH SUBJECTS

You may withdraw your consent at any time and discontinue participation without penalty. If you have questions regarding your rights as a research subject, contact: Research Ethics Coordinator, University of Windsor, Windsor, Ontario N9B 3P4; Telephone: 519-253-3000, ext. 3948; e-mail: ethics@uwindsor.ca

SIGNATURE OF RESEARCH SUBJECT/LEGAL REPRESENTATIVE

I understand the information provided for the **Dating Couples Study** as described herein. My questions have been answered to my satisfaction, and I agree to participate in this study. I have been given a copy of this form.

_____
Name of Participant

_____ _____
Signature of Participant Date

SIGNATURE OF INVESTIGATOR

These are the terms under which I will conduct research.

_____ _____
Signature of Investigator Date

APPENDIX H

Positive Mood Induction Procedure

Now we would like you to focus on a **positive memory** that you have about your partner or your relationship with them. Please describe this memory in as much detail as possible in the space below:

[open-ended]

APPENDIX I

Safety Protocol for Research Assistants

Both members of the dating couple are unlikely to end the study at the exact same time. As such, you will need to watch for the participant who completes the study first. Note that the final page of the study directs participants to open their door to signal they are finished the survey.

The following protocol should be followed for each member of the dating couple independently and in their separate rooms, beginning with the participant who completes the study first (P1). Be mindful of the time as you do not want to keep their partner (P2) waiting for too long. Once you are done going through the safety protocol with P1, follow the same procedures with P2. If P1 and P2 complete the study at the same time, tell one of them you will be with them shortly and to wait quietly in their room with the door closed.

Part 1 – Safety Question

Examine the participant's response to the question **"Do you feel safe leaving this study with your partner today?"**

If participant responded YES, proceed to Part 2.

If participant responded NO, then:

- Examine their explanation in the open-ended section below the safety question **OR** if they did not provide a written explanation, ask participants why they do not feel safe leaving the study with their partner by saying *"You reported here that you do not feel safe leaving this study with your partner today (point to their response). Please tell me more about this."*
    - If the participant indicated that they do not feel safe leaving the study with their partner because they fear that they are at risk of experiencing psychological, physical, and/or sexual abuse, follow the safety plan outlined in Part 3 of this protocol.
    - If the participant indicated that they do not feel safe leaving the study with their partner for any other reason, proceed to Part 2.
    - If the participant does not wish to share why they responded NO to the safety question, then say: *"You are not required to provide an explanation; however, we are obligated to minimize the risk associated with participating in our study as much as possible. As such, an explanation as to why you feel unsafe would be helpful."*

- If the participant still does not wish to provide an explanation as to why they feel unsafe, then proceed to Part 2.

Part 2 – Emotion Checklist

Examine the participant's responses to the Emotion Checklist:

If the participant indicated that they did not experience any negative emotional reactions as a result of participating in the study (all scores were 4 or less on negative emotion items of Emotion Checklist)**, then proceed to Part 4.**

If the participant indicated that they experienced any negative emotional reactions as a result of participating in the study (any score equal to or greater than 5 on negative emotion items of Emotion Checklist)**, then:**

- Ask participants why they feel [insert emotion(s)] about their partner as a result of participating in the study by saying *"You reported here that you feel [insert emotion(s)] about your partner as a result of participating in this study. Please tell me more about this."*
  - If participant struggles with the above question, provide a few prompts for them such as:
    - *"Did participating in this study remind you of a negative experience you had with your partner in the past?"*
    - *"Did it bother you to imagine the hypothetical scenarios you read about your relationship?"*
    - *"Did answering some of the questions make you feel uncomfortable?"*

- Ask participant: *"Do you anticipate that you will continue to feel [insert emotion(s)] tomorrow or the next day?"*

  - If participant responds NO to this question, then proceed to Part 4.

