11-12-2019

Social Information Processing Deficits, Intimate Partner Violence, and Coercive Control in Dating Couples

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By

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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

2019

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DECLARATION OF ORIGINALITY

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ABSTRACT

The current study investigated how social information processing (SIP) deficits are related to intimate partner violence (IPV) and coercive control among heterosexual dating couples. I assessed four steps of Crick and Dodge's (1994) six-step SIP model, namely: attitudes and attributions, goal setting, coping response generation, and coping response selection. I used Dutton and Goodman's (2006) theorized model of coercive control, which included assessing demands, surveillance, threats, and victims' responses to demands. I hypothesized that (a) SIP deficits would be interrelated; (b) participants responding in timed conditions would show more SIP deficits, given theory and research (e.g., Eckhardt et al., 2012) suggesting that implicit attitudes are more predictive of aggression than explicit attitudes; (c) and individuals with more SIP deficits would report perpetrating and experiencing more IPV and coercive control. Furthermore, exploratory questions investigated gender effects, partner effects, and Actor X Partner effects. Couples (N = 109) participated in a lab study during which they completed online measures of demographics, SIP deficits, IPV perpetration and victimization, coercive control victimization and perpetration, and social desirability. Hierarchical regressions were used to test hypothesis 1, which found that most SIP deficits were predictive of each other, such that negative attributions were found to positively predict aggressive goals; negative attributions and aggressive goals each positively predicted response generation competency; and negative attributions and generation competency each positively predicted response selection competency. To test hypothesis 2, I conducted multilevel models and found that there were no differences in SIP deficits between those responding with unlimited time and those who responded with a time pressure. Finally, I conducted

several structural equation model analyses that used Kenny, Kashy, and Cook's (2006) actor-partner interdependence model to test hypothesis 3 and the research questions. Though no significant gender differences, partner effects, or Actor X Partner effects were found, SIP deficits were significant predictors of IPV perpetration and coercive control perpetration and victimization. Specifically, participants with more SIP deficits perpetrated violence and control at higher rates and were more likely to be victims of coercive control. Results of this study have implications for researchers and clinicians interested in preventing or providing intervention to address intimate partner violence and coercive control.

ACKNOWLEDGEMENTS

It goes without saying that I could not have completed this dissertation without the consistent support and encouragement of my supervisor Dr. Patti Fritz over the past several years. I have now spent over six years under her guidance and I consider myself extremely lucky to have ended up with her as a supervisor. Not only is she a highly competent researcher who has shaped my own development as a scientist-practitioner, she has also been a supportive presence and a mentor throughout my grad school experience. We have talked about research, ethics, grad school, work-life balance, the role and future of psychology, and everything in between. I would be hard-pressed to identify an area of my life that she has not shaped in some way. Thanks for all your support, Patti!

I would also like to thank my committee, Dr. Tara Cornelius, Dr. Betty Barrett, Dr. Kim Babb, and Dr. Rosanne Menna, for dedicating their time to reading and critically reviewing this dissertation. I appreciated the interesting discussions about my study and I am glad I was able to share my work with such competent and thorough researchers. Thanks to Dr. Kendall Soucie who coached me through these extremely difficult analyses, helped me to push forward when I felt like giving up, and was always available to answer my questions over and above what was expected of her.

Last but certainly not least, I would like to thank my family and friends. To my parents, and brothers, Kenzie and Lachlan, who have been listening to me talk about this project for the last four years and who have supported and encouraged me through every step of the process. To Kyle, who has listened to me ranting about each problem as it came up and helped me problem-solve, and who followed me through this degree, even

to another city. And to my cohort (undoubtedly the best cohort) and the “child people”, who have undertaken this journey with me through all the laughter and the tears. I couldn’t have done it without any of you; thanks for all your encouragement and support in the massive undertaking that is a doctoral degree.

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CHAPTER 1

Introduction

Intimate Partner Violence

Definition. The World Health Organization (2012) describes *intimate partner violence* as "any behaviour within an intimate relationship that causes physical, psychological or sexual harm to those in the relationship" (p. 1). An intimate relationship refers to a close romantic relationship, which can broadly range from casual dating to being married or cohabitating. The violence can be physical, sexual, psychological (also referred to as verbal or emotional), and controlling. Physical violence can include pushing, shoving, hitting, punching, kicking, choking, or threatening with a weapon (Charkow & Nelson, 2000). Sexual violence can be forced sexual acts, sexual coercion and threats, or physical violence during sex (Straus, Hamby, Boney-McCoy, & Sugarman, 1996). Psychological violence includes behaviours such as threats, insults, yelling, swearing, and undermining a partner's self-esteem.

Many terms are used to describe these types of violent behaviours such as intimate partner violence, intimate partner abuse, domestic violence, domestic abuse, dating violence, dating aggression, or courtship violence. Though there is debate surrounding which terms should be used to describe aggressive behaviour among intimate partners, the term "violence" is typically used to imply significant physical or psychological consequences whereas "aggression" is used when consequences or sequelae are not considered (e.g., Archer, 1994). Other researchers have suggested that it is a matter of semantics (Jackson, 1999). As I assessed injury, I use the term violence in this study. In addition, "dating" is used to refer to romantic relationships between two individuals who share an emotional and/or sexual attachment beyond friendship but who are not yet in a committed relationship like engagement or marriage. As I have not limited

my sample to dating couples, nor to couples who live together (e.g., "domestic"), and I assessed both men and women, I refer to violent acts occurring between romantic partners as "intimate partner violence" or IPV.

In addition, the current study investigated IPV in the emerging adult population, as this population has been shown to engage in more risk-taking behaviours and to be more vulnerable to perpetrating or being victims of IPV (e.g., O'Leary, Woodin, & Fritz, 2006). First described by Arnett (2000), emerging adults are thought to be empirically different from adolescents and adults as they "have left the dependency of childhood and adolescence but [have] not yet entered the enduring responsibilities that are normative in adulthood" (p. 460). As such, this period is marked by transition; these individuals might live in a variety of different environments (e.g., campus residence, at home, with a romantic partner), and are exploring different worldviews and romantic relationships. They are in the process of becoming a self-sufficient person, making important decisions independently and becoming financially independent. Given the transitory nature of this period, the exploration and associated risk taking, as well as the increased importance and exploration of dating relationships, individuals at this stage are more at risk of being in violent relationships.

Prevalence. Accurate estimates of the prevalence of IPV are often difficult to obtain as perpetrators may be less likely to report the violence due to social desirability (Hamby, 2009) and victims may not always be in a position where it is safe for them to report violence. In addition, rates tend to vary somewhat depending on age, ethnicity, and gender. Some researchers have estimated that physical aggression victimization is reported by approximately 12% of all women in the United States, with a higher percentage (50-60%) reported by women in troubled marriages (O'Leary, Woodin, & Fritz, 2006). Rates reported by Black (2011) in their review

suggested that lifetime prevalence of physical IPV for women ranged from 23% to 33% and 7% to 11% for men. Black reported lower 12-month prevalence rates of approximately 1.5% for women and 0.9% for men. In a Canadian survey of violent crime statistics, 14% of women and 4% of men were victims of violent crime committed by a romantic partner (Statistics Canada, 2015). Furthermore, Kelly and Dekeserady (1994) found that 27.4% of women on a Canadian college campus had experienced sexual partner violence, 22% had experienced physical partner violence, and 79.3% had experienced psychological partner violence. O'Leary et al. (2006) estimated that rates of violence are higher among emerging adults and adolescents, with an estimated 40% of emerging adults and approximately a third of high school students reporting violence in their relationships (Foshee et al., 2009; Mumford, Liu, & Taylor, 2018; Stonard, Bowen, Lawrence, & Price, 2014). Estimates also differ for each type of violence experienced. For example, a study of college samples from around the world found that estimates of physical IPV ranged from 17% to 45% (Straus, 2004), whereas some studies on college populations have found rates of psychological violence as high as 80% to 90% (Dekeseredy & Kelly, 1995; Neufeld, McNamara, & Ertl, 1999). Though I focus on heterosexual couples in this study, it is important to note that sexual and gender minorities have been shown to experience violence at similar rates to (e.g., Edwards & Sylaska, 2013; Jones & Raghavan, 2012), or higher rates than, cisgender heterosexual individuals (e.g., Porter & Williams, 2011).

Gender. There remains considerable debate surrounding the gender symmetry or asymmetry with respect to the severity of violence or reasons for perpetrating violence among men and women (e.g., Johnson, 1995; Straus & Gozjolko, 2014), with substantial research (around 200 studies; Straus, 2012) finding that men and women perpetrate and are victims of certain types of violence at similar rates (e.g., Swan, Gambone, Caldwell, Sullivan, & Snow,

2008). However, Hamby (2005, 2009) has suggested that moderate gender asymmetry exists given the gender asymmetry of nearly all other forms of criminal violence. Hamby suggests that studies finding gender parity or symmetry are subject to methodological issues, such as excluding sexual violence, which has consistently been found to be perpetrated by men more than women (e.g., Nicholson et al., 1998; Stets & Pirog-Good, 1989; Swan et al., 2008). For example, one study found that 35% of college women and 11% of college men reported experiencing sexual violence (Nicholson et al., 1998). Irrespective of any gender differences, it is clear that violence is prevalent among emerging adult couples, with one study finding that only 36% of women and 35% of men reported being in a relationship in which no physical violence occurred (Bookwala, Frieze, Smith, & Ryan, 1992).

Historically, there has been considerable debate among IPV researchers regarding the gender symmetry or asymmetry of violence perpetration. Before the 1970s it was generally assumed that men were the most common perpetrators, far exceeding the number of female perpetrators. However, the shocking findings of the National Family Violence Survey, which included a national representative sample of families in the United States, showed that women reported being perpetrators of violence equally as often as their male counterparts on self-report frequency based measures (Gelles, 1974; Straus, 1976). This finding contrasted with feminist theories and research, which viewed partner violence as resulting from patriarchal power structures. In support of the feminist argument, Dobash and Dobash (1979) showed that almost all the individuals living in domestic abuse shelters who had been subjected to severe abuse were women.

To explain this disparity, several researchers have developed a number of typologies to categorize different types of violence (e.g., Holtzworth-Munroe, 2000; Johnson, 1995). One of

the most popular typologies was developed by Johnson (1995), in which they originally suggested that there were two types of IPV: situational couple violence and intimate terrorism. Johnson further proposed that family violence researchers and feminist researchers were accessing different populations due to their sampling methods. Situational couple violence (SCV) was suggested to be a form of violence in which the couple is in conflict and the conflict escalates to the point of violence; however, the violence is not used in an attempt to control the other partner. Intimate terrorism (IT), on the other hand, was suggested to consist of an overarching pattern of control, such as is demonstrated in Pence and Paymar's (1993) Power and Control Wheel. In IT relationships, one partner uses such tactics as coercion, intimidation, economic manipulation, threats against children, blame, isolation, and emotional abuse, all overlaid by the constant threat of violence, to control the other partner. Johnson (1995) suggested that the National Family Violence data, which showed equal perpetration by men and women, primarily assessed SCV as it is more likely to be reported by victims than is IT, given that IT victims may not become aware of such surveys because of their controlling partners or may be too fearful to complete such surveys. IT victims, therefore, were those numerous women in shelters who had experienced this pattern of control and violence. As such, Johnson (1995) identified control to be an important variable in distinguishing these two types of violence. Johnson later updated these typologies to include four types, adding violent resistance and mutual violent control (Johnson, 2006). Violent resistance is thought to occur when the individual is violent but not controlling, and mutual violent control is when both the individual and partner are violent and controlling. Control therefore continued to be an important factor in identifying typologies of violence behaviour.

Research conducted by Johnson and Leone (2005) supported the idea that IT and SCV are two distinct forms of violence, with different patterns of abuse and associated consequences. The researchers collected data from 16,000 participants, 8,000 men and 8,000 women, using random-digit dialing, and found that both IT and SCV were associated with increased depression symptoms. However, the results suggested that women experiencing IT experienced more violence in general, more severe violence, and increased likelihood of injury than women experiencing SCV, even when controlling for overall violence. Furthermore, victims of IT had increased posttraumatic stress disorder symptomology, were more likely to use painkillers, and missed work more frequently than victims of SCV. In support of Johnson's typologies, these findings suggested that IT and SCV are two distinct forms of abuse with qualitatively different perpetrators and victims. Hamby (2009) has also suggested that IT is likely to be a more gendered form of abuse. However, they argue that this type of violence would occur at such a low base rate, among a phenomenon like IPV that is already subject to low base rates, that it would have little effect on the gender symmetry or asymmetry.

On the other hand, there are many researchers who continue to dispute Johnson's typology and their argument of gender asymmetry of IT. For instance, in Straus and Gozjolko's (2014) study of college students across 32 countries, participants reported IT (as described by Johnson as aggression and control) by either them or their partner in 27% of violent relationships and that there was no difference in the use of IT by men and women. However, it is important to note that participants reported on their own and their partners' violent behaviours, but data from the partner (i.e., dyadic data) were not collected. The authors also identified that in three quarters of the IT relationships, the violence was reported to be bidirectional, which may align more closely with Johnson's "mutual violent control" relationship type. However, they did note gender

differences in injury, in which men inflicted more injury and were less often victims of injury. IT was related to injury such that the highest rates of injury occurred when either members' behaviours met the definition for IT. In addition, Dutton and Nicholls (2005) have argued that there are high levels of unilateral IPV by women and that men seem to report victimization less than women. Some research on university students has even found that women perpetrate more violence than men (Archer, 2000; Taft, Schumm, Orazem, Meis, & Pinto, 2010), though differences are often not statistically significant (e.g., Bell & Naugle, 2007; Shorey, Brasfeild, Febres, & Stuart, 2011). In a meta-analysis of 82 studies, Archer (2000) found that there was a small effect indicating women perpetrated more violence, though there was also a small effect suggesting that women were injured by their partners more than men were, and women were more likely than men to require medical treatment for their injuries. Meanwhile, feminist researchers continue to argue that women's violence often occurs in the context of male violence against them (Swan et al., 2008) and that women experience more adverse effects of violence (e.g., more injury, more likely to be victims of control, stalking, sexual abuse).

Hamby (2005, 2009) has examined data from other criminal fields to attempt to address the gender parity versus gender asymmetry debate. They note that though research from other criminal justice fields is also subject to bias, in the vast majority of violent crimes, such as assault, homicide, partner homicide, and juvenile delinquency, women are perpetrators in only 30% to 35% of cases, suggesting moderate gender asymmetry. Hamby argues that given that estimates of other forms of violent crime all show similar gender patterns, it is likely that IPV occurs in moderate gender asymmetry as well. Hamby suggests that methodological limitations have resulted in the number of studies finding gender parity. In particular, they advise researchers to include assessment of injury and sexual assault in their research, as these are

predictors of more severe violence and also tend to show more gender effects. They also advise against using perpetrator reports of violence where possible, as they tend to have a higher association with socially desirable responding (Hamby, 2009).

The Conflict-Tactics Scales-Revised (CTS-2; Straus, Hamby, Boney-McCoy, & Sugarman, 1996) is the most widely-used and best validated measure of IPV. It is a frequency-based measure of physically, sexually, psychologically, and injurious aggressive acts. Hamby (2009) has indicated that despite the test authors' efforts to distinguish minor and severe violence, both types of violence reported on the CTS2 show gender parity. Given that this does not match with the likely conclusion of moderate gender asymmetry, the CTS2, though most commonly used, may not adequately distinguish between more severe types of violence that are likely to show more gender differences. As indicated above, Johnson (1995) would also argue that the CTS2 likely does not adequately capture IT, as many victims of IT would be unwilling or unable to complete a questionnaire while in the midst of a controlling relationship. Furthermore, numerous researchers have criticized the CTS2 for omitting the context in which the violence occurs. Though Straus et al. (1996) have attempted to address this concern by adding an injury subscale, there continues to be concern that the violence reported on this scale lacks critical information, such as whether or not the violence was the result of escalating violence, resistance, or a way to gain control. It presents as a methodological limitation then, that most research on IPV in adult relationships uses the CTS2, which most often shows gender parity.

Potential consequences. Regardless of gender or the type of abuse experienced, IPV is consistently associated with a number of negative health and mental health correlates. In a review of the health correlates of IPV against women, Black (2011) identified that IPV was

associated with increased risk of health problems across most bodily systems, including the nervous, immune, cardiovascular, gastrointestinal, reproductive, and musculoskeletal systems. Black also noted that it was associated with adverse pregnancy outcomes and health risk behaviour, such as smoking, not having regular check-ups, and risky sexual behaviour. Black proposed that the increased health risks were likely associated with the body's response to chronic stress, which lowers immune system response thereby increasing risks for illness, disease, and negative health outcomes.

IPV has also been consistently associated with a wide variety of mental health problems, such as higher somatization, depression, and anxiety; increased hostility; increased risk for a psychological disorder; posttraumatic stress disorder (PTSD); substance abuse and dependence; and lower quality of life (Archer & Gennaro, 2005; Black, 2011; Brown et al., 2009; Hegarty et al., 2013). IPV has been associated with disordered eating, risky sexual behaviours, subsequent revictimization, and suicidal ideation (Iverson et al., 2013; Silverman, Raj, Mucci, & Hathaway, 2001). Furthermore, some research suggests that IPV may affect adaptive behaviours like work, social life, and daily living. For example, victims of IPV were found to work fewer hours per week than nonvictims (Browne, Saloman, & Bassuk, 1999). Another study found that IPV was related to decreased productivity at work (Straight, Harper, & Arias, 2003). Victims of IPV may also be isolated from their social networks, as isolation is thought to be one of the ways in which abusive partners gain and maintain control (Pence & Paymar, 1993).

Severity, injury, and frequency. The relations between IPV and health appear to be moderated by the severity of abuse, such that the more severe, injurious, or frequent the abuse is, the more negative outcomes there are for the victim. For example, Archer and Gennaro (2005) found that one-third of victims reported experiencing a physical injury (e.g., sore muscles,

scratches, bruises, strains, black eyes, busted lip). Similarly, in a study of college students across the world, Straus (2004) found that the prevalence of injury ranged from 1.5% to 20.0%. Furthermore, individuals who were victimized multiple times tended to have more severe mental health scores, were more at risk for psychiatric disorders, and reported more injuries than individuals who were only victimized once (Amar & Gennaro, 2005). Hamby (2009) has suggested that assessing injury, as well as other consequences of abuse like social isolation or missing work, should be used to more accurately differentiate severe violence (which is likely more gender asymmetric) from less severe types.

Coercive control. Though there continues to be considerable debate regarding whether men and women perpetrate violence at similar rates, Johnson's (1995) argument that control is important in categorizing violence remains prevalent in the literature. The Duluth model of aggression proposed by Pence and Paymar (1993) is one prominent example, as it incorporates controlling behaviour (such as threats, isolation, use of finances, use of children, etc.) with its model of aggression. Stark (1995) has argued that physical violence may not be the most significant factor in violent relationships in which women are primarily the victims. Instead, Stark suggested that ongoing intimidation, isolation, and control over all areas of a woman's life (e.g., family, friends, work, children, sexuality, necessities) partnered with sporadic or severe violence leads to a "deprivation of liberty" because of this control and coercion. This type of aggression has been labeled "coercive control."

In an attempt to qualify and measure coercive control, Dutton and Goodman (2005) have developed a conceptualization of coercive control. Their conceptualization is based on Lewin's (Lewin, 1935, as cited in Dutton & Goodman, 2005) theories of power, such that coercive power is thought to occur when "an agent imposes things on a target that the target does not want or

removes things that the target wants" (p. 131). Furthermore, the power/interaction model of interpersonal influence (Raven, 1992) suggests that power is composed of the bases for power, or the potential for control; the power processes, or attempt to control; and the outcomes of power, whether compliance or resistance.

Dutton and Goodman (2005) suggest that coercive power differs from force in that with force, there is a lack of volition on the part of a target; if enough force is exerted, the target has no choice but to respond. Conversely, coercive power relies on the "target's belief that the target can and will experience negative consequences for noncompliance," and there is therefore an element of "choice" in that the target can "choose" to comply or risk punishment. In this way, the threat is often communicated with statements like "If you don't X, I will Y…". In order for coercive control to be successful, Dutton and Goodman (2005) propose that several factors must be present in order to control a partner: "setting the stage," coercion, surveillance, delivery of threatened negative consequences, vulnerability to coercion, a cognitive/emotional/behavioural response to the coercion, fear arousal, and outcome of coercion.

"Setting the stage" for coercion can happen in four ways. First, the agent can create the expectancy for coercive outcomes, such as communicating the ability or willingness to control the target through punishment and reward. This can be made through previous abusive actions toward the target or toward others. Second, the agent can also exploit existing vulnerabilities, such as economic liability, motherhood, substance abuse, or legal problems, or create vulnerabilities for exploitation, such as forcing them to become involved in illegal activities. Third, the agent can wear down the target's resistance by depleting social, personal, and material resources; for example, the agent could interfere with the target's social network. Fourth, the

agent might facilitate and then exploit emotional dependency. An example of this would be beating one's partner and then caring for the injuries.

Coercion involves both a demand and a threat. The demand could be explicit, such as "the house had better be spotless by the time I get home," or implicit, such as "you know what you need to do." It is a demand when an expectation is held by the coercive partner, and it is understood by the target that the target will be punished if she/he/they does not comply. The threat can also be explicit or implicit, but it must be credible. Even a pattern of behaviour can be implicitly threatening; for instance, if a man consistently begins an argument with a woman when she comes home late from work and the arguments often end with assault, the woman will begin to recognize the implied threat in the pattern of behaviour.

Surveillance of the target by the agent is required to determine if compliance occurred. This might include frequent phone calls, monitoring mileage meters in the target's vehicle, or various kinds of inspections. In some cases, children, family members, or friends are recruited to report on the target's behaviour.

Delivery of negative consequences is also an important component of the coercive control process, because when the agent makes a threat and acts on it, the target is often more likely to comply in the future, as the threat has more credibility. Of similar importance, the target's vulnerability to coercion arises from something the agent can exploit or take away. For instance, if the target is experiencing financial stress, financial coercion is likely to be more effective.

Importantly, the target must have cognitive, emotional, and behavioural reactions to the coercion. Cognitive responses include threat appraisal and perceived control. The victim must appraise the threat as a threat. A victim's threat appraisal is not always obvious to others outside

of the relationship, but it has been shown to be related to the severity of prior violence, the abuser's characteristics, perceived social support, and posttraumatic stress disorder, or it could be a learned response from having been in prior abusive relationships (Dutton & Goodman, 2005). Targets' perceived control is another cognitive response, such that targets may believe that if they do something to keep the partner happy, they can avoid the negative consequences, despite the fact that the demand is not always clearly defined (e.g., the target should "not make their partner angry"). Emotional response often refers to fear arousal. Cognitive threat appraisals are often associated with measureable distress, like posttraumatic stress disorder symptomology, and the level of fear may also affect threat appraisal.

Finally, the target must have a behavioural response to the coercion, which could be compliance or noncompliance. Research has shown that battered women frequently resist, though not always in explicit ways, and that failure to comply is often a result of "giving up" out of desperation or a lack of energy to respond to the partner's constant demands (Dutton & Goodman, 2005). Importantly, though the targets have "chosen" to comply, it does not mean that they want to obey the demand.

Coercive control has been consistently associated with aggression and injury (Felson & Outlaw, 2007; Graham-Kevan & Archer, 2008; Hardesty et al., 2015) and some research suggests that IT is associated with the use of more types of controlling tactics (Graham-Kevan & Archer, 2008). It has also been suggested that there are different patterns of control in relationships. For instance, Graham-Kevan and Archer (2008) found that for those participants who reported patterns of violence consistent with situational couple violence, intimidation and threats had stronger relationships to violence than did other control tactics like isolation or economic control. They proposed that these forms of control might be more likely to be used in a

conflict situation and are context-specific. In support of this proposition, Crossman and Hardesty (2017) interviewed 22 divorced women who endorsed high levels of control in their previous relationships and found that there were two patterns of control. In the first pattern, "constraint through commitment," "controlling behaviours were isolated incidents that first surfaced when trust was broken or [gender role] expectations were not met, but within relationships that were more generally disintegrating" (p. 201) with ongoing conflict and unresolved issues. These women were able to easily identify triggers for their husbands' control tactics (e.g., paranoia when high on drugs, being caught on a dating website). Five of the women reported a different pattern of control ("constraint through force") characterized by men's use of gender roles as a tool to keep women isolated, instill fear, and closely monitor them. In contrast to women in the first pattern, women who experienced "constraint through force" were unable to identify specific triggers for their husbands' control tactics and described that the control gradually increased over time, especially around life milestones (e.g., marriage, pregnancy).

Research on coercive control in intimate relationships has been emerging over the past twenty years. Some findings have shown that men tend to appraise controlling behaviours towards a partner as less controlling than women (Ehrensaft & Vivian, 1999). Similar to research on acts of violence in intimate relationships, some research has suggested that coercive control may be experienced more by women than men (Swan et al., 2008), whereas other research has found no gender differences (Hamby, 2009; Straus & Gozjolko, 2014). However, Dutton et al. (2005) suggest that gender differences may emerge when examining the various aspects of coercive control (e.g., threats, surveillance, demands), which may help explain the conflicting findings. Other researchers have also suggested that though men and women might both be motivated to control in a relationship, there might be gender differences in the methods of

control used. For example, Felson and Outlaw's (2007) research using a nationally representative sample of U.S. citizens (N = 15,275) found that women were more likely to insist on knowing their spouse's whereabouts and insist on changing residences, whereas men were more likely to restrict their spouse's knowledge about and access to family income, and prevent their spouses from working outside the home. Men were also more likely to engage in violence and generate fear, an important factor in Dutton and Goodman's (2006) model. Notably, most research on coercive control has focused on identifying the best methods for measuring coercive control (e.g., Myhill, 2015) and using coercive control to contribute to the gender symmetry debate, with very few factors focusing on predictors of coercive control (Kaplenko, Loveland, & Raghavan, 2018).

Predictors of IPV perpetration. A number of factors have been found to predict IPV perpetration. A meta-analysis conducted by Stith, Smith, Penn, Ward, and Tritt (2004) examined 85 studies to determine the most robust predictors of physical abuse perpetration in married or cohabitating couples. They found that the strongest predictors were marital dissatisfaction, attitudes condoning violence, and illicit drug use. They found that perpetrating emotional or verbal abuse and forcing sex in the same relationship were also strong predictors of physical abuse perpetration, suggesting that different types of abuse are interrelated and co-occurring. The researchers also found a number of moderate predictors such as career and life stress, history of having physically abused a partner, depression, high anger and hostility, and traditional sex-role ideology. Other predictors identified in the literature are insecure attachment, low self-esteem, family history of violence, and limited social support coping (Carr & VanDeusen, 2002b; Murray & Kardatke, 2007; O'Leary et al., 2006). Though the vast majority of research has focused on heterosexual couples, there is evidence that LGBTQ+ individuals have similar

predictors of violence as cisgender heterosexual individuals, as well as unique risk factors for violence perpetration and victimization, like sexual minority stress and discrimination (e.g., Edwards & Sylaska, 2013; Mason, Lewis, Gargurevich, & Kelley, 2016). Sexual minority stress is a consistent predictor of IPV perpetration and refers to direct sexual stigma and discrimination, the heightened vigilance for threat that accompanies increased discrimination and harassment, and the internalization of stigmatizing social structures and homonegativity (Shorey, Stuart, Brem, & Parrott, 2019).

Other forms of environmental violence, like witnessing interparental violence, have also been assessed as predictors of IPV. Though witnessing interparental violence is often a consistent predictor of IPV, especially if the violence is ongoing (e.g., Dardis, Dixon, Edwards, & Turchik, 2015; Fritz, Slep, & O'Leary, 2012; Vagi et al., 2013), experiencing childhood victimization has not been consistently supported as a predictor (Carr & VanDeuen, 2002a; Carr & VanDeuen, 2002b; Edwards, Desai, Gidycz, & Vanwynsberghe, 2009; Fritz et al., 2012). Some research has identified that childhood victimization might predict women's early use of partner violence (e.g., in adolescence), but it has little additional contribution to more current IPV perpetration (e.g., IPV occurring with the past year; Dardis, Edwards, Kelley, & Gidycz, 2013; Edwards et al., 2009). Similarly, Edwards, Dixon, Gidycz, and Desai (2013) found that childhood abuse was not a strong contributor to men's IPV perpetration when entered into a model containing hostile-dominant interpersonal style. Taken together, it may be that predictors that are more distal from the aggressive incidents are less predictive of aggression than more proximal factors like interpersonal style, current stressors, and attributions about a partner's behaviour that trigger aggressive responses.

A wealth of research has shown associations between beliefs about violence and gender and IPV. Archer and Graham-Kevan (2003) found that there was an association between instrumental beliefs about physical aggression and physical IPV perpetration. Instrumental beliefs infer that individuals use the aggression to accomplish a goal, rather than because of heightened emotions or a loss of control. This link was strongest in a student sample as compared to a sample of women from a shelter, and the link was also stronger for men than women. Research has also consistently shown that attitudes supportive or permissive of partner violence predict increased aggression (e.g., Carr & VanDeusen, 2002a, 2002b; Josephson & Proulx, 2008). Nevertheless, one study by Dardis and colleagues (2013) found that adolescent dating violence victimization was a stronger predictor than attitudes about dating violence or child maltreatment. Interestingly, a study by Eckhardt, Samper, Suhr, and Holtzworth-Munroe (2012) explored explicit (i.e., paper-and-pencil test with face valid items) and implicit attitudes (e.g., Implicit Association Test, IAT; Eckhardt et al., 2012) towards IPV in college men and a sample of men enrolled in an IPV treatment program. They found that although there were no group differences on the explicit attitudes measure, men in the IPV treatment group were more likely to implicitly associate women with words related to violence than men in the college sample. Furthermore, among the men in treatment, IAT scores were correlated with both self- and partner-reported IPV frequency, suggesting that attitudes outside the awareness of the perpetrator can have an influence on behaviour.

Some gender differences in predictors have been identified. Nabors, Dietz, and Jasinski (2006) examined attributions about the cause of violence and found that men scored higher on myth-based beliefs about the cause of IPV (i.e., victim blaming causes), whereas women scored higher on empirically-based beliefs (i.e., causes supported by research like the link between

substance use and violence). As such, it is important to investigate cognitions/attributions, beliefs, and attitudes that might precede violence. Similarly, Bookwala et al. (1992) identified different risk factors of IPV perpetration for men and women. In their sample, women were most likely to perpetrate violence against partners who were physically aggressive, when the women were violent in other contexts, when the women experienced jealousy, and when they held traditional gender role beliefs. Men, on the other hand, were more likely to perpetrate violence if they also engaged in verbal aggression against their female partners, if they endorsed the belief that relations between men and women are inherently hostile, and unexpectedly, if they had less traditional sex-role attitudes. LaMotte, Taft, and Weatherill (2016) have also shown that men's mistrust schemas (such as "I feel that people will take advantage of me") mediated the relation between trauma exposure and physical and psychological IPV, such that trauma exposure predicted increased mistrust schemas, which in turn predicted greater use of IPV. Though mistrust schemas were similarly predictive of aggression for both men and women, it was not a mediating factor for women. Thus, attitudes and beliefs are predictive of violence, and they are predictors that tend to show gender differences. One model that integrates attitudes and interpretations and can potentially be used to explain why some violence occurs is the social information processing theory (Crick & Dodge, 1994; Dodge & Crick, 1990)

Social Information Processing Theory

The theory of social information processing (SIP) builds on the theory of information processing, which refers to the way individuals encode, store, retrieve, and process information from their environment. Similarly, the social information processing model is used to explain how individuals encode, interpret, and react to social cues and social information. Research has especially focused on social information processes in interpreting and responding to ambiguous

social situations. The theory of SIP was proposed initially by McFall (1982) and included three steps: encoding and interpretation of cues, response decision, and response enactment. Dodge and Crick (Crick & Dodge, 1994; Dodge & Crick, 1990) reformulated the model to make it more comprehensive such that it now includes six steps. Subsequently, Lemerise and Arsenio (2000) added emotion processes (e.g., emotionality/temperament, emotion regulation, mood/background emotions) to the model, as research has shown that emotion plays an important role in decision-making. Research has also shown that emotion plays an important role in aggression, including IPV (e.g., Shorey et al, 2011).

In Step 1, individuals attend to and encode social cues that they find relevant. In Step 2, individuals interpret and mentally represent the encoded information, and specifically, how they interpret the other person's intent. The interpretation of these cues often relies on the individuals' social scripts, which are mental lists of actions that individuals carry out in stereotypical situations. For example, a social script for buying groceries might tell an individual to select needed items from the store, bring them to the front cashier area, wait in line, pay for the groceries after the cashier rings them up, bag the groceries, and carry them out of the store. In terms of social situations, social scripts dictate how people interact with others in stereotypical situations, like being introduced to a new person. In addition, individuals' biases, culture, and past experience play a role in how they might interpret the encoded social cues. For example, when being introduced to a new person, many different cultural and individual factors would be related to the type of greeting one might give (e.g., hug vs. handshake).

