

TESTING TWO MODELS OF IPV SUBTYPES IN A
MIXED-GENDER ADOLESCENT SAMPLE

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A DISSERTATION

Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of

DOCTOR OF PHILOSOPHY

Psychology

2012

ABSTRACT

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The current study was designed to test two theoretically driven models of intimate partner violence (IPV) in a mixed-gender sample of adolescents. Johnson (2006) proposed two subtypes of IPV, situational couple violence (SCV) and coercive controlling violence (CCV), to account for disparate findings in prevalence, severity, and gender symmetry of IPV perpetration. Research on these subtypes suggests they are associated with different patterns of emotional and behavioral regulation, personality traits, and physiological reactivity, all of which may originate in childhood. Theories of the intergenerational transmission of IPV suggest that family violence, including exposure to parental IPV and child maltreatment, may influence the development of these variables. Additionally, there is little research on whether models of IPV function similarly for males and females, especially in adolescence. Thus, the current study was designed to test separate models of SCV and CCV, including the influence of childhood exposure to parental IPV and child maltreatment, on emotion regulation and behavioral self-control, personality traits, physiological reactivity, and IPV subtypes. These models were tested using a mixed-gender, late-adolescent sample. The results suggest that SCV and CCV have separate pathways and related individual characteristics, but can originate from common experiences of family violence and childhood maltreatment. This is important in that it both supports previous research which demonstrated the deleterious impact of family violence and maltreatment on later involvement of IPV (Ireland & Smith, 2009) and furthers our understanding of the role of individual differences

in the types of violence which might be perpetrated later in life. The current study also found relatively equal distribution of both psychopathy traits and CCV across genders, which is different from previous research in these areas. Implications of these findings and suggestions for further research are also discussed.

DEDICATION

To my wonderful wife Dana for all her support and tolerance;
To my parents, John and Diana Huston, for setting a wonderful example
and for their unconditional support and positive reinforcement;
To my brothers for supporting me and challenging me to
be as successful as they have become;
From the bottom of my heart, I thank you.

ACKNOWLEDGEMENTS

First and foremost, I would like to acknowledge my dissertation chair and advisor over the past 6 years, Dr. G. Anne Bogat, for helping me to grow a tremendous amount in many aspects of life. In all honesty, I could not have done this without her. Her support encouraged me to become more humble, thoughtful, inquisitive, and self-motivated; qualities that I hope I can maintain long into the future.

I would also like to thank Dr. Alex von Eye for acting as a constant sounding board for methodological and statistical problems. Alex's interpersonal style, teaching acumen, thirst for knowledge, and mid-range jump-shot have been inspirational to me. He has selflessly given many hours of his time to me as this project was conceived, planned, executed, and evaluated.

I must also thank Drs. Davidson, Moser, and Maxwell for guiding me through the dissertation process and helping to make this project a successful one. They offered many helpful suggestions and constructive criticisms that challenged me to find novel solutions to unforeseen problems and to design the best study I could. Dr. Moser also offered his lab space for me to use in collecting some data and allowed me to venture into a new realm of study for this project.

I am also very thankful for the undergraduate research assistants who helped in the data collection for this project; Carli Boyer and Jooi Dave. In Dr. Moser's lab, Tim Moran and Alex Jendrusina helped me in developing the technical aspects of the data collection and with processing the data. Many thanks also to The Graduate School of Michigan State University for helping to fund this project.

There are so many people who have been integral parts of my experience at Michigan State. I cannot name them all here, but there are a few who stand out and must be recognized. First of all, my wife Dana has been a blessing to have by my side for the past 6 years. She has grounded me and constantly reminded me not to take myself and my work too seriously. Lia Field has been the best lab-mate and tailgating diva anyone could hope for and Audie Black has been the best partner-in-crime and instigator-of-good-times-at-the-end-of-a-hard-day. I also want to single out Jeff Nibert and Brooke Bluestein, Jesse Bledsoe, and Saleem Hue Penny for their support and encouragement. I am honestly blessed to have them in my corner.

Finally, I would like to acknowledge my extended family for supporting me over more than the past 6 years. My parents- and sister-in-law, Karen, Keith, and Megan Ansley, have been incredibly supportive of me, especially during difficult times. Kara Huston and Erin Nichol have also been a huge part of my life since they joined our family, I am lucky to have them as sisters. Jasey and Syd Schnaars and Helen and Bruce Andersson have been like surrogate parents to me and have a huge influence on who I am today. Last but not least, my best friend Anthony Andersson has been constantly available and supportive since I was 4 years old. I cannot express enough thanks to all of them.

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CHAPTER 1

Introduction

Intimate partner violence (IPV) is a prevalent problem in the United States. Studies estimate that in the U.S. upwards of 1 in 6 adults in heterosexual relationships experience partner violence in a given year (Schafer, Caetano, & Clark, 1998; Tjaden & Thoennes, 2000). The National Violence Against Women survey showed that 22% of surveyed adult women and 7% of surveyed adult men reported they were physically assaulted by a romantic partner (Tjaden & Thoennes, 2000). Further research suggested that rates of domestic violence are higher in younger couples, cohabitating couples, and couples with young children (Magdol et al., 1998). For many, exposure to IPV begins during adolescence (Lewis & Fremouw, 2001). For instance, over one-third of high school seniors have already experienced physical relationship violence (Foshee et al., 2009; Jezl, Molidor, & White, 1996) while the prevalence of verbal aggression is above 90% (Munoz-Rivas, Grana, O'Leary, & Gonzalez, 2007). A primary goal of studying partner violence is to understand developmental antecedents of IPV in order to apply more effective prevention strategies. One of the most robust risk factors for becoming involved in adult relationship violence is exposure to family violence as a child (Colman & Widom, 2004; Ireland & Smith, 2009; Lichter & McCloskey, 2004; Widom, Czaja, & Dutton, 2008). Both retrospective and prospective research studies indicate that children exposed to IPV are more likely to participate in adult relationship violence both as perpetrator and victim; a well-established cycle often termed the “intergenerational transmission of relationship conflict” (Fite et al., 2008; McKinney, Caetano, Ramisetty-Mikler, & Nelson, 2009; Stith et al., 2000; Wareham, Boots, & Chavez, 2009).

There is very little research, however, on whether models of the intergenerational transmission of relationship conflict apply to adolescent dating violence as well. The majority of studies have focused on spousal conflict or adult partner violence rather than early dating relationships. One reason may be a perception that dating violence is less common or less significant than marital conflict. Unfortunately, there is mounting evidence that suggests dating violence between adolescents is both common and severe (e.g., Munoz-Rivas, Grana, O'Leary, & Gonzalez, 2007). Lewis and Fremouw (2001) reviewed several studies that assessed the prevalence rates of adolescent dating violence and found rates ranging from 9% to 65% depending on the nature of violence measured. For instance, higher prevalence rates are found if verbal abuse is included. Lewis and Fremouw concluded that the majority of prevalence estimates were between 30% and 40%, which is higher than recent estimates of adult partner violence (i.e., 22% in McDonald, Jouriles, Ramisetty-Mikler, Caetano, & Green, 2006).

In addition to a possible misconception about the prevalence of adolescent dating violence, there may be a perception that adolescent IPV is not as severe as in adults. In a recent study of adolescents aged 13 to 19, Foshee and colleagues (2009) found that 9% of participants aged 16 to 19 reported being the victim of physical violence by a partner which resulted in injury within the past year and approximately 4% experienced sexual abuse by a partner. The World Health Organization also reported that women between the ages of 15 and 19 are at the greatest risk for experiencing partner violence in the United States and most other countries (Matud, 2007). Munoz-Rivas and colleagues (2007) reported that the overall frequency of adolescent dating violence decreases between age 16 and age 20; however, the severity of the violence and injuries caused become more severe during the same period. Again, these statistics mirror the

adult IPV literature (see McDonald, Jouriles, Ramisetty-Mikler, Caetano, & Green, 2006; McKinney, Caetano, Ramisetty-Mikler, & Nelson, 2009).

As we learn more about the prevalence and severity of adolescent dating violence, it has become clear that this phenomenon is a public health risk that necessitates more attention from researchers. As with many other behavioral and psychological problems, early interventions may prove most useful in curtailing IPV between adolescents. Understanding the development and maintenance of adolescent partner violence could prove invaluable in this endeavor.

Theoretical Framework

There is a great deal of research in psychology, sociology, and criminology which suggests that violence in one's family of origin is a significant risk factor for later behavior problems and antisocial behavior, including IPV (Ireland & Smith, 2009). The role of family violence (including IPV and forms of child maltreatment) on negative outcomes for children has been integrated into a number of developmental theories which focus on family influences on behavior. Many of these theories do not focus specifically on outcomes related to perpetration of IPV later in life, but on general criminal behavior (Ireland & Smith, 2009) of which IPV is an example. The most influential theory for much of the early research on the effect of family violence on adolescent behavioral outcomes is social learning theory (Bandura, 1977). Social learning theory posits that repeated exposure to any form of violence during childhood teaches that controlling others through violence, aggression, and coercion is an acceptable strategy and, indeed, children may observe this to be true in their own home. Bandura (1977) then suggested that these learned behaviors are internalized and generalized as principles to guide future decisions in multiple situations and across domains. Thus, behaviors learned in childhood through observation of IPV, or experience of maltreatment, and internalized over time would be

part of a more general pattern of antisocial behavior in adulthood. In the context of family violence, this process is sometimes referred to as a “cycle of violence” (Widom, 1989). Social learning theory would suggest that exposure to any form of family violence over time may contribute to a general pattern of violent behavior.

Another theory which is also consistent with the “cycle of violence” perspective is the life course theory of antisocial behavior (Ireland, Smith, & Thornberry, 2002). Although the term “antisocial behavior” captures many specific behaviors, IPV is an intimate and often violent form of antisocial behavior and may be more common than other crimes which are more public. Life course theory is a developmental theory which proposes specific turning points in development where antisocial or violent behavior is either discontinued or maintained through reinforcement or extinction. Adolescence is a particular stage of interest in this theory because it is a time of natural turbulence when it is somewhat developmentally appropriate to engage in risky behaviors (Elliott, Avery, Fishman, & Hoshiko, 2002). During this time, antisocial behaviors can be reinforced and may become entrenched in an individual’s typical behavior pattern going forward.

Early adulthood is also a critical period in the development and maintenance of antisocial behavior (Arnett, 2000). During early adulthood individuals are typically given the opportunity to establish their own life pattern and family away from their family of origin. For individuals exposed to family violence, this can be an opportunity to establish a more conventional lifestyle free from violence. In other cases, the established behavioral patterns from adolescence, including emerging IPV and other antisocial behaviors, can become solidified as individuals are allowed greater freedom and decreased monitoring of their behavior (Ireland & Smith, 2009). In

order to understand the risk factors for continuing antisocial behaviors into young adulthood, it is important to investigate behaviors such as IPV at these critical developmental periods.

Review of Relevant Research on IPV

There is very little research on the etiology of IPV in adolescents and no studies could be found which take a developmental perspective in studying IPV subtypes in an adolescent population. The majority of existing research which has investigated the antecedents of partner violence in adults treats IPV as a singular construct and uses aggregated data to study group differences between violent and non-violent partners (usually men; see Holt, Buckley, & Whelan, 2008 for a review). Early research specifically designed to investigate IPV was primarily driven by feminist theories of violence between romantic partners as a male-perpetrated device for control over a female partner. For example, Pence and Paymar (1993) developed a widely known Power and Control Wheel to describe the ways that males can use different tactics for control of their partners. One of the primary contributions of the Power and Control Wheel is that Pence and Paymar were able to describe behaviors other than physical and sexual violence that a perpetrator may use to gain an upper hand on their partner. Although gender-neutral terminology was used in some of the theory, the specific behaviors described were all male perpetrated. In particular, “male privilege” is part of the wheel. Other behaviors though, such as emotional abuse, isolation, and economic abuse, have persisted and been included in other theories of IPV for both males and females (Johnson, 1995).

The three batterer subtypes proposed by Holtzworth-Munroe and colleagues (Holtzworth-Munroe & Meehan, 2004; Holtzworth-Munroe & Stuart, 1994) generated a great deal of research on individual differences not just between batterers and non-batterers, but within-group differences in severity, frequency, and motivation behind male-perpetrated IPV. Their tactic was

to investigate the specific characteristics of maritally violent men which differed from non-violent men. They focused on dimensions such as the severity of violence, presence of psychopathology, and the generality (whether they were also violent outside of the home) in determining three subtypes of male batterers; family-only, dysphoric/borderline, and generally violent/antisocial. In the context of previous research on IPV, these three subtypes allowed researchers to consider that IPV was not a unitary phenomenon and that not all batterers are the same. What was insinuated, without being stated explicitly, was that individuals who perpetrate IPV do not necessarily do so for the same reasons or with the same motivation, as Pence and Paymar's (1993) Power and Control Wheel may have suggested. Research on the typologies suggested by Holtzworth-Munroe and colleagues will be reviewed in greater detail below.