  - If participant responds YES to this question, pose a series of guided problem-solving questions:

    - *"How do you intend to deal or cope with these emotions over the next few days?"*

    - *"What are your potential options for coping with these emotions?"*
    - *"What are the pros and cons of each option?"*

    - *"What would be the best plan?"*

- *"Do you anticipate that there will be any obstacles in carrying out this plan? How might you address these obstacles?"*
- *"Do you feel confident in your plan?"*

- Refer to examples below if participant has difficulty identifying potential coping options:
  - Increase positive emotions by doing something enjoyable with or without partner.
  - Self-soothing strategies (e.g., hot bath, exercise, and yoga).
  - Seek out social support.
  - Talk directly to their partner about their feelings provided they feel safe.
  - Consider looking at things form a different perspective.
  - Healthy distraction.
  - Etc.

Once a satisfactory plan has been reached, proceed to Part 4 of this protocol.

Part 3 – Safety Plan

The following safety plan should only be used if the participant indicated that they do NOT feel safe leaving the study with their partner because they fear that they are at risk of experiencing psychological, physical, and/or sexual abuse.

Briefly assess risk

- Ask participants the following questions:
  - Is there a history of partner violence in their relationship?
  - Are the acts physical, psychological, and/or sexual in nature?
  - Are the acts minor or severe?
  - How often does each type of act occur?
  - Have any of the acts resulted in injury or hospitalization?
  - Does your partner try to control you? Threaten you? Intimidate you? Isolate you from family and friends?
  - Are you afraid of your partner?
  - On a scale from 1 to 10, where 1 represents *not at all concerned* and 10 represents *extremely concerned*, how concerned are you that your partner will engage in physical, psychological, and/or sexual aggression toward you after this study is completed?

Develop a short-term safety plan with the participant

- **Explain purpose of developing a short-term safety plan**

- *"The purpose of a short-term safety plan is to map out action steps to increase your safety and prepare in advance for the possibility of further violence."*
- *"It is important to remember that each person faces different risks and different options - the plan we are about to develop should be unique to you."*
- *"Do you think it would be helpful to quickly develop a safety plan right now?"*

- You must respect participants' decisions – they do not need to complete the safety plan if they do not want to. You may provide them the option of picking up a copy of the safety plan at a later date.

- **Go through the "Personalized Safety Plan Worksheet" with the participant** (see Appendix J)**.**

  - Ask participants if they are comfortable writing their answers out.
  - Offer to store their safety plan in a safe location until they are able to return to campus without their partner to pick it up.
  - Provide them a sealable envelope should they wish to take their copy of the safety plan home.

- **After completing the "Personalized Safety Plan Worksheet"** (Appendix J)**, proceed to Part 4.**

Part 4 – Ending the Study

Wait for P2 to finish the study, and follow the safety protocol outlined in Parts 1 to 3.

If <u>either member of the dating couple</u> indicated that they did not feel safe leaving the study (Part 1)

- Provide copies of research summary form and community resource list to each member of the dating couple independently and in their separate room.

- Encourage participants to review the community resource list and seek support if they continue to feel unsafe and/or if their negative emotions toward their partner persist for several days after the study.

- Ask participants *"Do you have any questions before the study ends?"*

- Provide the participant who reported feeling <u>unsafe</u> two options in terms of leaving the laboratory:

    i. To reunite in the meeting room with their partner to receive compensation and ultimately leave the laboratory together as a couple. (Note: this may be the safer option for some participants, particularly if they are fearful that their partner would suspect something if they did not leave together).

    ii. To receive compensation separately and leave the laboratory at a later time than their partner. This arrangement could be made with the participant who reported feeling unsafe by coming up with a variety of possible scenarios to have their partner leave the laboratory (e.g., tell partner there were computer problems in the other room and that he/she will require additional time to complete survey). The participant who reported feeling unsafe should feel comfortable with the plan before proceeding.

<u>If both members of the dating couple</u> indicated that they felt safe leaving the study (Part 1), then:

- Invite both partners to reunite in the meeting room to provide copies of research summary form and community resource list.

- Ask both members of the dating couple *"Do you have any questions before the study ends?"*

- Provide compensation and thank them for their participation.