In Step 3, individuals clarify or select a goal they would like to achieve from this social interaction (e.g., meet a new person without embarrassing one's self). Next, in Step 4, based on the chosen goal and their interpretations of the situation, individuals generate a number of

possible responses, which are drawn from their long-term memory stores. Responses that they use frequently or with which they are more familiar are more likely to be generated first (e.g., smiling and saying, "Nice to meet you"), as they are "at the top of the memory bin" (Dodge & Crick, 1990). In Step 5, individuals decide which of the responses they would like to enact and evaluate the likely outcome of enacting the chosen response. Finally, in Step 6, individuals enact the chosen response again using their scripts for social interactions to transform their response into verbal and motor behaviours. The results of enactment (i.e., the peer's evaluation and response) will be observed and stored in long-term memory store, thereby adding to the familiarity and availability of certain responses. Each step is considered necessary but not sufficient for socially competent responses.

Research on SIP has shown that deficits at any one of the steps can lead to deviant social behaviour in children, particularly aggression (e.g., Dodge & Crick, 1990; Dodge & Godwin, 2013; Lansford, Malone, Dodge, Pettit, & Bates, 2010). For example, imagine a child, John, is building a house of cards, carefully stacking one card on top of another. Another child, Billy, walks past and bumps the table with his hand, causing John's meticulously built house of cards to collapse. If, in Step 1, John attended selectively to Billy's swinging hand as it bumped the table and did not attend when Billy stumbled side-ways slightly (indicating that it was clearly an accident), John might be more likely to believe Billy had bumped the table on purpose and may therefore act aggressively towards him. In Step 2, deficits often revolve around individuals having a hostile attribution bias, wherein they attribute hostile intentions to the other person in ambiguous social situations. In this case, if John believes that Billy bumped the table and knocked over his house of cards on purpose, he might be more likely to respond with aggression. Similarly, John might be more likely to behave aggressively if, in Step 3, he does not choose a

prosocial goal (e.g., he decides he wants to "get even" with Billy to teach him a lesson and discourage him from bumping the table again).

In Step 4, generating possible responses, if John has difficulty coming up with multiple responses, or the responses he generates are not socially competent, he ultimately may have to choose from nonprosocial responses only. In Step 5, John will evaluate his chosen response and the possible outcomes, and select the response he deems most appropriate and most likely to achieve his goal, based on information from his long-term memory (e.g., what happened when I did this before?). If he is unable to adequately predict the outcomes of his response, or if he is not confident in his ability to enact this response and therefore defaults to a more familiar and easier one, he may be more likely to act aggressively. Finally, if John is unable to transform his chosen response into action due to unfamiliarity, it may lead to an incompetent social response in Step 6.

Each step in this process builds upon the one before. For example, one might be more likely to make hostile attributions if, initially, not all the social cues were encoded correctly. However, despite the seemingly sequential order of the steps, Dodge and Crick (1990) propose that this model is not linear and that these steps occur simultaneously and cyclically out of the conscious awareness of the individual (Crick & Dodge, 1994). Thus, social cues are encoded and interpreted and responses generated and evaluated all at once and in a nonlinear fashion. Lemerise and Arsenio (2000) have proposed a modified model that incorporates emotion, as emotion is critical for decision-making and may be especially likely to be evoked in interpersonal or social situations. They suggest that emotion plays a role in encoding, as others' emotion cues must be encoded; interpretation, as this can be influenced by level of arousal or mood; goal clarification, as "goals are focused arousal states that function toward producing…

particular outcomes" (Lemerise & Arsenio, 2000, p. 114); and response generation and evaluation, as emotions could influence the type of long-term memories and previous experiences accessed, and experiencing strong emotions could limit a child's ability to take others' perspectives. Thus, the model is not only nonlinear, but intrinsically associated with emotion. These social-cognitive and emotional processes are thought to occur automatically, making it difficult to change dysfunctional social cognitions or improve generation of appropriate responses, as individuals are often not consciously aware of these processes or the effect that learning has had on them. However, children tend to develop better and more adaptive strategies with age and experience (Crick & Dodge, 1994).

Research on SIP and aggression has mainly focused on predicting aggressive behaviours in childhood. For instance, in a longitudinal study of development conducted by Dodge et al. (2003), the researchers found that deficits in response generation mediated the relationship between social rejection ratings in kindergarten and aggression in grade 3. They also found that social rejection in grades 1, 2, or 3 predicted aggression five years later, and that attribution, response generation, evaluation, and enactment mediated this relationship. Similarly, using data from the same study, Lansford et al. (2010) found evidence for a cascading model of peer rejection, SIP deficits, and aggression, in which each variable was found to have subsequent effects on each of the others. Peer rejection at Time 1 predicted SIP deficits and aggression at Time 2, SIP deficits at Time 1 predicted peer rejection and aggression at Time 2, and aggression at Time 1 predicted peer rejection at Time 2. Therefore, deficits in SIP have been found to not only predict aggression in children, but also to mediate relationships between other social deficits and aggression. Furthermore, there is evidence to suggest that individuals who have SIP deficits

as children will carry those deficits with them into adulthood, as well as the associated aggressive behaviours (Fite, Bates, Holtzworth-Munroe, Dodge, & Nay, 2008).

Surprisingly little research has investigated whether SIP deficits differ by gender. Some studies on children have shown that there may be some gender differences. For instance, Terzian, Fraser, Day, and Rose (2015) showed that following a program aimed at improving SIP in third grade students, boys showed reductions in aggressive behaviour and increases in positive social goals, but girls did not. Yagmurlu (2014) found that preschool girls made more nonhostile attributions than boys. Calvete and colleagues (Calvete & Orue, 2010; Calvete, Orue, Gamez-Guadix, & Lopez de Arrayobe, 2016) have examined models of SIP deficits and dating aggression in teenagers and have found some path differences. Some of their findings have suggested that aggressive response access might be more stable across time for boys than for girls; that the relationship between dating aggression and positive consequences was stronger for boys than girls; and that boys had higher scores on proactive aggression (e.g., using aggression to obtain positive outcomes, rather than for revenge), justification of violence, and narcissistic schemas than girls. Finally, Ambrose and Gross (2016) studied SIP deficits in college men and women in response to a vignette involving unwanted sexual advances and concluded that men and women interpreted the situation differently. Given its relation to aggression and its potential for showing gender differences, SIP may be an important framework for conceptualizing intimate partner violence (Murphy, 2013).

Social Information Processing and IPV

Research by Holtzworth-Munroe and colleagues in the 1990s was the first to suggest a possible link between social information processing and intimate partner violence. In their initial study, Holtzworth and Anglin (1991) interviewed 56 men living with female partners and used

the Conflict Tactics Scale (Straus, 1979), a measure of the frequency of specific violent acts perpetrated by oneself or one's partner, and a measure of relationship satisfaction to classify the men as being in violent relationships, distressed relationships, or nonviolent/nondistressed relationships. The researchers then presented the men with problematic marriage scenario vignettes in which the female partner in the vignette behaved in a way that might be interpreted negatively by the men (e.g., woman rejected her partner, challenged her partner, teased her partner) and the men were asked to provide possible responses to the scenario. The researchers coded the competency of the men's responses, assessing Step 4 of the SIP model. They found that there were significant differences in the competency of men's responses, in which violent men generally provided less competent responses than nonviolent/nondistressed men. Violent men provided significantly less competent responses than nonviolent men particularly when the vignette involved rejection from the female partner, challenges by the female partner, or jealousy. The authors also found that there were few differences in competency between the violent and distressed men, suggesting that distress in a relationship may be an important factor in predicting or explaining SIP deficits.

In a similar study that included violent, nonviolent but distressed, and nonviolent/nondistressed couples, Anglin and Holtzworth-Munroe (1997) found that those in violent relationships tended to provide less competent responses. In this study, the authors provided both marital and nonmarital situation vignettes and assessed both the first and second response for each. They found that in general, violent individuals responded less competently than both nonviolent/distressed and nondistressed couples, and that the greatest observed difference was in their first responses to marital situation vignettes. These findings further suggest that perpetrators of violence may have more SIP deficits in general, but that these

deficits are particularly pronounced in problematic marital situations. It is also noteworthy that their first responses tended to be the least competent, as these are more likely be the responses enacted in "the heat of the moment" in a real-life situation.

A few studies conducted in the late 1990s found similar results. For example, Holtzworth-Munroe and Stuart (1994) reported that violent men were more likely to interpret their wives as having hostile intent. In a study in which couples were brought into the lab to discuss a personal problem, violent men displayed more negative behaviours (e.g., belligerence, anger) and were more critical of their wives' solutions to personal problems (Holtzworth-Munroe, Stuart, Sandin, Smutzler, & McLaughln, 1997). Furthermore, some researchers found evidence for SIP deficits mediating the relationships between other variables and violence. Byrne and Arias (1997) found that negative attributions of responsibility (i.e., blaming the partner for the problematic behaviour) mediated the relationship between marital satisfaction and physical aggression for wives but not for husbands. The researchers suggested that this gender difference might reflect that women's perpetration is motivated more by attributional processes than is men's perpetration. In contrast, in a sample of 57 men with substance abuse problems, Copenhaver (2000) found that measuring negative attributions of responsibility was able to effectively group violent and nonviolent men and that violent men generated less competent coping responses. In investigating a potential pathway by which aggressive men make poorer coping responses, Copenhaver (2000) found that negative attributions mediated the relationship between physical aggressiveness and poor coping response such that increased physical aggression was related to more negative attributions, which in turn were related to poorer coping responses.

Research in this area dwindled for a number of years but has been revisited in a number of more recent studies. Taft, Schumm, Marshall, Panuzio, and Holtzworth-Munroe (2008) used problematic marital situation vignettes to assess negative cognitions in 164 couples and SIP deficits were related to a number of other variables known to predict aggression. The authors found that the SIP deficits mediated the relations between childhood parental rejection and physical aggression. In other words, experiencing more childhood parental rejection predicted increased SIP deficits, which in turn predicted physical aggression. SIP deficits also mediated the relation between posttraumatic stress symptoms and psychological abuse perpetration such that more posttraumatic stress symptoms predicted more SIP deficits, which in turn predicted more psychological abuse perpetration.

In another study of spouses, 71 couples categorized as violent, distressed, or nonviolent/nondistressed were asked to discuss a marital problem in a lab setting and were then shown the video individually and asked to relay what they were thinking during the discussion and what they thought their partners were thinking (Clements & Holtzworth-Munroe, 2008). In general, as found in previous research, violent spouses, regardless of gender, had more aggressive cognitions than distressed or nonviolent/nondistressed spouses. Furthermore, violent spouses also inferred that their partners had more aggressive cognitions, with women having inferred more aggressive cognitions of their spouses than did men of their wives. These findings were corroborated by objective raters who found that, regardless of gender, violent spouses had more aggressive cognitions. Objective raters also identified more aggressive cognitions in all partners than did either of the partners involved. This latter finding suggests that individuals may not be aware of the extent to which they make negative attributions and have aggressive cognitions.

The wave of more recent research on SIP and partner violence has also begun to explore these interactions in younger samples who are in dating relationships. One of the only published studies to date exploring SIP in emerging adult relationships found strong mediation effects of SIP deficits. Fite et al. (2008) conducted a longitudinal study on 585 children, following them into adolescence. They found that deficits in evaluating responses (i.e., Step 5 in the SIP model) mediated the relation between interparental conflict and romantic relationship conflict. The authors further found that response generation (Step 4 of the SIP model) accounted for almost all the variance in the relation between interparental conflict and later romantic relationship conflict, accounting for 36% of the variance in response evaluation (Step 5). However, the authors found no significant mediation for the earlier stages in the SIP model. This finding suggests that response generation may be a strong predictor of dating aggression in adolescent relationships.

A similar study conducted using the same sample as Fite et al. (2008) found evidence for the domain specificity of social cognitive deficits (Petit, Lansford, Malone, Dodge, & Bates, 2010). Specifically, the researchers presented participants with both peer-related and romantic-relationship problematic situation vignettes to investigate if the type of scenario would have different relations with aggression. They found that peer SIP deficits, as measured by composites of deficits at Steps 2, 4, and 5, mediated several relations: the relations between harsh parenting and later peer violence; social rejection and later peer violence; and adolescent partner victimization and later peer violence. They also found that victimization by a romantic partner predicted aggression towards peers in adulthood and that this relation was mediated by deficits in peer SIP. These findings suggest that there may be different predictors for different types of aggression and that domain-specific SIP deficits may be more accurate in predicting violence in similar scenarios.

Murphy (2013) made a strong argument for the use of SIP as a unifying biopsychosocial theory for explaining intimate partner violence. Murphy argues that there is no comprehensive theory of IPV, as the theoretical perspectives in the field are often not able to explain some of the research findings in the literature. For example, feminist theories arguing that violence is primarily male perpetrated due to patriarchal social structures that oppress women are unable to explain why not all men are violent or why women also perpetrate violence. Similarly, theories emphasizing couple dynamics argue that relationship factors contribute to the development of aggression, but are unable to explain why individual development and personality factors also predict abuse. Murphy (2013) has suggested that SIP may provide a biopsychosocial theory that can be used to explain partner violence because several psychosocial factors have been linked. For instance, 60% of male abusers have experienced traumatic brain injuries, which have been associated with executive functioning deficits (i.e., neurocognitive deficits; e.g., Pinto et al., 2010). Executive dysfunction has been found to be associated with more distorted cognitions, such as those seen in poor SIP, and some studies have shown that SIP can account for the effects of trauma and posttraumatic stress disorder symptoms on IPV. Furthermore, Dodge and Crick's (1994) reformulated model can also make sense of personality variables in contributing to aggression, as emotion, attitudes, biases, and cognitions are all considered relevant at Step 2 of the model. Murphy (2013) also proposed that as there are no effective interventions for partner violence, training in SIP may provide a useful avenue for rehabilitating abusers, as interventions for children have been shown to be effective (Dodge & Godwin, 2013).

With respect to coercive control, very little research has examined correlates and causes of coercive control (Kaplenko et al., 2018) and to date SIP has not been used in any studies to predict coercive control. That being said, Day and Bowen (2015) have suggested a self-

regulation model of coercive control that comprises many elements that fit with the SIP model. Day and Bowen (2015) drew their model from the sex offender literature and adapted it for explaining IPV and coercive control more specifically. They suggested that beliefs about gender and patriarchy are established early in development (like Step 2 from the SIP model). Those beliefs, paired with early experiences in dating relationships, predict increased desires for power and control in their relationships. Perpetrators then develop goals (Step 3) around power and control that are influenced by positive beliefs about abusive behaviour; they select strategies that serve those goals (step 5); enact those strategies; and achieve victim compliance, which reinforces their goals and beliefs and makes them more likely to generate, select, and use that strategy in the future. As Day and Bowen (2015) state: "these perpetrators draw on their past experience about how victims will react to their violence and coercion, which then facilitates decision-making that is largely automatic and out of conscious awareness in the commissioning of new offenses" (p. 67). Given the similarities between this theory and the SIP model, SIP deficits may be an important avenue of investigation for predicting coercive controlling behaviours.

Currently, research on SIP and IPV is too sparse to draw solid conclusions with respect to SIP deficits and their relation with intimate partner violence. There are many limitations even within the literature that is available that would have to be addressed before SIP could be accepted as a theoretical framework for IPV. First, most research to date has been conducted by a select number of researchers, with the majority of studies emerging out of the lab of Holtzworth-Munroe. Thus, these findings need to be further explored by other researchers to replicate the findings in this area. Furthermore, these relations need to be examined in different contexts (e.g.,

different types of abuse, different types of relationships), as most research has focused on physical violence in marital relationships.

A study conducted by Setchell, Fritz, and Glasgow (2017) attempted to address some of these limitations by using couple-level data from a university population, as opposed to married couples, to conduct actor-partner model analyses using the actor-partner interdependence model (APIM; Kenny, Kashy, & Cook, 2006). The authors included actor effects, partner effects, and Actor X Partner interactions to explore the effects of negative emotions and SIP deficits on physical IPV perpetration and victimization. Their study was also novel in that they included a measure of emotion in the analyses. They found significant effects at the actor level and Actor X Partner levels of analysis. Specifically, actors' SIP deficits at Step 4 (i.e., generating possible responses) predicted IPV perpetration and victimization. In addition, results suggested that when participants' negative emotions and SIP competency were discrepant from their partners', participants were more at risk for perpetration and victimization. For example, the greatest risk for partner violence was among those who had low negative emotions but whose partners had high negative emotions, as opposed to couples for whom both partners had high negative emotions, or for whom both partners had low negative emotions. These findings suggest that in order to fully understand perpetration and victimization of intimate partner violence, research should focus on interaction effects between couples as well as individuals' own variables.

A second limitation is that, to date, most research has focused on SIP in predicting the perpetration of physical aggression (e.g., Anglin & Holtzworth, 1997; Setchell et al., 2017). However, research suggests that psychological violence and controlling behaviours may be the most psychologically distressing forms of violence experienced by both men and women (e.g., Hardesty et al., 2015; Hines & Douglas, 2011; Myhill, 2015). In addition, no research has

examined how SIP deficits might relate to coercive controlling behaviour in intimate relationships. In the current study, I seek to address this gap in the literature by examining how SIP deficits are related to overall IPV (including physical, sexual and psychological violence), as well as coercive control.

Finally, a limitation when studying SIP deficits and their effects on aggression is the methodology; most studies exploring SIP in both children and adults utilize vignettes in order to access participants' social cognitive processes (e.g., Dodge et al., 2003; Taft et al., 2008). However, these methods may not be accurately assessing SIP deficits or competence for several reasons. First, participants are given an unlimited time to respond and therefore may be able to generate and select more competent and socially desirable responses than they would in more realistic social situations where they might react more impulsively. Furthermore, research from dual-process theory suggests that there are some aspects of decision making that are automatic, quick, less effortful, and unconscious (i.e., intuitive processes), whereas other aspects require more effort, are slower, and require conscious awareness (i.e., reflective processes; Stanovich & Topiak, 2012). SIP is a process that would typically occur more unconsciously and would therefore contain more elements of being an intuitive process. However, by assessing SIP deficits through individuals' responses to hypothetical vignettes and asking them to write, say, or choose their response from multiple options, a process that is normally implicit becomes explicit. As research by Eckhardt et al. (2012) suggested, implicit responding on a task may differ from explicit responding. This may be especially true of behaviour such as those reported on in aggression studies in which social desirability likely results in underreporting of maladaptive behaviour.

Current Study

Drawing upon SIP theory (e.g., Crick & Dodge, 1994; Dodge & Crick, 1990; Lemerise & Arsenio, 2000), in the current study, I attempted a near replication of Setchell et al.'s (2017) findings to strengthen the literature base by examining the couple-level impact of SIP deficits on physical, sexual, and psychological IPV at the actor, partner, and Actor X Partner levels in an emerging adult sample using structural equation modelling. I collected data from 109 couples from the University of Windsor, who completed measures of demographics, IPV, and coercive control. In addition, participants read vignettes about conflict situations occurring in a romantic relationship and answered questions assessing Steps 2, 3, 4, and 5 of the SIP model (Holtzworth-Munroe & Anglin, 1991; Holtzworth-Munroe, 1997).

However, in the current study, I made several alterations to expand Setchell et al.'s (2017) study. First, given that Step 3, the goal-identifying step of Dodge and Crick's (1994) SIP model, had not yet been examined in relation to IPV, I investigated whether deficits at the goal-identifying level were also related to IPV. Second, although Setchell et al. (2017) examined only physical IPV, I sought to extend these findings to all forms of IPV, including physical, sexual, and psychological violence, as these problems are prevalent in emerging adult romantic relationships and have been understudied in relation to SIP. There appears to be no consensus in the literature as to whether these types of aggression should be combined into a composite of aggression or examined separately. In fact, there is surprisingly little research that examines all three types of violence (Hamby, 2009; Jackson, 1999) and those who have studied it, often examine the three types and their relationships to other variables separately (Carr & VanDeusen, 2002a; Harned, 2002). It is more common to see only physical violence (e.g., Brown et al, 2009; Straus, 2004), or only physical and psychological violence compared (Amar & Gennaro, 2003;

Hegarty et al., 2013). As noted by Hamby (2009) and Archer (2000), sexual violence is not often included in studies of dating violence, though physical and sexual assault have been found to be associated for women (Stets & Pirog-Good, 1989). Hamby (2009) has suggested that sexual intimacy is an important part of romantic relationships and as such, sexual violence is an important form of partner violence. Hamby also suggests that sexual violence is the most consistently gender asymmetric form of violence and that excluding it may dilute gender effects. Therefore, in the current study, I examined all three forms of violence combined into a latent variable in the model (see Figures 1 and 2). The third way in which my study extended past research is that it also examined the relation between SIP deficits and coercive control, as SIP has not yet been studied in relation to control, despite growing research on coercive control and the suggestion that it may help distinguish more serious forms of violence. Finally, I assigned half of the participants to complete the vignettes in timed conditions and the other half in untimed conditions to assess whether time pressure increased reported SIP deficits, given that vignettes make normally implicit processes explicit ones, and respondents' first responses are likely more impulsive and less competent.

Hypotheses

Hypothesis 1. It was hypothesized that individuals' SIP deficits at Steps 2, 3, 4, and 5 would be correlated, as theory suggests that deficits at early steps are related to deficits at later steps (Crick & Dodge, 1994; Dodge & Crick, 1990; Setchell et al., 2017). Thus, I expected that individuals who made more negative attributions about their partners' behaviour would choose less competent goals (Step 3), generate less competent solutions (Step 4), and select less competent solutions (Step 5). I further expected that individuals who chose less competent goals

would generate less competent solutions and select less competent solutions, and that individuals who generated less competent solutions would select less competent solutions.

Hypothesis 2. To date, research has not examined how limiting the amount of time to respond might affect responses to SIP. However, based on the reasoning that doing so might make participants' responses more automatic with less conscious consideration, and that dual-processes theory and past research (e.g., Echkhardt et al., 2012) have suggested that implicit attitudes are more predictive of aggression than explicit attitudes, I expected that individuals in the timed condition would demonstrate greater SIP deficits at all steps (i.e., Steps 2, 3, 4, and 5) of the SIP process, compared to those in the nontimed condition. Specifically, I proposed that individuals in the timed condition would make more negative attributions about their partner's behaviour in the vignette, choose less competent goals, generate less competent solutions, and select less competent solutions.

Hypothesis 3. It is hypothesized that there would be significant actor effects (see actor paths of Figures 1 and 2), such that individuals with greater SIP deficits (across Steps 2, 3, 4, and 5) would report perpetrating and experiencing more physical, sexual, and psychological IPV, as this has been found in previous research investigating physical and sexual aggression (e.g., Fite et al., 2008; Holtzworth-Munroe & Anglin, 1991; Holtzworth-Munroe, 1997; Setchell et al., 2017). I also expected that individuals with greater SIP deficits would report more coercive controlling behaviour and victimization than individuals with fewer SIP deficits (see actor paths of Figures 3 and 4). Though this has not yet been explored in the research, Day and Bowen's (2015) model of self-regulation suggests that attitudes, goals, and response generation and selection might be predictors of coercive control.

Research Question 1. Some research has shown gender differences in SIP and gender differences in the relation between SIP and partner violence (e.g., Calvete & Orue, 2010; Calvete et al., 2016; Clements & Holtzworth-Munroe, 2008). However, the literature is too sparse to make predictions about gender differences in overall SIP deficits and their relation to IPV and coercive control. These relations were therefore investigated as an exploratory research question: does the relationship between SIP deficits and (a) IPV, and (b) coercive control differ by gender?

Research Question 2. Given that little past research has shown effects of individuals' partners' SIP deficits predicting individuals' physical, sexual, and psychological IPV or coercive control perpetration or victimization (i.e., partner effects), I sought to answer the question: are there partner effects of SIP on IPV and/or coercive control? (see partner paths of Figures 1-4).

Research Question 3. Setchell et al. (2016) found some evidence of Actor X Partner effects of SIP deficits on IPV, but there is too little research on Actor X Partner interactions in the area to make strong predictions. I therefore asked: are there interactions between actor- and partner-reported (i.e., Actor x Partner) SIP deficits in predicting physical, sexual, and psychological IPV and coercive control (see Figures 1-4)?

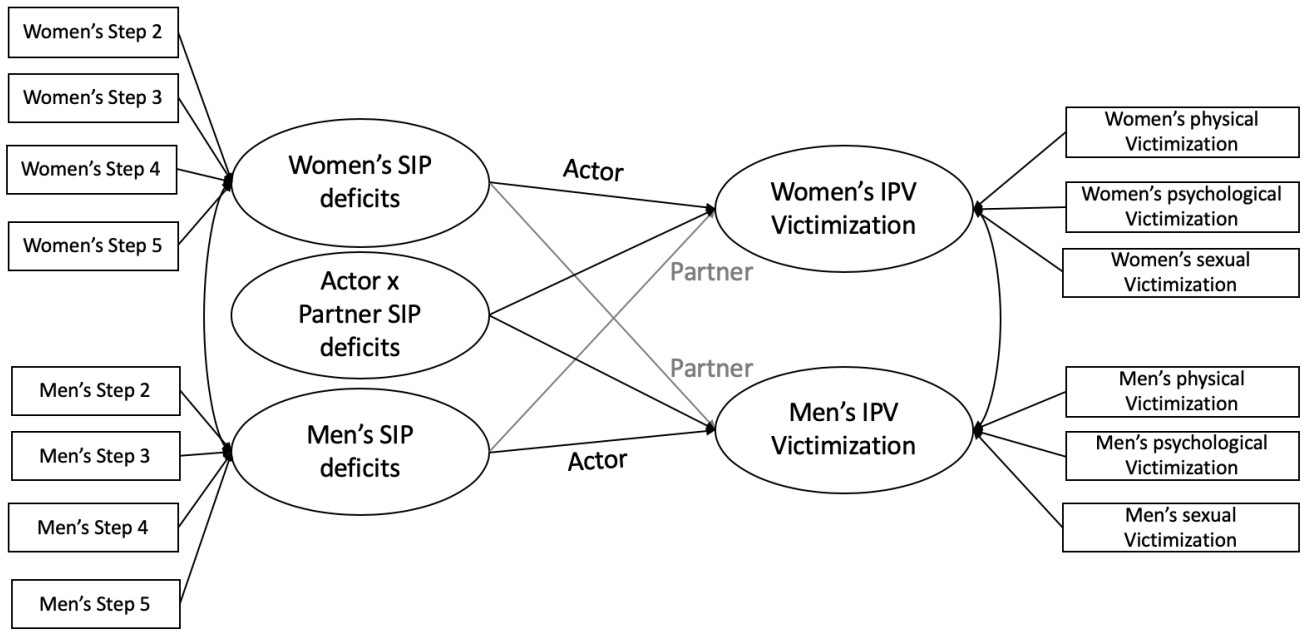

Figure 1. Social information processing (SIP) deficits predicting intimate partner violence (IPV) victimization using the actor-partner interdependence model.

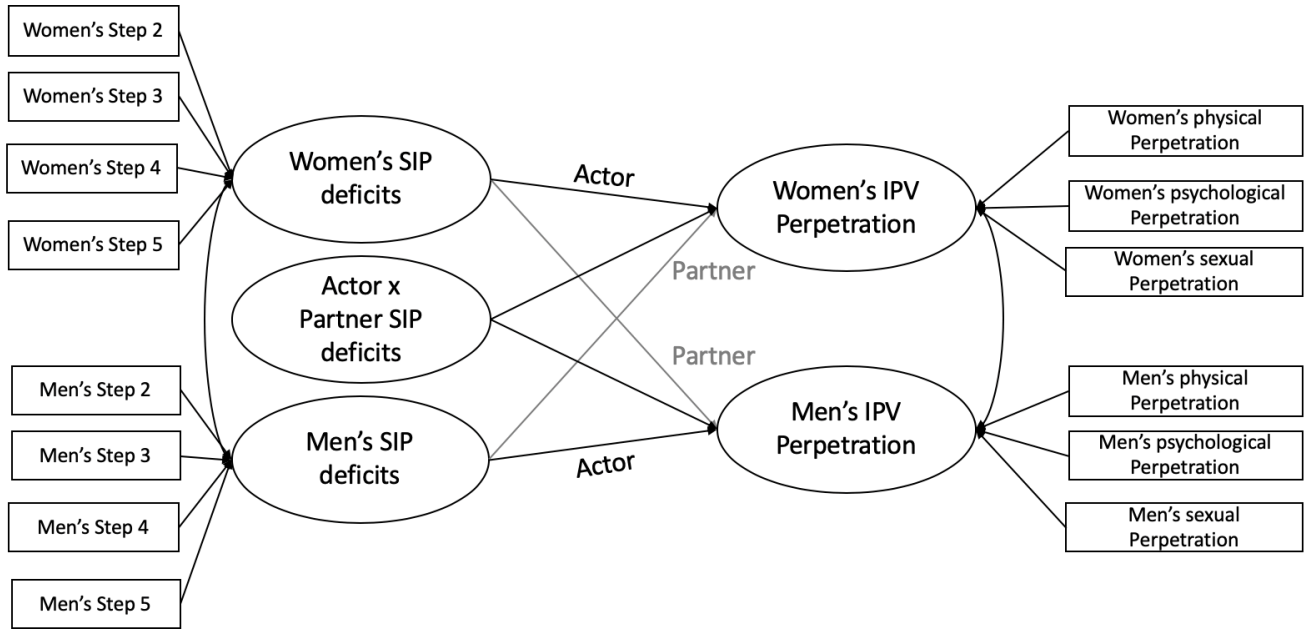

Figure 2. Social information processing (SIP) deficits predicting intimate partner violence (IPV) perpetration using the actor-partner interdependence model.

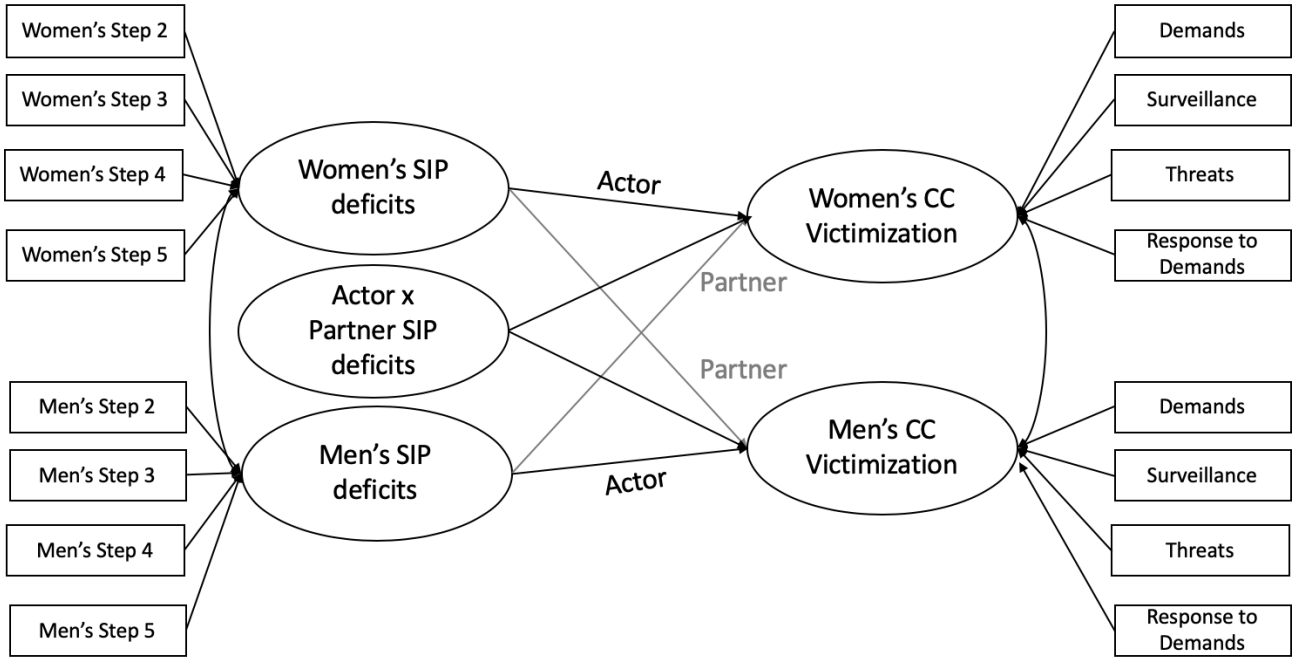

Figure 3. Social information processing (SIP) deficits predicting coercive control (CC) victimization using the actor-partner interdependence model.