Although these theories have aided our understanding of the influence of male violence against female partners and their children, recent data have demonstrated that violence between romantic partners is not a homogeneous phenomenon (Graham-Kevan & Archer, 2003; Johnson, 1995) and is not limited to male perpetration (Williams, Ghandour, & Kub, 2008). In fact, some studies in community samples have reported relatively equal prevalence rates of IPV between genders (Caetano, Ramisetty-Mikler, & Field, 2005) or even higher prevalence in women (Whitaker, Haileyesus, Swahn, & Saltzman, 2007). Efforts to classify meaningful subtypes of IPV have produced several taxonomies (e.g., Holtzworth-Munroe & Stuart, 1994; Johnson, 1995) and evidence suggests that these subtypes differ in severity, frequency, perpetrator gender, and victim outcomes (Holtzworth-Munroe & Meehan, 2004; Kelly & Johnson, 2008). Therefore, extant literature suggests that there may be multiple pathways leading to perpetration of IPV and that investigating these pathways could have implications for prevention and intervention for both men and women (see Johnson & Ferraro, 2000 for a review).

Unfortunately, no studies have yet integrated IPV typologies with risk factors in order to develop an understanding of pathways for partner violence, or tested models of IPV aimed at capturing the behavior of both genders.

The current study aims to fill these gaps in the literature by studying models of IPV along two pathways using Johnson's (1995; Johnson & Leone, 2005) proposed dichotomy of partner violence with an adolescent mixed-gender sample. Johnson's typology is particularly applicable in studies of mixed-gender samples because the subtypes are hypothesized to describe both male and female behavior (Johnson, 2006), whereas other prominent typologies have been developed to describe males only (e.g., Holtzworth-Munroe & Stuart, 1994; Pence & Paymar, 1996). Johnson (1995) proposed two subtypes: coercive controlling violence (CCV) and situational couple violence (SCV). CCV is ". . . a general pattern of controlling behavior" (Johnson & Leone, 2005, p. 322). This type of violence is theoretically perpetrated primarily by males and includes both physical and psychological tactics (Johnson, 2006). In contrast, SCV describes violence which is context specific and indicative of low self-control. Past research demonstrates that outcomes for those exposed to SCV are different than for those exposed to CCV (Johnson & Leone, 2005). For instance, SCV is less likely to cause serious physical injury or include sexual violence (Kelly & Johnson, 2008). For women, SCV results in fewer physician visits, less missed work, and fewer psychological symptoms than CCV (Johnson & Leone, 2005).

An important criticism of Johnson and colleagues' research thus far might be in the variability of how they measure and classify CCV and SCV perpetration. For instance, studies by Anderson (2008) and Johnson and Leone (2005) used the exact same sample, but their measurement of psychological control consisted of seven dichotomous (yes/no) items arbitrarily chosen from an existing dataset. Anderson (2008) used a cutoff point two standard deviations

above the mean score to determine high and low levels of control, while Johnson and Leone (2005) used a cluster analysis procedure to arrive at the best cutoff score. Leone, Johnson, and Cohan (2007) also used a set of unvalidated yes/no items and then a cluster analysis to determine groups of CCV and SCV perpetrators. Yet another method was used by Leone, Johnson, Cohan, and Lloyd (2004) who constructed two scales based on eight items thought to measure psychological control tactics. They then used the scale total scores to perform a cluster analysis within an all female sample. An important aspect of Johnson's theory is that he described CCV as a *pattern* of controlling behavior and refers to it occurring with more regularity and frequency than SCV (Johnson, 1995); however using yes/no occurrence measures does not allow for the frequency or regularity of these behaviors to be assessed. Many of these studies also have used non-validated or "self-made" scales to measure controlling behaviors (e.g., Anderson, 2008; Leone, Johnson, Cohan, & Lloyd, 2004) and different cut-off points to determine how to classify CCV and SCV (e.g., Leone, Johnson, and Cohan, 2007). Typically, a count of psychological control tactics is used and a cut-off is established two standard deviations above the mean. This could indicate that the aggressor used all of these tactics on one occasion rather than on an ongoing basis. The only study that could be located which used a validated measure of control tactics including behavioral frequency was one by Graham-Kevin and Archer (2003). The authors used a 24-item scale of control tactics and then a cluster analysis for high and low control groups which helps to establish a pattern of behavior rather than a greater variety. In the future, it is important as this research continues that a more standardized way of measurement is consistently used which addresses the theoretical underpinnings of the difference between CCV and SCV and allows for comparison of results across studies.

The current study attempts to replicate and advance Johnson's theory in several ways. First, this will be the first known study to sample a large number of adolescent subjects to study SCV and CCV in a mixed-gender sample. This will provide the opportunity to study gender symmetry and asymmetry of IPV subtypes in a group of younger male and female subjects. Second, the current study will separate the theories of SCV and CCV into unique models. These models are based upon theories proposed by Johnson and colleagues but are unique to the current study. Third, the current study will use criteria for identifying CCV and SCV that more closely conform to the theoretical basis underlying the conceptualization. The two models are illustrated below (Figures 1 & 2) and will be explicated in detail in the following pages.

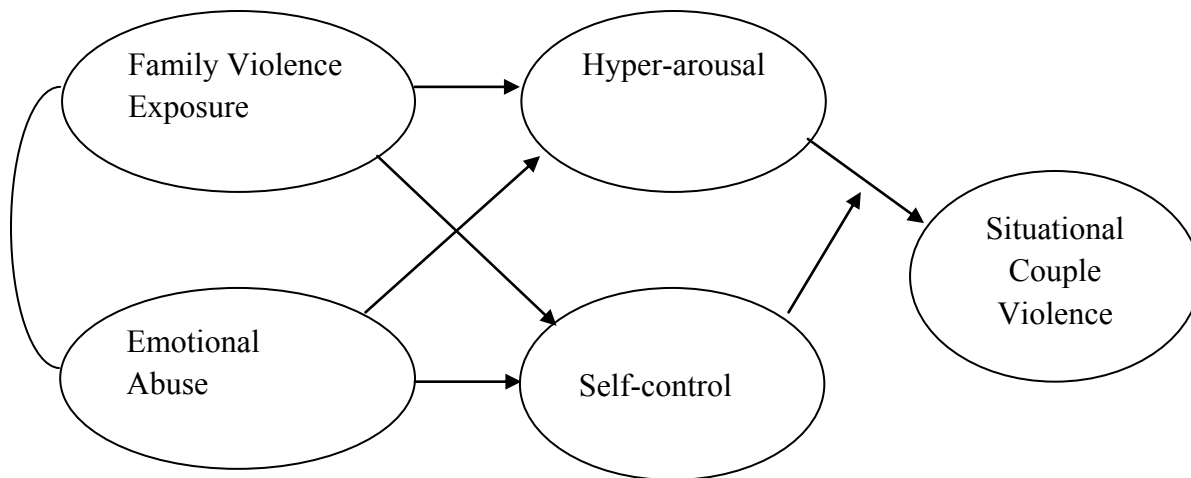


Figure 1: Proposed model of Situational Couple Violence (SCV).

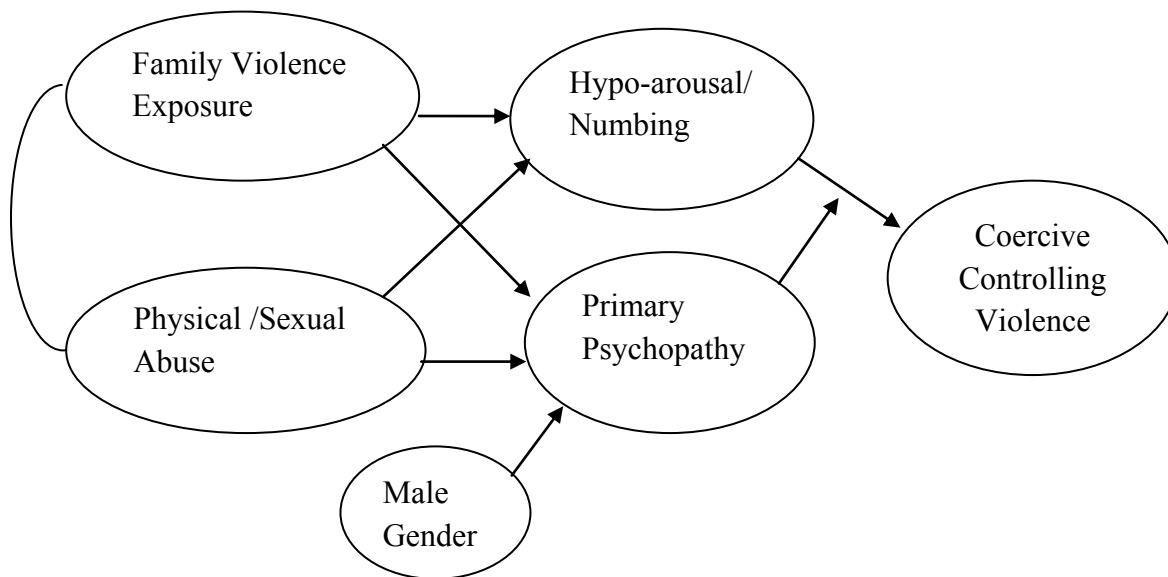


Figure 2: Proposed model of Coercive Controlling Violence (CCV).

IPV and Batterer Typologies

Descriptive and inductive research on partner violence has led to several taxonomies. Although nuanced differences exist, the basis for these types is similar. One group is typified by chronic violence and control, usually causing injury, perpetrated almost exclusively by men against their female partners. Examples of this category are Gottman and colleagues' (1995) Type 1 group, Holtzworth-Munroe and Stuart's (1994) antisocial group, and Johnson's (2006) coercive controlling type. The second group is characterized by periodic violence which is less severe but causes injury, is emotionally driven, and is linked to problems with behavioral inhibition. Examples are Gottman and colleagues' (1995) Type 2 group, Holtzworth-Munroe and Stuart's (1994) family-only men, and Johnson's (2006) situational couple violence. Other studies simply use the terms "severe" and "minor" to describe different severities of IPV. In general, these terms refer to both the level of injury caused by the IPV and the frequency.

There has been a great deal of research on outcomes related to these different types of partner violence. Holtzworth-Munroe and Stuart (1994) performed an exhaustive review of past batterer typologies and found that family-only batterers perpetrate the most sporadic IPV. They are also less likely to use psychological abuse as a control tactic compared to antisocial batterers. Antisocial batterers perpetrate the most chronic violence and likely use psychological abuse as a control tactic. They are also most likely to suffer from personality pathology characterized by aggression and violence (e.g., psychopathy).

A major limitation to the subtypes proposed by Holtzworth-Munroe and Stuart is that they are specific to males. Empirical studies have generally supported these subtypes in samples of male batterers, but females do not fit into these categories well (Holtzworth-Munroe, 2008) despite a great deal of research indicating that females perpetrate certain types of IPV at least as

often as men (e.g., Foshee et al., 2009; McDonald et al., 2006). As data on female perpetration of IPV mounts, it becomes important to identify theories that may account for heterogeneity in IPV perpetration.

To that end, as noted earlier, Johnson (2006; Johnson & Leone, 2005) has delineated between coercive controlling violence (CCV) and situational couple violence (SCV). CCV is analogous to the feminist view of domestic violence as a mechanism of control in romantic relationships and is theoretically perpetrated primarily by males (Johnson, 2006). In contrast, SCV is context specific and more indicative of low self-control and emotion dysregulation. SCV occurs during typical relationship strain, but does not necessarily constitute a systematic pattern. Instead, SCV represents a lapse in self-control that is influenced by situational variables and stimuli. CCV will occur regardless of the situational determinants because it represents a long-term, goal-oriented strategy to control one's partner and assert dominance in the relationship.

Research on Johnson's subtypes has provided support for the distinction between CCV and SCV, even in mixed gender samples. For example, Graham-Kevan and Archer (2003) found support for Johnson's dichotomy using several samples. They sampled women from domestic violence shelters, male and female students, men attending an IPV treatment program and their partners, and male prisoners and their partners. Using cluster analysis they found support for Johnson's typology in the unified sample as well as separately for males and females. They also found support for gender symmetry in the perpetration of SCV, while over 90% of the CCV cases were male.

Further evidence exists in outcome studies, but has been limited to male perpetrated violence. For instance, Johnson and Leone (2005) used data from the National Violence Against Women Survey and found distinct experiences and outcomes for women exposed to SCV versus

CCV. Women exposed to CCV experienced more frequent physical attacks and the violence during these attacks caused more serious injuries. The violence was also more likely to be chronic and continuous. Women who experienced SCV were less likely to leave their relationships due to the abuse, to experience sporadic violence, and to receive frequent injuries requiring medical attention.

In another study, Leone, Johnson, and Cohan (2007) found that women who experienced SCV, compared to those experiencing CCV, were more likely to seek informal help in the form of friends and family; CCV victims were more likely to seek formal help from police and other government agencies. Because of the psychological tactics and manipulation associated with CCV, it is likely that women who experience it are less able to maintain connections with friends and family as a support system and more likely to rely on authorities for help (Leone, Johnson, & Cohan, 2007).

Although there are many ways to distinguish battering subtypes, Johnson's dichotomy of SCV and CCV is unique in that it helps to explain gender asymmetry in the literature by demonstrating how sampling different populations leads to disagreement about the prevalence of female partner violence. Johnson goes so far as to say that we cannot draw any firm conclusions about the nature of IPV from studies that do not distinguish among subtypes (Johnson & Ferraro, 2000). The following sections outline in detail the two proposed models which are informed by developmental theory; one leading to SCV, one leading to CCV.