APPENDIX J

Personalized Safety Plan Worksheet

The following steps are my plan for increasing my safety and preparing for possible further violence. Although I do not have control over my (ex) partner's violence, I do have a choice about how I respond and how to get myself to safety.

Safety during a Violence Incident

It is always possible to avoid violent incidents. Consider using a variety of strategies to increase safety during violent incidents.

I can use some or all of the following strategies:

- If I decide to leave, I will _____

  (Practice how to get out safely. What doors, windows, elevators, stairwells or fire escapes would you use?)

- Safe places that I can go if I need to leave a violent situation:

  - A place to use the phone:

    _____

  - A place I could stay for a couple of hours:

    _____

  - A place I could stay for a couple of days:

    _____

- I can keep my purse/wallet and vehicle keys ready and always keep them in the same place (_____), so that I can locate them easily if I need to leave in a hurry. I can also have a second set of keys made in case my partner takes the first set.

- If it is safe for me, I can tell certain people about the violence and ask that they call the police if they hear suspicious noises coming from my home. The people I could tell are: _____.
- It may be helpful to have a code word to use with my friends and family if I should need them to call for help. My code word is _____.
- When I expect we are going to have an argument, I will try to avoid places in the house where I may be trapped or where weapons are readily available such as in the bathroom or kitchen. Bigger rooms with more than one exit may be safer. The places I would try to avoid would be _____. The places I would try to move to are _____.
- I will use my judgment, experience and intuition. If the situation is very serious, I can give my partner whatever is necessary to maintain my safety.
- I have to protect myself until I am out of danger.
- There are resources available to me, some of which may be helpful for developing a more long-term plan if I decide to leave my partner.
    - See community resource list provided at the end of this study.
    - Websites with additional safety planning:
        - http://www.keepingsafe.ca/keepingsafe/keepingsafe.html
        - http://www.neighboursfriendsandfamilies.ca/safety-planning.html
        - http://www.hlthss.gov.nt.ca/english/services/family_violence/information_for_victims/default.htm
        - http://www.stopviolenceinyukon.ca/safety.html
        - http://www.springtideresources.net/resources/show.cfm?id=136

APPENDIX K

Research Summary (Main Study)

Thank you for participating in this study. We are interested in studying factors that are related to experiences with violence in dating relationships. In particular we are focusing on how people interpret and respond to difficult situations and conflict in dating relationships. Please take a look at the list of resources that is provided to you below. This list contains contact information for various community services in case you wish to contact someone to talk about some of your current or past dating experiences.

Student Counseling Centre, University of Windsor

The Student Counseling Centre (SCC) provides assessment, crisis, and short term counseling. If longer term therapy is indicated, the SCC will provide a referral to the Psychological Services Centre. All services are confidential and offered free to students. The SCC is open Monday to Friday (8:30 – 4:30). The SCC is located in Room 293, CAW Centre.

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519-255-2234

Distress Centre Line Windsor / Essex

The Distress Centre of Windsor-Essex County exists to provide emergency crisis intervention, suicide prevention, emotional support and referrals to community resources by telephone, to people in Windsor and the surrounding area. The Distress Centre of Windsor-Essex County provides an anonymous, confidential telephone services from 12 pm to 12 am, seven days a week.

519-256-5000

Community Crisis Centre of Windsor-Essex County

A partnership of hospital and social agencies committed to providing crisis response services to residents of Windsor and Essex counties. Crisis center is open Monday to Friday (9 – 5) at Hotel-Dieu Grace Hospital in Windsor, ON.

519-973-4411 ext. 3277

24 Hour Crisis Line

24 Hour crisis telephone line provides an anonymous, confidential service from 24 hours, 7 days a week. The 24 Hour Crisis Line serves Windsor and Leamington areas.

519-973-4435

Thank you for your participation!

VITA AUCTORIS

NAME:	Sarah Setchell
PLACE OF BIRTH:	North Bay, ON
YEAR OF BIRTH:	1985
EDUCATION:	Chippewa Secondary School, North Bay, ON, 2003
	Queen's University, B.Sc., Kingston, ON, 2007
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