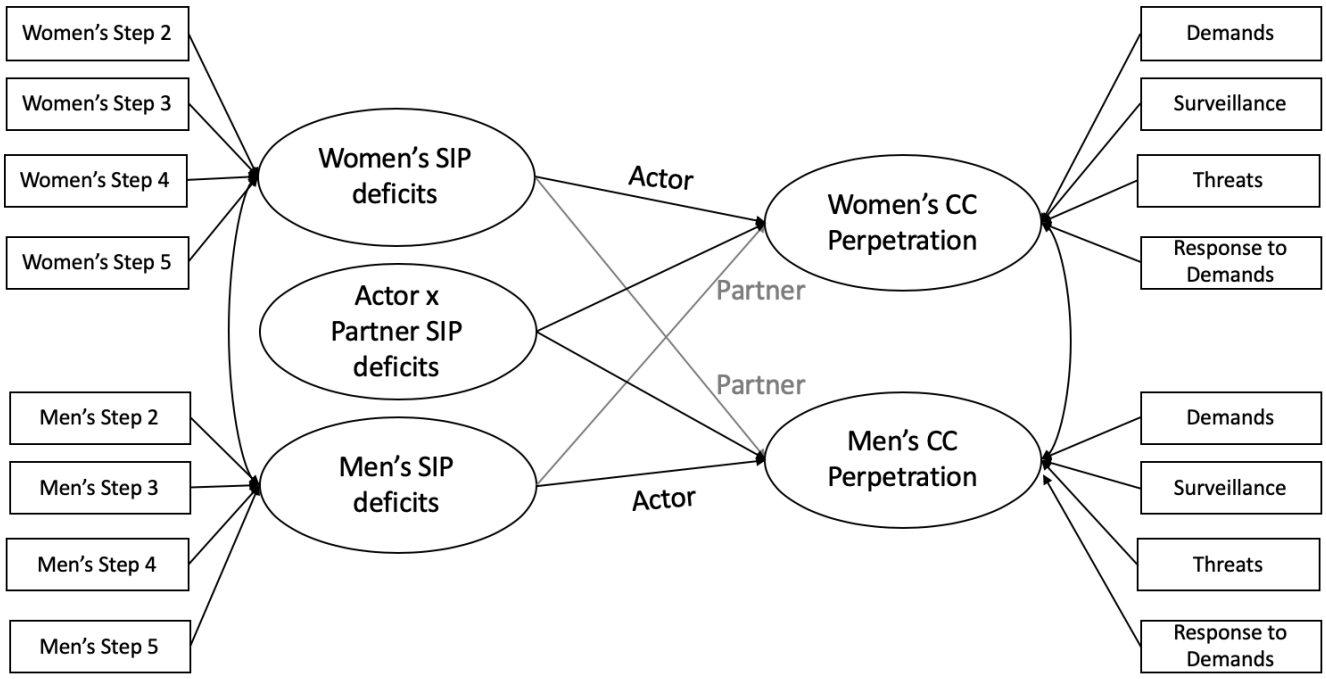

Figure 4. Social information processing (SIP) deficits predicting coercive control (CC) perpetration using the actor-partner interdependence model.

CHAPTER II

Method

Participants

I collected data from 111 couples who reported being in a heterosexual dating relationship for at least three months. Two male partners withdrew their data from the study, resulting in a total of 109 dyads ($N = 218$). An examination of the female partners' data for these two cases showed below average levels of violence and control perpetration and victimization. In addition, in regards to the emotion checklist data for these two couples, there were no negative emotions above a rating of 5 endorsed by any of the participants (though one male participant rated "sad" as 4), and there were no safety concerns endorsed by any of the participants.

Participants were recruited primarily through the University of Windsor participant pool (104 couples) and were asked to bring their partners into the lab to participate in the study (Appendix B). One couple was recruited from posts to social media, one was recruited through posters posted at St. Clair College, and three couples were recruited through advertising (e.g., posters, booths in the student centre) on the University of Windsor campus. Participants recruited through the participant pool received 2.5 bonus points for completion of the study, and all other participants received monetary compensation ($15.00) and the opportunity to enter their name and e-mail address into a draw for one of four $30.00 gift cards for the local mall. Most men who participated in the study were recruited from the community (69.7%) and most women were recruited from the participant pool (81.7%). A chi-square test showed that significantly more women than men were participant pool participants who brought in their partners from the community, χ^2 (1, $N = 218$) = 59.76, $p < .001$. Specifically, 72 women were pool participants who recruited their partners from the community and 37 were not (e.g., either not pool

participants or were pool participants whose partners were also from the pool), whereas only 16 men were pool participants who recruited their partners from the pool and 93 were not. The study took between 30-90 minutes to complete. Participants' average age was 20.24 years old (ranging from 17-33, *SD* = 2.18) and the majority of the sample identified as White (67.4%), heterosexual (89%) full-time students (87.2%). Demographics are reported in Table 1.

Table 1

Demographic Information

Variable	*n*	%
Gender		
Male	109	50
Female	109	50
Sexuality		
Asexual	9	4.1
Bisexual	7	3.2
Heterosexual	194	89.0
Pansexual	5	2.3
Not listed	2	0.9
Missing	1	0.5
Ethnicity		
First Nations/Inuit/Metis	1	0.5
Asian	17	7.8
South Asian	5	2.3
Black	10	4.6
Latinx	4	1.8
Middle Eastern/North African	13	6.0
Pacific Islander	2	0.9
White	147	67.4
West Indian	1	0.5
Mixed	18	8.3
Missing	1	0.5
Year in university		
First year	46	21.1
Second year	52	23.9
Third year	45	20.6
Fourth year	41	18.8
Other	34	15.6
Full or Part Time		
Full-time student	190	87.2
Part-time student	17	7.8
Other	11	5.0
Where were you born?		
Canada	176	80.7
US	7	3.2
Outside Canada or the US	35	16.1

Where do you live?		
Parental home	146	67.0
In residence (alone)	4	1.8
In residence (shared)	6	2.8
Off-campus (alone	6	2.8
Off-campus (with significant other)	14	6.4
Off-campus (with roommates)	37	17.0
Other	5	2.3

Measures

Participants were presented with questionnaires in the following order:

Demographics. Participants were asked demographic questions such as age, sex, gender/gender identity, sexual orientation, ethnicity, country of origin, years in Canada, and education (Appendix C).

Marlowe-Crowne Social Desirability Scale Short-Form C (MCSDS Form C). Reporting on intimate partner violence victimization and perpetration might be subject to self-favorable responding; in fact, perpetration has been found to be related to social desirability in some studies (Hamby, 2009; Sugarman & Hotaling, 1997). Thus, I used the MCSDS Form C (Reynolds, 1982) as a control variable to assess social desirability. The MCSDS Form C is a brief form of the original 33-item measure (Crowne & Marlowe, 1960), containing only 13 true (1) or false (2) items, with 5 reverse coded items. The measure is designed to assess participants' tendencies to provide socially desirable responses. Items reflect either highly culturally desirable behaviours that are typically performed infrequently (e.g., "No matter who I'm talking to, I'm always a good listener") or culturally undesirable behaviours that are typically common (e.g., "I sometimes feel resentful when I don't get my way"). Higher scores indicate higher likelihood of responding in a socially desirable manner. The scale is correlated with other measures of social desirability (Reynolds, 1982) and has good internal consistency ($\alpha = .89$; Fischer & Fick, 1983). Internal consistency in the current study was questionable ($\alpha = .61$), as were inter-item correlations. Summed scores were used in the analysis.

Hypothetical conflict situation vignettes. I used hypothetical conflict situation vignettes describing conflict scenarios within dating relationships to assess SIP abilities (Appendix D). The vignettes used in this study have been used in similar research (Setchell et al., 2017),

including the original SIP research by Holtzworth-Munroe and Anglin (1991), and represent a variety of conflict scenarios including rejection, abandonment, betrayal, and jealousy. Some modifications were made to the vignettes to make them more appropriate to emerging adult couples. As couples at this age may not be cohabitating, one of the original vignettes from Holtzworth-Munroe and Anglin (1991) that dealt with arriving home to find the house a mess (e.g., "…things aren't picked up, the television is blasting, the kids are running around screaming") was replaced by a vignette from Holtzworth-Munroe (1997), which dealt with a frustrating situation dating couples are more likely to experience (i.e., vignette 9, in which the participants imagine their partner telling an embarrassing story about them). In addition, pronouns were changed to be gender neutral and to better reflect dating couples (i.e., used "partner" instead of "wife" or "husband"). Some vignettes were changed to better reflect young adult participants who might be attending school instead of working (e.g., used "you are relaxing one evening after a long day" instead of "you are relaxing one evening after work"). Similarly, some activities were changed to better reflect activities that dating couples, as opposed to married couples, might do together (e.g., "you have reservations at a new restaurant in town" instead of "you have an appointment together").

The vignettes were pilot tested on students in committed relationships when they were first constructed to ensure that they were perceived as realistic, moderately important, somewhat difficult or uncomfortable to handle, and were sufficiently ambiguous to evoke varied responses from participants (Holtzworth-Munroe & Anglin, 1997). Holtzworth-Munroe and Anglin (1997) also ensured that these criteria were met for both men and women in married couples. In addition, Setchell (2014) pilot tested the modified versions I used in this study on students in dating relationships and found that they were sufficiently realistic, moderately important, and

somewhat difficult and uncomfortable to handle. Setchell (2014) also found no gender differences, suggesting that both the original and the modified vignettes used in this study are appropriate for assessing SIP abilities in emerging adult participants in dating relationships. In the current study, a pilot study ($N = 19$) showed that participants found the vignettes sufficiently realistic, important, somewhat difficult and uncomfortable to handle, and participants provided responses ranging from competent to incompetent (see Appendix E). Similar to Setchell's (2014) study, there were no gender differences in participant perceptions of the vignettes based on pilot data.

Negative Intentions Questionnaire (NIQ). The NIQ was originally developed by Holtzworth-Munroe and Hutchinson (1993) to assess how individuals might attribute negative intentions to their partners' actions (i.e., Step 2, attribution, in the SIP model). The measure consists of five questions for each vignette where participants rate how much they agreed or disagreed with each of the negative intentions. For example, one item is "He/she was trying to… make me angry; hurt my feelings; put me down; get something for him/herself; pick a fight." In the current study, items that did not reflect hostile attributions were added to disguise the hypothesis including: "he/she was trying to help me get something I wanted", "he/she was not paying attention to what he/she was doing", "he/she was not thinking about me", and "he/she was trying to improve our relationship". Though these items were not used in composite scores or main analyses so that results of the current study could be compared with findings from existing literature more directly, the items did show some relations with NIQ total scores, such that the "not paying attention" and "not thinking about me" items were correlated in a positive direction (rs = .27 and .65, respectively, $p < .001$) and the "trying to improve our relationship" item was correlated in a negative direction ($r = -.15$, $p = .028$). The NIQ response scale is on a 6-

point Likert scale from 1 (*disagree strongly*), to 6 (*agree strongly*). Scores from the original 5 items were averaged for each vignette and were then averaged across all vignettes to generate a composite score, in which high scores indicated greater negative attributions and therefore more SIP deficits. Internal reliability generally ranges from good to excellent (e.g., α = .82 - .93) and was excellent in the current study (α = .93). The measure has been used in previous research examining SIP deficits and IPV (Copenhaver, 2000; Holtzworth-Munroe, 1997) and has been found to be associated with another measure of negative intent, as well as being correlated with other measures of SIP deficits at Steps 4 and 5.

Responsibility Attributions Questionnaire (RAQ). Another measure frequently used to assess attributions at Step 2 (attribution of intent) of the SIP model is the RAQ (Fincham & Bradbury, 1992). It was originally developed to investigate how married couples attribute blame and how blame attribution relates to marital satisfaction. In its original form, it consisted of six questions pertaining to either 4 or 8 stimulus events (e.g., "your husband criticizes something you say"). The original six questions that follow each item assess: causal locus (e.g., "My husband's behaviour was due to something about him, like the type of person he is, or the mood he was in"), stability of the behaviour (e.g., "The reason my husband criticized me is not likely to change"), how the behaviour affected other aspects of the marriage (e.g., "The reason my husband criticized me is something that affects other aspects of our marriage"), intentionality (e.g., "My husband criticized me on purpose rather than unintentionally"), motivation (e.g., "My husband's behaviour was motivated by selfish rather than unselfish concerns"), and if the behaviour was justified (e.g., "My husband deserves to be blamed for criticizing me").

However, the measure has been modified to better investigate attributions relevant to SIP deficits and the vignettes used in the current study. For instance, Setchell (2014) asked four of

these questions following each vignette, assessing the extent to which participants believed their partner acted selfishly and deserved to be blamed. For the current study, participants rated the following four statements on a 6-point Likert scale, ranging from 1 (*disagree strongly*) to 6 (*agree strongly*): "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." I used the altered wording as in Setchell (2014) to suit the nonmarital relationships of participants (i.e., partner, as opposed to husband/wife).. Scores were averaged across the four items for each vignette and then a composite score was calculated by averaging the scores across all nine vignettes. The original measure has been shown to have acceptable internal reliability (α = .77 - .89; Fincham & Bradley, 1992; Holtzworth-Munroe & Hutchinson, 1993; Setchell et al., 2017) and had good internal reliability in the current study (α = .86). Furthermore, the measure has been correlated with measures of marital satisfaction, anger, and attributions for actual partner behaviour (Holtzworth-Munroe & Hutchinson, 1993).

Clarification of a goal. Even among the literature on SIP deficits in children, very little research has measured or studied Step 3 of Dodge and Crick's (1994) model, clarifying a goal. The Conduct Problems Prevention Research Group has used a measure called "*What do you think?*" to assess SIP deficits in children (CPPRG, 1995). This measure includes an item that assesses a child's goal in a number of vignettes with three types of goals for each situation: retribution, problem solving, and avoiding the problem. For instance, in a vignette about a classmate playing with a video game with which another child wanted to play, three possible goals were rated on a 5-point scale from 1 (*YES, Definitely*), to 5 (*NO, Definitely not*): "You wanted to get back at the classmate for what he/she just did."; "You want to get along with this classmate and make sure you both get to play the computer game."; and "You want to get away

from the situation and avoid a problem with this classmate." The goals are summed for each type resulting in composite scores for retribution goals, problem solving goals, and avoidance goals. Modifications of these goals were used in the current study to reflect the content of the vignettes, and were designed so that they reflected each type of goal (i.e., retribution, problem solving, and avoiding the problem; Appendix F). The retribution goals are considered to represent SIP deficits at Step 3 and are most likely to lead to aggressive responses. Retribution goals have been found to be correlated with other SIP deficits in the expected direction (CPPRG, 1995).

In the current study, the rating scale was reversed and a scale point was added to make items rated on a 6-point Likert scale to be more consistent with other scales used in the study (1, *NO, Definitely Not* to 6, *YES, Definitely)*. Additional items were added based on research on motivations for violence, including items assessing control goals (e.g., "You want your partner to do what you want", "You want to control your partner"), problem solving goals ("You want to find a solution where you both get what you want"), and attention-seeking goals ("You want to get your partner's attention"). Exploratory factor analysis with Varimax rotation was used to factor the seven items on the Goals Scale to identify goals that hang together and to calculate composite scores. The best fit included two factors: more prosocial goals and more aggressive goals. One item, "You want to get your partner's attention", was dropped as it did not fit well on either scale (factor loadings < .40). The factor structure is located in Table 2. Internal reliability was acceptable for both scales (i.e., Prosocial $\alpha = .73$, Aggressive $\alpha = .73$). The Aggressive Goals subscale was used as a measure of deficient goal setting (SIP Step 3), with higher scores indicating more deficit.

Table 2

Rotated Factor Loadings for Items Comprising the Global Scale of the Study's Clarification of Goals Measure

Item	Prosocial goals	Aggressive goals
You want to get along with your partner.	.87	
You want to find a solution where you both get what you want.	.87	
You want to avoid a problem with your partner	.74	
You want to get back at your partner for what he/she did.		.72
You want your partner to do what you want.		.84
You want to control your partner.		.85

Note. Factor loadings less than .40 were not reported.

Coping Response Measure (CRM). The CRM was developed by Holtzworth-Munroe and Anglin (1991) and Anglin and Holtzworth-Munroe (1997) to assess Steps 4 (response generation) and 5 (response selection) of Dodge and Crick's model (1994). Participants are asked two open-ended questions: "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 "What *would* you say or do in the situation you just read about?" (selection of coping response). The number and competency of participants' responses were coded by seven undergraduate research assistants (RAs) and myself. Each coder coded approximately a quarter of the overall sample, with two coders assigned to code each quarter. Coders were blind to condition (i.e., timed vs untimed) and were randomly paired, such that they were not aware of who else was coding their subset of data, nor did they meet with their paired coder. RAs were trained to use the standardized coding system based on McFall's (1982) conceptualization of competent decision making that has been used in similar research (Anglin & Holtzworth-Munroe, 1997; Holtzworth-Munroe & Anglin, 1991). The coding manual, designed by Setchell (2014) for their dissertation, included an explanation of what types of responses are considered competent and incompetent for that vignette, along with multiple examples of competent, slightly competent, slightly incompetent, and incompetent responses for each vignette. Before coding data from the main study, RAs practiced coding 20 participants' data from Setchell's (2014) dissertation and once most variables had adequate intraclass correlation coefficients (> 0.70), they began coding the data from the current study. Undergraduate raters first coded the number of unique responses provided by participants. Responses that are variations of the same 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 differed in 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").

Raters used a 4-point scale based on the standardized coding system to rate each of the participants' responses on competency with the following scores: 1, *competent*; 2, *slightly competent*; 3, *slightly incompetent*; and 4, *incompetent*. The coding system described a *competent* response to be one that would likely solve the current problem and make similar problems less likely in the future (e.g., negotiating, mutually agreeing on a compromise, using open and direct communication, expressing thoughts and feelings in a respectful manner). A *slightly competent* response is a response that is effective problem-solving, but may reflect negative affect or indirect or vague forms of communicating (e.g., making light jokes, passively agreeing with the partner, hinting at requests, making indirect attempts to solve the problem). A *slightly incompetent response* is a response that has the potential to make the situation worse and may involve passive, negative, or indirect forms of communication, conveyed with a negative emotional tone or lack of tolerance or concern for the partner (e.g., saying or doing nothing, making sarcastic comments, ignoring partner's wishes, expressing negative emotions in an inappropriate manner). Finally, an *incompetent* response is a response that would not solve the problem and would likely make the situation much worse (e.g., using threatening statements, seeking revenge, calling the partner names, using verbal or physical aggression). Research assistants were provided with generic descriptions and specific examples of responses for each type of code and for each vignette from Setchell's (2014) dissertation. This method has been used in past research and has yielded good interrater reliability coefficients (e.g., $\alpha > .80$, Anglin & Holtzworth-Munroe, 1997; Copenhaver, 2000; Holtzworth-Munroe & Anglin, 1991). Similarly, raters counted the number of unique coping responses participants selected in the

second open-ended question (assessing response selection) and then rated the responses selected using the 4-point competency scale described above.

The average competency of response alternatives generated at Step 4 and selected at Step 5 was calculated for each vignette and averaged across all nine vignettes to create an overall competence score for response generation, and an overall score for response selection. Higher scores indicated less competent coping responses and less competent response selection, respectively. Interrater reliability was calculated using intraclass correlation coefficients and is considered "excellent" if ≥ .75, "good" if .60 -.74, "fair" if .40 -.59, and "poor" if < .40 (Cicchetti & Sparrow, 1981). Number of coping responses generated has also been used to assess Step 4 in previous research (e.g., Setchell et al., 2017). However, given that half of the participants had limited time to complete measures, and therefore likely generated fewer coping responses, only average competency scores and competency composites were used in the main analyses. ICCs of number of responses generated and selected were calculated for use in preliminary analyses.

ICCs for the current study showed good to excellent interrater reliability for counts and competency ratings for both the response generation (Step 4) and selection (Step 5) for each vignette (see Table 3), across the total sample and when calculated by participant gender. ICCs were also calculated for total competency of responses generated and selected averaged across all nine vignettes as the averaged scores are what were used in the main analysis. Total ICCs were excellent for number and competency of both response generation and selection, and when calculated by gender, with the exception of number of selected responses for women.

Table 3

Intraclass Correlation Coefficients of Social Information Processing Components

Scenario	Total sample				Men				Women			
	# generated	# selected	Comp. generated	Comp. selected	# generated	# selected	Comp. generated	Comp. selected	# generated	# selected	Comp. generated	Comp. selected
1	.92	.73	.86	.84	.94	.79	.87	.84	.90	.65	.84	.83
2	90	.61	.85	.80	.90	.65	.89	.81	.89	.56	.84	.80
3	.94	.77	.77	.85	.94	.65	.81	.89	.93	.82	.74	.70
4	.95	.79	.90	.89	.96	.78	.93	.90	.93	.80	.88	.88
5	.93	.77	.86	.77	.89	.78	.79	.68	.95	.77	.86	.84
6	.91	.74	.75	.66	.90	.66	.76	.64	.92	.78	.81	.72
7	.93	.81	.78	.75	.94	.82	.78	.68	.91	.80	.79	.81
8	.89	.71	.86	.78	.90	.72	.90	.83	.89	.71	.86	.76
9	.93	.83	.89	.87	.96	.84	.88	.86	.91	.81	.89	.90
Total	.96	.75	.91	.86	.97	.77	.93	.86	.96	.73	.90	.87

Note. ICCs are considered "excellent" if ≥ .75, "good" if .60 -.74, "fair" if .40 -.59, and "poor" if < .40.

Conflict Tactics Scales-Revised. The Revised Conflict Tactics Scales, or CTS2 (Straus, Hamby, Boney-McCoy, & Sugarman, 1996), is a 78-item frequency-based self-report measure of intimate partner aggression that is commonly used in studies of IPV. The measure contains several subscales: Negotiation (6 items), Psychological Aggression (8 items), Physical Assault (12 items), Sexual Coercion (7 items), and Injury (6 items). Items are paired such that respondents report whether they have been a perpetrator of each behavioural act, as well as if each behaviour has been used against them (i.e., victimization). In the current study, all subscales except Negotiation and Injury were used in the main analyses to assess multiple types of violence (i.e., physical, sexual, and psychological). Negotiation and Injury were collected but not included in the main analyses. However, as Negotiation is thought to measure adaptive and prosocial conflict resolution skills (e.g., compromising, listening to partner's point of view), I assessed whether it was related to other variables of interest. Injury was not used given the low base rate of perpetration and victimization in the current sample.

Psychological Aggression measures both verbal and nonverbal aggressive acts aimed to insult a partner or undermine a partner's self-esteem. Physical Assault measures mild to severe physically aggressive behaviours like slapping, throwing things, kicking, and using a weapon. The Sexual Coercion subscale measures sexually coercive and sexually aggressive behaviours like using force to make a romantic partner have oral or anal sex and insisting on sex when a romantic partner does not want to. Finally, the Injury subscale measures the extent to which respondents report causing or experiencing injuries that range from minor (e.g., bruises) to more severe (broken bones). The Injury subscale was used only for descriptive purposes and not in the main analyses, given that a very small number of participants endorsed perpetrating or being victim of injuries.

As the CTS2 is frequency based, participants reported how often over the past three months they used or experienced each behaviour on the following scale: *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). I calculated two overall CTS2 scores by summing the midpoints of each response range (shown in brackets above; Straus et al., 1996) separately for perpetration and for victimization. Higher scores on perpetration indicate a participant perpetrated a higher number of acts of aggression, whereas higher scores on victimization indicate a participant experienced a higher number of aggressive acts. The scales have consistently been found to have good internal reliability, with Cronbach's alphas ranging from 0.79 for the Psychological Aggression subscale to 0.95 for the Injury subscale (based on reports of aggression within a 12-month period). In addition, Straus et al. (1996) demonstrated that the measure was valid as the correlation between psychological or physical aggression and sexual aggression was higher for men than women, which would be expected based on previous studies. Similarly, Straus et al. (1996) found that there was a higher correlation between physical or sexual aggression and injury for men than for women. Physical aggression was associated with low social integration and negative relationships, and there were small correlations between negotiation and sexual aggression or injury. Notably, though the CTS2 has well-established reliability and validity, researchers have criticized the CTS2 for omitting the motivations for and the context in which the violence occurs. For example, this scale does not assess whether or not the violence was the result of escalating violence, resistance, or a way to gain control or what consequences occurred as the result of violence, other than injury.

In the current study reliability had acceptable internal consistencies for physical aggression victimization ($\alpha = .76$), but questionable internal consistencies for physical

aggression perpetration (α = .56), and psychological aggression perpetration and victimization (α = .62 and .50, respectively). The internal consistencies for Sexual Coercion subscales were especially low (perpetration α = .34; victimization α = .23). When calculated by gender, reliabilities were similar to the overall sample and between gender for most variables. However, a few variables showed markedly different reliabilities across gender, including physical aggression perpetration (women's α = .62; men's α = .06) and victimization (women's α = .80; men's α = .34), and sexual victimization (women's α = .36; men's α = .04). I examined if Cronbach's alphas would be improved by dropping scale items, but any improvements were minor and reliabilities were still questionable. Internal reliability improved for physical aggression perpetration (α = .75), sexual perpetration (α = .49), psychological perpetration (α = .69), sexual victimization (α = .37) and psychological victimization (α = .56) when alpha was calculated based on inter-item correlations (rather than covariances) and items with zero variance (i.e., no participants endorsed it) were dropped. Even when examined by inter-item correlations, most scales remained questionable, which is possibly due to the low base rate of individual item endorsement in the current sample.

Coercion in Intimate Partner Relationships (CIPR). To better assess the construct of "coercive control" defined in Dutton and Goodman's (2005) model, the researchers developed a 110-item measure to assess coercive control perpetration and victimization (CIPR; Dutton, Goodman, & Schmidt, 2005), in which each of the 110 items is asked to assess both perpetration and victimization. The measure assesses various aspects of their conceptualized model, including demands, threats, surveillance, and response to demands that have occurred within participants' romantic relationships in the past three months. A modified version was used in this study

(Daskaluk, 2015) that included items involving electronic forms of coercion, as these were thought to also be important means of coercion.

To assess demands, participants indicated whether their partners have made demands related to a number of behaviours (personal activities, appearance, social life, household, work, health, their intimate relationship, legal issues, immigration, or children). Some items include "wearing certain clothes," "spending time with friends or family members," "taking care of the house," "spending money," "using birth control," "doing things that are against the law," and "taking care of children." Next, participants indicated which behaviours their partners have done in order to see whether the participants have complied with the demands, such as "kept track of cell phone use" and "told you to report your behaviour to him or her." Threats were assessed by asking "What did your partner do or do you think he/she might do if you didn't do what he/she wanted?". Some behaviours are "keep you from leaving the house" and "say something mean, embarrassing, or humiliating." The items include behaviours that could cause harm to the participant, the partner him/herself/themselves (e.g., "threaten to commit suicide") or loved ones. Finally, the response to demands is assessed by asking what types of behaviours the participants did in response, such as "refused to do what he/she said" and "tried to distract your partner."

The questions are first asked to assess victimization and then the same questions are used to assess perpetration. In the original study, participants are required to select *yes* (coded 1) if they perpetrated or experienced the behaviour within the past year or *no* (coded 0) if they did not. In the current study, the rating scale of the CIPR was changed to a Likert scale to be more like the other aggression measure used (CTS2) and to other measures of coercion (e.g., Checklist of Controlling Behaviors, Lehmann, Simmons, & Pillai, 2012). Changing the scale also eliminated some of the limitations inherent in a binary yes/no scale (e.g., less information; potentially less

useful method of measuring coercive control; Hardesty et al., 2015). Participants rated if the behaviour happened to them on a scale ranging from 0 (*Never*) to 6 (*Very Often*). In addition, in the present study participants must have been in a relationship for a minimum of three months, and therefore answered how often over the past three months these behaviours occurred. Internal reliabilities in the current study were acceptable to excellent (α = .71 - .92), with the exception of threat perpetration, which was questionable (α = .66); internal reliability improved for threat perpetration (α = .74) when alpha was calculated based on inter-item correlations and items with zero variance were dropped.

Responses are summed separately for perpetration and victimization, such that higher scores indicate higher levels of perpetration or victimization of controlling behaviours. This measure is considered by the current researcher to be a good measure of Dutton and Goodman's (2005) definition of coercive control and is thought to provide more context to the aggression than solely using a measure of the number of violent acts. The measure has been found to be related to posttraumatic stress disorder, depression, threat of violence assessments, and fear in a sample of both men and women who were victims, offenders, victims and offenders, and neither victims nor offenders (Dutton et al., 2005).

Positive mood induction. After completing the measures, participants completed a positive mood induction activity where they were asked to think of a time involving their partner that made them feel positive emotions (e.g., happiness, contentment, excitement) and describe the positive aspects of the event (Appendix J). The purpose of this activity was to counter any negative emotions towards their partner or adverse effects of participating in the study that participants might have experienced.

Emotion Checklist. The Emotion Checklist has been used in previous research on partner violence to assess whether participants experienced negative emotions towards their partner because of the study (e.g., Clements & Holtzworth-Monroe, 2007, 2009; Appendix K). The checklist consists of 10 emotional states that are either positive (i.e., affectionate/caring, comfortable/relaxed, and happy) or negative emotions (i.e., angry/frustrated, contempt/disgust, afraid/scared, sad/discouraged, tense/anxious, jealous, and wanting revenge/vengeful). Participants were asked to select a point on the scale that described how they were feeling towards their partner at that very moment as a result of participating in the study. They rated on a 7-point Likert scale how much they felt that emotions, in which 1 = *not at all*; 4 = *somewhat*; and 7 = *a great deal*. Their responses to the items assessing negative emotions were combined to create an overall negative emotion score and their responses to the items assessing positive emotions were combined to create a positive emotion score.

Procedure

Couples were recruited for the main study through the participant pool or advertisements posted at the University of Windsor, St. Clair College, or on social media. They were required to come into a laboratory at the University of Windsor to complete an online survey that took approximately two hours to complete. Couples were directed to the common "meeting room" (presented in Figure 5) where the consent form was reviewed with the couple, including a description of the research, the procedure, the risks and benefits, compensation, and withdrawal procedures (Appendix I). Participants also were informed that their responses would be confidential, would not be shared with their partners, and would be de-identified once credit was awarded. Both members of the couples were given copies of the consent forms and research proceeded only if both members of the couple signed the consent form.

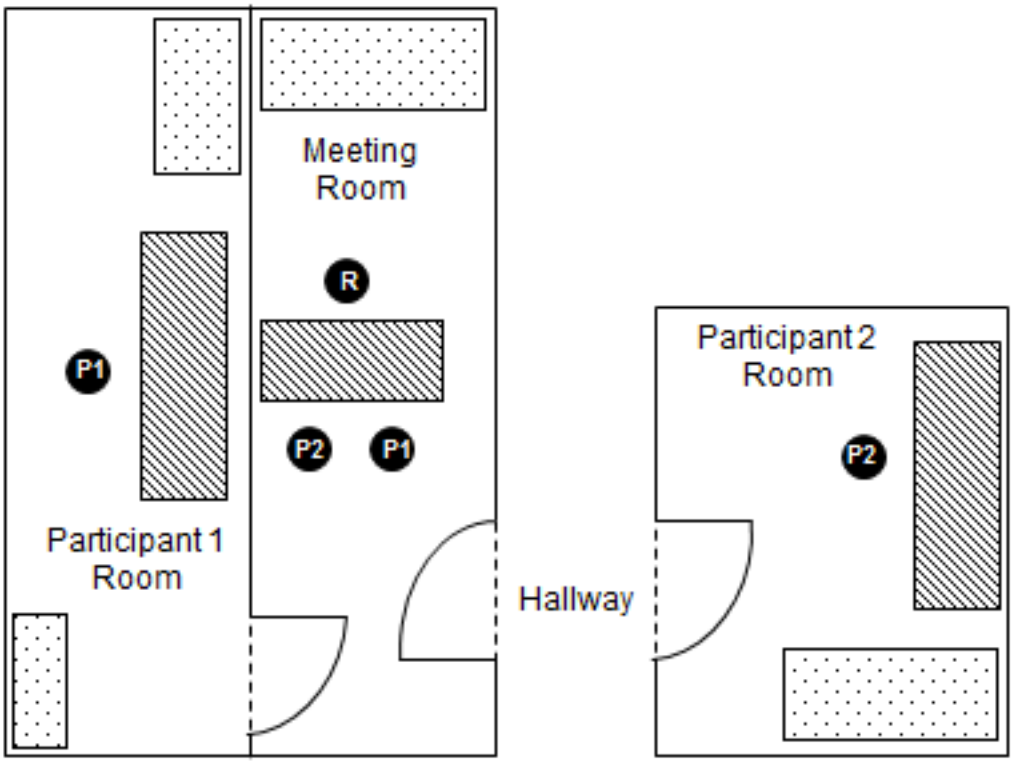

Figure 5. Laboratory configuration. R= researcher or research assistant; P1=female partner; P2= male partner.

After obtaining consent, partners were separated into different rooms to complete the study measures (Figure 5). The research assistant remained in the meeting room in case either participant had a question while completing the measures. In their separate rooms, participants completed an online survey; half of the couples were randomly assigned to complete the measure under timed conditions. First, participants completed the demographics and social desirability (i.e., MCSDS Form C) questionnaires. They then answered the nine vignettes in random order and completed measures assessing the following constructs in the order presented here: negative attribution (i.e., NIQ, RAQ), goal clarification, and coping response generation and selection (CRM). Each vignette was presented separately first to give the participant adequate time to read it thoroughly without time pressure. Once they clicked to go to the next page of the survey, those in the timed condition were shown the page time-limit at the top of the screen with a clock counting up and the online system automatically went to the next page once the time limit was reached. Each measure was presented on its own page to ensure that enough time was allocated for each measure. The time allocated for each measure was 0.5 standard deviations below the mean of the pilot study participants, to increase the time pressure; they had 43 seconds to complete the NIQ, 15 seconds to complete the RAQ, 22 seconds to complete the Goal measure, 62 seconds to complete the response generation question and 44 seconds to complete the response selection question. Participants in the timed condition were sometimes unable to finish their questionnaires (6.4% to12.3% were unable to finish one of the vignette's NIQ measure, 11.8% to 16.8% were unable to finish one of the vignette's RAQ measure, and 16.4% to 24.5% were unable to finish one of the vignette's Goal Clarification measure). Participants in the untimed condition were presented with the measures in a similar fashion, with each measure on

its own page with a clock counting up, but were given as much time as they needed to complete them.