CHAPTER 2

Model 1: Situational Couple Violence

The first proposed model leads to perpetration of SCV. Johnson (1995) proposed that SCV is primarily influenced by contextual factors that lead to momentary emotional outbursts of violence driven by anger and frustration. He theorized that the majority of individuals who perpetrate SCV regret their behavior and attempt to curtail their violent impulses in the future. In essence, SCV is preceded by a strong emotional reaction and a lapse in self-control. Childhood experiences such as child maltreatment and exposure to IPV are detrimental to self-control and emotion regulation systems (Cummings, Davies, & Campbell, 2000; Kim, Pears, Capaldi, & Owen, 2009; Maughan & Cicchetti, 2002) as well as biological processes that facilitate these skills (e.g., Kearney, Wechsler, Kaur, & Lemos-Miller, 2010), thus increasing the risk for perpetration of SCV in the future. Furthermore, behavioral self-control may mediate the relationship between emotion regulation and SCV. Johnson (1995) posited that SCV is preceded by a series of three events: 1) an emotionally evocative experience which leads to, 2) an aggressive impulse, and 3) a lapse in behavioral self-control. Self-control mediates the relationship between emotion regulation and perpetration of SCV as research shows that many individuals have aggressive impulses toward their partners without acting upon them (Finkel, DeWall, Slotter, Oaten, & Foshee, 2009).

Behavioral Self-control

Baumeister and colleagues described self-control as “an important inner faculty that enables people to resist ... acting on their aggressive impulses” (DeWall, Baumeister, Stillman, & Gailliot, 2007; p. 62). Self-control is analogous to other terms such as self-regulation and self-restraint (DeWall, Baumeister, Stillman, & Gailliot, 2007) and is closely tied to emotion

regulation (Teisl & Cicchetti, 2007). Emotion regulation is not a behavioral process; rather, it is the underlying ability to modulate one's emotional experience, which is critical in determining the manner in which those feelings are behaviorally expressed (Fabes & Eisenberg, 1992; Teisl & Cicchetti, 2007). Thus, poor emotion regulation is a risk factor for lapses in self-control, but is not necessarily indicative of behavior.

Several studies have investigated the relationship between self-control and general aggressive behavior in children and adults. People with poor self-control generally respond with more outward aggression to anger-evoking stimuli (Tangney, Baumeister, & Boone, 2004), have more angry conflict with others, and commit a greater number of criminal acts over time (Caspi, 2000; Kochanska, Murray, & Harlan, 2000). Although these studies have found a direct link between self-control and aggression, all three suggest that emotion is the antecedent to a loss in self-control. In other words, reacting angrily necessitates that anger preceded the behavior and was strong enough to illicit an aggressive response.

Other research has identified failure of self-control as an important precursor to many incidents of IPV (e.g., Finkel & Campbell, 2001; Finkel, DeWall, Slotter, Oaten, & Foshee, 2009; Kerley, Xu, & Sirisunyaluck, 2008). These studies used community samples and included more sporadic forms of violence in their measurement of IPV. Although the use of a community sample and measurement of less frequent IPV is consistent with theories of SCV, no studies have yet investigated the role of self-control in the perpetration of SCV specifically. This relationship is important as Johnson (1995) posited that poor self-control is the primary risk factor for perpetrating SCV. Furthermore, none of these studies assessed the perpetrator's emotional state in the moments before they became violent. It is likely that anger and/or frustration led to a momentary lapse in self-control, consistent with SCV.

A prominent theory of why people have short-term lapses in self-control is the resource depletion theory. Self-control is a limited resource that will fail when over-taxed (e.g., Muraven, Tice, & Baumeister, 1998; Vohs & Heatherton, 2000). Vohs and Heatherton (2000) experimentally depleted effortful self-control resources during priming tasks and found that participants required to exert more effort were more likely to experience self-regulatory failure in a challenge task. Subsequent studies utilizing similar methods found that self-control of decision making (Vohs et al., 2008) and aggressive behavior (DeWall, Baumeister, Stillman, & Gailliot, 2007; Stucke & Baumeister, 2006), including partner violence (Finkel, DeWall, Slotter, Oaten, & Foshee, 2009), were also negatively influenced by experimental depletion of self-control resources. Tasks which depleted resources included restrained eating behavior, affective regulation, and forced decision making. Finkel and colleagues (2009) noted that intimate relationships may be particularly taxing on self-control resources due to interdependence. Interdependence is the idea that the more emotionally involved a pair of individuals is, the more powerfully they can influence each others' emotional states (Finkel & Campbell, 2001; Finkel, DeWall, Slotter, Oaten, & Foshee, 2009). This applies to all interpersonal relationships, but intimate relationships tend to be the most highly interdependent (Finkel, 2007). Thus, when an intimate partner acts in a way that is upsetting or offensive, it may be more taxing on self-control resources than typical situations.

While the above studies have all focused on temporary lapses in self-control, others have investigated the role of dispositional self-control on aggression and IPV. Dispositional self-control is a stable individual trait describing the degree to which one can control one's impulses across time and situations (Baumeister, Gailliot, DeWall, & Oaten, 2006; Finkel et al., 2009; Raffaelli, Crockett, & Shen, 2005). In studies of self-control depletion, those with low trait

levels of self-control, as indicated by scores one or more standard deviations below the mean, were more likely to respond aggressively than those with average trait self-control (e.g., DeWall, Baumeister, Stillman, & Gailliot, 2007). Those with high dispositional self-control (1+SD above the mean) were more likely to maintain self-control during the same depleting task. Authors have likened self-control to a muscle in that overusing it causes weakness, and those with stronger “muscles” can withstand greater strain (see works by Baumeister and colleagues, 2006; DeWall, Baumeister, Stillman, & Gailliot, 2007; Stucke & Baumeister, 2006). Work by Finkel and colleagues (2009) as well as Baumeister (Baumeister, Gailliot, DeWall, & Oaten, 2006; DeWall, Baumeister, Stillman, & Gailliot, 2007; Stucke & Baumeister, 2006) demonstrated that individuals with greater self-control feel aggressive impulses when frustrated, but are less likely to act upon them.

Research on dispositional self-control suggests that it is a developmentally acquired skill. In a longitudinal study, children’s ability to exhibit self-control significantly improved between age 4 and 13 (Raffaelli, Crockett, & Shen, 2005). Other research also suggests that self-control is developed through an interactive system between temperament and environmental factors (e.g., Barkley, 1997; Boutwell & Beaver, 2010; Ashby Wills & Dishion, 2004). Therefore, it is important to also investigate factors that may influence the development of trait self-control over time when interested in the antecedents of SCV. Exposure to conflict in the home has been repeatedly demonstrated to be a risk factor for a wide range of poor developmental outcomes, including disrupted development of emotional and behavioral competence (see Wolfe, Crooks, Lee, McIntyre-Smith, & Jaffe, 2003 for a review). For instance, exposure to IPV and interparental conflict during childhood has been implicated in low dispositional self-control (Cummings, Davies, and Campbell, 2000; Schulz, Waldinger, Hauser, & Allen, 2005). Child

maltreatment and harsh parenting have also been linked to poor self-control (Ashby Wills & Dishion, 2004; Patterson, Reid, & Dishion, 1992). Since self-control is a developmentally acquired process which continues into adolescence, disruptions in the developmental process due to IPV or poor parenting behaviors are likely to have a long-term negative effect on self-control (Pulkkinen, 2009; Raffaelli, Crockett, & Shen, 2005).

Emotion Dysregulation and Hyper-arousal Symptoms

Emotion Dysregulation. Whereas self-control refers to inhibition of behavior in the current study, emotion regulation refers to the modulation of the internal emotional experience (Eisenberg & Fabes, 1992). Although other definitions exist (see Cole, Martin & Dennis, 2004 for a review and discussion), the current study is interested in how individuals cope with the emotions they feel. Thus, emotion regulation in the current study refers to the ability to alter or regulate one's emotional state. The lack of emotion regulation skills (i.e., emotion dysregulation) places individuals at increased risk for inappropriate and impulsive emotional reactions, especially anger and aggression (Eisenberg & Fabes, 1992; Schulz, Waldinger, Hauser, & Allen, 2005; Seguin, Arseneault, & Tremblay, 2007).

As with self-control, several studies have demonstrated that early deficits in emotion regulation tend to persist throughout development (e.g., Caspi, 2000; Pulkkinen, 2009). Emotion regulation is described as an epigenetic process, an interaction between genes and environmental experiences during development (Campos, Frankel, & Camras, 2004). Thus, factors which negatively influence the development of skills critical for emotion regulation during childhood may have implications for future emotion regulation abilities and behavior (Bandon, Calkins, Keane, & O'Brien, 2008; Cole, Martin & Dennis, 2004).

Deficits in emotion regulation have been implicated as both a predictor and outcome of IPV (Crockenberg, Leerkes, & Lekka, 2007; Maughan & Cicchetti, 2002) as well as mediators of the intergenerational transmission of IPV (Kim, Pears, Capaldi, & Owen, 2009). Kim and colleagues (2009) found that adolescent sons' emotion regulation was related to the emotion regulation abilities of their parents and that this relationship was partially mediated by parenting behavior. They also found that the intergenerational transmission of IPV was mediated by the sons' emotion regulation capabilities. Unfortunately, no complementary study has been performed with girls. The current study will include a mixed-gender sample and will test the effect of gender on the relationships between exposure to family violence in childhood, emotion regulation, and behavioral self-control.

Child maltreatment has also been implicated in emotion dysregulation. In fact, at least one study found that the influence of IPV exposure on children's emotion regulation was moderated by the effect of child maltreatment (Maughan & Cicchetti, 2002). The direct effects of IPV exposure on emotion dysregulation were only evident when child maltreatment was also considered. In their sample, Maughan and Cicchetti (2002) found that over three quarters of maltreated 5 year old children displayed maladaptive emotion regulation patterns. Teisl and Cicchetti (2007) also found that child maltreatment increased emotion dysregulation and that problems with emotion regulation were significantly related to externalizing behaviors and aggression in 6 to 12 year olds. Others have found that harsh parenting practices diminished emotion regulation ability and increased aggressive behavior in children (Chang, Schwartz, Dodge, & McBride-Chang, 2003) and adults (Kim, Pears, Capaldi, & Owen, 2009). In a longitudinal study, Kim and colleagues (2009) found that poor parenting practices when children were adolescents were negatively related to their emotion regulation abilities 8 years later.

Unfortunately, IPV and child maltreatment tend to co-occur, placing children in these homes at increased risk for poor emotion regulation and behavioral self-control (Knickerbocker, Heyman, Smith Slep, Jouriles, & McDonald, 2007).

The influence of IPV and child maltreatment on emotion regulation may be understood within the framework of traumatic stress. Biological models of the influence of early trauma, such as child maltreatment, suggest that the influence of psychosocial stress on long-term functioning is based on biological changes and dysfunction (van der Kolk, 2005). One of the primary systems identified in existing literature is increased activity in the HPA axis, involved in emotion regulation (Kearney, Wechsler, Kaur, & Lemos-Miller, 2010). The HPA axis is responsible for releasing chemicals which facilitate emotion regulation during times of stress (Heim & Nemeroff, 2009). Exposure to long-term trauma or violence may produce adaptive changes in biological functioning (Tarullo & Gunnar, 2006). In the case of child maltreatment, increased sensitivity to threats and danger may be useful in self-preservation.

However, possibly the most important function of the HPA axis related to traumatic response is ceasing the production of glucocorticoids, such as cortisol, through a negative feedback loop, which helps an individual relax when the stressful situation has passed (Handwerker, 2009). Exposure to trauma can interrupt this loop, leading to constant activation of the stress response, consistent with arousal symptoms in PTSD, and problems with emotion regulation (Kearney, Wechsler, Kaur, & Lemos-Miller, 2010).

Behaviors resulting from HPA axis dysregulation manifest as symptoms such as anger outbursts, concentration problems, and exaggerated startle response (Cicchetti & Rogosch, 2001a; Cicchetti & Rogosch, 2001b), all indicative of poor emotion regulation. Exposure to IPV can also produce a trauma response in children (e.g., Bogat, DeJonghe, Levendosky, Davidson,

& von Eye, 2006; Moretti, Obsuth, Odgers, & Reebye, 2006), and at least one study indicates that exposure to IPV produces similar biological dysregulation of the HPA axis (Mead, Beauchaine, & Shannon, 2010). Therefore, the influence of IPV and maltreatment on emotion regulation may be understood as a traumatic stress reaction.

Hyper-arousal Symptoms. Symptoms of hyper-arousal may also influence emotion regulation capabilities and are related to traumatic stress reactions and HPA axis functioning (Cicchetti & Rogosch, 2001a; Cicchetti & Rogosch, 2001b). Previous research suggests that physiological reactivity is influenced by exposure to traumatic events during development (Kearney, Wechsler, Kaur, & Lemos-Miller, 2010), including IPV exposure (Mead, Beauchaine, & Shannon, 2010); thus, increased physiological reactivity may be a primary mechanism for the long-term influence of child maltreatment and exposure to IPV on emotion regulation and behavioral outcomes. The PTSD symptom cluster of arousal (APA, 2000) captures many of these symptoms and can be negatively influenced by child maltreatment and IPV exposure (Cicchetti & Rogosch, 2001a; Cicchetti & Rogosch, 2001b; Finkel et al., 2009; Frewen & Lanius, 2006).

The first model will provide a framework to test the interrelationships between these symptoms of hyper-arousal and emotion dysregulation with behavioral control and their influence on perpetration of SCV. The model is based on a developmental perspective and includes the early influences of IPV in the home and child maltreatment, which have been shown to negatively impact all of these systems in previous research. This is the first study to develop and test a model of specific correlates that may be unique to SCV.