Following the SIP measures, participants were asked if they left any of the answers blank. If they indicated "yes," they were asked to choose any of several options for why they left answers blank: "I did not have enough time to answer it"; "I could not think of anything to say"; "I had difficulties related to technology (e.g., the survey closed, the computer froze)"; "I did not feel like answering the question"; "I felt nervous because of the time limit and could not think of an answer due to nervousness/pressure (only presented to those in the timed condition)"; and "Other." Finally, participants completed measures of IPV (CTS2) and coercive control (CIPR), followed by a positive mood induction procedure to buffer against negative reactions participants may have had to completing the measures (Trope et al., 2001). Specifically, participants were asked to write about a positive memory of their partner in as much detail as possible (Appendix J). Participants then completed a paper-and-pencil version of an emotion checklist and the following question: "Do you feel safe leaving this study with your partner today?". They completed the emotion checklist and safety question with paper and pencil so that the research assistants could check participant responses and ensure participants' safety before participants left the study. Research assistants did not have access to participants' online study data; research assistants therefore were not able to check responses submitted by participants online. Participants' data (i.e., demographics, social desirability, social information processing, violence, and coercive control measures) were coded by participant ID and stored separately from identifying information.

Once participants completed the online survey questionnaires and the paper-and pencil emotion checklist and safety question, they notified the research assistant that they were finished

by opening the door to their room. The research assistant followed the safety procedures described in Appendix L. Specifically, the research assistant examined participants' responses to the safety question. If participants indicated they did not feel safe leaving with their partners, the safety procedures described in Appendix L were to be followed; however, no participants indicated that they felt unsafe leaving the study. Second, if participants endorsed a score of five or higher on any of the negative emotions on the emotion checklist, they were identified as having had a possible negative emotional reaction as a result of the study. Eight participants (3 women and 5 men) endorsed negative emotions of five or higher, with the most common emotion endorsed being "tense/anxious." Among men the most common emotion endorsed was "angry/frustrated" and among women was "tense/anxious." The two men who withdrew their data were not among those with high negative emotions, nor were their partners. The research assistant discussed the participant's ratings on the Emotion Checklist with the participant and used a series of guided problem-solving questions before reaching a satisfactory outcome (i.e., participants indicated they felt able to manage their negative emotions and/or had a strategy for reducing/addressing the emotion) and reuniting both members of the couple for debriefing and compensation. Debriefing consisted of providing both partners with a letter of information about the study and a list of community resources (Appendix N). If both members of the couple were registered in the participant pool, they received 2.5 bonus credits towards eligible psychology or business courses. For couples for whom only one member was registered in the participant pool, the pool participants received 2.5 bonus credits and their partners were provided with monetary compensation ($15.00) and the opportunity to enter their name and e-mail address into a draw for one of four $30.00 gift cards for the local mall.

CHAPTER III

Results

Assumptions

Missing data. Two participants were missing parts of the aggression measures (e.g., coercive control victimization questions) and thus were removed for the main analyses that involved aggression variables (i.e., hypothesis 3 and research questions 1-3). A missing values analysis was conducted on SPSS on the remaining participants for all main variables and covariates. Little's missing completely at random (MCAR) test was not significant, $\chi^2(96864, N = 218) < .001, p = 1.000$, but a large percent of item-level data was missing from the Negative Intentions Questionnaire (NIQ), Relationship Attribution Questionnaire (RAQ), and goals (ranging from 0.00-24.5% missingness) driven primarily by missingness for those who completed measures under timed conditions. Some additional variables had high levels of missingness. These included any questions relating to children and the items prompting respondents to provide "other" responses (i.e., other controlling behaviours not listed on the questionnaire) on the coercive control measure, so missing data on those variables were recoded as 0s. I then re-ran the missing values analysis. Little's MCAR was similarly nonsignificant, $\chi^2(85380, N = 218) < .001, p = 1.000$, and there was a range of nonignorable missing data on the NIQ, RAQ, and goals (up to 24.5% missing).

I re-ran Little's MCAR separately for each main variable of the study to identify particularly problematic variables, and found that Little's MCAR was significant for the Negative Intentions Questionnaire, $\chi^2(3212, N = 218) = 3506.40, p < .001$; the Relationship Attributions Questionnaire, $\chi^2(3795.53, N = 218) = 3795.53, p = .037$; and Goals, $\chi^2(6649.41, N = 218) = 6649.41, p < .001$, at the item level. Given the high percent of missing data and that the

missingness differed by condition (timed vs. untimed) and therefore could not be considered "missing completely at random," I used multiple imputation, calculated separately by experimental (i.e., timed) group, and ran the data with and without imputation. The results based on the imputed data sets were compared to the original data (Tabachnick & Fidell, 2013). Where there were differences in results, results are reported for both the imputed dataset and the original data set.

Outliers. The data were also examined for univariate and multivariate outliers on the main variables (i.e., Mahalonobis distance) and for any influential observations (Cook's distance). One outlier was found on Mahalanobis's distance due to high levels of reported violence perpetration and victimization, and three were found using Cook's distance. The outliers were examined to determine if they occurred in error (e.g., exceed the maximum) and should be dropped. However, they seemed to represent accurate data, and analyses were run that are considered robust to outliers (e.g., for SEM; Lee & Xia, 2006).

Normality. I also examined normality prior to the main analyses to ensure the data met criteria for conducting correlations, regression analyses, and structural equation modeling. Specifically, I assessed normality by examining histograms of the dependent variables and skewness statistics. Skewness and Kurtosis were in the acceptable range (between -2 and +2; George & Mallory, 2010) for the social information processing variables, social desirability, and a few coercive control variables (demand victimization and overall coercive control victimization). However, all other violence (perpetration and victimization of physical aggression, psychological aggression, and sexual aggression) and coercive control variables (perpetration and victimization of surveillance, threats, and response, and perpetration of demands) were heavily positively-skewed due to zero-inflation. Though log and natural log (Ln)

transformations brought the skewness and kurtosis to near normal levels (between -2 and +2 with rounding), visual examination of the histograms showed that the data were still heavily positively-skewed and zero-inflated. Moreover, the variables remained over dispersed (i.e., standard deviations larger than the mean). Therefore, I used the untransformed original data and analyses that accommodate or are robust to violations of normality for analyses involving the violence and coercive control variables.

Multicollinearity. Multicollinearity was assessed by examining tolerance values (i.e., values less than .2 indicate the presence of multicollinearity). The Negative Intentions Questionnaire and Relationship Attribution Questionnaire were found to be highly correlated (r = .85, p <.001). As both measures assess similar aspects of Step 2 of the SIP model (e.g., hostile attributions about partners), scores on both scales were converted into z scores and averaged together to create a composite variable representing deficits in Step 2 of the social information processing model. All noncount variables (i.e., SIP variables and social desirability) were grand mean centered prior to analyses to simplify interpretation of regression coefficients.

Preliminary Analyses

Descriptive statistics. The means, standard deviations, range of scores, and frequencies, including rates of perpetration and victimization, are reported separately for men and women in Table 4. Overall, reports of perpetration and victimization ranged from 18.3% (men's perpetration) to 30.3% (women's perpetration) for physical violence, 22.9% (women's perpetration) to 44% (men's perpetration) for sexual violence, and 67.9% (women's victimization) to 77.1% (men's perpetration) for psychological violence. Injury was low in the current sample (1.8% to 6.4%). Reports of coercive control were generally high for demands (84.4% to 93.6%), surveillance (61.5% to 80.7%), and responses to demands (68.8% to 88%),

but were more similar to physical and sexual IPV for reports of threats (25.7% to 40.4%). Percent of couples reporting mutual perpetration is also reported in Table 4. These are couples for whom both members of a couple reported at least one incidence of a specific type of violence. Rates of mutual perpetration were generally low for the more traditionally aggressive forms of violence and control (physical, sexual, and coercive threats), whereas psychological violence, demands, surveillance, and response to demands were higher, occurring in roughly one-half to two-thirds of the sample. The most common items endorsed by male and female participants for perpetration and victimization are listed in Table 5. Most common violence items reported tended to be those that are considered less severe (e.g., pushing, shoving, yelling, swearing, insisting on sex without using physical force).

Table 4

Descriptive Statistics Presented by Gender for Key Variables

Variable	Men				Women		
	Mean (*SD*)	Range	%	Mutual (%)	Mean (*SD*)	Range	%
Age	20.63 (2.52)	17.00-33.00			19.84 (1.71)	17.00-25.00	
Social desirability	19.80 (2.51)	13.00-25.00			19.34 (2.66)	13.00-25.00	
Neg. attributions (centered, Step2)	-0.08 (0.92)	-2.16-2.39			0.08 (1.0)	-2.15-2.46	
Agg. goals (Step 3)	2.14 (0.79)	1.00-5.26			2.28 (0.75)	1.00-4.33	
Generation (Step 4)	1.87 (0.45)	1.13-2.96			1.88 (0.46)	1.00-3.18	
Selection (Step 5)	1.71 (0.39)	1.06-3.06			1.77 (0.44)	1.00-3.00	
Negotiation	42.04 (29.49)	0.00-121.00			48.69 (32.88)	0.00-126.00	
Perpetration							
IPV total	7.81 (12.32)	0.00-78.00			10.32 (16.51)	0.00-112.00	
Physical	0.52 (1.92)	0.00-16.00	18.3	6.3	1.39 (5.36)	0.00-49.00	30.3
Sexual	2.73 (6.46)	0.00-37.00	44.0	11.7	1.52 (4.64)	0.00-23.00	22.9
Psychological	4.55 (7.71)	0.00-43.00	77.1	57.6	7.42 (11.66)	0.00-63.00	71.6
Injury	0.09 (0.48)	0.00-4.00	4.6	0.0	0.06 (.41)	0.00-1.00	3.7
CC total	25.60 (28.74)	0.00-129.00			20.39 (24.40)	0.00-109.00	
Demand	20.22 (22.01)	0.00-93.00	84.4	67.6	16.00 (19.54	0.00-92.00	85.3
Surveillance	4.44 (5.95)	0.00-26.00	77.0	42.3	3.47 (4.98)	0.00-25.00	61.5
Threat	1.18 (3.44)	0.00-29.00	26.6	9.0	1.07 (2.77)	0.00-17.00	28.4
Response	6.65 (7.60)	0.00-35.00	70.6	51.4	5.60 (7.88)	0.00-37.00	68.8
Victimization							
IPV total	8.63 (11.20)	0.00-49.00			8.63 (16.75)	0.00-127.00	
Physical	0.78 (2.00)	0.00-12.00	23.9		1.21 (7.32)	0.00-73.00	21.1
Sexual	2.05 (4.57)	0.00-21.00	36.7		2.11 (5.58)	0.00-42.00	35.8
Psychological	5.81 (8.78)	0.00-41.00	73.4		5.31 (9.05)	0.00-51.00	67.9
Injury	0.12 (0.52)	0.00-4.00	6.4		0.02 (0.19)	0.00-2.00	1.8
CC total	42.71 (35.22)	0.00-144.00			24.42 (28.00)	0.00-133.00	
Demand	33.39 (26.84)	0.00-114.00	93.6		19.26 (22.58)	0.00-106.00	85.3
Surveillance	6.65 (7.12)	0.00-31.00	80.7		4.11 (5.41)	0.00-29.00	69.7
Threat	2.67 (5.35)	0.00-30.00	40.4		1.06 (3.39)	0.00-29.00	25.7
Response	9.86 (9.36)	0.00-52.00	82.6		6.58 (7.92)	0.00-38.00	88.0

Note. Neg. Attributions = negative attributions; Agg. goals = Aggressive goals; IPV = Intimate Partner Violence (as measured by the CTS2), CC = Coercive Control (as measured by the CIPR); Mutual = percent of couples where both partners reported perpetrating at least one instance of violence.

Table 5

Most Common Item Reported for Men and Women for Each Type of Intimate Partner Violence and Coercive Control

	Perpetration		Victimization	
	Most common male item	Most common female item	Most common male item	Most common female item
Physical	I pushed or shoved my partner (11)	I pushed or shoved my partner (24)	My partner pushed or shoved me (17)	My partner pushed or shoved me (14)
Sexual	Insisted my partner have oral or anal sex but did not use physical force (29)	Insisted on sex when my partner didn't want to (but did not use physical force) (13) Insisted my partner have oral or anal sex (but did not use physical force) (13)	Insisted I have oral or anal sex (but did not use physical force) (23)	Insisted on sex when I didn't want to (but did not use physical force) (23)
Psychological	I shouted or yelled at my partner (58)	Insulted or swore at my partner (60)	My partner shouted or yelled at me (55)	Insulted or swore at me (56)
Injury	Partner had a sprain, bruise or small cut because of a fight with me (3)	Partner had a sprain, bruise or small cut because of a fight with me (3)	Had a sprain, bruise or small cut because of a fight with my partner (3) Felt physical pain that still hurt the next day because of a fight with my partner (3)	Had a sprain, bruise or small cut because of a fight with my partner (1)
Demand	Spending time with you (63)	Spending time with you (68)	Talking to your partner (79)	Talking to your partner (65)
Surveillance	Called or texted on phone (62)	Called or texted on phone (61)	Called or texted on the phone (82)	Called or texted on the phone (71)
Threat	Say something hurtful embarrassing or humiliating to your partner (22)	Say something hurtful embarrassing or humiliating to your partner (20)	Say something mean, embarrassing or humiliating to you (24)	Say something mean, embarrassing or humiliating to you (19)
Response	Did what you wanted even though she didn't want to (58)	Did what you wanted even though he didn't want to (54)	Did what your partner wanted, even though you didn't want to (79)	Did what your partner wanted, even though you didn't want to (64)

Note. Number of participants who endorsed at least one instance of item is in brackets.

Bivariate correlations. I conducted four sets of bivariate correlations to show relations between variables, to help to identify potential covariates, and to identify nonindependence of observations between the two dyad members. Specifically, four types of correlations are reported: whole sample (see Table 6), and within-male, within-female, and within-dyad (i.e., correlations between male and female variables; Table 7). Pearson correlations were used to correlate variables that had normal distributions, whereas Spearman rank correlations were used for correlating non-normal variables. For the whole sample, social desirability was significantly related to almost all variables of interest with the exception of coercive control perpetration. There were several significant positive correlations between SIP deficits and violence and control, indicating that participants with more SIP deficits were more likely to report higher frequencies of violence or control perpetration or victimization. Violence and control perpetration were significantly related to each other and to violence and control victimization, suggesting that participants who perpetrate violence were more likely to perpetrate coercive control, and that the more participants report perpetrating violence and control, the more likely they were to be victims of violence and control. Oddly, though it is purported to assess adaptive and prosocial conflict resolution skills, which would be similar to competent responses to vignettes, the Negotiation scale was not significantly related to any SIP deficits, and was related to IPV perpetration and victimization in a positive direction, suggesting that more frequent use of negotiation strategies was related to more frequent IPV perpetration and victimization.

Table 6

Bivariate Correlations among Key Variables

Variables	1	2	3	4	5	6	7	8	9	10	11
1. Age	--	-.06	-.11	.02	-.01	-.03	.09	.03	-.08	.01	-.00
2. Soc. des.		--	-.27**	-.43**	-.24**	-.15*	-.10	-.26**	-.21**	-.10	-.20**
3. Neg. att.			--	.50**	.30**	.42**	-.05	.16*	.16*	.12	.17*
4. Agg. goal				--	.34**	.34**	.01	.20**	.19**	.18**	.28**
5.Step 4 comp					--	.41**	.07	.12	.11	.11	.16*
6. Step 5 comp						--	.02	.13	.13	.09	.05
7. Negotiation							--	.38**	.37**	.11	.13
8. IPV perp								--	.83**	.38**	.35**
9. IPV vict									--	.45**	.35**
10. CC perp										--	.80**
11. CC vict											--

Note. Spearman's rank correlations were used for IPV perp, IPV vict, CC perp, and CC vict. Soc. des. = social desirability, Neg. att. = negative attributions, Agg. goal = aggressive goals, Step 4 comp = competency of generated coping responses, Step 5 comp = competency of selected coping responses, IPV perp = intimate partner violence perpetration, IPV vict = Intimate partner violence victimization, CC perp = coercive control perpetration, CC vict = coercive control victimization.
*$p < .05$. **$p < .01$.

Within-female correlations also showed that social desirability was significantly negatively correlated to a number of variables of interest including negative attributions, aggressive goals, IPV perpetration and victimization, and coercive control victimization and perpetration. Several SIP variables were correlated, including negative attributions with aggressive goals and competency of selected responses, aggressive goals with response generation and selection competency, and response generation competency with response selection competency. IPV perpetration and victimization were related and both were correlated with coercive control perpetration and victimization. However, the only SIP variable related to violence or control was aggressive goals, which was related to IPV perpetration and coercive control victimization.

Within-male correlations showed fewer correlations between social desirability and variables of interest than those for women. Specifically, social desirability was significantly negatively correlated with most SIP deficits (i.e., negative attributions, aggressive goals, response generation competency) and only IPV perpetration. For men, all SIP deficits were significantly positively correlated with each other, indicating that deficits at one step were related to deficits at other steps. Unlike women, some SIP deficits were correlated with outcome variables. Specifically, negative attributions were positively related to IPV and coercive control perpetration and victimization, aggressive goals were positively related to IPV victimization and coercive control perpetration and victimization, and response generation competency was positively related to coercive control victimization. Similar to women, IPV perpetration and victimization, and coercive control perpetration and victimization were all interrelated for men.

Table 7

Within-Male, Within-Female, and Within-Partner Correlations

	Female partner										
Male partner	1	2	3	4	5	6	7	8	9	10	11
1. Age	**.70****	-.13	-.08	.12	-.02	-.02	.04	.07	-.48	-.89	-.02
2.Soc. des	-.05	**.16**	-.23*	-.45**	-.14	-.14	-.11	-.27**	-.27**	-.30**	-.35**
3. Neg. att.	-.12	-.30**	**.10**	.47**	.22*	.43**	-.03	.13	.12	.09	.10
4. Agg. goal	-.05	-.40**	.53**	**.08**	.32**	.38**	.07	.21*	.14	.18	.21*
5. Step 4 comp	.00	-.36**	.38**	.36**	**.10**	.38**	.07	.01	-.01	.08	.10
6. Step 5 comp	-.02	-.14	.40**	.29**	.44**	**.21***	.03	.16	.16	.12	.03
7. Negotiation	.18	-.07	-.08	-.08	.07	-.01	**.05**	.37**	.37**	.11	.12
8. IPV perp	-.02	-.22*	.19*	.18	.22*	.05	.39**	**.26****	.86**	.37**	.32**
9. IPV vict	-.13	-.15	.20*	.24*	.18	.09	.38**	.80**	**.23***	.41**	.31**
10. CC perp	-.04	-.00	.21*	.28**	.14	.03	.15	.46**	.52**	**.27****	.80**
11. CC vict	-.02	-.07	.26**	.40**	.21*	.01	.21*	.40**	.40**	.83**	**.24***

Note. Diagonal (bolded numbers) represents within-partner correlations, whereas within-female correlations are above the diagonal and within-male correlations are below. Spearman's rank correlations were used for IPV perp, IPV vict, CC perp, and CC vict. Soc. des. = social desirability, Neg. att. = negative attributions, Agg. goal = aggressive goals, Step 4 comp = competency of generated coping responses, Step 5 comp = competency of selected coping responses, IPV perp = intimate partner violence perpetration, IPV vict = Intimate partner violence victimization, CC perp = coercive control perpetration, CC vict = coercive control victimization. *$p < .05$. **$p < .01$.

Interdependence and distinguishability. As several variables, including competency of selected responses, intimate partner violence victimization and perpetration, and coercive control victimization and perpetration are significantly related within partners of a couple (see Table 7), this justifies the use of the actor-partner interdependence model (Kenny et al., 2006) for statistical analyses, as partners must be shown to be interdependent. Furthermore, selecting appropriate statistical analyses for the actor-partner interdependence model is dependent on whether or not the couples are considered distinguishable (members of a dyad differ from each other on one or more variables, like parent-child) or indistinguishable (like same-sex friends). Couples can be theoretically distinguishable based on some variable of interest, such as gender in this study. Kenny et al. (2006) also recommend empirically testing for distinguishability (i.e., if there are mean or variance differences between the two members) by comparing structural equation models in which different parameters are held constant across partners (e.g., means, correlations, variance) to models in which these parameters are freed. If the best fitting model is that with all parameters held equal for men and women, the dyads are considered indistinguishable.

Dingy, an online program designed by Kenny (2018), uses R software to run tests of distinguishability. According to these tests, the couples in my study are considered distinguishable for the variables in the IPV perpetration and victimization and coercive control perpetration models, but indistinguishable for the coercive control victimization model. However, Kenny indicated that Dingy assumes normal distributions and non-normal distributions would likely inflate chi-square statistics, making it artificially more likely that couples would be found to be distinguishable (personal communication, May 2, 2019); Kenny added that if results indicate indistinguishability, these findings are likely to be valid. The

software used for SEM analyses in the current study (MPlus 1.6) is unable to run the models that would be necessary to test distinguishability given limitations of using count data (i.e., frequency counts of violence and control). As such, measurement models and SEMs were each run allowing parameters to freely vary and constraining partners to be equal and the best fitting models were used.

Gender differences. To investigate if there were gender differences in perpetration and victimization, I conducted Mann-Whitney tests to compare mean ranks of male and female perpetration and victimization, given the non-normality of violence and coercive control variables (see Table 8). With respect to perpetration, based on men's and women's self-reports, men and women typically reported perpetrating similar levels of violence and control, with the exceptions of physical violence, for which women (M = 115.79) reported perpetrating more violence than men (M = 102.27, U = 5152.05, p = .034), and sexual violence, for which men (M = 121.09) reported perpetrating more violence than women (M = 96.80, U = 4568.00, p = .001). For victimization, significant differences were found for injury and all coercive control variables, with men consistently reporting significantly more victimization than women.

Table 8

Mann-Whitney Mean Rank Comparison of Men's and Women's Intimate Partner Violence and Coercive Control Perpetration and Victimization

Variable	Female mean rank	Male mean rank	U	*Z*	*p*
		Perpetration			
IPV total	110.88	107.13	5682.50	-0.442	.658
Physical	115.79	102.27	5152.50*	-2.12*	.034*
Psychological	113.86	104.19	5361.50	-1.148	.251
Sexual	96.80	121.09	4568.00**	-3.41**	.001**
Injury	108.00	109.99	5778.50	-0.71	.476
CC total	103.42	114.63	5277.50	-1.32	.188
Demand	102.01	114.06	5131.00	-1.42	.155
Surveillance	104.28	112.80	5371.00	-1.03	.303
Threat	109.66	107.32	5705.00	-0.35	.724
Response	102.44	113.62	5177.00	-1.34	.181
		Victimization			
IPV total	106.59	111.39	5626.00	-0.57	.572
Physical	106.56	111.41	5623.00	-0.784	.433
Psychological	107.25	110.73	5697.00	-0.415	.678
Sexual	108.33	109.67	5813.50	-0.183	.855
Injury	106.01	111.96	5563.50*	-2.13*	.033*
CC total	90.97	128.03	3920.00**	-4.34**	>.001**
Demand	90.68	128.32	3889.00**	-4.41**	>.001**
Surveillance	97.03	121.97	4581.50**	-2.95**	.003**
Threat	100.04	118.96	4909.00**	-2.65**	.008**
Response	96.88	122.12	4564.50**	-2.97**	.003**

Note. IPV = intimate partner violence, CC = coercive control.
*$p < .05$. **$p < .01$.

Interpartner agreement. To assess interpartner agreement about the occurrence of male-perpetrated violence, I conducted several analyses comparing men's reported perpetration to women's reported victimization. Similarly, I assessed agreement about the occurrence of female-perpetrated violence by conducting several analyses comparing women's reported perpetration to men's reported victimization. I used several different analyses assessing interpartner agreement, as recommended by Armstrong, Wernke, Medina, and Schafer (2002): (a) percentage occurrence of agreement, (b) kappa statistics to assess the agreement of at least one incidence of each type of violence, (c) intraclass correlation coefficients to assess agreement of frequency of violence between partners, (d) correlation coefficients to assess agreement about the frequency of male- and female-perpetration, and (e) mean difference tests to compare means of partner reports of male-and female-perpetration. Results are presented in Table 9.

The percentage of couples who agreed on male perpetration ranged widely from 60.6% (surveillance) to 93.6% (injury). Similarly, the percentage who agreed on at least one instance of female perpetration ranged from 55.0% (threat) to 91.7% (injury). These percentages include those couples for whom neither partner reported violence. To compare interpartner agreement on the occurrence of violence, I calculated the percentage agreement of couples for whom at least one partner endorsed at least one act of violence and as expected, percentages were generally lower for physical, sexual, and coercive control threats (see Table 9). However, percentages remained moderate to high for agreement on psychological violence and other coercive control variables (i.e., demands, surveillance, and response to demands). Overall, percent agreement varied from very low (male-perpetrated injury, 0.0%) to high (female-perpetrated demands, 78.0%).

Table 9

Interpartner Agreement between Male and Female Partners on the Occurrence of Intimate Partner Violence and Coercive Control Perpetration

	Agree on male perpetration					
	% Agree	% Agree who endorsed violence	Kappa	ICC	Spearman	Wilcoxon Signed Ranks Z
Physical	73.4	19.4	.17	.05	.19	-0.46
Psychological	66.1	61.9	.17	.30	.34**	-1.12
Sexual	67.0	37.9	.32	.07	.28**	-1.96*
Injury	93.6	0.0	-.02	Negative	-.02	-1.20
Demand	77.1	75.9	.16	.28	.28**	-5.59**
Surveillance	60.6	54.7	.12	.10	.18	-4.39**
Threat	64.2	18.8	.09	Negative	.07	-0.15
Response	72.5	68.4	.31	.14	.18	-1.66
	Agree on female perpetration					
	% Agree	% Agree who endorsed violence	Kappa	ICC	Spearman	Wilcoxon Signed Ranks Z
Physical	67.0	23.4	.17	Negative	.15	-0.09
Psychological	69.7	65.3	.25	.43	.36**	-0.09
Sexual	67.0	28.0	.23	.08	.21*	-1.43
Injury	91.7	10.0	.15	.02	.17	-1.38
Demand	78.0	78.0	-.10	.40	.25**	-0.94
Surveillance	56.9	53.5	-.00	.30	.15	-0.44
Threat	55.0	21.0	.02	.28	.08	-0.15
Response	69.7	66.7	.21	.41	.30**	-1.66

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

Next, I conducted kappa statistics to see if partners agreed about the occurrence of at least one violent incident in their relationship. Most guidelines for interpreting kappa statistics are arbitrary (Landis & Koch, 1977), but suggest that < 0.00 indicates no agreement, 0.00-0.20 is slight, 0.21-0.40 is fair, 0.41-0.60 is moderate, 0.61-0.80 is substantial, and 0.81-1.00 is almost perfect agreement. Some kappas in the current study could be considered fair (men's perpetration of sexual aggression and response to demands, and women's perpetration of psychological and sexual aggression and response to demands), but the majority showed little to no agreement. I also used intraclass correlation coefficients (ICCs) to assess reliability between partners' reports of the frequency of male- and female-perpetrated violence and control (with the other partners' reports of victimization), and ICCs were generally poor (<.40), with a few being fair, including agreement on female-perpetrated psychological violence (.43), coercive demands (.40), and response to demands (.41). Several negative value ICCs were produced, which can occur due to negative average covariance indicating that items "may not form a useful single scale because they are not measuring the same thing" or when individual variance exceeds the variance for the overall scale (Nichols, 1999). Overall, ICCs suggested low agreement between partners.

I also ran bivariate Spearman's rank correlations between men's and women's reports of frequency of male- and female-perpetration (see Table 9). Correlations were generally low to moderate, and there were significant positive correlations for some male-perpetrated violence and control (psychological and sexual violence and coercive demands) and some female-perpetrated violence and control (psychological and sexual violence, coercive demands, and response to demands). Spearman's rank correlations suggest that there was low to moderate agreement on the frequency of male- and female-perpetrated violence and control.

Finally, I compared mean rank differences between partner reports of male- and female-perpetrated violence and control. There were no significant mean rank differences for female-perpetrated violence and control, suggesting that partners were reporting similar frequency of female-perpetrated violence when aggregated across the whole sample (as opposed to at the individual level). However, there were some significant differences in partner reports of male-perpetrated violence, such that women's reports of sexual victimization, coercive demand victimization, and surveillance victimization were significantly higher than men's reports of perpetration. Wilcoxon signed ranks suggested that there was some evidence for agreement of female-perpetrated violence and control, and some disagreement about male-perpetrated violence and control.

Taken together, there is low to high percentage agreement on the occurrence of at least one instance of violence or control perpetration, low to fair agreement on the occurrence of at least one violent incident, low agreement about the frequency of violence and control as assessed by ICCs, low to moderate agreement about the frequency of violence and control as assessed by Spearman's rank correlations, and some evidence for agreement on female-perpetrated violence and disagreement on male-perpetrated violence based on mean rank differences. Though some statistics show a moderate to high level of agreement, this is not consistent across statistics, and therefore, there is not consistent evidence of interpartner agreement in the current sample. As such, two different analysis strategies were attempt to resolve the disparity. First, given evidence that men may be under-reporting their perpetration based on the Wilcoxon signed rank tests, analyses were run using the highest report of perpetration for each couple (e.g., higher of men's report of perpetration and women's report of victimization and vice versa). Second, separate models were run based on self-reports of perpetration and self-reports of victimization. Though

both models showed similar significant effects, the second approach produced significantly better fitting models and is therefore reported below. These models may be affected by biased self-reporting by male participants.

Randomization check. Chi-square analyses were used to examine if the timed and untimed groups differed significantly on demographic variables, including ethnicity, $\chi^2(9, N = 218) = 3.82$, $p = .923$; sexual orientation, $\chi^2(4, N = 218) = 2.67$, $p = .614$; year in university, $\chi^2(4, N = 218) = 9.43$, $p = .051$; whether students were part-time or full-time, $\chi^2(1, N = 218) = 0.13$, $p = .721$; and where they currently lived, $\chi^2(6, N = 218) = 6.93$, $p = .327$. A *t* test was used to investigate differences in age, $t(216) = .46$, $p = .644$,. Though the analyses showed no significant differences on any of the listed variables at $\alpha < .05$, year in university was significant at $\alpha < .10$ ($p = .051$), with more first year students in the timed (31) than untimed (15) condition, and more second year students in the untimed (33) than timed (19) condition; other year students showed more similar numbers of participants (i.e., third year: 23 untimed and 22 timed; fourth year: 20 untimed and 21 timed; and other: 16 untimed and 18 timed). The only variable that was found to differ significantly was whether participants endorsed leaving items blank, $\chi^2(1, N = 218) = 56.47$, $p < .001$, for which there were significantly more participants endorsing yes in the timed group than the untimed group. The most common reason for leaving an item blank was "I did not have enough time to answer" (27.0%), followed by "I could not think of anything to say" (4.1%). Thus, the timed and untimed groups were generally similar in terms of demographic characteristics, indicating that the randomization process was successful.

Manipulation check. To check that the manipulation was effective in producing different timing conditions (i.e., that a time pressure was adequately applied), *t*-tests were conducted between the timed and untimed conditions on the amount of time spent on each page

of the SIP measures (see Table 10). As expected, there were significant differences in the amount of time participants spent on all SIP questionnaires and open-ended questions, with participants in the untimed conditions spending significantly longer on the page than participants in the timed condition. Interestingly, *t*-tests comparing the number of responses generated and selected by participants in timed and untimed conditions showed no significant differences. Therefore, despite spending less time generating responses, participants in the timed condition still produced similar numbers of responses to those with unlimited time. It may be the case that participants were producing similar numbers of responses quicker, and in this case, the manipulation would be effective in simulating more rapid decision-making, as might be expected in snap-decisions made in real life situations.

Table 10

t-tests to Check Manipulation of Timed vs. Untimed Conditions

	Untimed	Timed	Comparison
Variables	*M* (*SD*)	*M* (*SD*)	*t(df)*
Time spent on NIQ	53.09 (24.51)	29.70 (6.88)	9.52 (122.04)**
Time spent on RAQ	18.23 (6.00)	12.90 (1.62)	8.88 (120.85)**
Time spent on Goals	27.30 (9.33)	19.54 (2.44)	8.34 (119.93)**
Time spent Generating	81.51 (40.13)	51.28 (9.55)	7.59 (117.55)**
Time spent Selecting	71.04 (34.85)	35.85 (7.15)	10.24 (114.60)**
Total Number Generated	1.75 (0.73)	1.80 (0.73)	-0.500 (214)
Total Number Selected	1.28 (0.30)	1.32 (0.25)	-0.947 (216)

Note. t-test statistics reported for page time variables are for equal variance not assumed. NIQ = Negative Intentions Questionnaire; RAQ = Relationship Attributions Questionnaire.
**$p < .01$.