CHAPTER 3

Model 2: Coercive Controlling Violence

The second model proposes pathways that lead to perpetration of CCV (Figure 2). The first model describes a pathway to SCV and assumes that individuals react to family violence and child maltreatment by becoming emotionally and physiologically dysregulated. This dysregulation coupled with poor behavioral self-control leads to aggressive outbursts toward romantic partners. There is a great deal of evidence to support this model, as cited above. There is, however, another body of literature which suggests that children and adolescents exposed to the same childhood experiences become overcontrolled and may even lack emotional responsiveness. Cicchetti and colleagues (Cicchetti & Rogosch, 2001a; Cicchetti & Toth, 2005) posit that these seemingly opposite reactions to similar circumstances represent an epigenetic process. Epigenesis is the process of genetically inherited systems interacting with the environment during development (Cicchetti & Rogosch, 2001a). In their work with maltreated children, Cicchetti and colleagues have observed multiple outcomes, including both hyper-reactivity and hypo-reactivity of the HPA axis resulting in differing levels of arousal and emotionality (Cicchetti & Rogosch, 2001a; Cicchetti & Toth, 2005). In the context of the CCV model, children exposed to IPV and maltreatment may become hyper-controlled as a reaction to the continual danger around them. Unlike emotionally dysregulated individuals, those who follow this path have minimal emotional experiences and may become callous and unemotional and present symptoms (i.e., traits) of primary psychopathy. These symptoms are more likely to lead to perpetration of CCV which is described as a cold and calculated manipulation without remorse (Johnson, 1995).

Primary Psychopathic Traits

Although it is clear that behavioral self-control likely plays a role in many instances of IPV, it does not explain long-term patterns of abusive behavior in relationships as seen in CCV. The above research linking self-control to IPV tends to measure less severe and more sporadic violence indicative of situational stress and poor self-regulatory behavior (e.g., Finkel, DeWall, Slotter, Oaten, & Foshee, 2009; Kerley, Xu, & Sirisunyaluck, 2008). Studies of more chronic IPV have identified a trajectory of consistent violence and manipulation which may be indicative of enduring traits of the perpetrator rather than situational factors (e.g., Coyne, Nelson, Graham-Kevan, Keister, & Grant, 2010; Holtzworth-Munroe & Meehan, 2004).

The term psychopathy (or psychopath) has been used loosely in the past to describe various levels of criminality and antisocial behaviors (Huss & Langhinrichsen-Rohling, 2000). Psychopathy is also commonly linked with personality pathology, especially antisocial personality disorder; although antisocial personality disorder is primarily indicative of behavioral problems, whereas psychopathy is more focused on affective and emotional deficiencies (Huss & Langhinrichsen-Rohling, 2000). Those who study psychopathy differentiate the term from many of its former uses, instead focusing on two core sets of symptoms often termed “primary” and “secondary” psychopathic traits (Coyne & Thomas, 2008). Primary psychopathic traits refer to a set of deficiencies in affective experience, including callousness, lack of empathy, manipulation of others, and lack of guilt (Huss & Langhinrichsen-Rohling, 2000). Secondary psychopathic traits include many of the behavioral aspects commonly associated with antisocial personality disorder, including violence against others, law-breaking, impulsivity, and substance abuse. Although secondary psychopathic traits capture previous criminal and antisocial behavior, Huss and Langhinrichsen-Rohling (2000) suggest that primary psychopathy is more salient in studies

of IPV. They suggest that true psychopaths are just as likely to be car salesmen or stock brokers as they are to be criminals, because the core affective and interpersonal traits associated with psychopathy distinguish them from the general population.

There are several theories regarding the development of primary psychopathic traits, but no clear consensus. As with many personality characteristics, psychopathic traits seem to be multiply determined and relatively stable over time (Lynam & Gudonis, 2005; Pardini & Loeber, 2008). In their review, Lynam and Gudonis (2005) cite both a developmental and developmental theories of psychopathy. A developmental theories posit that psychopathy is due to inherent individual differences which are present beginning at birth. Alternatively, developmental models propose that inborn traits coupled with environmental experiences (gene x environment interactions) culminate in psychopathy. Environmental stressors such as childhood physical and sexual abuse (Daversa, 2010; Pollak, Cicchetti, & Klorman, 1998) and maladaptive attachment (Bowlby, 1951; Gao, Raine, Chan, Venables, & Mednick, 2010) have been implicated in the development of psychopathic traits. The operative characteristic in these environments, according to the researchers who studied them, is inconsistency and lack of positive moral and behavioral modeling. Therefore, another environmental risk factor for psychopathic traits may be exposure to IPV. A genetic loading for violent and amoral behavior is likely to be present in the abuser and the same inconsistent environment and lack of positive modeling is likely present as well.

IPV researchers have established that primary psychopathic traits are a substantial risk factor for perpetrating chronic IPV (Babcock, Green, Weeb, & Yerington, 2005; Coyne, Nelson, Graham-Kevan, Keister, & Grant, 2010; Swogger, Walsh, & Kosson, 2007). Coyne and colleagues (2010) recently studied a community sample of men and found that primary

psychopathic traits predicted psychological IPV, while secondary psychopathic traits predicted general aggression levels across situations (e.g., fights with strangers as well as family violence). Similarly, Swogger et al. (2007) used a prison sample and criminal records to identify men charged with domestic battery and those with other violent crimes and found that low empathy, callousness, and low impulsivity (i.e., high self-control) characterized the men who had perpetrated chronic IPV as compared to other violent offenders.

Adults with primary psychopathic traits have also demonstrated low physiological reactivity to anger-evoking stimuli (e.g., Osumi, Shimazaki, Imai, Sigura, & Ohira, 2007; Vanman, Mejia, Dawson, Schell, & Raine, 2003), as well as aggressive behavior (Coyne & Thomas, 2008), and empathy deficits (Ali, Amorim, & Chamorro-Premuzic, 2009). Ali and colleagues (2009) found that primary psychopathy is associated with experiencing positive emotions in reaction to sadness in others. In essence, these individuals are positively reinforced for causing negative emotions in those around them.

Another group of researchers have studied a subset of psychopathic symptoms they termed callous/unemotional traits (Frick et al., 2003a, 2003b). Callous/unemotional traits include a lack of empathic responding and guilt, exploitation of others, and hyper-regulated emotions (Seah & Ang, 2008). Thus, callous/unemotional traits encompass much of what previous research termed primary psychopathic traits. Children with callous/unemotional traits tend to show more aggressive behavior toward others, and callous/unemotional traits are predictive of continued deviancy into late adolescence (Frick, Cornell, Barry, Bodin, & Dane, 2003a; Frick, Cornell, Bodin, Dane, Barry, & Loney, 2003b). At least one study has investigated physiological differences between children with conduct disorder only (same as secondary psychopathic traits) and conduct disorder with callous/unemotional traits. The authors found that

children with conduct disorder and callous/unemotional traits demonstrated less physiological reactivity to a fear-inducing film than those with conduct disorder alone (Anastassiou-Hadjicharalambous & Warden, 2008), suggesting that physiological differences between those with primary and secondary psychopathic traits may exist even in childhood.

Research has also shown that psychopathic traits are remarkably stable. Longitudinal studies have consistently reported reliability coefficients greater than .80 over 1-, 2-, and 5-year periods for children aged 7 to 17 (i.e., Frick, Kimonis, Dandreaux, & Farell, 2003; Lynam, Charingo, Moffitt, Raine, Loeber, & Stouthamer-Loeber, 2009; Lynam, Derfinko, Caspi, Loeber, & Stouthamer-Loeber, 2007). These studies invariably combine primary and secondary psychopathic traits into a single psychopathy construct, so it is difficult to ascertain whether there are differences in stability in one set of symptoms versus another (i.e., callous/unemotional traits). However, extant research suggests that assessing traits of psychopathy in late adolescence captures enduring individual differences that have been present for some time. These findings are also critical for identification and prevention efforts; if callous/unemotional traits are a significant marker for perpetrating the most chronic forms of relationship violence and can be identified early in adolescence (i.e., before dating age), prevention efforts can be instituted.

It is important to clarify that past research has not suggested that individuals who possess primary psychopathic traits are the only ones who are manipulative and violent in romantic relationships (perpetrating CCV). However, as with many other facets of personality, primary psychopathic traits are hypothesized to fall on a continuum, and individuals may possess certain traits of primary psychopathy without being labeled a psychopath (Huss & Langhinrichsen-Rohling, 2000). For instance, at least one study found that higher levels of primary psychopathic

traits are related to instrumental aggression in a typical college sample (Falkenbach, Poythress, & Creevy, 2008). Instrumental aggression is akin to CCV in that it is defined by a pattern of manipulative, goal-oriented aggression (Dodge & Coie, 1987). Thus, traits of primary psychopathy may be a risk factor for CCV even when all criteria are not met.

Unlike deficits in self-control which tend to occur with the same frequency in males and females (Weinberg & Klonsky, 2009), the majority of research to date indicates that traits of psychopathy occur less frequently in women than men (see Dolan & Vollm, 2009 for a review). At least one study has also found that primary psychopathic traits, in particular, are less frequent in women than men (Douglas, Strand, Belfrage, Fransson, & Levander, 2005). Given the gender differences in rates of psychopathic traits, especially primary traits, which may be associated with perpetration of chronic IPV, previous studies reporting over 90% percent of CCV perpetrators to be male likely reflect the relationship between these traits and CCV (Graham-Kevan & Archer, 2003; Johnson, 1995, 2006).

Emotional Numbing

Although exposure to child maltreatment and IPV may lead to an attenuated ability to regulate one's emotions, there is other evidence that some children overcompensate and suppress their emotional reactions (Daversa, 2010). A paradox when studying traumatic stress reactions is that a diagnosis of PTSD requires seemingly opposing reactions to the same event/experience. It was argued above that traumatic childhood experiences may lead to heightened reactivity of the nervous system and also difficulty in modulating one's emotions. This type of reaction is akin to the hyper-arousal symptom cluster in PTSD (APA, 2000). However, other research suggests that children exposed to similar traumas during childhood may develop over-controlled emotion regulation (Kemp et al., 2009). Such a reaction is similar to the avoidance and numbing cluster

of PTSD symptoms (APA, 2000). Cicchetti and colleagues (e.g., Cicchetti & Curtis, 2006; Cicchetti & Toth, 2005) have argued that varying reactions to trauma in children exposed to violence is likely due to biological variability and genetic predispositions. Animal models support this theory. In studies of non-human primates and other mammals, some offspring respond to early trauma by becoming more aggressive, while others become withdrawn (see Veenema, 2009 for a review). Along with opposing behavioral reactions to early trauma, changes in HPA axis activity varied as well. Although some animals demonstrate increased HPA activity indicative of emotion dysregulation, others show decreased activity (Veenema, 2009). Variables such as the timing, severity, and chronicity of maltreatment may influence the developmental changes, but this is not well understood in animals or humans (Mead, Bauchaine, & Shannon, 2010; Veenema, 2009).

Much as hyper-arousal and increased HPA activity may begin as an adaptive change in children exposed to child maltreatment, the same may be the case for children who exhibit numbing and under-arousal. Animal and human models have shown that individuals within a species may adapt in multiple ways to similar stresses in order to cope (see Sroufe, 1997 and Cicchetti & Curtis, 2006 for reviews). Instead of becoming more sensitive to stress and danger, as in Model 1, some individuals may become "numb" to their experiences, thereby reducing their level of anxiety (Kim-Cohen et al., 2006) and allowing for continued functioning in the face of ongoing stress.

Importantly, the behavioral outcomes associated with emotional over-control (numbing) are much different than the reaction in Model 1 (Davessa, 2010; Lorber, 2004). Model 1 proposes that heightened arousal can negatively affect the emotional and behavioral regulation systems and lead to SCV. Model 2 proposes that emotional numbing can lead to a different type

of behavioral problem. For instance, detachment from emotion, which is characteristic of an overcontrolled reaction to trauma, is also associated with primary psychopathic traits (Frewen & Lanius, 2006; Osumi, Shimazaki, Imai, Siguira, & Ohira, 2007; Vanman, Mejia, Dawson, Schell, & Raine, 2003). I hypothesize that those individuals who have a deficient affective experience, including emotional numbing and traits of primary psychopathy, which predispose aggression, violence, and manipulation in relationships, are most likely to perpetrate CCV. Thus, primary psychopathy traits are hypothesized to mediate the relationship between emotional numbing and CCV.

CHAPTER 4

Summary and Hypotheses

Previous research has demonstrated that perpetration of IPV is a significant problem for both males and females (Schafer, Caetano, & Clark, 1998; Tjaden & Thoennes, 2000), and that, for many, perpetration of IPV begins during adolescence (Lewis & Fremouw, 2001). Research also shows that a salient risk factor for IPV perpetration is exposure to violence in the home during childhood, a cycle called the intergenerational transmission of relationship conflict (Fite et al., 2008). Although there has been an effort to create developmental models of this transmission, previous models have limitations. First, IPV is generally considered a unitary and continuous outcome in these studies (Stith et al., 2000) rather than attending to the mounting evidence that IPV is best captured by measuring multiple facets such as duration, severity, and use of psychological tactics (Holtzworth-Munroe & Stuart, 1994; Johnson & Leone, 2005). Johnson's dichotomy of situational couple violence (SCV) and coercive controlling violence (CCV) bridges the gap between research on community and adjudicated samples, considering such factors as duration and use of psychological manipulation, as well as being more sensitive to gender (Kelly & Johnson, 2008). It is important to understand these two forms of IPV because of the difference in associated outcomes for victims. For instance, SCV is less likely to cause serious physical injury or include sexual violence (Kelly & Johnson, 2008). For women, SCV also results in fewer physician visits, less missed work, and fewer psychological symptoms than CCV (Johnson & Leone, 2005).