Group differences. The university at which the study took place was implementing a sexual assault intervention and prevention program (i.e., UWindsor Bystander Initiative; Senn & Forrest, 2016) during data collection for the present study. As of Fall 2018, all first-year students mandatorily received the UWindsor Bystander Initiative and the programming had been part of the curriculum in introduction to psychology courses since Fall 2017. In addition, other programs aimed at reducing sexual assault (e.g., Flip the Script, Senn et al., 2017; Draw the Line posters, Draw The Line, n. d.) were rolled out or active during the time when data were collected, which could have influenced participants' reporting of violence (especially sexual violence). Therefore, I conducted a Kruskal-Wallis test to compare mean ranks of reported violence based on year in university, but there were no significant differences for IPV perpetration, $\chi^2(4) = 1.46$, $p = .834$, or victimization, $\chi^2(4) = 1.30$, $p = .861$, or for coercive control perpetration, $\chi^2(4) = 4.87$, $p = .301$, or victimization, $\chi^2(4) = 3.95$, $p = .413$.

I then compared first and second year students (those most likely to have received the programs/interventions) to third year and beyond students using the Mann-Whitney test for mean rank differences, and again, there were no significant differences for IPV perpetration ($U = 5598.00$, $Z = -0.48$, $p = .627$) or victimization ($U = 5695.50$, $Z = -.027$, $p = .785$), or for coercive control perpetration ($U = 5450.00$, $Z = -0.81$, $p = .420$) or victimization ($U = 5692.00$, $Z = -.41$, $p = .629$). Overall, this suggested that there were no statistically significant cohort effects on violence and control reporting within the current sample.

I also investigated if there were mean rank differences in reported IPV and coercive control across different ethnicities. First, I used the Mann-Whitney test to assess if there were mean rank differences between participants identifying as White compared to those identifying as Nonwhite. Though there were no significant differences in reported IPV perpetration or

victimization, or coercive control perpetration, there was a significant difference in coercive control victimization, such that Nonwhite participants reported significantly higher levels of control victimization than White participants (see Table 11).

Table 11

Mean Rank Differences in IPV and Coercive Control between Participants Identifying as White versus Nonwhite

Variable	Mean rank		U	*Z*
	White participants	Nonwhite participants		
IPV perpetration	105.40	116.40	4657.50	-1.21
IPV victimization	106.02	115.13	4748.00	-1.01
CC perpetration	104.64	117.97	4546.00	-1.47
CC victimization	102.78	123.41	4231.00*	-2.26*

*$p < .05$.

When broken down into more specific ethnic categories that contained more than four participants (i.e., White, Asian/South Asian, Black, Middle Eastern, Mixed), there were no significant differences according to the Kruskal-Wallis test, though a visual inspection of the mean ranks showed that participants not identifying as White tended to report more violence and control in their relationships (see Table 12).

Table 12

Mean Rank Differences in IPV and Coercive Control between Ethnicities

Variable	White	Asian	Black	Middle Eastern	Mixed	χ^2 (df)
IPV perpetration	101.08	101.20	150.65	102.77	117.69	7.29 (4)
IPV victimization	101.41	99.95	152.35	94.46	121.56	8.64 (4)
CC perpetration	101.92	111.18	112.20	115.35	110.94	1.31 (4)
CC victimization	100.34	120.27	132.90	107.15	113.19	4.70 (4)

Emotion checklist. After completing the study, participants completed an emotion checklist on which they rated how they felt towards their partner as a result of the study across a range of negative and positive emotions on a scale from 1 (*Not at all*) to 7 (*A great deal*). Composites of negative and positive emotions were heavily skewed, with participants reporting high levels of positive emotions (M = 6.45, SD = 0.69, Mdn = 6.67) and low levels of negative emotions (M = 1.22, SD = 0.46, Mdn = 1.00) towards their partners as a result of the study. Given the non-normal data, Mann-Whitney tests were run to compare men's and women's reports of positive and negative emotions as a result of participating in the study. Men and women reported similar levels of negative emotions (U = 5445.00, Z = -1.09, p = .276), but men reported lower levels of positive emotions (*Mean rank* = 99.39) than did women (*Mean rank* = 118.70), U = 4838.00, Z = -2.38, p = .017 Although both men and women had high levels of positive emotions towards their partners as a result of participating in the study, women generally felt more positive emotions towards their partners than did men.

I ran Mann-Whitney mean difference tests to assess if post-study emotions differed for those who reported at least one incidence of violence or control compared to those who did not report any violence or control. Results are presented by gender in Table 13. Men who perpetrated or were victims of violence reported fewer positive emotions than men who did not report perpetrating or experiencing violence, but there were no differences in negative emotions between those who perpetrated or experienced violence and those who did not. There were no differences in positive emotions or negative emotions between men who perpetrated or experienced coercive control and those who did not perpetrate or experience violence. Conversely, there were no significant differences in negative or positive emotions between women who perpetrated or were victims of violence, but there were significant differences

among women who perpetrated or were victims of coercive control. Women who perpetrated coercive control experienced fewer positive emotions and more negative emotions than their noncontrolling counterparts. Furthermore, women who were victims of coercive control reported more negative emotions towards their partner than did women who were not victims of control. Finally, I conducted Spearman rank correlation analyses between negative and positive emotions and total scores on violence and control perpetration and victimization (see Table 13). Violence and control perpetration and victimization were related to fewer positive emotions for both men and women, and control perpetration and victimization were related to more negative emotions. Overall, individuals in more violent or controlling relationships tended to report fewer positive and more negative emotions towards their partner (at the end of the study) than nonviolent or nonvictimized individuals.

Table 13

Mann-Whitney Mean Difference Tests between Violent and Nonviolent Individuals, and Correlations between Violence and Post-Study Emotions

Variable	Men					Women				
	U	*Z*	Mean rank (No violence)	Mean rank (violence)	*r*	*U*	*Z*	Mean rank (No violence)	Mean rank (violence)	*r*
					Positive emotions					
IPV perpetration	498.00*	-2.45*	71.71	51.91	-.21*	799.50	-1.37	61.24	52.05	-.21*
IPV victimization	521.00**	-2.98**	73.43	50.86	-.28**	841.50	-1.25	60.44	52.14	-.25**
Coercive control perpetration	554.00	-1.32	64.07	52.96	-.24*	407.50*	-2.15*	70.65	52.59	-.29**
Coercive control victimization	261.50	-0.65	62.92	54.54	-.31**	405.50*	-2.17*	70.81	52.27	-.27**
					Negative emotions					
IPV perpetration	655.00	-1.20	47.53	56.38	.14	857.50	-0.94	49.28	55.29	.11
IPV victimization	744.00	-1.30	47.70	56.64	.20*	987.00	-0.08	53.63	54.11	.10
Coercive control perpetration	521.00	-1.79	42.73	56.40	.32**	436.00*	-1.97*	40.54	56.41	.30**
Coercive control victimization	180.00	-1.94	33.50	56.25	.41**	450.50	-1.81	41.65	56.26	.23**

Note. r = Spearman's rank correlations.

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

Main Analyses

Hypothesis 1. It was hypothesized that individuals' SIP deficits at each step would be positively related to deficits at each other steps. To test this hypothesis, I ran multilevel models in SPSS, which accounted for non-independence between partners in a couple. Three models were run with negative attributions (Step 2) predicting aggressive goals (Step 3), negative attributions and aggressive goals predicting response generation competency (Step 4), and negative attributions, aggressive goals, and response general competency predicting response selection competency (Step 5). Social Desirability was used as a control variable in each model given significant bivariate correlations with this variable. Coefficients and confidence intervals of the original nonimputed dataset are reported in Table 14.

This hypothesis was partially supported. Negative attributions (Step 2) positively predicted aggressive goals (Step 3), suggesting that participants who made more negative interpretations about their partners selected more aggressive goals for social interactions. In the original nonimputed dataset, negative attributions (Step 2) did not significantly predict response generation competency (Step 4), whereas the aggressive goals variable (Step 3) was a significant predictor. Finally, negative attributions (Step 2) and response generation competency (Step 4) were significant predictors of response selection competency (Step 5), whereas aggressive goals were not. These significant findings were also evident in the multiply imputed dataset, and in addition, results pooled across each imputation suggested that Step 2 was a significant predictor of response generation competency ($B = 0.08$, $SE = 0.03$, $p < .05$, 95% CI [0.01, 0.15]), although the coefficient was relatively small.

Table 14

Multi-Level Models Assessing Relations between Social Information Processing Deficits

	Predicting aggressive goals (Step 3)		Predicting generation competency (Step 4)		Predicting selection competency (Step 5)	
Variable	*B* (*SE*)	CI (95%)	*B* (*SE*)	CI (95%)	*B* (*SE*)	CI (95%)
Social desirability	0.10 (0.02)**	0.06-0.13	0.02 (0.01)	-0.01-0.04	-0.01 (0.01)	-0.03-0.01
Negative attributions (Step 2)	0.33 (0.05)**	0.24-0.42	**0.06 (0.04)**	-0.01-0.13	0.12 (0.03)**	0.06-0.18
Aggressive goals (Step 3)			0.13 (0.05)**	0.04-0.22	0.06 (0.04)	-0.02-0.14
Generation Competency (Step 4)					0.27 (0.06)**	0.16-0.39

Note. Results presented are from the non-imputed dataset and those in bold font differed in the multiply imputed dataset. *B* = regression coefficient estimate; *SE* = standard error; CI = confidence interval.
**$p < .01$.

Hypothesis 2. I hypothesized that individuals in the timed condition would show more SIP deficits than those with unlimited time to complete measures. I again ran several multilevel models to examine the relationship between condition and SIP deficits while accounting for nonindependence, with social desirability as a control variable (see Table 15). This hypothesis was not supported as there were no significant effects found between the timed and untimed conditions for any of the SIP variables. Though the effects were in the hypothesized direction (i.e., higher mean deficits as condition goes from 0 [untimed] to 1 [timed]), most effects, apart from Step 2, were close to 0. This suggested that having a time limit did not significantly affect the competence of participants' responses.

Table 15

Multi-Level Models Assessing Relations between Conditions (Timed vs. Untimed) and SIP Deficits

	Social desirability			Condition		
Model	*β* (*SE*)	CI (95%)	*p*	*β* (*SE*)	CI (95%)	*p*
Step 2	0.10 (0.02)	0.05-0.15	<.001	-0.18 (0.13)	-.043-0.08	.183
Goals	0.13 (0.02)	0.09-0.17	<.001	-0.06 (0.10)	-0.26-0.13	.583
Generation	0.04 (0.01)	0.02-0.07	.001**	-0.06 (0.06)	-0.18-0.07	.384
Selection	0.03 (0.01)	0.00-0.05	.023*	0.06 (0.06)	-0.07-0.19	.350

Note. Controlled for Social desirability. Condition is coded 0 = untimed, 1 = timed. *SE* = standard error; CI = confidence interval.

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

Data analysis strategy. One method for analysing data using the actor-partner interdependence model (APIM) is by using structural equation modelling (SEM). Sample size requirements for SEM vary greatly (e.g., 30-460; Kline, 2016) based on the number of parameters being estimated, the complexity of the model, the distributions of the data (e.g., continuous, normally distributed data require smaller samples), score reliability, and the number of indicators (or observed variables) used to estimate factors (or latent variable), the amount of missing data, and the overall strength of the model (e.g., correlations between indicators and factors). Kline (2016) references a rule-of-thumb suggested by Jackson (2003, as cited in Kline, 2016) where ideally for continuous, normal data estimated with maximum likelihood, 10-20 participants are required for each parameter estimated. Some software can provide better, more accurate power estimates, but these often rely on fit indices (like RMSEA, or CFI), which are not available when running models that use count data like the violence and control variables in this study. Given that the number of parameters estimated in the models used in this study ranged from 45 to 69, some measures had low reliability, and the data were zero-inflated, over-dispersed count data, it can be assumed that the models tested were underpowered, as the overall sample size was 109 couples.

Nevertheless, SEM was deemed preferable to using multilevel modeling as it would provide a more parsimonious analysis by including the estimation of latent variables. Running multilevel models for each combination of variables would result in a total of 56 models (each SIP deficit predicting each type of violence and control) and significantly increase the risk of Type I error. Alternatively, creating averaged or summed composite scores for multilevel modeling (rather than latent variables) for SIP deficits, violence, and control, might have averaged out the variance and would have been a less flexible approach than SEM, which allows,

for example, covariances between indicators (observed variables) and different estimation methods (e.g., maximum likelihood, maximum likelihood with robust standard errors). MPlus software (Muthén & Muthén, 2017) was used for all SEM analyses.

Measurement models. First, measurement models were run as suggested in the two-step approach to SEM (Kline, 2016) to determine the best fitting models for latent variables to be later used in the SEM analyses. Measurement models were designed using APIM, such that male and female latent variables were estimated together (see Figure 7 for example). For continuous data in this study, a model is considered to be of good fit when the chi-square significance test is not significant (i.e., $p > .05$), the Comparative Fit Index (CFI) is greater than 0.95 (meaning that the model is at least 95% better than the baseline model), and the Root Mean Square Error of Approximation (RMSEA) is 0.07 or less, as values greater than 0.10 indicate poor fit, and values less than or equal to 0.05 indicate close fit. Fit statistics are unable to be calculated for models that include count data (such as the violence and control variables used in this study) due to the nature of the data (e.g., very large contingency tables that produce impossible fix index values; Soucie, personal communication, March 15, 2019). As such, model fit was determined by using loglikelihood ratio chi-square difference testing for nested models, which are models that contain the same variables but with varying amounts of free parameters (e.g., with certain paths constrained to be equal compared to a model where those paths are free). For non-nested models, or models where the variables included in the model differ, Akaike Information Criterions (AICs) and Bayes Information Criterions (BICs) were compared between the two models, and the model with lower AIC and BIC was considered the model with better fit and were used in the analyses (Dziak, Coffman, Lanza, & Li, 2012; Kline, 2016; Lin & Dayton, 1997).

SIP deficits. The best fitting model for SIP deficits is shown in Figure 6 and was estimated with maximum likelihood (ML). Fit indices met good fit criteria according to the chi-square test, χ^2 (21, N = 218) = 27.99, p = .141, and fit indices (CFI = .95, RMSEA = .055, probability that RMSEA >.05 = .401). In this model, Steps 3 and 4 (goals and response generation competency) were constrained to be equal for men and women and men's and women's response selection competency scores covaried.

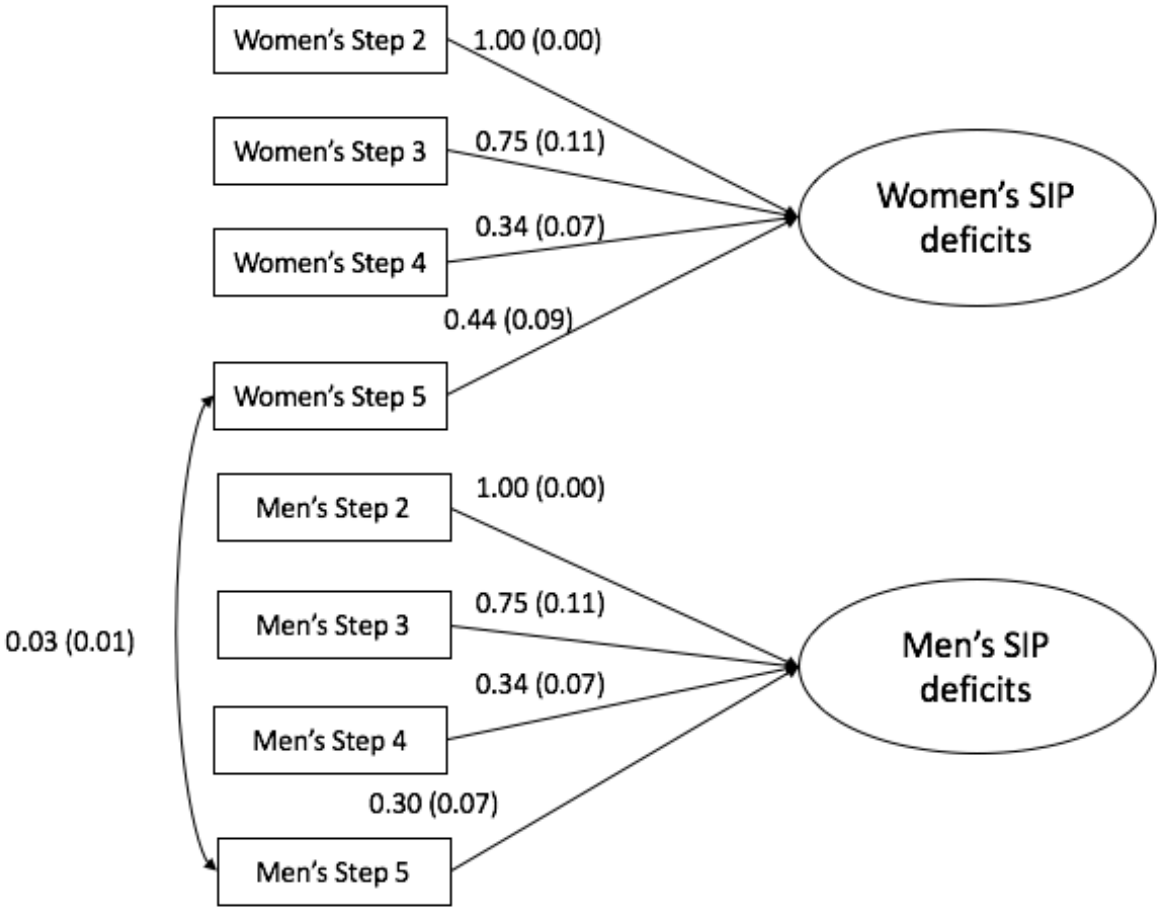

Figure 6. Social information processing (SIP) deficit best fitting measurement model.

IPV perpetration. The IPV latent variables did not initially converge when male and female path coefficients were free to vary, but did converge when coefficients were constrained to be equal for men and women. As such, the constrained model, estimated with MLR (maximum likelihood estimates with standard errors and chi-square test robust to non-normality, Muthén & Muthén, 2017) was used to identify the best fitting measurement model. To identify if the fit of the model was significantly better than a baseline, or restricted model, the hypothesized model (shown in Figure 7) was compared to a "null" model, in which all estimated path coefficients were constrained to be zero, indicating no correlation between observed variables and the latent variables. Loglikelihood chi-square difference testing suggested that the hypothesized model (AIC = 2266.88, BIC = 2328.78) was significantly better fit than the null model (AIC = 2316.66, BIC = 2370.48), $\chi^2(3, N = 218) = 55.78$, $p < .001$.

Another nested model was compared to the hypothesized model, where latent male and female IPV perpetration scores were prevented from covarying (AIC = 2269.75, BIC = 2328.96), and this model was found to be a worse fitting model than the hypothesized model, $\chi^2(1, N = 218) = 4.87$, $p = .027$). The hypothesized model (which constrained paths to be equal for men and women and allowed covariance between men's and women's latent IPV variables; Figure 7) was therefore used for the main analyses.

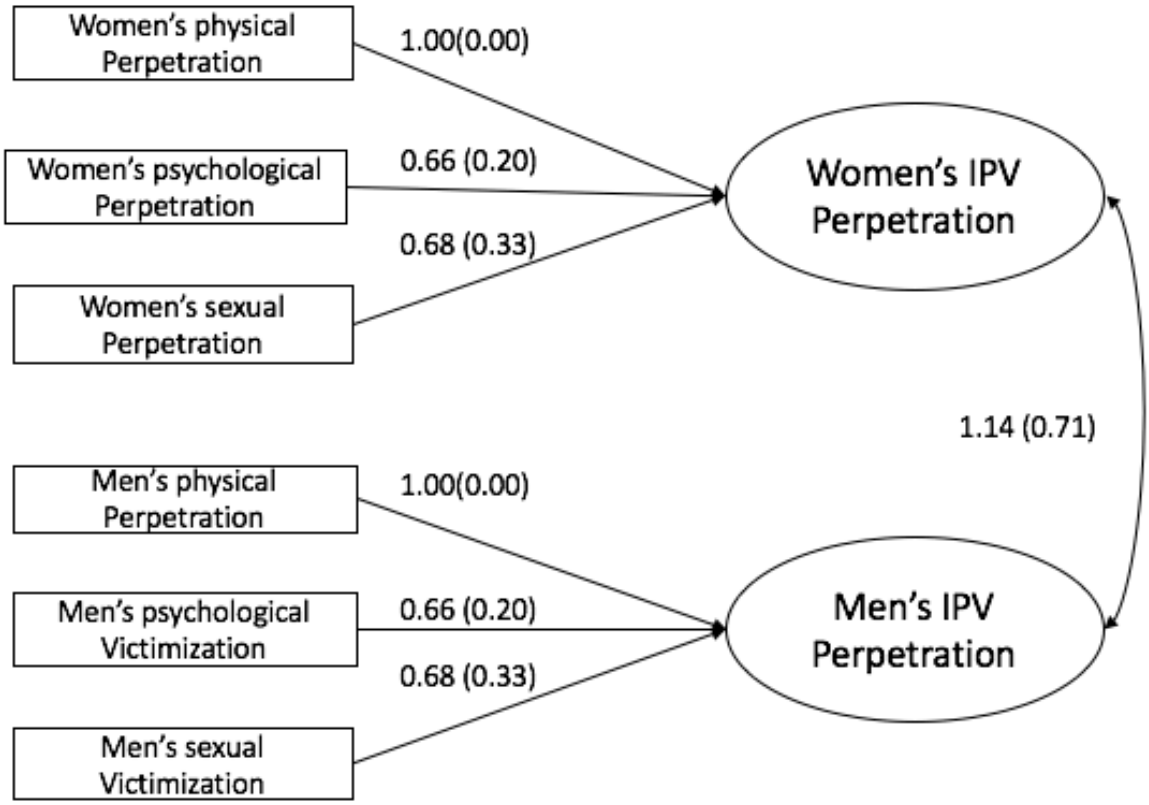

Figure 7. Intimate partner violence (IPV) perpetration measurement model.

IPV victimization. Like the IPV perpetration measurement model, the IPV victimization latent variables did not initially converge when male and female path coefficients were free to vary, but did converge when coefficients were constrained to be equal for men and women; the constrained model was used to identify the best fitting measurement model using MLF (maximum likelihood estimates with standard errors approximated by first-order derivatives), as the model did not converge using MLR. To identify if the fit of the model was significantly better than a baseline model, the hypothesized model (shown in Figure 8) was compared to a "null" model (i.e., path coefficients constrained to be zero). Loglikelihood chi-square difference testing suggested that the hypothesized model (AIC = 2269.30, BIC = 2331.20) was a better fitting model than the null model (AIC = 2310.82, BIC = 2346.65), $\chi^2(3, N = 218) = 47.52$, $p < .001$. Again, a nested model was compared to the hypothesized model, in which male and female victimization IPVs were prevented from covarying (AIC = 2270.01, BIC = 2329.22), though this model did not differ significantly from the hypothesized model, $\chi^2(1, N = 218) = 2.78$, $p = .100$. However, the hypothesized model (which constrained paths to be equal for men and women and allowed covariance between men's and women's latent IPV variables; Figure 8) was used for the main analyses given slightly better fit according to AIC and BIC.

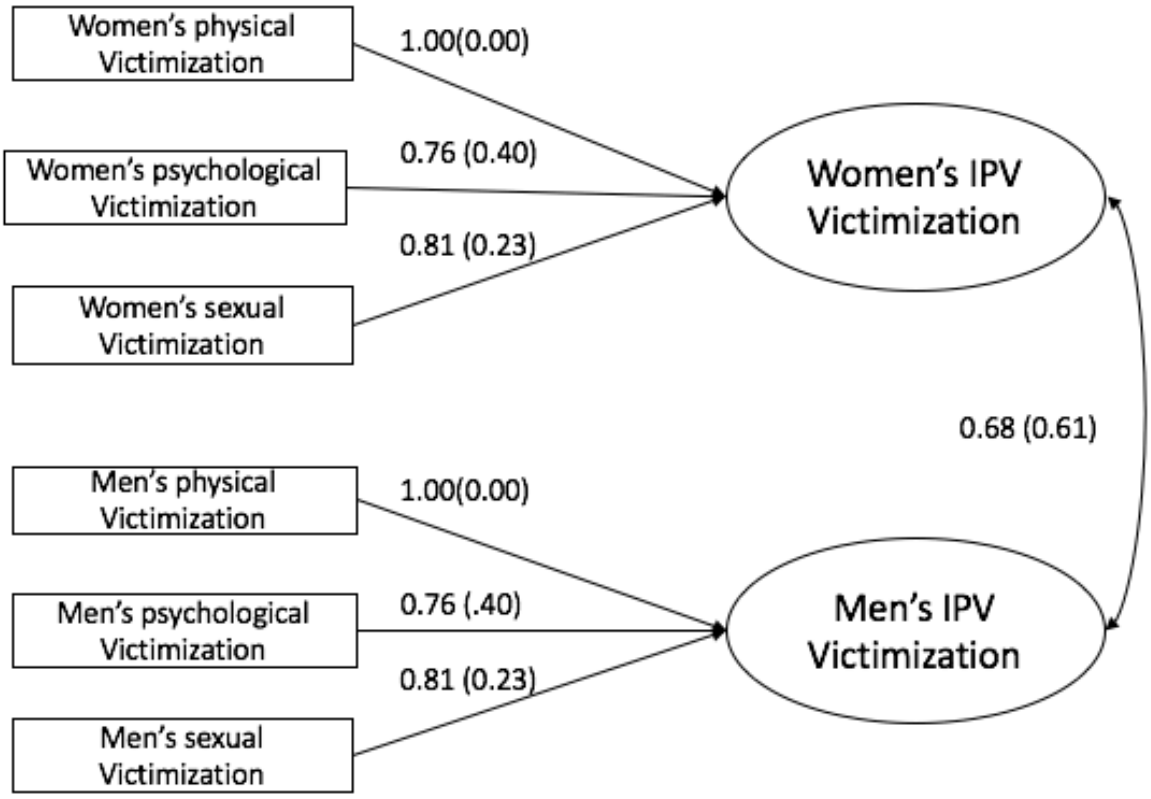

Figure 8. Intimate partner violence (IPV) victimization measurement model.

Coercive control perpetration. Several models were estimated using MLR for comparison for coercive control perpetration and fit statistics are presented in Table 16. Models were tested with and without the inclusion of "responses to demands" as the number of responses made to demands (which includes nonresponses to demands) conceptually seemed to be measuring something different from demands, surveillance, and threats, though it was correlated with other coercive control subscales. Model 1 is the null model (i.e., coefficients equal to zero) for a hypothesized model that included the observed variable "responses to demands." Model 2 is the hypothesized model including "responses to demands" and Model 3 is Model 2 with path coefficients constrained to be equal for men and women. Model 4 is the null model for a hypothesized model that excludes "responses to demands," Model 5 is the hypothesized model without "responses to demands," and Model 6 is Model 5 with coefficients constrained to be equal for men and women. Model 6 (Figure 9), in which "responses to demands" were excluded and paths were constrained to be equal for men and women, was the best fitting model based on AIC and BIC. Loglikelihood chi-square difference testing suggested that Model 6 was a significantly better fit than its null model, Model 4, $\chi^2(3, N = 218) = 167.22$, $p < .001$.

Table 16

Model Fit Statistics for Coercive Control Perpetration Measurement Models

Model	H^o Loglikelihood	# free parameters	AIC	BIC	Adjusted BIC
1	-2192.25	26	4436.49	4506.47	4424.31
2	-2052.44	33	4170.87	4259.69	4155.41
3	-2060.05	30	4180.10	4260.84	4166.05
4	-1599.50	20	3239.01	3292.84	3229.64
5	-1514.90	25	3079.79	3147.08	3068.08
6	-1515.90	23	3077.79	3139.69	3067.02

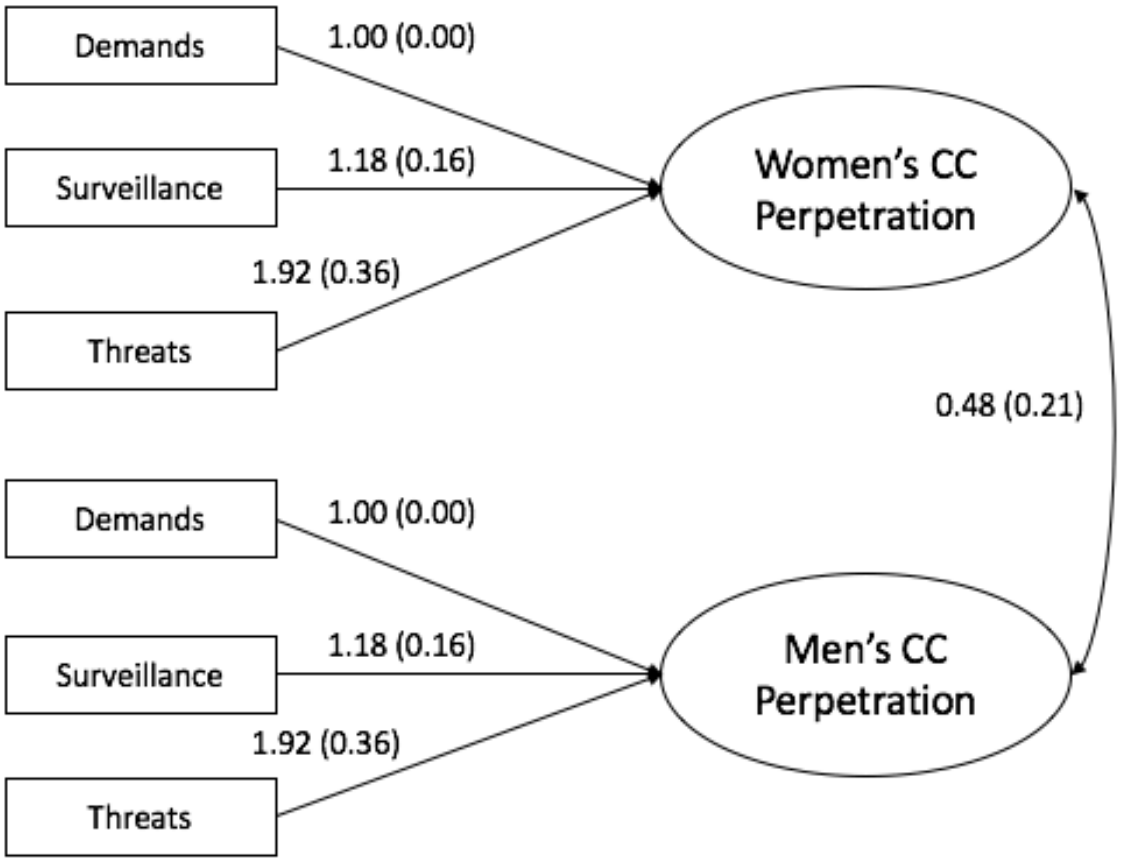

Figure 9. Coercive control perpetration measurement model.

Coercive control victimization. As with coercive control perpetration, several models were estimated using MLR for comparison for coercive control victimization (i.e., with and without "responses to demands," with paths constrained to be equal); fit statistics are presented in Table 17. Model 1 is the null model (i.e., coefficients equal to zero) for a hypothesized model that includes the observed variable "responses to demands," Model 2 is the hypothesized model including "response to demands," and Model 3 is Model 2 with path coefficients constrained to be equal for men and women. Model 4 is the null model for a hypothesized model that excludes "responses to demands," and Model 5 is the hypothesized model without "responses to demands." A sixth model was attempted (Model 5 with coefficients constrained to be equal for men and women), but the model was not identified and could not be estimated. Similar to coercive control perpetration, the model in which "responses to demands" were excluded and paths were free to vary (Model 5, Figure 10), was the best fitting model based on AIC and BIC. Loglikelihood chi-square difference testing suggested that Model 5 was a significantly better fit than its null model, Model 4, χ^2 (5, N = 218) = 149.80, $p < .001$.