Another limitation of extant research is that models have generally been tested only in adult male populations, again ignoring research that highlights the severity and frequency of IPV during adolescence (Lewis & Fremouw, 2001; Munoz-Rivas, Grana, O'Leary, & Gonzalez,

2007), and among women (Foshee et al., 2009; McDonald et al., 2006). The current study will assess a mixed-gender, late-adolescent sample. Each of the proposed models will be tested with both the entire sample, and separately for gender.

This study also uniquely contributes to the literature by assessing self-reported symptoms of physiological reactivity and testing hypotheses of different profiles for perpetrators of SCV and CCV as well as comparing male and female data in the same context.

The first model aims to investigate the role of emotion regulation, hyper-arousal symptoms, and behavioral self-control in relation to SCV. Previous research has established a relationship between childhood exposure to IPV and child maltreatment and future perpetration of IPV. No previous studies have investigated this relationship with IPV or in a developmentally informed model including measures of arousal symptoms and behavioral self-control. Furthermore, this will be the first study to conduct this inquiry with a mixed-gender sample to test gender differences.

Additionally, there is convincing evidence that primary traits of psychopathy, which are measurable and stable beginning at least in adolescence, are related to the perpetration of CCV. There is also evidence that these traits can be influenced by negative childhood experiences such as child maltreatment and possibly IPV exposure. Emotional numbing can also result from exposure to childhood trauma such as abuse and witnessing violence. The combination of emotional numbing and a propensity for violence and manipulation will likely result in perpetration of CCV. Thus, the second model will test the direct effect of IPV exposure and child maltreatment on the development of primary psychopathy traits and restricted emotional experience as well as the mediating role of psychopathic traits in the relationship between emotional numbing and CCV. A major question to be answered in this model is how well it

describes both males and females, since the majority of research on psychopathy and CCV has heretofore focused on males.

Hypotheses Tested Using Model 1

Hypothesis 1a: Exposure to IPV during childhood will be associated with deficits in self-control, symptoms of hyper-arousal, and poor emotion regulation skills..

Hypothesis 1b: Exposure to child maltreatment will be associated with deficits in self-control, symptoms of hyper-arousal, and poor emotion regulation skills.

Hypothesis 1c: Emotion dysregulation and hyper-arousal symptoms will be associated with greater perpetration of SCV.

Hypothesis 1d: Self-control will partially mediate the relationship between emotion regulation/ hyper-arousal and SCV perpetration.

Hypothesis 1e: The model will function similarly for males and females.

Hypotheses Tested Using Model 2

Hypothesis 2a: Exposure to IPV and child maltreatment during childhood will be associated with emotional numbing relative to non-exposed participants.

Hypothesis 2b: Exposure to IPV and child maltreatment during childhood will be associated with higher primary psychopathic traits.

Hypothesis 2c: Primary psychopathic traits will fully mediate the relationship between emotional numbing and CCV perpetration.

Hypothesis 2d: The model will fit male data significantly better than female data.

CHAPTER 5

Method

Participant Recruitment

Participants were recruited from students enrolled in introductory psychology classes during the fall, spring, and summer terms of the 2010-2011 academic year at Michigan State University. Including all three terms, over 3,000 undergraduates were enrolled for Introductory Psychology classes during that period. To be included in the study, participants had to be between 18 and 20 years old and must have at least one significant heterosexual relationship in the past 2 years. A significant relationship was considered any lasting one month or longer, which is consistent with other studies of adolescent/young adult relationship violence (e.g., Magdol et al., 1997).

Both recruitment and data collection for the majority of participants were completed online during the fall, spring, and summer terms of the 2010-2011 academic year. Thirty-four participants during the summer term were recruited to complete the questionnaires in the lab in paper form. The questionnaires were presented in the same order as the online study for these participants. In total, 1073 subjects participated in the study. Descriptive statistics can be found below in Table 1. Fewer males (N=489) completed the survey than females (N=584). The age range of participants was limited to 18-20, so it is unsurprising that the average age was 19.0 years. The vast majority of the sample identified themselves as Caucasian (81.4%) followed by Asian/Pacific Islander (7.3%), Black/African American (4.1%), bi-racial/multi-racial (3.4%), Hispanic/Latino/Chicano (2.5%), and others not listed (1.2%). These proportions are near those reported for the MSU student body (<http://www.collegeportraits.org/MI/MSU/characteristics>). Income ranges were used as a proxy for socioeconomic status (see demographic questionnaire in

Appendix A for specific ranges). The largest proportion of respondents reported that their families earned more than \$110,000 per year (28.4%). The median income was between \$70,000 and \$89,000 per year. Approximately half of the participants reported their relationship status as “single” at the time of data collection. The remaining participants primarily reported being in a “dating” relationship. Less than 2% reported cohabitating, none reported being married or divorced/separated. When asked to report the length of their current or most recent relationship of at least 4 weeks, 97% reported a relationship between one and three months.

Table 1

Descriptive statistics for the current sample as well as the matched groups.

	N	%male	Median Income range	Mean length of relationship
Total Sample	1073	46%	\$70,000 - \$89,000	7 weeks
SCV Group	245	48%	\$70,000 - \$80,000	8 weeks
CCV Group	42	50%	\$70,000 - \$89,000	8 weeks
Matched Controls	72	49%	\$70,000 - \$80,000	6 weeks

The questionnaires were entered into the HPR system and delivered to each participant in a fixed sequential order. Data were then stored on the HPR server and downloaded into a comma-separated values file (.csv) which is read by Microsoft Excel and converted to an SPSS file for analysis.

Measures

A copy of all the measures used in the current study can be found in Appendix A.

Demographics. Participants completed a brief demographic questionnaire regarding age, race/ethnicity, estimate of family income, and current/past relationship status.

Childhood Experiences

Conflict Tactics Scale-Revised Adult-recall (CTS2-CA; Straus, 1999). The CTS is the most commonly used violence instrument in the literature and has been generated in many forms to fit many purposes. This short-form version of the measure allows participants to report the behavior of their parents (and/or parents' partners) during childhood. Participants were instructed to report on behaviors any time prior to their 18th birthday. The measure asks two sets of 10 conjoined questions about 'mother' and 'father' behavior (20 total items). In the directions, participants are instructed as to which caretakers to report on if their parents do not live together. Example items are "Mother (Father) threw something at father (mother) that could hurt" and "Mother (Father) beat up father (mother)." Respondents rate items on a 7-point Likert scale of frequency ranging from "Never" to "More than 20 times." Respondents can also report that the behavior did not happen during the specified time, but did occur at a different time. The original measure contains subscales for physical abuse, injury, negotiation, and psychological abuse. Straus, Hamby, Boney-McCoy, and Sugarman (1996) reported internal consistency above .85 for all subscales except the psychological aggression scale ($\alpha = .79$) for the CTS2. Test-retest reliability has not been reported for the adult-recall version of the CTS2; however, an average coefficient of .72 has been reported for the self-report version (Straus, 2007). Reliability for the current study is acceptable ($\alpha = .84$).

Childhood Trauma Questionnaire – Short Form (CTQ-SF; Bernstein et al., 2002). The CTQ-SF is a self-report inventory of five different types of trauma children may experience in their home: emotional abuse, emotional neglect, physical abuse, physical neglect, and sexual abuse. The scale contains 28 items, of which three are validity items. The items ask respondents to report on experiences during childhood and adolescence and are rated on a 5-point Likert scale with options from ‘never true’ to ‘very often true.’ The 3-item validity scale assesses minimalization and denial, indicating possible underreporting. Examples of items include “People in my family hit me so hard that it left me with bruises or marks (physical abuse)” and “People in my family said hurtful or insulting things to me (emotional abuse).” Bernstein et al. (2003) reported internal consistency reliability above .85 for all subscales other than physical neglect ($\alpha = .78$). Construct validity was established through confirmatory factor analysis as well as correlations with the full version of the CTQ, a well established and validated measure (Bernstein et al., 1994). For the current study, four of the five scales were reliable: emotional abuse ($\alpha = .83$), physical abuse ($\alpha = .77$), sexual abuse ($\alpha = .91$), and emotional neglect ($\alpha = .87$). The physical neglect scale demonstrated unacceptable reliability ($\alpha = .47$), thus, these items have been omitted from the current analyses. Because the current study was particularly interested in differences in emotionality and both scales possess good reliability, the emotional abuse and emotional neglect scales were summed to create a single scale of emotional abuse.

Post-traumatic Stress Symptoms and Emotion Regulation

PTSD Checklist Scale (PCLS; Weathers, Litz, Herman, Huska, & Keane, 1993). The PCLS is a brief, 17-item self-report scale designed to assess the 17 symptoms of post-traumatic stress disorder (PTSD). Respondents are asked to rate how much they have been bothered by each of the criteria in the past month on a 5-point scale from “not at all” to “extremely.” There

are three subscale scores for re-experiencing, avoidance, and hyper-arousal domains. The measure has been validated in both clinical and non-clinical populations (Blanchard, Jones-Alexander, Buckley, & Forneris, 1996; Ventureyra, Yao, Cottraux, Note, & De Mey-Guillard, 2002) and provides good reliability for total scores ($\alpha = .94$) and all three subscales ($\alpha > .80$). Ventureyra and colleagues (2002) report test-retest reliability coefficients of between $r = .70$ and $.80$ over a 2-week interval and were also able to correctly diagnose 96% of PTSD patients who were administered the measure, establishing good predictive validity. Reliabilities for the current study were acceptable for all three scales; re-experiencing ($\alpha = .89$), avoidance ($\alpha = .86$), and arousal ($\alpha = .79$).

Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2004). The DERS is a 36-item measure designed to comprehensively measure emotion dysregulation on 6 subscales: lack of acceptance of emotional responses, inability to engage in goal-directed behaviors, poor impulse control, lack of emotional awareness, lack of accessibility to effective emotion regulation strategies, and lack of emotional clarity. For the current study, impulse control and engagement in goal-directed behaviors were assessed using another measure and these subscales were not included in order to reduce the length of the interview. Respondents were asked to rate how often each of the statements describes them on a 1 (almost never) to 5 (almost always) scale. Examples of items include “I am confused about how I feel (lack of clarity subscale)” and “When I am upset, my emotions feel overwhelming (Limited emotion regulation strategies subscale).” Scores are obtained by summing relevant items and a total score can also be calculated. Validity for the measure was established by correlating results with three established measures of emotion regulation, coping, and emotional expressiveness. Internal-consistency was good for both the total score ($\alpha = .93$) and individual subscales (α 's $> .80$; Gratz & Roemer,

2004). The DERS also demonstrated good test-retest reliability of .88 over a 4-8 week period, When used with an adolescent sample (ages 13-17), internal consistency reliability was good as well (alphas ranged from .76 to .89; Weinberg & Klonsky, 2009). For the current study, reliability coefficients for each subscale and the total score were all above .80 except for lack of accessibility to effective emotion regulation strategies ($\alpha = .77$).

Emotional Reactivity and Numbing Scale (ERNS; Orstillo, Theodore-Oklota, Luterek, & Plumb, 2007). The ERNS is a 62-item self report measure designed to assess typical emotional responses of respondents. Participants are asked to rate each item on a 5-point Likert scale from “not at all typical of me” to “entirely typical of me.” The measure produces 5 subscales, with each item loading onto a single scale: positive, sadness, anger, fear, and general. For the purposes of the current study, only the anger, general, and fear subscales were used, as these emotions are of primary interest. The resulting measure contained a total of 25 items (11 anger, 8 general, and 6 fear items). Examples of items include “I get angry if someone criticizes me (anger subscale)” and “There are certain emotions that I cannot feel (general subscale).” The authors report reliabilities of $\alpha = .87$, $\alpha = .81$, and $\alpha = .81$ for the anger, fear, and general subscales, respectively (Orstillo, Theodore-Oklota, Luterek, & Plumb, 2007). Test-retest was good as well, ranging from $r = .72$ to $.87$ over a 1-week period. Validity was established using a measure of PTSD numbing symptoms and the ERNS was also able to discriminate between those with and without PTSD. Since this is the first known measure exclusively focused on emotional numbing, convergent validity was difficult to test. In the current study, reliability was commensurate with those of Orstillo and colleagues (2007) with $\alpha = .81$, $\alpha = .85$, and $\alpha = .80$ for the anger, fear, and general subscales, respectively. The total scale reliability was $\alpha = .87$.

Self-Control

Inventory of Self-Control (ISC; Grasmick, Tittle, Bursik, & Aneklev, 1993). The ISC is a 24-item self-report questionnaire designed to measure 6 components of self-control: impulsivity, preference for simple tasks, risk taking, physical activity, self-centered orientation, and volatile temper. Each subscale is measured by four items each rated from 1 (strongly disagree) to 4 (strongly agree). Respondents are asked to rate how well each item typically describes them. Example items are “I lose my temper easily” and “I act on the spur of the moment without stopping to think.” Scores are obtained by summing relevant items for each subscale. Validity was established initially through correlating the measure with reported criminal behavior. A further validation study was completed using a sample of inmates and behavioral reports of self-control problems (DeLisi, M., Hochstetler, A., & Murphy, D.S., 2003). Internal consistency in a mixed-gender sample demonstrated good reliability for both males and females (alphas above .70) for most subscales (Gibson, Ward, Wright, Beaver, & Delisi, 2010). Exceptions were impulsivity (male $\alpha = .65$, female $\alpha = .69$) and self-centered orientation for females ($\alpha = .65$). Reliabilities were very similar between genders with the exception of the self-centered orientation component (male $\alpha = .77$, female $\alpha = .65$). For the current study, the impulsivity, physical activity, and volatile temper subscales were used and the total sum score was used in all analyses ($\alpha = .76$ for this sample).