Table 17

Model Fit Statistics for Coercive Control Victimization Measurement Models

Model	H^o Loglikelihood	# free parameters	AIC	BIC	Adjusted BIC
1	-2498.59	26	5049.17	5119.15	5036.99
2	-2376.98	33	4819.95	4908.77	4804.49
3	-2379.72	30	4819.44	4900.18	4805.39
4	-1825.15	20	3690.31	3744.14	3680.94
5	-1750.26	25	3550.51	3617.80	3538.80

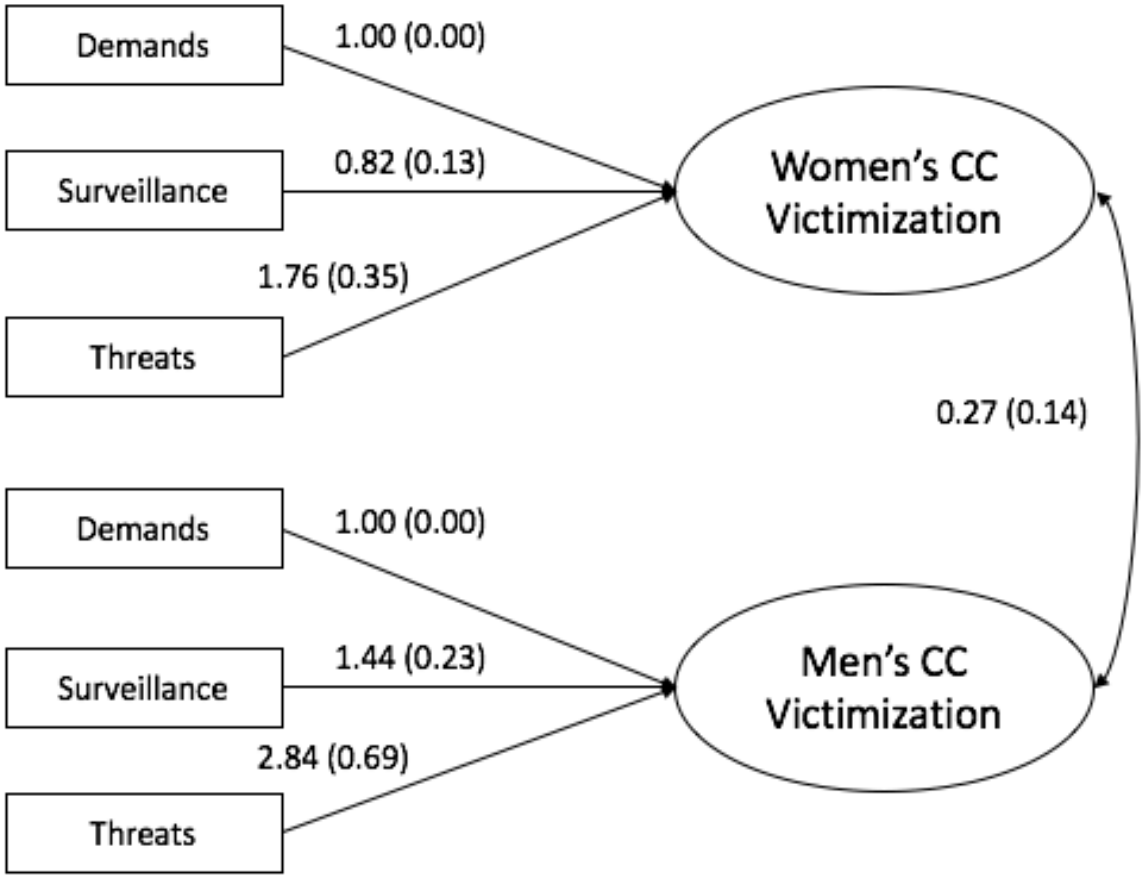

Figure 10. Coercive control victimization measurement model.

Structural equation models (SEMs). SEMs were estimated using MLR or MLF in situations where MLR models did not converge. As all models included count data (either violence or coercive control variables), fit was determined by using loglikelihood ratio chi-square difference testing for nested models, and by comparing fit indices (AIC and BIC) to compare non-nested models (i.e., lower AIC or BIC indicating better fit). Results from a pooled multiple imputation dataset did not differ significantly from results from the original nonimputed dataset, and therefore models are reporting using the original data.

SIP deficits predicting IPV perpetration. Several models were estimated using MLR estimation and fit statistics are provided in Table 18. Model 1 was a null model, in which paths between SIP deficits and IPV perpetration were constrained to be 0. Model 2 allowed actor and partner paths from SIP deficits to IPV perpetration to vary freely, whereas Model 3 constrained unstandardized actor effects to be equal and unstandardized partner effects to be equal for men and women. Model 4 included social desirability as a control variable. Model 5 included an interaction term of Women's SIP deficits X Men's SIP deficits predicting IPV perpetration. A sixth model was attempted (Model 5 with actor paths constrained to be equal and partner paths constrained to be equal), but the model did not converge. Overall, the best fitting model was Model 3 (see Figure 11), in which actor paths and partner paths were constrained to be equal for men and women. Loglikelihood chi-square difference testing suggested that Model 3 was a significantly better fit than its null model, Model 1, $\chi^2(3, N = 218) = 17.10$, $p = .001$. Though Model 3 did not differ significantly from Model 2, $\chi^2(2, N = 218) = 0.08$, $p = .963$, AIC and BIC estimates suggested it was a slightly better fit.

Table 18

Model Fit Statistics for SEM with SIP Deficits Predicting IPV Perpetration

Model	H^{o} Loglikelihood	# Free Parameters	AIC	BIC	Adjusted BIC
1	-1848.04	45	3786.08	3907.19	3765.00
2	-1837.8	50	3775.15	3909.72	3751.72
3	-1837.63	48	3771.25	3900.44	3748.76
4	-2325.74	59	4769.47	4928.26	4741.83
5	-1834.28	52	3772.55	3912.50	3748.19

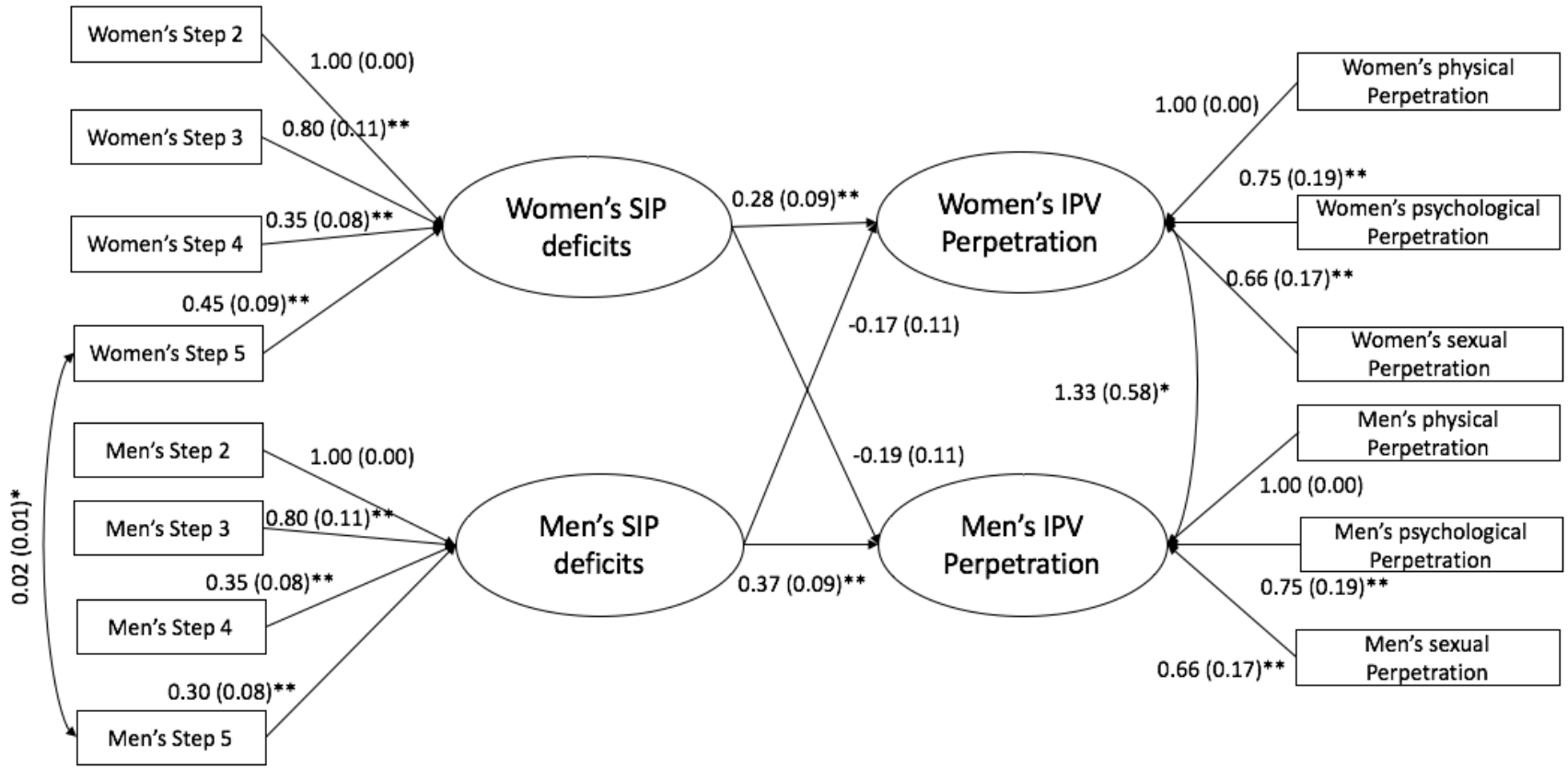

Figure 11. Social information processing (SIP) deficits predicting intimate partner violence (IPV) perpetration. Standardized coefficients are presented for actor and partner paths.

SIP deficits predicting IPV victimization. Several models were estimated using MLF estimation and fit statistics are provided in Table 19. Model 1 is a null model, in which paths between SIP deficits and IPV victimization were constrained to be zero. Model 2 allowed actor and partner paths from SIP deficits to IPV victimization to vary freely, whereas Model 3 constrained unstandardized actor effects to be equal and unstandardized partner effects to be equal for men and women. Model 4 included social desirability as a control variable. A fifth model was attempted with the SIP deficit interaction term included (i.e., Actor x Partner effect), but the model was not identified and could not be estimated. Overall, similar to IPV perpetration, the best fitting model was Model 3 (see Figure 12), in which the unstandardized actor paths and partner paths were constrained to be equal for men and women. Loglikelihood chi-square difference testing suggested that Model 3 was a significantly better fit than its null model, Model 1, $\chi^2(2, N = 218) = 16.80$, $p < .001$. Model 3 did not differ significantly from Model 2, $\chi^2(2, N = 218) = 0.93$, $p = .628$, but AIC and BIC suggested it was a slightly better fit.

Table 19

Model Fit Statistics for SEM with SIP Deficits Predicting IPV Victimization

Model	H^o Loglikelihood	# free parameters	AIC	BIC	Adjusted BIC
1	-1846.80	46	3785.63	3909.44	3764.08
2	-1839.85	50	3779.90	3914.47	3756.47
3	-1837.63	48	3776.83	3906.01	3754.34
4	-2325.74	59	4775.49	4934.28	4747.85

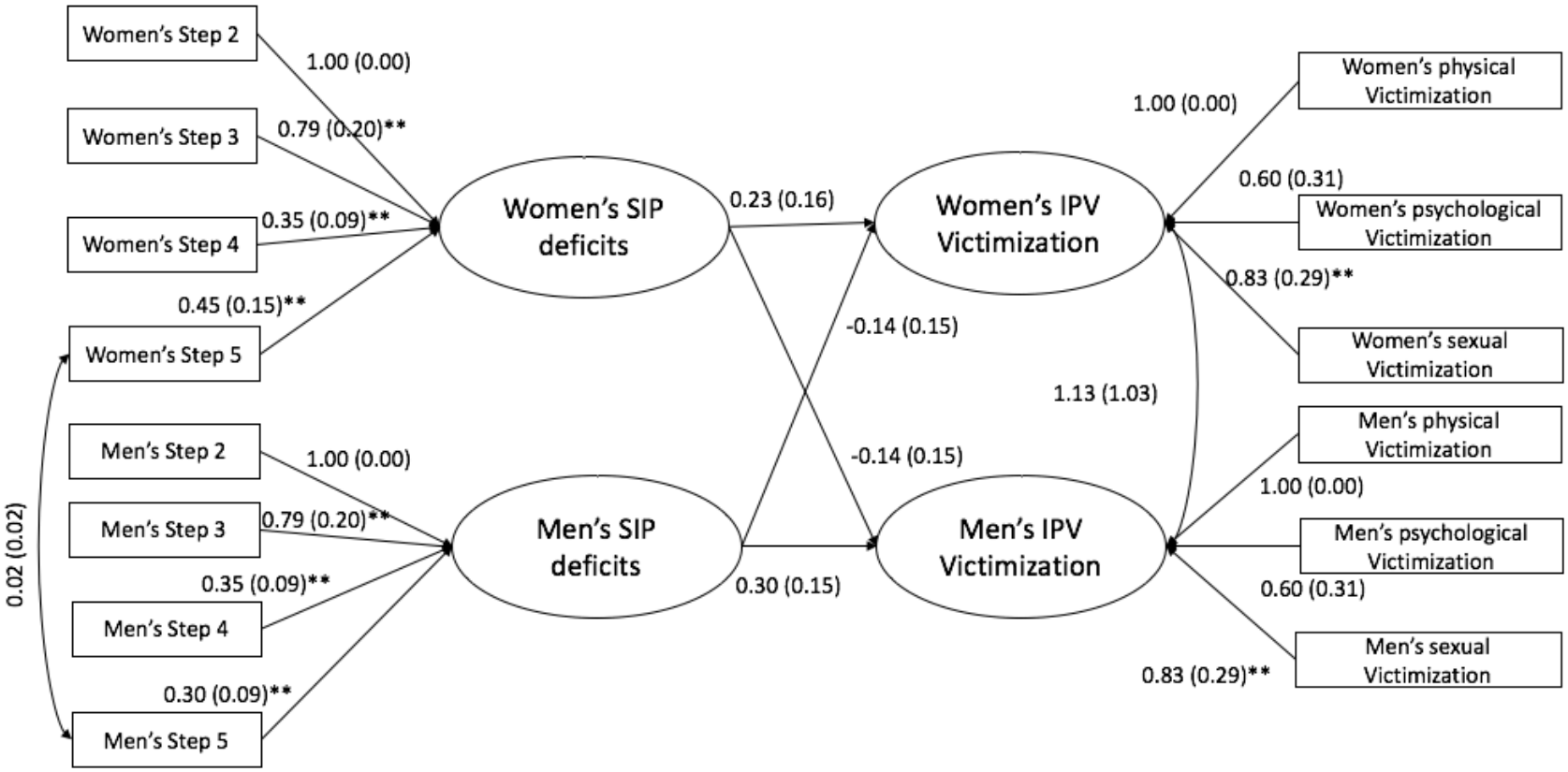

Figure 12. Social information processing (SIP) deficits predicting intimate partner violence (IPV) victimization. Standardized coefficients are presented for actor and partner paths.

SIP deficits predicting CC perpetration. Several models were estimated using primarily MLR estimation and fit statistics are provided in Table 20. A full null model with actor and partner paths constrained to be zero was unable to be estimated as the model was not identified. Therefore, a variation of the null model, Model 1, was estimated with MLF, in which only actor paths between SIP deficits and IPV victimization were constrained to be zero (i.e., partner paths were free to vary). Model 2 allowed actor and partner paths from SIP deficits to IPV victimization to vary freely, whereas Model 3 constrained unstandardized actor effects to be equal and unstandardized partner effects to be equal for men and women. Model 4 included social desirability as a control variable and Model 5 included a SIP deficit interaction term (i.e., Actor x Partner effect). Based on fit indices, Model 3 was the best fitting model (see Figure 13), in which the unstandardized actor paths and partner paths were constrained to be equal for men and women. Model 3 was unable to be statistically compared to its null (Model 1), because $df = 0$ (i.e., both models had the same number of degrees of freedom), but examination of AICs and BICs suggested Model 3 was the better fitting model. Model 3 did not differ significantly from Model 2, $\chi^2(2) = 2.84$, $p = .242$, but again, both AIC and BIC suggested it was a slightly better fit.

Table 20

Model Fit Statistics for SEM with SIP Deficits Predicting Coercive Control Perpetration

Model	H^o Loglikelihood	# free parameters	AIC	BIC	Adjusted BIC
1	-2249.22	48	4595.22	4724.40	4572.73
2	-2241.89	50	4583.78	4718.35	4560.35
3	-2243.31	48	4582.62	4711.80	4560.13
4	-2731.16	59	5580.32	5739.11	5552.68
5	-2833.45	58	5782.90	5939.00	5755.73

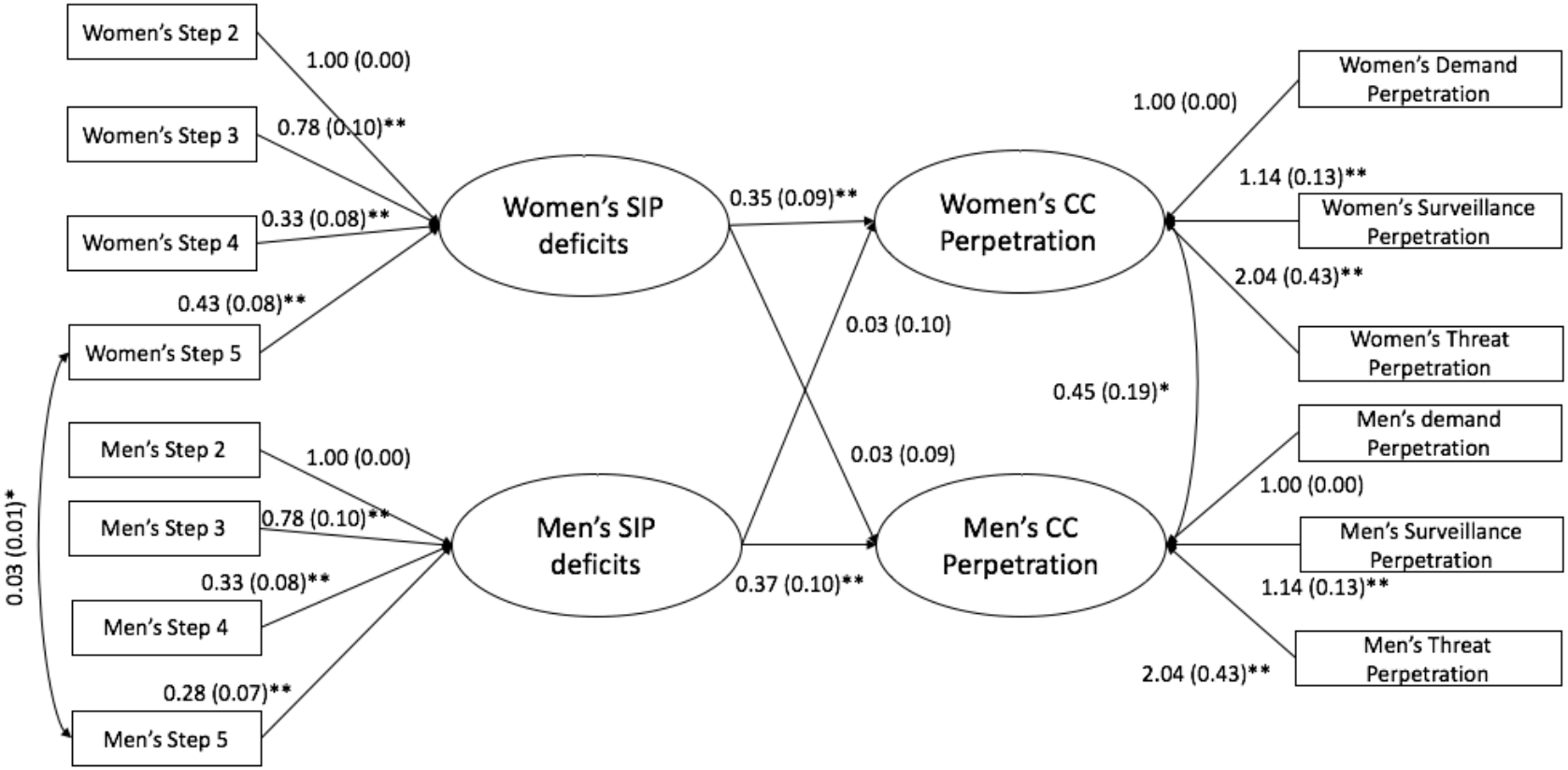

Figure 13. Social information processing (SIP) deficits predicting coercive control perpetration. Standardized coefficients are presented for actor and partner paths.

SIP deficits predicting CC victimization. Several models were estimated using MLR estimation and fit statistics are provided in Table 21. Model 1 was the null model, in which actor and partner paths between SIP deficits and IPV victimization were constrained to be 0. Model 2 allowed actor and partner paths from SIP deficits to IPV victimization to vary freely, whereas Model 3 constrained unstandardized actor effects and partner effects to be equal for men and women. Model 4 included social desirability as a control variable and Model 5 included a SIP deficit interaction term (i.e., Actor x Partner effect). Model 3 had significantly better fit than its null model, Model 1, $\chi^2(2) = 7.32$, $p = .026$, but did not significantly differ from Model 2, $\chi^2(2) = 4.31$, $p = .116$. AIC was slightly better for Model 2, whereas BIC was better for Model 3. AIC tends to favour more complex models, whereas BIC is more conservative (Dziak, et al., 2012; Kline, 2016; Lin & Dayton, 1997), and therefore Model 3 (which constrained effects for men and women to be equal) was conservatively considered the best fitting model and is shown below (see Figure 14).

Table 21

Model Fit Statistics for SEM with SIP Deficits Predicting Coercive Control Victimization

Model	H^{o} Loglikelihood	# free parameters	AIC	BIC	Adjusted BIC
1	-2485.46	48	5066.85	5196.03	5044.36
2	-2479.61	52	5063.22	5203.17	5038.86
3	-2481.77	50	5063.53	5198.10	5040.11
4	-2971.29	61	6064.59	6228.76	6036.01
5	-2478.68	54	5065.36	5210.69	5040.06

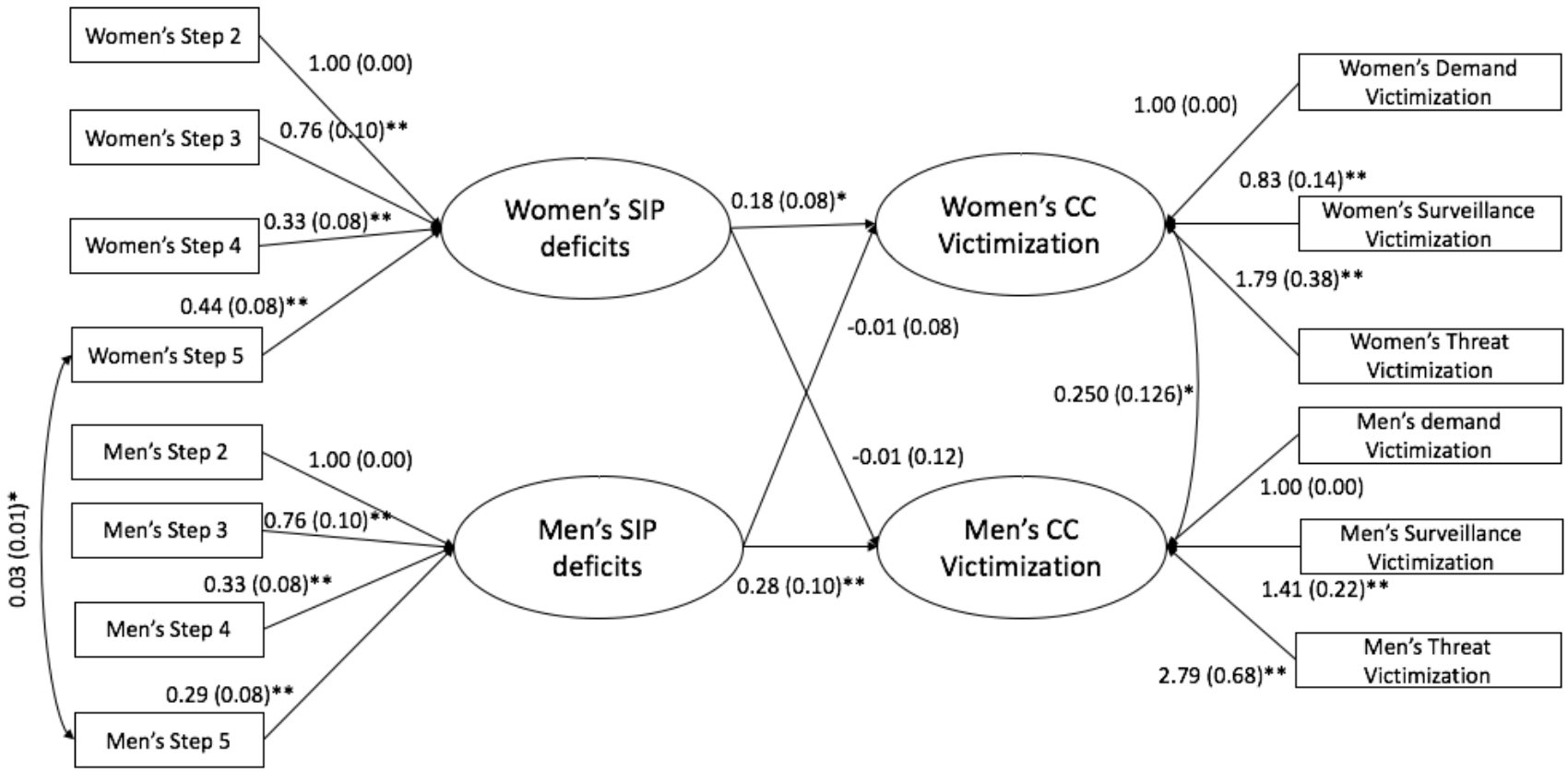

Figure 14. Social information processing (SIP) deficits predicting coercive control victimization. Standardized coefficients are presented for actor and partner paths.

Hypothesis 3. I hypothesized that there would be significant actor effects, such that individuals with greater SIP deficits (across Steps 2, 3, 4, and 5) would report more IPV perpetration and victimization, and more coercive control perpetration and victimization, than individuals with fewer SIP deficits. This hypothesis was partly supported. There were significant actor effects for women with SIP deficits predicting IPV perpetration (β = 0.28, *SE* = 0.09, p = .002, 95% CI = 0.11, 0.46), coercive control perpetration (β = 0.35, *SE* = 0.09, $p < .001$, 95% CI = 0.161, 0.529), and coercive control victimization (β = 0.12, *SE* = 0.08, p = .030, 95% CI = 0.02, 0.33). Similarly, there were significant actor effects for men with SIP deficits predicting IPV perpetration (β = 0.40, *SE* = 0.09, p = .002, 95% CI = 0.20, 0.53), coercive control perpetration (β = 0.37, *SE* = 0.10, $p < .001$, 95% CI = 0.18, 0.56), and coercive control victimization (β = 0.28, *SE* = 0.10, p = .006, 95% CI = 0.08, 0.48). Overall, those with more SIP deficits reported perpetrating more IPV and coercive control and experiencing more coercive control victimization. In contrast to the hypothesis, SIP deficits were not significantly predictive of IPV victimization for women (β = 0.269, *SE* = 0.160, p = .092, 95% CI = -0.04, 0.58) or men (β = 0.30, *SE* = 0.18, p = .096, 95% CI = -0.05, 0.66).

It is interesting to note that the IPV perpetration model was a slightly better fitting model than the IPV victimization model based on AIC (perpetration = 3771.35; victimization = 3776.83) and BIC (perpetration = 3900.435; victimization = 3906.014). Similarly, coercive control perpetration was a much better fitting model (AIC = 4582.62, BIC = 4711.80) than the coercive control victimization model (AIC = 5063.53, BIC = 5198.10). This suggested that in the current study, SIP deficits tended to be a better predictor of perpetration (i.e., of IPV and coercive control) than victimization. Furthermore, in comparison, SIP predicting IPV

perpetration was a better fitting model than coercive control perpetration, suggesting SIP deficits may predict IPV perpetration better than coercive control perpetration.

Research Question 1. Were there gender differences in the relations between SIP deficits and IPV or coercive control? Each model was tested with men and women constrained to be equivalent in the model and with men and women unconstrained (e.g., Calvete et al., 2016). However, for all four models, there were no significant differences between the constrained and unconstrained models and the constrained model generally provided a better fit, suggesting that the pathways identified in these models were similar for men and women.

Research Question 2. Were there partner effects of SIP on IPV or coercive control, such that individuals' SIP deficits predicted their partners' IPV perpetration and victimization or coercive control perpetration and victimization? No partner effects were significant in any of the four models tested, suggesting that in the current sample, actor SIP deficits did not significantly predict partners' perpetration or victimization.

Research Question 3. Were there interaction effects between actor- and partner-reported (i.e., Actor x Partner) SIP deficits in predicting physical, sexual, and psychological IPV, and coercive control? Though there was a significant Actor x Partner effect of SIP predicting women's IPV perpetration, the models that included Actor X Partner effects generally had poorer fit than models that did not include the interaction effect and were therefore not interpreted. These findings suggested that in the current sample, Actor X Partner SIP effects were not good predictors of IPV or coercive control perpetration or victimization in a model in which direct actor and partner effects were included (see Table 20 for summary of results).

Table 22

Summary of Results for Hypotheses and Research Questions

Hypothesis #	Hypothesis/Question	Analysis	Supported
Hypothesis 1	Deficits in SIP at Steps 2, 3, 4, and 5 will be related	Hierarchical Regression	Partially Supported: • Step 2 deficits predicted deficits at Steps 3, 4, and 5 • Step 3 deficits predicted deficits at Step 4 • Step 4 predicted deficits at Step 5
Hypothesis 2	More deficits in timed vs. untimed	Multi-level Models	Not Supported: • No significant differences in SIP deficits between timed and untimed
Hypothesis 3	Significant actor effects of SIP on IPV and CC	APIM with SEM	Supported: • SIP deficits predicted increased IPV perpetration • SIP deficits predicted increased CC perpetration and victimization
Research question 1	Significant gender effects of SIP on IPV and CC?	APIM with SEM	No significant gender effects
Research question 2	Significant partner effects of SIP on IPV and CC?	APIM with SEM	No significant partner effects
Research question 3	Significant Actor x Partner effects of SIP on IPV and CC?	APIM with SEM	No significant Actor x Partner effects

CHAPTER IV

Discussion

This study explored the interrelations between SIP deficits and if SIP deficits are affected by a time pressure. An additional aim of the study was to attempt to measure Step 3 in the SIP model, setting a goal, which has not been previously studied with respect to intimate partner violence and has rarely been studied in adults. Furthermore, I used structural equation modeling and analytic techniques based on the actor-partner interdependence model to explore whether SIP deficits were related to intimate partner violence and coercive control in dating couple dyads.

Results

Prevalence and gender differences. In general, overall violence rates in the sample are consistent with other research using similar samples (Neufeld et al., 1999; O'Leary et al., 2006; Setchell, et al., 2016; Stonard et al., 2014; Straus, 2004). In the current sample, men and women reported experiencing and perpetrating similar levels of violence, with the exception of physical violence, for which women reported more perpetration than men, and sexual violence, for which men reported more perpetration than women. The sexual violence gender difference is consistent with other research showing the men perpetrate more sexual violence than women (Nicholson et al., 1998; Stets & Pirog-Good, 1989; Swan et al., 2008). There is some research that also shows that women perpetrate more physical violence than men (e.g., Archer, 2000; Taft et al,, 2010), though differences are often not statistically significant (e.g., Bell & Naugle, 2007; Shorey et al., 2011). This effect may be related to social perceptions of violence, for which male violence is typically perceived as more socially unacceptable and female violence is more condoned (Nabors et al., 2006). Thus, women may perpetrate more violence if they view it as less problematic

and/or men may underreport their violence perpetration. There is evidence in the current sample for the latter, as social desirability was linked to IPV perpetration for men (as well as for women), and interpartner agreement statistics showed that there is some difference between women's reports of victimization and men's reports of perpetration, especially for sexual violence. In general, female partners reported experiencing more violence than male partners reported perpetrating, whereas women were reporting perpetration similar to their male partners' reports of victimization.

Though injury was not used as a key variable in this study given the low prevalence of injury in the data, it is interesting to note that men and women reported causing their partners injury at similar rates, but men reported being injured more than women. This finding is inconsistent with past research that has consistently shown that women experience more injury than men as a result of partner violence (Hamby, 2005, 2009; Straus & Gozjolko, 2014). For male-perpetrated injury, no couples agreed on the occurrence of injury, meaning that men who reported injuring their partner did not have partners who reported being injured, and conversely, women who reported being injured did not have partners who reported injuring them. Given the low based rate of injury in the current sample, it is hard to draw conclusions of these results, but it does suggest that partners do not agree about the occurrence of injury in their relationships. This might be due to underreporting of injury by victims, as a protective mechanism for their relationship, or perpetrators, given that injuring a partner is socially condemned. It could also be that individuals are not always aware when they have injured their partner, especially for the types of injuries reported in the current sample (e.g., bruises, small cuts, strains), which may not have required medical attention.

Rates of coercive control were generally high in the current sample. This might suggest that some incidences of demands, surveillance, and responses to demands are common in young adult heterosexual relationships, whereas threats may be more indicative of unhealthy relationship patterns. That controlling tactics were present to such a high degree in the current sample may be suggestive of what is considered "normative" in heterosexual relationships. Heteronormativity, as articulated and conceptualized in work by Judith Butler (Mcneilly, 2014), suggests that the social construction of sex and gender dictates social norms. With relation to this theory, the results of the current study may indicate that men and women vying for control (e.g., by using demands, surveillance) is a socially expected norm in young adult heterosexual relationships and that some degree of control in relationships may be considered socially acceptable behaviour. Men reported experiencing more coercive control than did women, which is inconsistent with research showing gender parity (e.g., Straus, 2012; Swan et al., 2008) or the opposite pattern (e.g., Archer, 2000). Again, though, there is evidence that men were underreporting their own perpetration, as women reported experiencing significantly more demands and surveillance than men reported perpetrating. This may be due to socially desirable reporting or to a difference in perception about what constitutes demands and surveillance.