Traits of Psychopathy

Levenson Self-Report Psychopathy Scale (LSRPS; Levenson, Kiehl, & Fitzpatrick, 1995). The LSRPS is a 26-item self-report measure designed to assess behavioral and personality traits commonly associated with psychopathy. Whereas many scales are designed for “diagnostic” use with incarcerated or institutionalized populations, this scale was developed specifically for assessing these traits on a continuum in the general population. Each item consists of a

statement that the respondent endorses on a 4-point scale from “disagree strongly” to “agree strongly.” There are seven reverse-scored items as well to control for random responding patterns. Examples of items include “Success is based on survival of the fittest; I am not concerned about the losers” and “I enjoy manipulating other’s feelings.” The scale was designed to have two separate factors; primary (callous/unemotional interpersonal style) and secondary (violent behavior, failure to learn from mistakes) psychopathy symptoms. The original scale was validated using a college sample with good reliability ($\alpha = .82$ for primary and $\alpha = .63$ for secondary scale). The measure was also cross-validated with other established measures of psychopathy. It has since been validated using a second college sample (Lynam, Whiteside, & Jones, 1999). Test-retest reliability was high over an 8-week period ($r = .83$; Lynam, Whiteside, & Jones, 1999). Scores are calculated by reverse scoring pertinent items and summing the total frequencies for each scale. In the current study, reliability was higher than in previous studies (Primary $\alpha = .85$; Secondary $\alpha = .76$). Given that the majority of research on psychopathy and measures of the construct are developed with male populations, separate reliabilities were calculated by gender. Surprisingly, reliability for females (Primary $\alpha = .84$; Secondary $\alpha = .78$) was slightly higher than for males in the current sample (Primary $\alpha = .82$; Secondary $\alpha = .70$).

Physical and Psychological IPV Perpetration

Conflict Tactics Scale-Revised (CTS2; Straus, Hamby, Boney-McCoy, & Sugarman, 1996). This measure is very similar to the CTS2-CA used to assess adult recall of IPV between caretakers during childhood with a few exceptions. First, the self-report form contains items regarding sexual coercion, where the CTS2-CA does not. Second, the items pertain to the past 12-months, rather than a designated period of childhood. The measure asks two sets of conjoined questions about ‘self’ and ‘partner’ behavior. Example items are “I (My partner)

threw something at my partner (me) that could hurt” and “I (My partner) used a knife or gun on my partner (me).” Respondents rate items on a 7-point Likert scale of frequency ranging from “Never” to “More than 20 times.” Respondents can also report that the behavior did not happen during the past year, but did occur at a different time. The measure contains subscales for physical abuse, injury, negotiation, and psychological abuse. Items from the negotiation scale will not be administered in the current study as they do not capture partner conflict. Reliability and validity information was reported above for the CTS2-CA. In the current study, when all items are used, the reliability is lower than expected (Self-report $\alpha = .69$; Partner-report $\alpha = .49$); however, when only the physical and verbal aggression items are used (i.e., the reverse-scored positive items are removed) reliability improves significantly (Self-report $\alpha = .90$; Partner-report $\alpha = .89$). Therefore, the positive items were removed for all analyses in the current study.

Psychological Maltreatment of Women Inventory (PMWI - Short Version; Tolman, 1999). The PMWI-S is a shortened version of the original 58-item scale including 14 items and two subscales: isolation/domination and verbal/emotional. Items will be asked for both ‘self’ and ‘partner’ behavior. An example item is “My partner (I) used our money or made important financial decisions without talking to me (my partner) about it.” Respondents rate the frequency of each item in the past year on a 5-point scale ranging from “Never” to “Very Frequently.” Tolman (1999) reported a coefficient alpha of .88 for the domination/isolation subscale and .92 for the verbal/emotional subscale. A more recent study reported coefficient alphas of .86 for the domination/isolation subscale and .92 for the verbal/emotional subscale (Jones, Davidson, Bogat, Levendosky, & von Eye, 2005). Tolman (1999) validated the scale using other measures of non-physical spousal abuse and found very high correlations (e.g., $r = .90$).

In addition, 6 items were added to the measure to capture recent advancements in technology. These additions were suggested by undergraduate research assistants within the age range of the study as they felt these behaviors may be common, especially in a college-aged sample. The items were added to both the ‘self’ and ‘partner’ versions. Coefficient alphas were high for the ‘self’ ($\alpha=.92$) and ‘partner’ ($\alpha=.93$) versions of the questionnaire including the new items. A copy of each new item from the ‘self’ scale is listed below:

15. Restricted your partner’s use of social networking sites (Facebook, Myspace, Twitter, etc.).
16. Monitored who your partner communicated with online.
17. Made your partner give you his/her online passwords to monitor their eMail/Facebook/etc.
18. Checked your partner’s computer browsing history.
19. Checked your partner’s call and text history on their phone.
20. Read your partner’s eMail or other personal communications without their permission and/or knowledge.

Scale of Economic Abuse (SEA; Adams, Sullivan, Bybee, & Greeson, 2008). The SEA assesses economic abuse in romantic relationships through self-report. There are a total of 28 items comprising two subscales; economic control and economic exploitation. Items pertaining to economic control generally focus on partners limiting access to financial means. An example item from this subscale is “I do things to keep my partner from going to work.” The economic exploitation subscale pertains to stealing or using resources belonging to a partner without

permission. An example item from this subscale is “I take money from my partner’s wallet or bank account without permission.” Participants were asked to rate the frequency of each item on a 5-point scale from “never” to “quite often.” Total scores are computed for each subscale by summing the total item scores. The authors report very good reliability of $\alpha = .91$ and $\alpha = .89$ for economic control and economic exploitation, respectively. Reliability for the total SEA was .93. The scale was validated using other scales of IPV and significantly correlated with the CTS ($r = .61$) and the PMWI ($r = .58$). Reliability for both the self-report and partner-report versions was high in the current study ($\alpha = .95$ for both).

Procedures

The data for the current study were collected via online questionnaires hosted on the server of the psychology department at Michigan State University. Participants received course credit for completing the study. Consent was obtained online via digital signature and was required to continue the experiment. Copies of the consent forms can be found in Appendix B.

As noted above, a small portion of participants were recruited to complete the questionnaires in person rather than online. These participants came to the psychology department building at Michigan State University where they met a research assistant in the lab to read and sign consent forms. They then completed the questionnaires in a private room. These participants then took part in an additional lab task which is not part of the current study.

Classification of SCV and CCV. SCV and CCV were classified using a procedure similar to those in previous studies by Johnson and colleagues (Johnson, 2006; Johnson & Leone, 2005). In previous studies, a count of psychological abuse items two standard deviations or more above the mean in addition to any physical abuse has been used to indicate perpetration of CCV, while physical abuse in the absence of a sufficient count of psychological abuse items is used to

indicate SCV (e.g., Anderson, 2008; Johnson & Leone, 2005). The current study adopted a different approach given the theory that CCV is a long-term and consistent pattern of behavior. In the current study, an individual was classified in the CCV group if they perpetrated three or more of the psychological abuse items “frequently” or “very frequently” in addition to any perpetration of physical aggression. A cutoff of three items was established as this was two standard deviations above the mean. Requiring items to be reported as “frequently” or “very frequently” perpetrated changed the number of individuals classified as perpetrating CCV from 51 to 42, but provides a more theoretically driven way of classifying the differences between SCV and CCV in that a pattern of behavior is required. Symptoms reportedly occurring rarely or sometimes were not included in the criteria for establishing a long-term pattern of behavior. Surprisingly, contrary to previous studies which have reported male perpetration of CCV at rates of close to 10:1 versus females (e.g., Graham-Kevin & Archer, 2003; Kelly & Johnson, 2008), an equal number of males and females (N=21) self-disclosed perpetrating CCV in the current study. However, male perpetrators of CCV reported a significantly greater severity of violence against their partners than females [$t(40)=3.04, p<.05$].

Consistent with prior research, SCV was classified as perpetration of any physical abuse items and less than three psychological abuse criteria for CCV. In the current study, 245 participants self-disclosed perpetrating SCV (approximately 23% of the overall sample). The number of males (N=118) and females (N=127) reporting perpetration did not differ significantly [$\chi^2(df=1)=.859, p=ns$]. There was also no difference in the reported severity of violence between genders for SCV. For individuals who perpetrated either SCV or CCV, a frequency x severity sum score was computed including all three measures of IPV (CTS2, PMWI, and SEA). For the portion of the sample which did not meet criteria, a score of 0 was entered. Each

participant received a score for both SCV and CCV. None of the participants could be classified as having perpetrated both SCV and CCV. Each participant who perpetrated SCV obtained a continuous score for that variable and the remainder of the sample were assigned a 0 score. Each participant who perpetrated CCV obtained a continuous score for that variable and the remainder obtained a 0 score. Thus, a subject who perpetrated CCV would have a score of 0 for SCV and an integer score for CCV.

CHAPTER 6

Results

Because of numerical differences in the number of participants reporting SCV (N=245) and CCV (N=42), different statistical methods were appropriate to test hypotheses related to each. Data analysis occurred in a multi-step process including a Euclidean distance-based matching procedure (Spiel et al., 2008) and linear regressions to test hypotheses related to CCV, and structural equation modeling with follow-up regressions to test the hypotheses related to SCV. Means and standard deviations for all variables can be found in Table 2 below. A correlation matrix can be found in Table 3.

Data Preparation

Overall response rates were high and missing data was minimal. All missing data were imputed using the Maximum Likelihood (ML) method in SYSTAT except age. Nine participants failed to provide their age. The age range in the current study was limited to 18-20 years, thus the variation in age was minimal in the sample. For this variable, mean substitution was used for all nine missing participants (Mean age = 19.0 years). For the remaining data, less than 0.5% of the data were imputed. Mean-difference tests indicated no significant differences between those with missing data and the remainder of the sample on the variables used for imputation. After the imputation, there were no significant changes to the mean of any variable in the dataset. Little's MCAR test statistic was not significant ($\chi^2(673) = 122.26, p = 1.0$), indicating that the data are missing completely at random; thus, the imputed data was used for analyses.

Table 2

Means and standard deviations for all variables in the full sample, CCV, SCV, and by gender.

Variable Name	Full Sample		CCV		SCV		Female		Male	
	M	SD	M	SD	M	SD	M	SD	M	SD
Maternal IPV	7.91	5.29	13.48	9.03	8.28	5.28	7.92	5.51	7.91	5.11
Paternal IPV	7.98	5.44	15.50	9.61	8.31	5.40	8.11	5.63	7.87	5.28
Sexual Abuse (range 5-25)	5.46	1.88	9.40	5.37	5.58	1.95	5.46	1.84	5.46	1.91
Emotional Abuse	29.44	8.86	27.40	8.13	28.89	8.49	28.63	8.92	30.11	8.76
Physical Abuse	13.64	2.71	16.79	5.35	13.90	2.74	13.79	2.97	13.52	2.48
Arousal Symptoms	9.61	3.96	14.12	4.70	9.98	3.99	9.37	3.84	9.90	4.08
Avoidance Symptoms	12.32	5.36	17.71	5.14	12.88	5.77	12.86	5.55	11.86	5.15
Emotional Dysregulation	68.82	18.57	87.24	20.09	70.59	17.54	69.39	18.62	68.35	18.52
Numbing/Reactivity	91.58	13.45	88.81	16.14	90.63	13.86	86.57	12.18	95.78	13.03
Impulsivity	8.36	2.37	9.95	1.97	9.00	2.28	8.69	2.38	8.09	2.34
Volatile Temper	8.05	2.66	10.09	2.83	8.63	2.76	8.23	2.55	7.90	2.74

Table 2 (cont'd).

Variable Name	Full Sample		CCV		SCV		Male		Female	
	M	SD	M	SD	M	SD	M	SD	M	SD
Primary Psychopathy	31.54	6.58	37.43	5.46	33.52	6.06	33.46	6.31	29.94	6.37
Secondary Psychopathy	20.28	4.34	25.05	3.78	21.20	4.30	21.06	3.97	19.63	4.53
Self-perpetrated IPV	6.87	4.92	17.52	8.10	10.08	5.32	6.89	5.62	6.85	4.24
Self-perpetrated Economic Abuse	15.92	4.16	25.55	11.84	16.07	4.08	16.40	5.31	15.51	2.80
Self-perpetrated Psychological Abuse	26.55	8.38	51.26	9.76	28.82	6.92	26.78	9.16	26.35	7.67
CCV Score ^a	--	--	94.33	24.23	--	--	104.7	25.98	83.95	17.39
SCV Score ^b	--	--	--	--	54.97	13.44	55.09	16.70	54.86	9.54

Note. ^a only for participants who perpetrated CCV; ^b only for participants who perpetrated SCV.

Table 3

Correlation matrix for all variables in the study.

Variable Name	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Maternal IPV	--	.83*	.19*	-.20*	.21*	.18*	.20*	.19*	-.09*	.07*	.07*	.09*	.19*	.05	.26*
2. Paternal IPV		--	.21*	-.21*	.26*	.19*	.23*	.19*	-.08*	.05	.08*	.09*	.17*	.04	.32*
3. Sexual Abuse			--	.06	.43*	.20*	.26*	.21*	-.10*	.09*	.12*	.15*	.17*	.08*	.48*
4. Emotional Abuse				--	.06*	-.17*	-.18*	-.20*	.20*	-.13*	-.08*	-.13*	-.22*	-.05	-.04
5. Physical Abuse					--	.12*	.19*	.12*	-.04	.04	.09*	.07*	.11*	.09*	.28*
6. Arousal Symptoms						--	.73*	.57*	-.07*	.25*	.33*	.14*	.39*	.22*	.06
7. Avoidance/Numbing							--	.59*	-.18*	.23*	.22*	.13*	.37*	.07*	.22*
8. Emotion Dysregulation								--	-.14*	.29*	.38*	.22*	.52*	.08*	.20*
9. Numbing/Reactivity									--	-.12*	.15*	-.24*	-.12*	-.05	-.07*
10. Impulsivity										--	.41*	.43*	.61*	.16*	.12*
11. Volatile Temper											--	.36*	.53*	.15*	.13*
12. Primary Psychopathy												--	.56*	.18*	.19*
13. Secondary Psychopathy													--	.13*	.22*
14. CCV total														--	-.10*
15. SCV total															--

*Note: *p < .05; N=1073.*

SCV Results

Hypotheses related to SCV were tested using structural equation modeling (SEM) with follow-up linear regressions when appropriate. LISREL 8.7 (Jöreskog & Sörbom, 2001) was used to fit the models with maximum likelihood estimation. Established standards (von Eye, 2009) convey that 10 subjects are needed for every estimated path and residual in a model. By that standard, at least 360 subjects are required to run the proposed model. Three indices were chosen *a priori* to evaluate model fit. The Goodness-of-Fit Index (GFI), Standardized Root Mean-squared Residual (SRMR), and Root Mean Square Error of Approximation (RMSEA) were used because they represent both standardized and non-standardized methods of evaluating fit and have been endorsed in previous literature (e.g., Hu & Bentler, 1998). Although decision-making cutoffs for these indices is debated in the literature, the current study will follow Hu and Bentler's (1998) suggestions ($GFI \geq .90$, $SRMR \leq .08$, $RMSEA \leq .06$). Based on these criteria, the theoretical model in the current study fit the data very well ($GFI=.98$, $RMSEA=.035$, $SRMR=.031$). The model is pictured below and standardized path coefficients are reported (Figure 3).

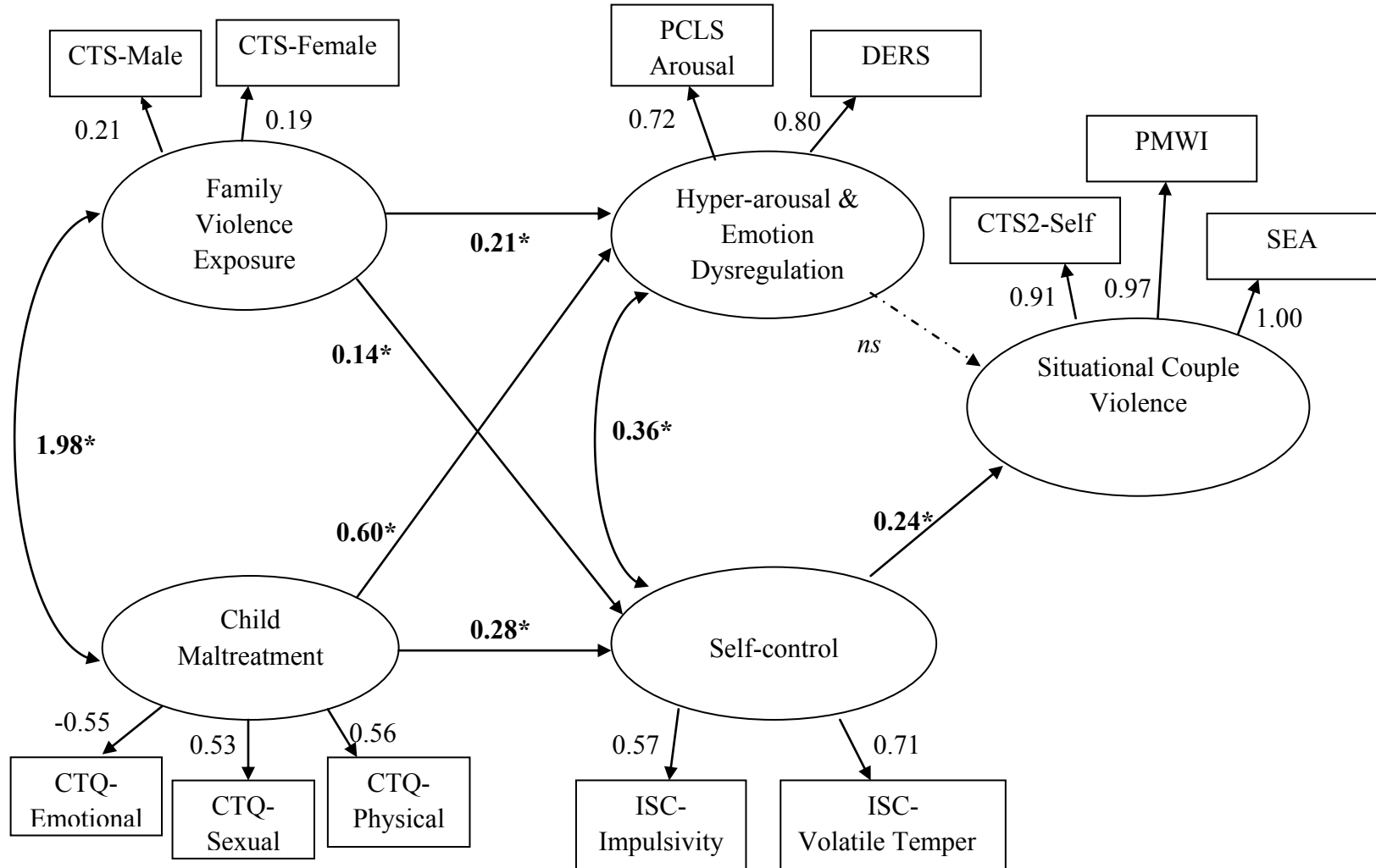


Figure 3: Model for SCV with standardized path coefficients and factor loadings reported. * $p < .05$. All loadings of manifest variables onto their latent factors are significant.

Hypothesis 1a: Exposure to IPV during childhood will be associated with deficits in self-control, poor emotion regulation, and physiological hyper-arousal.

Results of the above model suggest that exposure to IPV during childhood is associated with increases in hyper-arousal/emotion dysregulation and problems with behavioral self-control. Factor loadings for maternal (0.19) and paternal (0.21) IPV were almost identical, indicating that they were equally influential in the model.

Hypothesis 1b: Exposure to child maltreatment will be associated with deficits in self-control, poor emotion regulation, and physiological hyper-arousal.

Results suggest that exposure to child maltreatment negatively influences both reactivity/emotion regulation and behavioral self-control. Interestingly, emotional abuse loaded negatively onto the factor for child maltreatment, such that it seemed to have the opposite effect on outcomes compared to physical abuse and sexual abuse. Follow-up linear regressions confirm that, while sexual abuse tends to negatively influence emotion regulation, arousal, and self-control, there was an inverse relationship between emotional abuse and all three of these outcomes. Physical abuse was positively related to arousal symptoms only. Regression results are located in Table 4.

Hypothesis 1c: Emotion dysregulation and autonomic hyper-arousal will be associated with increased perpetration of SCV.

Results do not suggest that physiological hyper-arousal and problems with emotion regulation are directly related to perpetration of SCV.

Hypothesis 1d: Self-control will partially mediate the relationship between emotion regulation/physiological hyperarousal and SCV perpetration.

A test of mediation was not possible because the first criterion for mediation was not satisfied. In order for a test of mediation to proceed, a significant relationship would be required between emotion regulation/hyper-arousal and SCV, which was not apparent in either the structural model or individual linear regressions. There was, however, a significant relationship between self-control and SCV such that individuals with poor self-control were more likely to perpetrate SCV. There was also a significant correlation between emotion regulation/hyper-arousal and self-control in the model.

Post-hoc linear regressions indicated a significant relationship between emotion regulation/hyper-arousal and self-control, such that poor emotion regulation and higher arousal scores on the PCLS were indicative of poor self-control. Regression results can be found in Table 5 below.

Hypothesis 1e: The model will function similarly for males and females.

The number of males and females in the current sample was sufficient to support utilizing the same model specified above using each gender as a separate sample. Both models fit the data well. The resulting model for females (GFI=.98, SRMR=.034, RMSEA=.021) was very similar to the model for the complete sample, with similar path coefficients and fit indices (see Figure 4). The model for males (GFI=.97, SRMR=.040, RMSEA=.049) was also similar to the model for the complete sample except there was not a significant path between child maltreatment and self-control (see Figure 5).

Table 4
Follow-up regression results for hypothesis 1b.

Predictor	Outcome	<i>B</i>	<i>SE B</i>	β
Sexual Abuse	Arousal Symptoms ^a	.339	.069	.162*
Emotional Abuse		-.074	.013	-.166*
Physical Abuse		.094	.048	.064*
Sexual Abuse	Emotion Dysregulation ^b	1.71	.321	.174*
Emotional Abuse		-.416	.062	-.198*
Physical Abuse		.381	.223	.056
Sexual Abuse	Impulsivity ^c	.104	.042	.082*
Emotional Abuse		-.034	.008	-.128*
Physical Abuse		.006	.029	.007
Sexual Abuse	Volatile Temper ^d	.137	.048	.097*
Emotional Abuse		-.024	.009	-.081*
Physical Abuse		.047	.033	.048

Note. * $p < .05$; ^a $R^2 = .069$; ^b $R^2 = .084$; ^c $R^2 = .025$; ^d $R^2 = .023$.

Table 5
Follow-up regression results for hypothesis 1d.

Predictor	Outcome	<i>B</i>	<i>SE B</i>	β
Emotion Dysregulation	Impulsivity ^a	.040	.005	.279*
Arousal Symptoms		.114	.023	.170*
Emotion Dysregulation	Volatile Temper ^b	.027	.005	.211*
Arousal Symptoms		.079	.021	.131*

Note. * $p < .05$; ^a $R^2 = .161$; ^b $R^2 = .093$

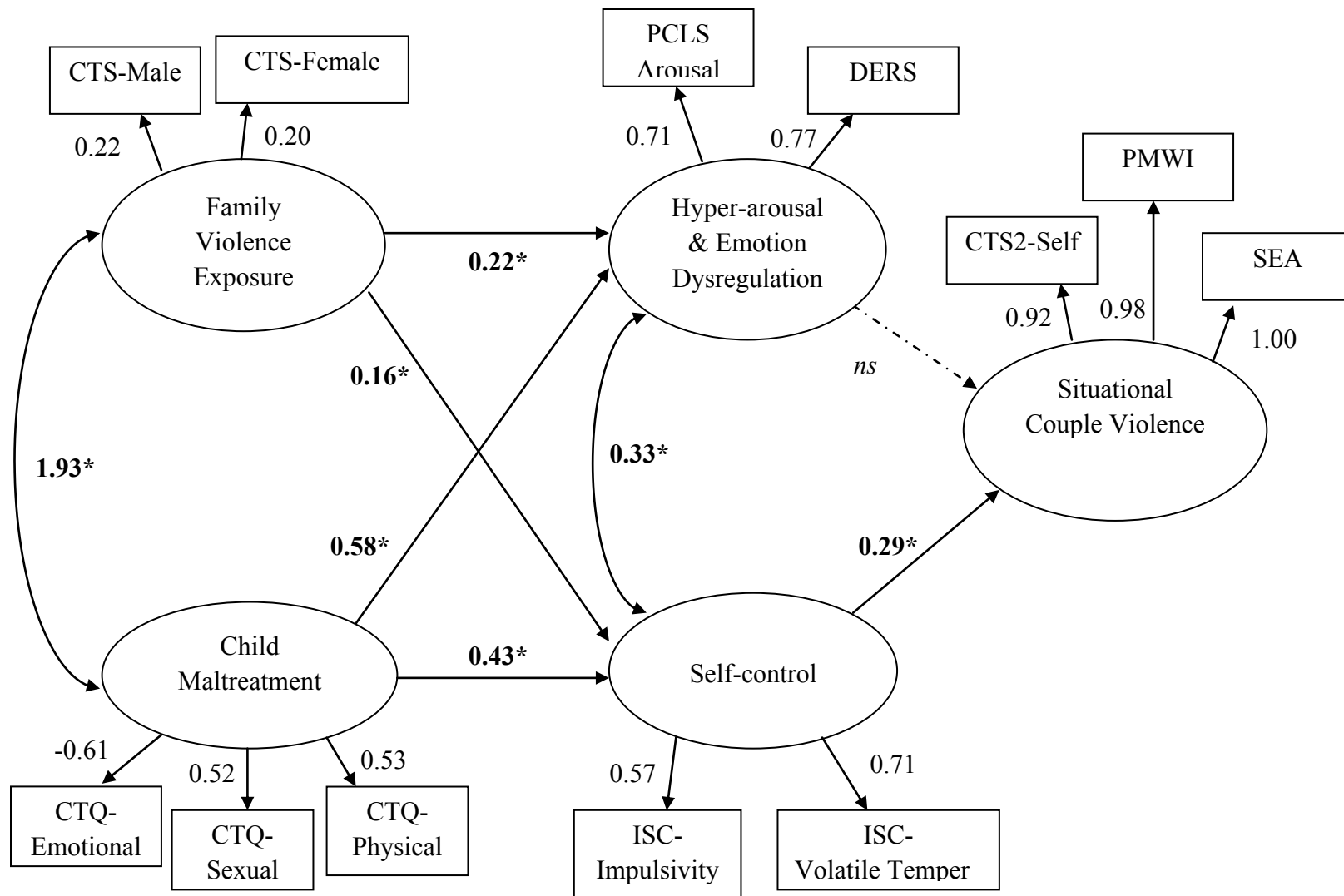


Figure 4: Female SCV model with standardized path coefficients and factor loadings reported. * $p < .05$. All loadings of manifest variables onto their latent factors are significant.