Violence and coercive control correlations. Violence perpetration and victimization were highly interrelated, almost to the point of multicollinearity, suggesting that individuals who perpetrate violence in their relationships are more at risk of experiencing violence. Similarly, coercive control perpetration was highly correlated with coercive control victimization, suggesting that as a partner's perpetration of coercive control increases, so does their partner's use of coercive control against them. This finding is reminiscent of Johnson's (1995) theorized situational couples' violence, in which fights escalate to the point of violence, or in this case,

controlling behaviours. Violence and control were also significantly correlated with each other, suggesting that increased levels of violence in relationships are related to increased levels of coercive control.

It is also interesting that the Negotiation scale of the CTS2 was not related to any SIP deficits, despite having apparent similarities to generation and selection of competent responses. It may be that there is a disconnect between what participants report retrospectively happening in their relationship and between their in-the-moment problem-solving strategies that would be tapped by the measures of SIP in the current study. Researchers have not yet measured Steps 1 (encoding) and 6 (enactment of chosen response) of the SIP model and the negotiation scale might be one way to assess if participants are actually using the competent strategies that they generate and select in earlier steps. However, given the low correlations shown in this study, the measure would have to be modified to fit the question style of the vignettes and incompetent as well as competent responses would need to be enacted, which might help to resolve the lack of correlation between measures.

Negotiation was also positively correlated with IPV victimization and perpetration, suggesting that individuals using more negotiation strategies are more likely to perpetrate and be victims of IPV. The latter effect has been shown in other research (e.g., Cuenca, Grana, & Redondo, 2015) and even during validation of the CTS2, negotiation was positively correlated with psychological aggression and physical assault among women. It may be that using the Negotiation scale within a measure primarily focused on measuring violence reflects reporting styles (e.g., participants who tend to rate themselves higher across scales/measures), or may be reflective of more conflicted relationships, thus requiring participants to use more and a wider variety of conflict resolution strategies. Further, the CTS2 has no way of identifying which

conflict strategies were used during a single conflict, so it may be that individuals used negotiation strategies at the beginning of one relationship conflict and escalated to violent strategies when negotiation was unsuccessful. The Negotiation scale is not often used in violence research using the CTS2 and most studies that use the scale tend to be focused on assessing reliability and validity in different populations (e.g., 11/20 studies in a PsychInfo search with search terms "negotiation" and "CTS2"). Further research should investigate if the negotiation scale is related to other measures of prosocial responding or if it is more indicative of higher levels of conflict in romantic relationships.

Hypothesis 1: Interrelations between SIP deficits. I hypothesized that all four SIP deficits measured in the current study – namely, negative attributions (Step 2), goal setting (Step 3), generating competent responses (Step 4), and selecting competent responses (Step 5) – would be related to each other. Previous research has shown that deficits at one step of the SIP model are related to deficits at other steps (e.g., Crick & Dodge, 1994; Dodge & Crick, 1990; Setchell et al., 2017). In the current study, all SIP deficits were interrelated based on bivariate correlations, which supports this hypothesis. When multilevel modelling was used to factor in social desirability and the nonindependence between members of a couple, most SIP deficits were found to be related, supporting this hypothesis. Specifically, negative attributions positively predicted aggressive goals; negative attributions in the multiply imputed dataset (negative attributions were potentially most affected by missing data) and aggressive goals in both datasets positively predicted response generation competency; and negative attributions and generation competency positively predicted response selection competency. Therefore, even when controlling for socially desirable responding, participants who made more negative attributions about their partner's behaviour selected more aggressive goals for resolving the interaction,

generated less competent coping responses, and then selected less competent coping responses to enact. Furthermore, participants who selected more aggressive goals for resolving the interaction generated, on average, less competent coping responses, and participants who generated less competent coping responses tended to choose less competent coping responses to enact. Overall, it seems that deficits at one step of the SIP model do tend to be related to deficits at other steps, as expected.

Only one effect was not shown in the current study using multilevel modelling: participants who reported more aggressive goals were not found to select less competent coping responses, on average. Though these two variables were related in bivariate correlations, once other variables were accounted for, like social desirability, negative attributions, and response generation competency, the effect was not significant. It could be that negative attributions and response generation competency have a stronger relationship to response selection competency, and indeed, the bivariate correlations show that these two variables tend to have a higher correlation with response selection competency than does aggressive goals. It may also be that when the analysis loses some power by making the couple the unit of analysis (i.e., *N* decreases from 218 to 109), the effect is no longer strong enough to be significant.

I developed the goal setting measure for this study, based on a measure of goal setting used with children and added items that reflected other motivations for violence found in the IPV literature (Neal & Edwards, 2017). Reliability was lower for this questionnaire than it was for the NIQ or RAQ, which were used to assess negative attributions. The lower reliability likely reduced power to detect significant effects (e.g., Kline, 2016). Though items seemed to hold well together based on the factor structure and fair reliability, this measure has yet to be validated and it may be that there are important aggressive or otherwise incompetent goals missing from the

measure that might be more predictive of response selection. Despite the limitations of this questionnaire, aggressive goals were found to be significantly related to some other SIP deficits, therefore demonstrating that a questionnaire might be an appropriate way to assess goal setting. Future studies can build on the questionnaire used in this study to continue to study goal setting as a SIP deficit that can be predictive of aggression and control in adults.

Hypothesis 2: SIP deficits in timed vs. untimed conditions. I hypothesized that individuals who completed SIP measures under a time pressure would demonstrate greater SIP deficits at all steps (i.e., Steps 2, 3, 4, and 5) of the SIP process than those who had unlimited time to respond to questionnaires and open-ended questions. This hypothesis was not supported. Despite participants in the timed condition spending significantly less time completing measures than those in the untimed condition, there was little effect of condition on SIP deficits. Results were consistently in the expected direction (i.e., with more SIP deficits in the timed vs. untimed conditions). However, estimates were around 0, suggesting minimal effect of condition. Given that social information processing is thought to be automatic and subconscious (Crick & Dodge, 1994; Dodge & Crick, 1990) vignettes may still be problematic in that they make implicit processes more explicit (e.g., Echkhardt et al., 2012) and effects may be more evident with greater imposed time pressure (e.g., a full standard deviation below the mean). However, when a time pressure was applied, creating a more stressful condition and giving participants less time to think through responses, participants in the timed condition did not show greater SIP deficits than those given unlimited time, suggesting that vignettes may be closer to real life snap decisions than expected. Furthermore, this counters the argument that perpetrators lose control in the heat of a fight (e.g., Neal & Edwards, 2017), as well as possible critiques of the use of vignettes. Even when given more time, participants still provided less competent, and potentially

more aggressive, responses, suggesting that SIP deficits may be more automatic or learned vulnerabilities for aggression, and not something that happens in the heat of the moment. The current findings also suggest that past research using vignettes may be valid assessments of SIP deficits.

Hypothesis 3: Actor effects. I hypothesized that there would be significant actor effects across the SEM models, such that individuals with greater SIP deficits (i.e., a latent variable comprised of deficits at Steps 2, 3, 4 and 5) would report perpetrating more IPV and more coercive control than those with fewer SIP deficits. This hypothesis was supported as the SEMs showed significant positive actor effects of SIP deficits on IPV perpetration and coercive control perpetration, indicating that individuals with greater SIP deficits were more likely to perpetrate IPV and coercive control. Furthermore, there was a significant actor effect of SIP deficits on coercive control victimization: individuals with greater SIP deficits were more likely to be victims of coercive control.

Previous research has consistently shown significant relations between SIP deficits and IPV (e.g., Fite et al., 2008; Holtzworth-Munroe & Anglin, 1991; Holtzworth-Munroe, 1997; Setchell et al., 2017). It is interesting to note that the IPV perpetration model was a slightly better fitting model than the IPV victimization model, suggesting that SIP deficits are more predictive of IPV perpetration than victimization. This is consistent with previous research on SIP deficits, which have mainly been studied as a predictor of aggressive responses (e.g., Fite et al., 2008; Lemerise et al., 2010; Taft et al., 2008). Therefore, though SIP deficits may make some individuals more vulnerable to being victims of IPV (Setchell et al., 2017), for most, it is a better predictor of perpetration of IPV.

The current study also extends previous research by showing a significant relation between SIP deficits and coercive control perpetration and victimization. As hypothesized based on the self-regulation model proposed by Day and Bowen (2015), individuals reporting more SIP deficits also reported more perpetration of coercive controlling behaviours (i.e., demands, surveillance, and threats) in their relationships than those with lower SIP deficits. As suggested by Day and Bowen, it may be that making more hostile attributions about a partner's behaviour, having higher goals to control their partner, and generating and selecting less competent (and potentially more controlling) responses makes coercive control use more likely.

Previous research does not provide an explanation for why SIP deficits might be related to coercive control victimization, as was found in this study. To preface, it is important to note that what are deemed "competent" or "prosocial responses" in ideal social interactions may not be the most adaptive or the safest response in abusive relationships, which could potentially explain these results. For example, in violent or controlling relationships, it may be safer, and therefore more adaptive, for participants to feel upset but not say anything to their partner, given that they may experience violence or control tactics when they bring up issues with their partner. However, in this study, such a response would be coded as an incompetent or slightly incompetent response on several of the vignettes. Research has shown that individuals in violent relationships are likely to use a variety of possible methods of coping, ranging along the spectrum of what might be considered "competent" (e.g., disengagement coping to problem-solving coping), and therefore may be more likely to have lower average scores on "competence" (e.g., Calvete, Corral, & Estevez, 2008). The data used in this study are cross-sectional and therefore I cannot speak to directionality. It may be that having violence or control tactics present in a relationship leads one to make more negative attributions about one's partner

(which have, perhaps, been shown accurate in previous interactions) and fewer "prosocial" coping responses. In general, what is considered "competent" in ideal social situations, may be more complicated and/or situation specific in the context of relationships that include violence or control.

Another explanation might be that individuals with more SIP deficits, and who are therefore less skilled at navigating social situations, are more likely to be targeted by coercive controlling partners. There is some research to support this suggestion, as research on IPV in individuals with disabilities (e.g., internalizing problems, ADHD) are more vulnerable to being victims of dating abuse (Mitra, Mouradian, & McKenna, 2013; Turner, Venderminden, Finkelhor, Hamby, & Shattuck, 2011). Dutton and Goodman (2006) have also suggested that pre-existing vulnerabilities in the victim/target can "set the stage" for the occurrence of coercive control, making the victim more likely to be a target of coercive control. Furthermore, both male and female partners' coercive control perpetration with their partner's use of coercive control against them, almost to the point of multicollinearity. It may therefore be possible that most relationships that contain coercive control have general relationship dynamics between partners that foster controlling tactics like making demands, surveilling partners, and making threats. For example, it may be that as one partner starts using more controlling tactics, the other partner also begins to adopt higher levels of control tactics to protect themselves, to maintain a sense of control in the relationship, or to retaliate.

On the other hand, though IPV perpetration was also highly correlated to IPV victimization for both men and women, similar effects were not seen between SIP and IPV victimization. Therefore, another possible explanation for this effect is the way coercive control was measured in this study. Dutton and Goodman's (2006) measure of coercive control was used

in this study because it was based on their well-articulated theory of coercive control developed from intensive work with victims who experienced the types of coercive relationships typified by Johnson's (1995) intimate terrorism. Based on their research, Dutton and Goodman (2006) left their questions intentionally broad as coercive controlling tactics were experienced in many idiosyncratic ways. For example, items on the demand scale are typically worded "demanded something related to (e.g., eating/wearing certain clothes/using TV, radio, or the internet, etc.)." The broadness of this question is intended to elicit endorsement from people who have for example, been told not to watch certain shows, not to watch TV at all, not to use the Internet, not to use certain websites, or not to go on social media. Some behaviours listed, all of which might lead to an endorsement of "yes," may be more controlling than others, and some may be behaviours that occur in many dating relationships, and not necessarily just in those characterized by abuse. For example, it is easy to imagine one partner in a healthy relationship telling another to turn off the TV because it is too loud or too late at night, but this could also elicit an endorsement on this item. It is also possible that participants misinterpreted the questions and conflated "demanding" with "asking." The rates of coercive control endorsed in this study are very high, with most of the sample endorsing demands (93.6% of men and 85.3% of women), surveillance (80.7% of men and 69.7% of men), and response to demands (82.6% of men and 88% of women). These rates are much higher than rates of coercive control typically found in other studies using different measures, which range from around 16.7% (Felson & Outlaw, 2007 using five questions from a national survey) to 31.6% in divorced women (Hardesty et al., 2015 using a subscale of a measure of psychological violence against women). One potential explanation for this is that the Dutton and Goodman (2006) measure assesses many different behaviours (110 in total), which might lead to a higher rate of endorsement as there are

more opportunities to respond affirmatively. In addition, the demands and surveillance observed in the current study may be reflective of control tactics that are considered socially expected and "normative" in heterosexual dating relationships (e.g., asking where partner is).

Research Question 1: Gender differences. I also investigated whether there were gender differences in the relationship between SIP deficits and IPV and coercive control, as some research has suggested differences between men and women (e.g., Calvete & Orue, 2010; Calvete et al., 2016; Clements & Holtzworth-Munroe, 2008). In the current study, there were no gender differences observed in pathways between SIP deficits and IPV. There were no significant differences between models in which actor and partner paths were free to vary and in which actor and partner paths were constrained to be equal for men and women; all models fit slightly better when paths were constrained to be equal, suggesting that, in the current study, SIP deficits predicted IPV perpetration and coercive control perpetration and victimization in similar ways for men and women. Several researchers (Ambrose & Gross, 2016; Calvete & Orue, 2010; Calvete et al., 2016, Holtzworth-Munroe, 2008) have found gender differences in men's and women's attributions and interpretations (i.e., Step 2) about partner violence. It may be that certain measures of SIP, like goals, response generation, and response selection, are less gendered or produce fewer gender differences and therefore, when collapsed into a latent variable, minimize any effects of attributions. Conversely, these previous studies did not specifically measure hostile attribution bias (like what was measured in this study with the NIQ and RAQ) and instead involved more general interpretations and attitudes (e.g., justification of violence, narcissistic schemas, positive view of violence, attributing aggressive cognitions), therefore measuring a different aspect of Step 2. A latent variable for IPV was also used in the current study, which has not been done in other research. Sexual violence tends to be more

gendered, and therefore it is possible that gender effects might have been minimized when it was combined into a latent variable with physical and psychological violence.

In addition, the lack of gender differences might be due to differences in reporting. There is evidence in the current sample of socially desirable responding, as social desirability was related to many variables, even though it did not fit well within the structural equation models. In addition, interpartner agreement on the occurrence of violence was low, especially for agreement on the occurrence of male-perpetrated violence. Women reported more victimization of sexual violence, demands, and surveillance than men reported perpetrating, which could minimize any gender differences that might truly exist in the sample. A review article by Chan (2011) found that several studies have shown similar effects of men under-reporting male-perpetrated violence. Finally, it is possible that in a sample of typical university students' relationships, violence and control are experienced similarly for both men and women.

Research Question 2: Partner effects. I further explored whether there would be significant partner effects, whereby an individual's SIP deficits predict their partner's perpetration or victimization of IPV or coercive control. No significant partner effects were found in the current study, suggesting that participants' SIP deficits did not predict their partners' violence or control. Setchell et al. (2017) also found no significant partner effects in their study and there is no other research to date that shows significant partner effects of SIP deficits on partners' perpetration of violence. Thus, SIP deficits seem to be a predictor of one's own violence and perpetration and to have little bearing on a partner's use of violence or control. There could also have been statistical limitations regarding the ability to detect effects, as partner effects can be difficult to detect due to insufficient statistical power (Ackerman, Donnellan, & Kashy, 2010; Dyrenforth, Kashy, Donnellan, & Lucas, 2010) given that effects are more distal

compared to one's one self-report of perpetration or victimization. Partner effects may not be significant over and above one's own variables. Furthermore, Dyrenforth et al. (2010) suggest that partner effects would be difficult to detect due to lack of shared variance, as they are generally based on one person's report of his/her/their traits and the other person's outcomes and it likely requires larger sample sizes to detect these effects. That being said, as actor effects are generally stronger at predicting outcomes than are partner effects, as was the case in this study, interventions targeting the individual might be able to produce changes in the individual's perpetration and victimization and can therefore effect change to the overall relationship dynamic.

Research Question 3: Actor x Partner effects. Finally, I explored the interactions between actor- and partner-reported (i.e., Actor x Partner) SIP deficits in predicting physical, sexual, and psychological IPV and coercive control. No significant Actor X Partner effects were detected in this study, suggesting that best fitting models for SIP deficits on violence and control do not include these interactions and that violence and control are better predicted by one's own SIP deficits. This finding contrasts with the findings of Setchell et al. (2017), in which researchers found that when participants' SIP competency was discrepant from their partners', they were more at risk for physical IPV perpetration and victimization. As little research has looked at Actor X Partner effects of SIP deficits on violence, more research is needed to resolve this discrepancy and determine if Actor X Partner effects exist in this context. It might be that there are certain samples in which Actor X Partner effects might be more likely, like in couples who have been together for longer periods of time and therefore influence each other's responding and behaviour to a greater degree. It may be that when all forms of IPV are examined as a latent variable and SIP deficits are grouped into a latent variable, more specific effects (like

that seen for generation competency) are averaged out. Furthermore, similar to partner effects, Actor X Partner effects may have been more difficult to detect in this study due to insufficient power. Further research using couple-level data with larger samples should be conducted to further attempt to replicate or disprove the existence of Actor X Partner effects of SIP deficits on IPV.

Strengths of the Current Study

Overall, there are several strengths of the current study. First, I developed a questionnaire method to assess participants' goals for an ambiguous conflict situation, Step 3 of the SIP model. To my knowledge, no previous research has explored how having maladaptive or aggression goals for the interaction can predict IPV. Moreover, most research on motivations for IPV has focused on retrospective reports (Neal & Edwards, 2017) and did not use the same theoretical model, social information processing (Crick & Dodge, 1994), used here to explain the results. The measure for assessing goals in the current study, while still requiring validation, was a significant bivariate predictor of violence and control, was related to other SIP deficits at the bivariate level, and was predictive of deficits at other steps of the SIP model. The addition of this measure provides another avenue for researchers to explore when predicting IPV that fits within a larger model. Furthermore, I demonstrated that adding a time pressure while participants are completing questionnaires about vignettes had little effect on their SIP scores. Although this is contrary to my hypothesis, it is a promising discovery as it suggests that the vignettes are more robust than might have been anticipated and are likely still an adequate measure of SIP.

Using APIM with SEM to analyze the couple-level data provided several advantages. Using couple-level data in this study enabled me to investigate actor, partner, and Actor X Partner effects, and to also examine reports of perpetration and victimization in an overall model

with men's and women's variables as separate but covaried predictors. Given the disparity in participants' self-reports and research that has shown Actor X Partner effects in predicting IPV (Setchell et al., 2017), collecting information from both partners provides useful information and can be more informative about the nature of IPV in dating relationships. The APIM approach also allowed me to account for the nonindependent nature of the couples' data, as their responses tended to be correlated on a number of variables in the study, suggesting that members of a couple responded similarly to each other. This approach allowed me to account for the variance and increase the statistical and theoretical power of analyses.

One aim of this study was to duplicate Setchell's dissertation findings (2014; Setchell et al., 2017) and in the current study I was able to reproduce, and extend, Setchell's (2014; Setchell et al., 2017) actor effects of SIP deficits on IPV perpetration. Whereas Setchell (2014; Setchell et al., 2017) identified actor effects for response generation competency (Step 4), I demonstrated that an overall latent variable comprised of SIP deficits at each step was predictive of IPV perpetration, and therefore showed that SIP deficits more generally are related to IPV perpetration. In addition, using multilevel modeling for APIM, as Setchell (2014; Setchell et al., 2017) did in their study, does not allow investigation of certain effects by gender (e.g., Actor X Partner effects). Examining gender differences is easier with SEM (Kenny et al., 2016) by comparing a constrained SEM model to a model were paths are free to vary for men and women. Using this approach, I was able to identify that no gender effects existed in the predictors of IPV and coercive control perpetration and victimization, suggesting that SIP deficits predicted violence and control in a similar way for both men and women in the current sample.

Furthermore, I extended Setchell's (2014; Setchell et al., 2017) study by examining all three forms of IPV measured by the CTS2: physical, sexual, and psychological aggression. These

were combined into a latent variable to produce an overall variable that is more reflective of weights of types of violence in the current sample than simply summing all forms of violence. Hamby (2005, 2009) strongly recommended that researchers begin examining sexual assault in their IPV studies, and there is not as much literature investigating predictors of physical, psychological, and sexual aggression, with the majority of the research focusing on just one or two types of violence. Looking at violence as a whole provides information about broad predictors for all forms of violence, and is conceptually justified given the significant inter-relations between types of violence seen in the current study, and in other research (Jackson, 1999; Sabina & Straus, 2008). Though I lose the ability to identify if there are specific SIP deficits that are risk factors for certain types of violence, SEM is a more robust and parsimonious approach to examining SIP deficits, IPV, and coercive control than using many models to assess each combination of SIP deficit and perpetration of victimization type. Overall, this approach gives more weight to the current results than having run many models, increasing the risk of Type 1 error.

Finally, an important way that this study extends the current literature is by examining SIP deficits as a predictor of coercive control. Research on coercive control has mainly focused on consequences of controlling behaviours and high levels of control, or has used coercive control to make a case for gender symmetry or asymmetry, and very little research has examined what makes individuals more likely to use or experience coercive control (Kaplenko, et al., 2018). Despite potential issues with coercive control, it is clear that SIP deficits increase the risk of both perpetrating controlling behaviours and being a victim of controlling behaviours. This provides some preliminary support for Day and Bowen's (2015) model of self-regulation for predicting coercive control and suggests that those who make more negative attributions about

their partners, have more aggression and controlling goals for a social interaction, and generate and select less "competent/prosocial" (and potentially more controlling or aggressive) responses are more likely to use controlling tactics, like making demands, surveilling their partner through various means, threatening their partner, and eliciting a response to their demand from their partner. Though there may be limitations with the measure of control used in the current study, this effect was still significant, and qualitative examination of coping responses generated in open-ended questions do suggest that some individuals quickly jump to hostile solutions (e.g., "I would leave her", "I would hunt the guy down and ask him what's going on").

Moreover, individuals who report more SIP deficits (make more negative attributions about their partner's behaviour, have more aggressive goals for an interaction, and generate and select less "competent/prosocial" responses) are also more likely to experience controlling tactics from their partner. "Competence" of social responding is complex in cases of violence, and responses and attributions that would be considered deficient or incompetent in ideal circumstances, may be protective or at least, context specific. With that in mind, another possible explanation may be that because they interpret their partners' behaviour as more controlling or more hostile given higher levels of hostile attribution bias as measured by the NIQ and RAQ. They may set more controlling goals to attempt to protect themselves to regain some level of control in their relationship. Alternatively, the controlling tactics of one partner may induce a power struggle within the couple. Controlling tactics may be more common in their relationship and they therefore have developed less competent, but potentially safer, methods, to cope with the control. Or, they have tried more competent methods in the past, but as their partners' controlling tactics shut down competent responses, victims begin to resort to less helpful coping solutions. The results of this study extend previous knowledge of predictors of coercive control

perpetration and victimization in a general convenience sample and provide a new avenue of research in this area.

Limitations and Future Directions

Limitations of the current study include issues with the sampling, measurement, and data analyses used in this study.

Sampling. A convenience sample of university students was used in this study and therefore results are subject to issues of generalizability. Specifically, participants are likely representative of a more educated and higher SES sample. Low SES and less education has sometimes been associated with increased risk of IPV (e.g., Felson & Outlaw, 2007; Hamby, 2005; Myhill, 2015), and therefore violence might be underrepresented in this sample. Furthermore, relationship demographics, like length of relationship, were inadvertently not collected in the current study, but as inclusion criteria dictated participants be in a relationship for a minimum of three months, it is possible that this sample of couples was in newer relationships compared to other samples. As such, couples may have experienced less violence and control than couples in longer relationships, in which conflict and/or violence or control tactics might be more prevalent and established. It is also notable that most participants were recruited from a participant pool of psychology students and female partners tended to sign up for the study and bring their male partners to complete it with them. This may have led to reporting differences as perhaps female participants felt more invested in the study having volunteered and responded more honestly, or maybe they felt more positive toward their male partner for doing them a favor and underreported negative aspects of their relationship. Men might have felt more negatively towards their partner if they were not interested in participating,

or there may have been differences between men who volunteered compared to those whose partner volunteered them.

A nonclinical sample was used in the current study, rather than a specific sample reporting violence. As such, a majority of the sample did not report experiencing certain types of violence (like physical and sexual aggression, and coercive threats), making results perhaps less generalizable to couples who experience regular violence or more severe forms of violence. Given the convenience sampling method used in this study, it is likely that any violence captured would be more reflective of what Johnson (2006) conceptualized as situational couple violence, rather than intimate terrorism. Indeed, couples in a relationship characterized by violence and control tactics like those hypothesized to occur in intimate terrorism are unlikely to self-select to participate in a couples study (Johnson, 1995, 2006). However, the overall frequency of violence in this sample is consistent with other estimates of IPV in the general population (e.g., Stonard et al., 2014; Straus, 2004) and therefore may still be representative of the type of violence that occurs in a large minority of dating relationships.

Another sampling issue is the occurrence of multiple sexual assault prevention initiatives being implemented on campus during the time data were being collected. Though there were not statistical cohort effects in violence reporting in the current sample, these initiatives have been ongoing for many years and the University is often highly rated among universities in taking steps to prevent sexual assault (e.g., McLean's, 2018). As such, the sample at this university may report violence differently than students at other universities or compared to data collected at different times. Anecdotally, I observed while coding participants' responses to Vignette 2, which was most likely to tap into sexual assault cognitions, that participants often emphasized consent (e.g., "No means no!"), whereas those types of responses seemed less common in the

sample from Setchell (2014) used for training purposes. There have also been social media awareness campaigns (e.g., #MeToo, in which women share posts of sexual assault and harassment they experienced) and highly publicized cases of sexual assault and intimate partner violence that took place during this study, such as the controversial nomination of Brett Kavanaugh to the Supreme Court of the United States despite sexual assault allegations (e.g., Krieg, 2018) , and the murder of Dr. Elana Fric-Shamji by her husband in Toronto, Ontario (Hayes, 2019). The prevalence of discussion and controversy around intimate partner violence and sexual assault could have influenced responding, as participants may have been more aware of violence or signs of violence in their own relationships, which could have contributed to overreporting, or may have been more aware of the social condemnation of these behaviours leading to underreporting. These social influences and events may have contributed to some of the reporting differences or issues with reliabilities observed in the current sample.

Some inclusion criteria likely also affected results, as participants who were married or in nonheterosexual dating relationships were not eligible to participate in this study. Although situational couple violence was initially identified in married couples (Straus, 1976) and occurs to a similar degree in the current dating sample, there are aspects of being married that may change the way IPV and coercive control are experienced as well as how these variables relate to SIP. Coercive control in particular is likely affected by marriage. For example, Crossman and Hardesty (2017) found that among the five women who experienced constraint through force (the most consistent with Johnson's [1995, 2006] conceptualized intimate terrorism), controlling behaviours escalated at life milestones like marriage and pregnancy. It is therefore possible that coercive control characteristic of intimate terrorism is more common in married couples and less likely to be detected in a general dating sample. It is also possible that violence in a relationship,

and SIP deficits in relation to their partners' behaviours, increase over time as partners become more entrenched in unhealthy relationship dynamics and resort to violence to resolve conflicts. Patterns might be similar to those observed in the current sample, but perhaps may be more stable or more severe over time.

Furthermore, this study excluded LGBTQ+ couples, which is an understudied population among IPV researchers. Research on IPV among LGBTQ+ has found similar (e.g., Edwards & Sylaska, 2013; Lewis, Milletick, Kelley & Woody, 2012) or higher rates of dating violence perpetration and victimization (e.g., Porter & Williams, 2011; Reuter, Newcomb, Whitton, & Mustanski, 2017; Rothman & Silverman, 2007). For example, Porter and Williams (2011) found that LGB participants were four times more likely to experience rape, five times more likely to experience sexual abuse by a partner, three times more likely to experience physical abuse by a partner, and twice as likely to experience psychological abuse by a partner compared to their heterosexual counterparts. There are also unique stressors and predictors of violence in LGBTQ+ populations that could interact with SIP to predict violence, like sexual minority stress (e.g., Edwards & Sylaska, 2013; Mason, Lewis, Gargurevich, & Kelley, 2016). Sexual minority stress can be externalized, through direct sexual stigma and heightened vigilance required to monitor potential threats, and internalized, through an LGBTQ+ person's negative internalizing of sexual stigma into their self-concept (Shorey, Stuart, Brem, & Parrott, 2019).

This heightened vigilance and internalization of homonegative biases could play a role in how SIP deficits may present in LGBTQ+ persons. For example, their attitudes and biases about themselves and their partners could be influenced by minority stress, leading to more or less deficits at Step 2. There might also be fewer possible responses that LGBTQ+ individuals feel able to generate, as some responses that might be normal and non-threatening for heterosexual

individuals, like asking for advice from a support provider, might be less possible if an individual is not out about their non-heterosexual relationship or gender identity. Furthermore, there may be aspects of control and violence that are more specific to nonheterosexual and/or noncis couples (e.g., forcing partners to come out before they are ready). Help-seeking is likely more difficult for LGBTQ individuals, given fewer LGBTQ specific resources, practitioner and help-providers with less knowledge about LGBTQ IPV and systemic discrimination. According to Dutton and Goodman (2006), this pre-existing vulnerability may "set the stage" for control and abuse. Further research should therefore explore coercive control in nonheterosexual couples and whether SIP can be a significant predictor of IPV or coercive control.

Measurement. There were several issues with measurement in the current study. First, the measure of IPV used in this study generally had questionable or low reliabilities, which may have decreased the power to detect significant effects and decreased the power needed for strong SEMs (Kline, 2016). The CTS2 used to measure IPV in this study has been shown to be valid and reliable many times over (e.g., Cuenca et al, 2015; Grana, Cuenca, & Redondo, 2017; Ryan, 2013; Setchell et al., 2017), and was even initially validated on a university sample of 317 participants, so it is unclear why reliability was much lower than would be expected given reliabilities reported in previous studies. For some scales, low reliabilities might be explained by differences in reporting as scales were more reliable for women than men (i.e., physical violence victimization and perpetration, sexual violence perpetration). Frequency of at least one incidence of each type of IPV was similar to those found in previous studies, but it is possible that the low reliability is due to the overdispersion (Ryan, 2013) or low base rate of endorsing certain items in this study, whereas perhaps in other studies, participants endorsed a greater variety of items or reported similar items more consistently. It might also be possible that the low reliabilities are

partly attributable to collecting couple-level data, as participants might be reporting on their violence while conscious of the fact that their partner was reporting on violence in the next room. Although other research using couple-level data (e.g., Cuenca et al., 2015; O'Leary & Williams, 2006; Setchell et al., 2017) has not shown similar problems with reliabilities, with the exception of sometimes finding low reliabilities on the sexual violence subscale (e.g., O'Leary & Williams, 2006), future research should investigate whether or not there are reporting differences when couples are reporting on violence rather than individuals.

It is also important to note that the methods researchers use to study violence in relationships are often without context. For example, the CTS2, which is the most widely used measure of IPV, is a count based measure in which participants simply rate how often the violence occurred. It does not provide information about whether the violence was in retaliation, self-defense, play-fighting, consensual sexual play (e.g., like spanking), a fight that escalated out of control, or as part of a broader relationship dynamic of violence or control. Researchers also often consider different types of violence (e.g., psychological, physical) separately, without considering that psychological violence or controlling tactics could trigger physical violence in response. Violence is often studied in these silos of categories of violence and the methods we currently use to study violence are not able to capture the broader context in which violence occurs.

In addition, the coercive control measure used in this study was likely problematic. As described previously, the questions are intentionally broad to capture a wide range of controlling behaviours (i.e., good sensitivity), but may have been too broad for use in a nonclinical, convenience sample, as the rates of demands and surveillance were much higher than would be expected of the type of coercive control characteristic of intimate terrorism (i.e., not enough

specificity). It is possible I am catching the controlling behaviours described by Crossman and Hardesty (2017) where they described "constraint through commitment," a pattern of control occurring after some trigger and within a relationship where there was some conflict and unresolved issues. However, even in the larger sample from which they interviewed the women (Hardesty et al., 2015), only 31.6% of their sample was identified as being "high controllers." Hardesty et al. (2015) suggested using a cut-off to distinguish low from high controllers when categorizing participants, so it is possible that they, too, had a high prevalence of at least one instance of control in their sample. Even the low frequency controlling group in their study did not report zero levels of controlling behaviours, but instead endorsed an average of 2.75 out of 7 behaviours. Therefore, it is possible that some controlling behaviours in a relationship are relatively common in smaller doses, whereas high control is rarer and more similar to rates of physical and sexual IPV. Dutton and Goodman's (2006) questionnaire is a straightforward sum of items endorsed, but a straightforward sum may not reflect the concept they are trying to measure; instead, it might be more helpful to have some sort of weighted scores, such that participants who endorse demands, surveillance, threats, and a response to demands score much higher than participants who endorse just demands or demands and surveillance. Furthermore, Dutton and Goodman's (2006) measure does not assess fear or threat appraisal, though both are part of their conceptualization and fear is thought to be an important factor that distinguishes situational couple violence and intimate terrorism or more severe forms of violence (Crossman & Hardesty, 2017; Hamby, 2009; Myhill, 2015).

The vignettes used in the current study have been used many times in previous research (e.g., Anglin & Holtzworth-Munroe, 1997; Setchell et al., 2017) and have been shown to be a reliable and valid way to measure SIP deficits. The vignettes are designed to tap into a variety of

problem-situations that could elicit a variety of emotions (e.g., jealousy, rejection, frustration) and responses that together form an internally consistent construct (SIP deficits) while also providing broad coverage of different scenarios that might be relevant in dating relationships. However, by averaging scores on vignettes to produce a composite variable of generation or selection competency, variance from individual vignettes is lost. Certain vignettes may be more likely to produce violent or controlling responses than others. Holtzworth-Munroe & Anglin (1991) found competency differences for vignettes related to rejection, challenges from partners, or jealousy, Moreover, certain vignettes may be more related to a specific form of violence than others. For example, responses to Vignette 2, which deals with a partner brushing off a sexual overture, might be more related to or more likely to predict sexual violence than other vignettes. Thus, though it is necessary to average across vignettes to capture the more general construct being measured and to reduce the number of analyses, there may be information lost by averaging across vignettes to form a composite. It would be interesting for future research to investigate if there are situations or scenarios that are more likely to trigger different types of violent responses than others.

Finally, the last measurement issue revolves around the reliance on participants' self-reports of their own perpetration and victimization of violence and control. This is by far the most common data collection method for assessing IPV and coercive control, but as many have suggested, self-reports of violence, especially as it is a taboo and low base-rate behaviour, are likely influenced by social desirability (e.g., Hamby, 2005, 2009). This was observed in this study at the bivariate level. However, adding the measure of social desirability to the SEMs tended to make the models fit worse, though this may be more a reflection of the measure than the concept, as the measure had questionable reliability. Furthermore, participants may not

remember how much violence occurred in their relationship or may be reporting on behaviours that would not be considered violence (e.g., play fighting, jokingly shoving a partner, consensual spanking during sexual activity). Partners in this study tended not to agree on the occurrence of male or female violence, suggesting that there are factors that contribute to differences in reporting.

Data analyses. The sample size used in this study (N = 109 couples), although comparable to other couples research (e.g., Dyrenforth et al., 2010) was nevertheless a small, underpowered sample for using SEM, especially when issues with the data, like low reliabilities and count distributions, would further decreased the power to detect significant effects. Using SEM to assess correlations is a promising method that provides a useful measure for examining a latent variable of SIP deficits and its relation to IPV; a larger sample using the same statistical technique would give further weight to the results presented in this study and might be more likely to identify interesting significant effects (e.g., partner effects, Actor X Partner interactions, different gender patterns). Some limitations of SEM for count data are that fit statistics are not available so it is more difficult to ascertain how close the fit of the model is. Ideally, different models with different variables would be compared to identify the most predictive factors for IPV or if there are robust mediators or moderators of SIP deficits on IPV. For instance, it is possible that individuals with poor executive functioning, due to cognitive deficits, neurodevelopmental disorders like attention-deficit/hyperactivity disorder, or brain injury, might show more SIP deficits, as they rely on executive functioning, and therefore may be more likely to perpetrate violence.

Research Implications

Research has consistently shown that SIP deficits are a risk factor for IPV and the current study is consistent with the literature in this area. Furthermore, the use of SEM in this study provided evidence that SIP deficits more generally are related to IPV. Though investigating SIP deficits in isolation as predictors of IPV can provide interesting and useful information, it may be time for the research to focus on SIP deficits more broadly as significant predictors, by measuring SIP as one combined concept so that it can be combined into models with other significant predictors of IPV, like witnessing interparental violence or emotions related to the perpetration of IPV. In this way, we can generate more robust, and more comprehensive models of risk for IPV, which will to enhance our understanding of how IPV develops and is maintained.

There are several directions for future research based on the results of this study. First, SIP deficits were identified as a significant predictor of coercive control in this study. Further research is necessary to replicate this finding, but as little research has focused on identifying predictors of coercive control, this study contributes a significant predictor to the body of literature and researchers should investigate other aspects of the SIP model (e.g., emotion) and how they relate to control tactics. This finding ties research back to Day and Bowen's (2015) theory of coercive control, which suggests that attitudes, goals, and behavioural execution are developmental pathways to coercive control, and provides a starting point for research in this area.

More generally, the measurement of coercive control was a challenge in the current study. Measuring coercive control has been more generally problematic in the literature as well, with little consistency between studies in regards to the measures used. Some researchers use the Revised Conflict Tactics Scales (Straus et al., 1996) or other general IPV scales (Johnson &

Leone, 2005; Tanha et al., 2010), whereas others use measures specific to controlling behaviour, like the Controlling Behaviours Scale (e.g., Bates, Graham-Kevan, & Archer, 2014). National surveys often use one or two items to identify controlling relationships (e.g., Myhill, 2015). In addition, some researchers use a count of the number of controlling tactics that are reported (e.g., Felson & Outlaw, 2007), whereas others use a sum of the frequency (Bates, Graham-Kevan, & Archer, 2014; Johnson & Leone, 2005). Hardesty et al. (2015) suggest that a frequency count, similar to the one used in the current study, is a more reliable measure for distinguishing high and low control. These different measurements have different levels of specificity and sensitivity, and many are based on different definitions of what constitutes coercive control, with some suggesting it is like psychological aggression, as measured on the CTS2, and others suggesting it is a conceptually different type of abuse. Overall, the field must move towards a more cohesive definition of coercive control and a more consistent way to measure it. Dutton and Goodman's (2006) theory of coercive control is an ideal starting point given the well-articulated theory, but further work needs to be done to make measurement and detection of the pattern of coercive control more consistent with their theory.

Another measurement implication is that goals were successfully measured in this study, which allows researchers another predictor of IPV and brings us closer to measuring the full SIP model as it relates to IPV. Steps 1 and 6 (encoding cues and enacting responses, respectively) have been left out of much of the research on SIP and IPV, and yet both are important components of SIP. Research focused on attempting to measure the full model might provide information about how these deficits might be related to IPV specifically, and how they might tie in with other SIP deficits to predict IPV. The current study suggests that researchers interested in investigating SIP and IPV can use a latent variable of SIP deficits to more broadly assess SIP.

This can provide more evidence that SIP deficits generally, and the combination of deficits that compound at each step of the model, are predictive of IPV. As SIP deficits are not thought to be linear and are thought to occur simultaneously, this may provide a way of measuring SIP that comes closer to subconscious processes that occur naturally in ambiguous social situations.

Finally, no gender differences in predictors of violence or coercive control were observed in this study. Though much more work needs to be done to adequately measure and assess coercive control, it is nevertheless important to acknowledge that according to results from the current study, SIP deficits appear to be a significant predictor for both male and female violence and control. It is likely that the vast majority of couples reporting violence in this sample would be categorized as situationally violent couples, given the convenience sampling method and rates of violence observed. However, given that situational couple violence still occurs at surprisingly high rates (e.g., around 30%), and situational couple violence is a dangerous and potentially injurious phenomenon, these results contribute to an understanding of risk factors for the vast majority of violence that occurs in relationships. Research should continue to examine gender differences to identify if there are different pathways for men's and women's violence, as research has suggested that differences might exist in the attributions and interpretations individuals make (Ambrose & Gross, 2016; Calvete & Orue, 2010; Calvete et al., 2016, Holtzworth-Munroe, 2008). In addition, new methodologies for collecting less biased data need to be developed to better—and more accurately—understand male- and female-perpetrated IPV and coercive control.

Clinical Implications

One reason SIP is such a promising avenue for research related to IPV is that it may provide a useful framework for treatment (Murphy, 2013). Interventions have already been

developed targeting SIP deficits in children at risk for peer aggression (Dodge et al., 2013) and have been useful in reducing peer aggression in children. Although it is unknown if SIP deficits are stable by the time individuals reach adulthood, and therefore less amenable to intervention, prevention and treatment around SIP deficits makes conceptual sense and would not be dissimilar from other forms of treatment for aggression, like cognitive behavioural therapy. Specifically, thought restructuring could be helpful in generating not only alternative interpretations of a situation, but might also lead to generating more competent solutions based on the more adaptive attributions. It is possible that even just the process of explaining the SIP model to individuals and then exploring what it means for them might bring the subconscious process into conscious awareness where it might be more flexibly changed. Certainly, other factors, like emotion regulation, would be important factors to incorporate into treatment, but this too has been captured in re-conceptualizations of the SIP model (Lemerise & Arsenio, 2000). As there are currently few good treatments for IPV, investigating a SIP based approach to treatment might not only help reduce perpetration of violence in couples, but also might reduce individuals' risk of being victimized by IPV in their relationships by teaching them more balanced and competent ways to cope with relationship difficulties, potentially including assertiveness training to be able to enact competent responses more effectively. That SIP deficits are a significant predictor of various forms of violence provides a hopeful avenue for developing a treatment program to ultimately reduce aggression in intimate relationships. Education and training around SIP could also be used as a preventative method for IPV, such that if administered broadly across high school and university campuses it might help to reduce the risk of violence in relationships.

Conclusion

The current study contributes to our knowledge of SIP deficits, the role of goals in the SIP model, actor effects of SIP on IPV and coercive control in couples, and gender differences or similarities in risk factors for violence and control. Each step taken towards identifying predictors of IPV and coercive control in intimate relationships brings the field closer to a stronger conceptualization of what occurs in violent relationships and ultimately, effective treatment and prevention methods for developing healthier relationships.

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APPENDICES

Appendix A

Participant Pool Ad for Pilot Study

Study Title:	Dating Couples Pilot Study
Detailed Description:	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. 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.
Eligibility Criteria:	Must be between the ages of 17 and 29 and in a current heterosexual romantic relationship that has lasted at least 3 months
Duration:	60
Points:	1.5

Appendix B

Participant Pool Ad for Main Study

Study Title:	Recruiting Couples for Study about Dating Experiences during Emerging Adulthood
Detailed Description:	Looking for an activity to do with your romantic partner that ALSO gives you bonus points towards your class? Well, we have the study for you! We are looking for volunteer couples to participate in a study about their dating experiences. If you volunteer to participate in this study, we would ask that you **and your romantic partner** come to our lab in the Psychology Department at the University of Windsor. You and your partner will complete an online survey in separate rooms and complete a few pencil and paper tasks. More specifically, you and your partner 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 and questions asking about your relationship and relationship conflict. If your partner is not enrolled in the participant pool, they will receive 15$ and an entry into a draw for a 30$ gift certificate to Devonshire Mall as compensation.
Eligibility Criteria:	Must be between the ages of 17 and 29 and in a current heterosexual romantic relationship that has lasted at least 3 months; you and your heterosexual partner MUST BOTH attend.
Duration:	120
Points:	2.5

Appendix C

Demographics Questionnaire

The following questions are to help us get a better sense of who is responding to this survey. Some of the questions may be related to the other things we ask about in the survey, but many of them we don't expect to be related to the other questions. We just want to be able to describe the people who filled out these questionnaires so that we can clearly see how our findings might relate to people from different backgrounds. We know that many of these categories may not fully capture the complexities of each individual's experience; however, they are an attempt to reflect the diversity of people's identities. Remember that you are free to choose not to respond to any questions that you are not comfortable answering.

Please provide the study ID assigned to you by the researcher.

_____

What is your current age? *(please write in answer)*

_____ years old.

Are you currently in a heterosexual dating relationship (i.e., not married) that has lasted at least 3 months? *(If participants respond "No", they will be directed out of the study and will therefore receive partial compensation to recognize their effort in coming into the lab)*

- ☐ Yes
- ☐ No

What is your gender identity?

- ☐ Female
- ☐ Male
- ☐ Transgender
- ☐ Nonbinary/fluid queer/gender queer
- ☐ Not listed (Specify if you choose _____)

What is your sexuality?

- ☐ Asexual
- ☐ Bisexual
- ☐ Gay or Lesbian
- ☐ Heterosexual
- ☐ Queer
- ☐ Pansexual
- ☐ Not listed (Specify if you choose _____)

What year are you in?

- ☐ First year
- ☐ Second year
- ☐ Third year
- ☐ Fourth year
- ☐ Fifth year
- ☐ Other: _____

We're interested in getting a complete picture of your racial and ethnic background. Because this information can be so complex, we are going to ask you several questions about your race and ethnicity in order to get as complete a picture as possible.

Racial categories are based on visible attributes (often skin or eye color and certain facial and bodily features) and self-identification. These groupings have social meanings that affect how people see themselves and are seen and treated by others. Race is not the same as ethnicity or culture. In your own words, what is/are your racial identification(s)?

_____.

Although the categories listed below may not represent your full identity or use the language you prefer, for the purpose of this survey, please indicate which group below most accurately describes your racial identification? (check all that apply)

- ☐ First Nations/Metis/Inuit/Indigenous
- ☐ Asian
- ☐ South Asian
- ☐ Black
- ☐ Latinx/Hispanic (Non-White)
- ☐ Middle Eastern/North African (Non-White)
- ☐ Pacific Islander/Native Hawaiian
- ☐ White
- ☐ Multiracial *(please specify):* _____
- ☐ Not listed (Specify if you choose _____)

[For multiracial participants:]

Multiracial people can identify in various ways, sometimes in relation to specific racial heritage, sometimes as "multiracial," or in various other ways. Which of the following best captures how you racially identify? Please choose one.

- ☐ Mixed/both/multiple—you'll have a chance to tell us about your specific background next.
- ☐ Multiracial generally—without reference to any particular race or races.
- ☐ Primarily First Nations/Metis/Inuit/Indigenous
- ☐ Primarily Asian
- ☐ Primarily South Asian
- ☐ Primarily Black

- ☐ Primarily Latinx/Hispanic (Non-White)
- ☐ Primarily Middle Eastern/North African (Non-White)
- ☐ Primarily Pacific Islander/Native Hawaiian
- ☐ Primarily White
- ☐ Primarily in a way not listed *(please specify):*_____

[For participants who chose "Mixed/both/multiple]

Given that you identify as Mixed/both/multiple, please tell us which of the following are part of your identity?

- ☐ First Nations/Metis/Inuit/Indigenous
- ☐ Asian
- ☐ South Asian
- ☐ Black
- ☐ Latinx/Hispanic (Non-White)
- ☐ Middle Eastern/North African (Non-White)
- ☐ Pacific Islander/Native Hawaiian
- ☐ White
- ☐ Multiracial *(please specify):* _____
- ☐ Not listed (Specify if you choose _____)

Ethnicity or ethnic culture refers to patterns of ideas and practices associated with a group of people sharing a common history, geographic background, and/or language, rather than their racial background. It might include things like values, patterns of interacting, food, dress, holidays, or ways of seeing the world, yourself, or other people.

There are hundreds of different ethnic culture backgrounds within the people in the Canada (such as Cuban, Haitian, Cambodian, African Canadian, Canadian, Ukrainian, etc.). We are interested in the ethnicity that affects your daily experience, which may be the heritage of your ancestors if you continue to practice and be affected by that heritage, but it may also be a more pan-ethnic or pan-Canadian ethnicity. In your own words, with which ethnic group(s) do you identify?

_____.

Are you a:

1. Part-time student?
2. Full-time student?

Where were you born?

- ☐ Canada
- ☐ US
- ☐ Outside Canada or the US: (Please specify what country:_____)

If you were not born in Canada, how old were you when you came here?

_____

Where do you live right now?

- ☐ Parental Home
- ☐ In residence (alone)
- ☐ In residence (shared)
- ☐ Off-campus (alone)
- ☐ Off-campus (with significant other)
- ☐ Off-campus (with roommates)
- ☐ Other (please specify) _____

Appendix D

Pilot Study

Purpose

A pilot study was conducted to test study procedures, determine if the vignettes were considered appropriate for the current study (i.e.., sufficiently realistic, important, difficulty and uncomfortable to handle, and ambiguous), and to obtain mean timings used to calculate time limits for the timed condition of the main study.

Participants

Twenty individuals (11 of whom identified as women) who reported being in a heterosexual romantic relationship for at least three months and who volunteered for the pilot study were recruited through the University of Windsor participant pool (a pool of undergraduate students who receive course credit in exchange for participating in research; Appendix A). One male participant completed the study extremely quickly, experienced technical difficulties, and left multiple responses blank as a result, so his data were not used in pilot analyses, so the final pilot study consisted of 19 participants. Participants received 1.0 bonus points for their participation in the pilot study and the study took approximately 30 minutes to complete. Pilot participants' average age was 20.74 years old (ranging from 18-28) and the majority of the sample identified as heterosexual (84.2%) and White (73.7%). Demographics are reported in Table E1.

Table E1

Demographic Information

Variable	Pilot Study	
	n	%
Gender		
Male	8	42.1
Female	11	57.9
Sexuality		
Asexual	0	0
Bisexual	3	15.8
Heterosexual	16	84.2
Pansexual	0	0
Not listed	0	0
Ethnicity		
First Nations/Inuit/Metis	0	0
Asian	1	5.3
South Asian	1	5.3
Black	0	0
Latinx	1	5.3
Middle Eastern/North African	1	5.3
Pacific Islander	0	0
White	14	73.7
West Indian	0	0
Mixed	1	5.3
Year in university		
First year	2	10.5
Second year	5	26.3
Third year	3	15.8
Fourth year	4	21.1
Other	5	26.3
Full or Part Time		
Full-time student	18	94.7
Part-time student	1	5.3
Other	0	0
Where were you born?		
Canada	17	89.5
US	2	10.5
Outside Canada or the US	0	0

Where do you live?		
Parental home	11	57.9
In residence (alone)	1	5.3
In residence (shared)	1	5.3
Off-campus (alone	2	10.5
Off-campus (with significant other)	0	0
Off-campus (with roommates)	4	21.1
Other	0	0

Procedure

Like previous research (e.g., Setchell, et al., 2017), a pilot study was conducted to determine whether the hypothetical conflict vignettes were still appropriate for emerging adult couples, given that the vignettes were initially designed for married couples. The same criteria used to assess the vignettes in previous research were used, including: being perceived as realistic; being perceived as moderately important but somewhat difficult and uncomfortable to handle; and being sufficiently ambiguous in order to generate a wide range of interpretations and responses. In addition, participants completed the measures assessing SIP deficits (i.e., negative attributions, goal clarification, response generation, and response selection) and were timed to obtain mean and standard deviation estimates for how long each measure takes to complete, on average.

Participants were brought into the laboratory to complete a short online survey that took 30-60 minutes. The consent form was reviewed with the participant, which described the purpose, procedures, potential risks and benefits, and compensation (Appendix G). The short online survey consisted of a shorter demographics questionnaire (i.e., questions about age, gender, ethnicity), followed by the hypothetical conflict vignettes presented in random order. Participants were asked to imagine that the scenario happened to them in their current relationship, and then they completed the SIP measures for the vignette. Each measure was presented on its own page and was timed separately. Finally, they were asked to rate how realistic, important, difficult or uncomfortable to handle, and ambiguous each vignette was. Once they completed the survey, participants received copies of the research letter of information and resource list (Appendix H). Participants enrolled in the participant pool received a bonus credit towards an eligible course for their participation. Participants who participated in the pilot study were not able to participate in the main study.

Pilot Data Analyses

Nineteen participants (8 men and 11 women) participated in a pilot study to determine timings for the main study and to ensure that vignettes were perceived as realistic, important,

somewhat difficult and uncomfortable to handle, and would produce varied responses. Based on previous studies using the Hypothetical Conflict Situation Vignettes (e.g., Setchell, et al., 2017), vignettes were considered acceptable if the mean rating was less than 3.0 for realism (where 1 = *very realistic* and 5 = *very unrealistic*) and equal to or greater than 2.5 for importance (1 = *very unimportant*, 5 = *very important*), difficulty (1 = *extremely easy to handle,* 5 = *extremely difficult to handle*), and comfort (1 = *very comfortable*, 5 = *very uncomfortable*). In the current pilot study, the vignettes met criteria for both men and women, and there were no significant gender differences in ratings based on *t*-tests (see Table E2).

Next, I coded the pilot data using the manual described above to determine if the vignettes produced varied responses. Of the 407 responses provided to the nine vignettes by 19 participants, 51.35% were coded 1 = *competent*, 20.64% were coded 2 = *slightly competent*, 16.22% were coded 3 = *slightly incompetent*, and 12.04% were coded 4 = *incompetent.* The vignettes were therefore deemed to produce varied responses from participants and were considered appropriate for the current study.

Table E2

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

		Males (n = 8)		Females (n = 11)		Comparison
Variables	Criteria	*M (SD)*	Range	*M (SD)*	Range	*t (df)*
Realism	< 3.0	2.40 (0.72)	1.56-3.22	2.64 (0.84)	1.44-4.11	0.63 (17)
Importance	≥ 2.5	3.50 (0.74)	2.33-4.78	3.44 (0.33)	2.89-3.89	-0.22 (17)
Difficulty	≥ 2.5	2.69 (0.96)	1.11-3.89	2.78 (0.64)	1.78-3.89	0.27 (17)
Comfort	≥ 2.5	2.50 (0.88)	1.22-3.78	2.80 (0.65)	1.78-3.89	0.86 (17)

Appendix E

Clarification of a Goal

The following questions will be asked following each vignette.
"Continue to imagine that this event happened between you and your partner. Tell me whether or not you agree that you want to do the statement. For each of the following statements, please select the number that best describes what you want in this situation."

	Yes, Definitely					No, Definitely not
Vignette #1						
You want to get back at your partner for what he/she did.	1	2	3	4	5	6
You want to get along with your partner.	1	2	3	4	5	6
You want to find a solution where you both get what you want.	1	2	3	4	5	6
You want your partner to do what you want.	1	2	3	4	5	6
You want to control your partner.	1	2	3	4	5	6
You want to avoid a problem with your partner.	1	2	3	4	5	6
You want to get your partner's attention.	1	2	3	4	5	6

Appendix F

Consent Form for Pilot Study

CONSENT TO PARTICIPATE IN RESEARCH

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

You are asked to participate in a research study conducted by Jillian Glasgow, 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. You may wish to print this form for your records.

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

Jillian Glasgow
E-mail: glasgowj@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 examine individuals' perceptions of and potential responses to hypothetical situations that both men and women may encounter in their dating relationships.

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 60 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 Jillian Glasgow 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 1 bonus points for up to 30 minutes of participation toward the psychology participant pool, if registered in the pool and enrolled in one or more eligible courses. In recognition of the effort associated with participation in in-lab research, you will receive an additional 0.5 bonus credits. Partial completion of the study will result in compensation commensurate to the amount of time you participated in the study.

CONFIDENTIALITY

Any information that is collected in connection with this study and that can be associated with you will remain private and will not be disclosed. 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., for compensation purposes) 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. Once the surveys have been submitted, your responses will not be attached to your name and your survey responses will be stored in a non-identifiable data file with other participants' responses, separate from your personal information. This data file will be downloaded onto a password-protected computer on a secure computer accessed only by the researchers in this study.

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 penalty and will be awarded points commensurate to the amount of time you participated. You can withdraw by exiting the survey and informing the researcher, who will then delete your data. Alternatively, you can withdraw your data at the end of the survey by selecting "Yes" to the question "If you would like to discard your responses and withdraw from the survey, select "Yes" that appears at the bottom of the page. This will allow you to exit the survey without saving your responses. You can also email the researcher to

withdraw your data up to one week following the completion of 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 winter semester of 2019.

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 Couple 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 the opportunity to print this form. By clicking "I Agree" I am giving consent to participate in this study.

"I Agree" Button] ["I do not wish to participate] button]

["Resource List and Web Safety Instructions" Button]

Appendix G

Letter of Information for Pilot Study

Thank you for your participation and for keeping the information in this letter confidential! We are interested in studying factors that are related to experiences with conflict 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 do not hesitate to contact me (glasgowj@uwindsor.ca) or my supervisor (pfritz@uwindsor.ca) if you have any questions or concerns about this study. Once the study is finished, you will be able to view the results from the study on the Research Ethics Board website at uwindsor.ca/reb. Sometimes when people have questions or problems they may not know who to talk to or where to get help. 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.

Mental Health and Family Resources in Windsor-Essex County

<table>
<tr>
<td>Student Counselling Centre
The Student Counseling Centre at the University of Windsor provides free, confidential counseling to registered students as well as consultation and referral services for University of Windsor faculty and staff. Services are provided by Psychologists, a Clinical Therapist, a Registered Nurse, and Master's-level graduate students.
CAW Centre
Phone: 519-253 3000 ext 4616.</td>
<td>Psychological Services and Research Centre
The Psychological services provide support to students in immediate distress and as well as longer services in form of psychotherapy to enhance growth and functioning.
University of Windsor
Phone: 519-973-7012 or 519-253-3000 ext 7012</td>
</tr>
<tr>
<td>Distress Centre of Windsor-Essex County
Crisis Phone: (519)-256-5000
For Persons in Distress</td>
<td rowspan="2">Community Living Essex County
372 Talbot Street North
Essex, ON N8M 2W4
www.communitylivingessex.org
mainmail@communitylivingessex.org
519-776-6483, 1-800-265-5820
Supports families of children, youth, and adults with intellectual disabilities</td>
</tr>
<tr>
<td>Hiatus House
Phone: 519-982-8916, 1-800-265-5142
Website: http://www.hiatushouse.com
Confidential interventions for victims of domestic violence</td>
</tr>
<tr>
<td>Canadian Mental Health Association
1400 Windsor Ave
www.cmha-wecb.on.ca, infor@cmha-wecb.onc.a
(519) 255-7440
Mental health services for people 16 years and up</td>
<td>Essex Community Services-Community Information Essex
Victoria Place, 35 Victoria Ave Unit 7, Essex, ON
www.essexcs.on.ca, ecs@essexcs.on.ca
519-776-4231
Community information center providing referrals and community information about services in Essex</td>
</tr>
</table>

Lesbian Gay Bi Youth Line Tel: 1-800-268-YOUTH Help for youth who are 26 and under who live anywhere in Ontario.	**For other general information about community services and resources in communities across Ontario, dial '211' or go to www.211ontario.ca.**

Thank you for your participation!

Appendix H

Consent Form for Main Study

Title of Study: **Recruiting Couples for Study about Dating Experiences during Emerging Adulthood**

You are asked to participate in a research study conducted by Jillian Glasgow, 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:

Jillian Glasgow
E-mail: glasgowj@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. 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 2 hours to complete. Once you have completed the survey or exited the survey, you will be provided with a research summary and a list of local resources.

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 you can access at the bottom of this form and at the end of the study, or contact Jillian Glasgow, glasgowj@uwindsor.ca, or Dr. Patti Fritz, pfritz@uwindsor.ca, 519-253-3000 ext. 3707.

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' personality and emotions affect experiences 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 2 bonus points for up to 120 minutes of participation toward the psychology participant pool, if registered in the pool and enrolled in one or more eligible courses. In recognition of the effort associated with participation in in-lab research, you will receive an additional 0.5 bonus credits. 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 $15.00 and and the opportunity to enter their name and e-mail address into a draw for one of four $30.00 gift cards for the local mall. The draw will take place once all data has been collected. In order to receive full compensation, participants must complete the majority study, but points and financial compensation will be awarded for partial completion equal to the amount of time it took to complete the study.

CONFIDENTIALITY

Any information that is collected in connection with this study and that can be associated with you will remain private and will not be disclosed. 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., for compensation purposes) 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. Once the surveys have been submitted, your responses will not be attached to your name and your

survey responses will be stored in a non-identifiable data file with other participants' responses, separate from your personal information. This data file will be downloaded onto a password-protected computer on a secure computer accessed only by the researchers in this study.

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 penalty and will be awarded points commensurate to the amount of time you participated. You can withdraw by exiting the survey and informing the researcher, who will then delete your data. If you exit before completing the survey but do not notify the researcher, the researcher will ask if you would like your data deleted. Alternatively, you can withdraw your data at the end of the survey by selecting "Yes" to the question "If you would like to discard your responses and withdraw from the survey, select "Yes" that appears at the bottom of every page. This will allow you to exit the survey without saving your responses. You can also email the researcher to withdraw your data up to one week following the completion of the study. In addition, if you provide consent but your partner does not, the study not will proceed and both you and your partner will receive compensation commensurate to your participation. You may also refuse to answer any questions you do not 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 winter semester of 2019.

SUBSEQUENT USE OF DATA

These data may be used in subsequent studies and the data will be used for poster presentations and research publications. No identifying information will be included in these presentations or publications and only general results will be discussed.

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 INVESTIGATOR

These are the terms under which I will conduct research.

_____ _____

Signature of Investigator Date

SIGNATURE OF RESEARCH SUBJECT/LEGAL REPRESENTATIVE

I understand the information provided for the Dating Experiences during Emerging Adulthood as described herein. My questions have been answered to my satisfaction, and I agree to participate in this study. I have been given the opportunity to print this form. By clicking "I Agree" I am giving consent to participate in this study.

_____ _____

Name of Participant Date

_____ _____

Name of Participant Date

Appendix I

Positive Mood Induction Procedure

Now we would like you to think of a time involving your partner that makes you feel positive emotions (e.g., happiness, contentment, excitement, etc.) as you think about it now. Please describe the positive aspects of this event below:

[open-ended]

Appendix J

Emotion Checklist

Select a point on the scale that shows how you are feeling toward/about your partner, at this very moment, as a result of participating in the study today.

	Not at all			Somewhat			A great deal
Affectionate/Caring	1	2	3	4	5	6	7
Angry/Frustrated	1	2	3	4	5	6	7
Contempt/Disgust	1	2	3	4	5	6	7
Afraid/Scared	1	2	3	4	5	6	7
Comfortable/Relaxed	1	2	3	4	5	6	7
Sad/Discouraged	1	2	3	4	5	6	7
Tense/Anxious	1	2	3	4	5	6	7
Jealous	1	2	3	4	5	6	7
Wanting revenge/Vengeful	1	2	3	4	5	6	7
Happy	1	2	3	4	5	6	7

Appendix K

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 from a different perspective
    - Health 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 M).**
  - 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", 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 unsafe two options in terms of leaving the laboratory:
    - 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).
    - 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.
- **If both members of the dating couple 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 L

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 M

Letter of Information for Main Study

Thank you for your participation and for keeping the information in this letter confidential! We are interested in studying factors that are related to experiences with conflict in dating relationships. In particular we are focusing on how people interpret and respond to difficult situations and conflict in dating relationships. We recommend that you do not discuss your responses with your partner in order to preserve your confidentiality and privacy, and as differences in opinion may cause some conflict. Please do not hesitate to contact me (glasgowj@uwindsor.ca) or my supervisor (pfritz@uwindsor.ca) if you have any questions or concerns about this study. Once the study is finished, you will be able to view the results from the study on the Research Ethics Board website at uwindsor.ca/reb. Sometimes when people have questions or problems they may not know who to talk to or where to get help. 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.

Mental Health and Family Resources in Windsor-Essex County

<table>
<tr><td>Student Counselling Centre
The Student Counseling Centre at the University of Windsor provides free, confidential counseling to registered students as well as consultation and referral services for University of Windsor faculty and staff. Services are provided by Psychologists, a Clinical Therapist, a Registered Nurse, and Master's-level graduate students.
CAW Centre
Phone: 519-253 3000 ext 4616.</td><td>Psychological Services and Research Centre
The Psychological services provide support to students in immediate distress and as well as longer services in form of psychotherapy to enhance growth and functioning.
University of Windsor
Phone: 519-973-7012 or 519-253-3000 ext 7012</td></tr>
<tr><td>Teen Health Centre
The Teen Health Centre helps teenagers aged 13-24 with issues related to physical and emotional health.
Phone: 519-253-8481</td><td>Sexual Assault / Domestic Violence & Safekids Care Center
Located in the Windsor Regional Hospital
Phone: 519-255-2234</td></tr>
<tr><td>Distress Centre of Windsor-Essex County
Crisis Phone: (519)-256-5000
For Persons in Distress</td><td rowspan="2">Community Living Essex County
372 Talbot Street North
Essex, ON N8M 2W4
www.communitylivingessex.org
mainmail@communitylivingessex.org
519-776-6483, 1-800-265-5820
Supports families of children, youth, and adults with intellectual disabilities</td></tr>
<tr><td>Hiatus House
Phone: 519-982-8916, 1-800-265-5142
Website: http://www.hiatushouse.com
Confidential interventions for victims of domestic violence</td></tr>
<tr><td>Canadian Mental Health Association
1400 Windsor Ave</td><td>Essex Community Services-Community Information Essex</td></tr>
</table>

www.cmha-wecb.on.ca, infor@cmha-wecb.onc.a (519) 255-7440 Mental health services for people 16 years and up	Victoria Place, 35 Victoria Ave Unit 7, Essex, ON www.essexcs.on.ca, ecs@essexcs.on.ca 519-776-4231 Community information center providing referrals and community information about services in Essex
Lesbian Gay Bi Youth Line Tel: 1-800-268-YOUTH Help for youth who are 26 and under who live anywhere in Ontario.	**For other general information about community services and resources in communities across Ontario, dial '211' or go to www.211ontario.ca.**

Thank you for your participation!

VITA AUCTORIS

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