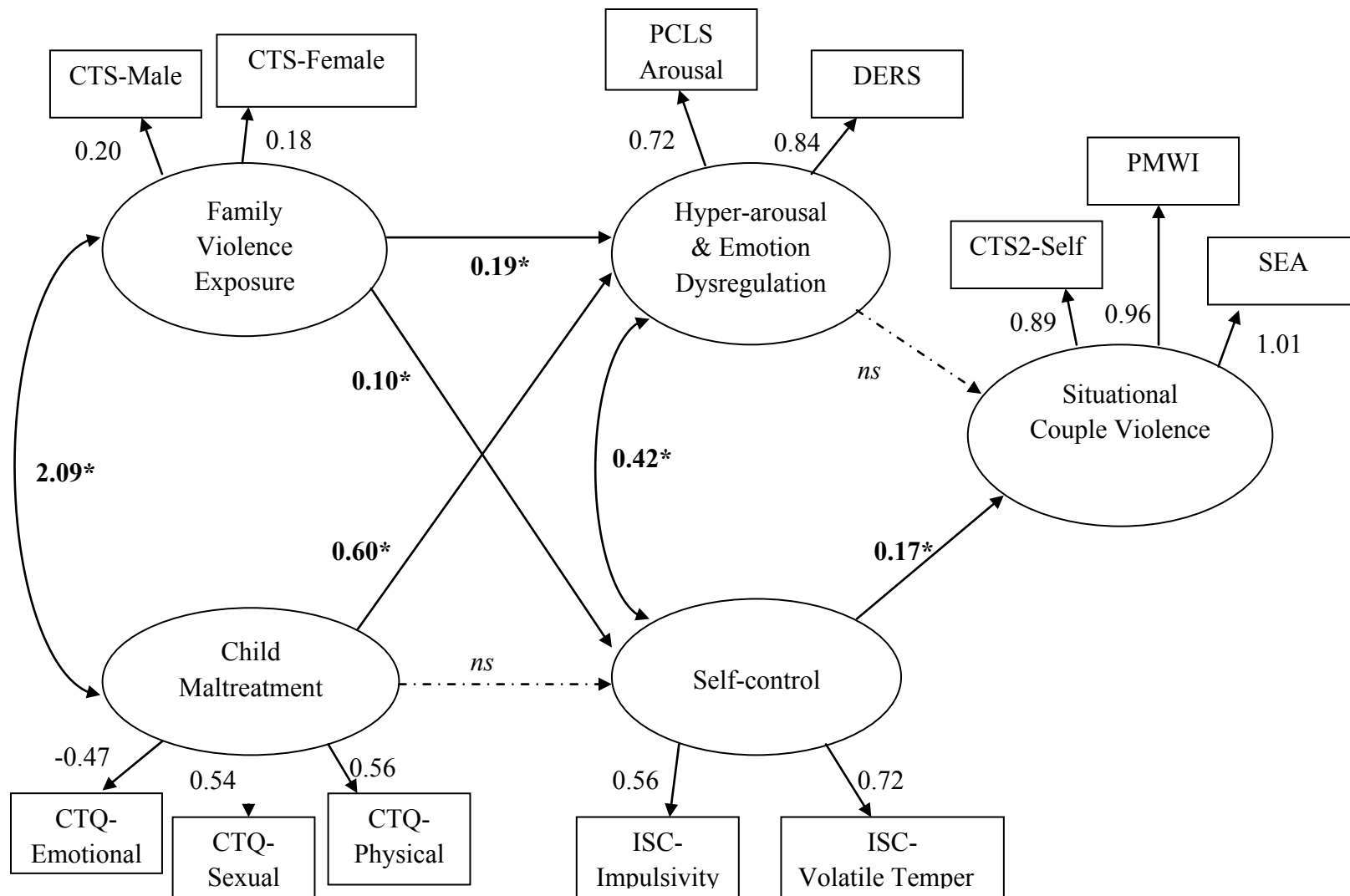


Figure 5: Male SCV model with standardized path coefficients and factor loadings reported. $*p < .05$. All loadings of manifest variables onto their latent factors are significant.

CCV Results

Because of the limited number of individuals in the sample who reported perpetrating CCV using the stringent criteria, a full structural model to test hypotheses 2a-2d was not feasible. Instead, a Euclidean distance-based matching procedure (EuM) was used to create a matched sample of individuals who did and did not perpetrate CCV. The EuM procedure operates similarly to the initial steps of a cluster analysis, using Euclidean distances between participants on selected variables to find the nearest matches. According to Spiel and colleagues (2008) there are four steps in the matching process: 1) Variable selection, 2) Data preparation, 3) Calculation of Euclidean distances, and 4) Matching. In step 1, the variables for matching are selected based on theoretical relevance and must be on a similar scale and collected at least on an interval level. In the current study, demographic variables were selected because these variables were not suspected to be directly related to the outcomes in question, which would bias the results of the study. Indeed, correlation analysis revealed small ($<.1$) correlations between any demographic variables and CCV perpetration (see Table 2 below). All other variables in the dataset were hypothesized to influence the perpetration of IPV in some way. Income, relationship length, and age were rescaled using a z-transformation. Since ethnicity cannot be collected on an interval scale, it was dichotomized with white = 1 and non-white = 2 for the match.

Table 6
Intercorrelations Between CCV Perpetration and Demographic Variables.

Variable	1	2	3	4	5 ^a
1. CCV Perpetration	--	-.04	-.08*	.06	.08*
2. Gender		--	-.05	-.01	-.02
3. Income			--	-.01	-.18*
4. Relationship Length				--	.05
5. Ethnicity ^a (Dichotomous White x Non-white)					--

Note. N=1073; *p < .05. ^a Point-biserial correlations using Pearson *r*.

Step 2 is to prepare the data for the match, which includes imputing all missing data. As stated above, there was a very small amount of missing data to impute (less than 0.5% overall). Additionally, all variables must be standardized. A simple z-transformation was used for all variables in this case.

In step 3, the simplest way to calculate Euclidean distances is to perform a hierarchical cluster analysis using Euclidean distances (or squared Euclidean distances). SPSS software was used with squared Euclidean distances and Ward's method for clustering. The program allows the user to stop the clustering procedure at a specific number of clusters. Ward's method ensures that the subjects closest to each other are matched first. Several solutions were considered (400 clusters, 300, 250, 200, 150, 100) before a satisfactory number of clusters was reached. The solution with 150 clusters provided matches for all but four participants who reported CCV. A greater number of clusters increased the number of unmatched participants and fewer clusters began to cluster the CCV group together rather than find matched controls.

In step 4, the 150 cluster solution was used to find matched controls within the cluster of each CCV perpetrator. When possible, two controls were selected for each subject to increase the sample size for analysis. Only four participants did not have a match in the procedure (i.e., were in a cluster of 1 after the procedure). In these cases, the control with the smallest Euclidean distance to the CCV participant not already in another cluster was used. In essence, these would have been the closest matches if the entire procedure was performed manually.

This matched sample was used to test each hypothesis 2a-2d. Additionally, the full sample (N=1073) was used to test any hypothesis where CCV was not included. The reason for using the matching procedure is to avoid analyses that compare a group of CCV perpetrators (N=42) to a group of controls over 20 times as large (N=1031) which would likely skew the results. For analyses which did not include CCV, the full sample was used because all participants had continuous scores on each of the predictors.

Hypothesis 2a: Exposure to IPV and child maltreatment during childhood will be associated with physiological hypo-reactivity and numbing relative to non-exposed participants.

Linear regression analysis was used to investigate the relationships between all of the predictors and outcome variable using the matched sample. In the full sample, paternal IPV, physical abuse, and sexual abuse all predicted increased numbing symptoms. Sexual abuse was also related to less emotional expression. Emotional abuse again had the inverse effect and was associated with increased emotional lability and decreased numbing. When the same analyses were performed in the matched EuM sample, only sexual abuse predicted increased numbing. Sexual abuse and physical abuse were associated with decreased emotionality, while emotional abuse was associated with increased emotional lability. Summary statistics for hypothesis 2a can be found in Tables 7 and 8.

Table 7

Summary of Regression Analysis for Childhood Experiences Predicting Emotional Numbing Using the Full Sample

Predictor	Outcome	<i>B</i>	<i>SE B</i>	β
Maternal IPV	Avoidance/Numbing ^a	.000	.052	.000
Paternal IPV		.139	.052	.141*
Sexual Abuse	Avoidance/Numbing ^b	.536	.093	.186*
Emotional Abuse		-.086	.018	-.143*
Physical Abuse		.161	.065	.082*
Maternal IPV	General Emotionality ^c	-.053	.054	-.051
Paternal IPV		-.019	.054	-.019
Sexual Abuse	General Emotionality ^d	-.362	.096	-.123*
Emotional Abuse		.131	.019	.212*
Physical Abuse		-.107	.068	-.053

Note. N=1073; * $p < .05$; ^a $R^2 = .054$; ^b $R^2 = .122$; ^c $R^2 = .023$; ^d $R^2 = .086$.

Table 8

Summary of Regression Analysis for Childhood Experiences Predicting Emotional Numbing Using the Matched Sample

Predictor	Outcome	<i>B</i>	<i>SE B</i>	β
Maternal IPV	Avoidance/Numbing ^a	.105	.160	.131
Paternal IPV		.175	.151	.233
Sexual Abuse	Avoidance/Numbing ^b	.428	.173	.282*
Emotional Abuse		-.078	.062	-.110
Physical Abuse		.064	.182	.045
Maternal IPV	General Emotionality ^c	-.241	.160	-.307
Paternal IPV		-.003	.151	-.004
Sexual Abuse	General Emotionality ^d	-.375	.095	-.129*
Emotional Abuse		.141	.018	.229*
Physical Abuse		-.137	.066	-.068*

Note. N=114; * $p < .05$; ^a $R^2 = .126$; ^b $R^2 = .201$; ^c $R^2 = .097$; ^d $R^2 = .161$.

Table 9

Summary of Regression Analysis for Childhood Experiences Predicting Primary and Secondary Psychopathy Using the Full Sample

Predictor	Outcome	<i>B</i>	<i>SE B</i>	β
Maternal IPV	Primary Psychopathy ^a	.073	.068	.059
Paternal IPV		.043	.066	.036
Sexual Abuse	Primary Psychopathy ^b	.470	.119	.133*
Physical Abuse		.025	.083	.010
Emotional Abuse		-.083	.023	-.112*
Maternal IPV	Secondary Psychopathy ^c	.121	.043	.148*
Paternal IPV		-.028	.043	-.035
Sexual Abuse	Secondary Psychopathy ^d	.260	.076	.112*
Physical Abuse		.088	.053	.055
Emotional Abuse		-.091	.015	-.188*

Note. * $p < .05$. ^a $R^2 = .008$; ^b $R^2 = .039$; ^c $R^2 = .036$; ^d $R^2 = .087$.

Table 10

Summary of Regression Analysis for Childhood Experiences Predicting Psychopathy Using the Matched Sample

Predictor	Outcome	<i>B</i>	<i>SE B</i>	β
Maternal IPV	Primary Psychopathy ^a	.148	.181	.167
Paternal IPV		-.122	.171	-.146
Sexual Abuse	Primary Psychopathy ^b	.699	.199	.415*
Physical Abuse		-.164	.209	-.102
Emotional Abuse		-.068	.072	-.087
Maternal IPV	Secondary Psychopathy ^c	.121	.129	.124*
Paternal IPV		-.080	.122	-.138
Sexual Abuse	Secondary Psychopathy ^d	.338	.142	.288*
Physical Abuse		.017	.149	.015
Emotional Abuse		-.081	.051	-.147

Note. * $p < .05$. ^a $R^2 = .033$; ^b $R^2 = .143$; ^c $R^2 = .027$; ^d $R^2 = .105$.

Hypothesis 2b: Exposure to IPV and child maltreatment during childhood will be associated with higher primary psychopathic traits.

Surprisingly, examination of descriptive statistics demonstrated a relatively even distribution of psychopathic traits between genders. Although there were significant differences in mean scores on primary [$t(1071)=9.07, p<.05$] and secondary [$t(1071)=5.42, p<.05$] traits, with males scoring higher on both, the difference is less than would be expected given the plethora of research on the imbalance in psychopathy between men and women (see review by Dolan & Vollm, 2009). The mean scores for males (Primary = 33.46, SD = 6.30; Secondary = 21.05, SD = 3.97) were similar to those for females in the current sample (Primary = 29.94, SD = 6.37; Secondary = 19.63, SD = 4.53).

Linear regressions with the full and matched samples revealed that sexual abuse was the only predictor of primary psychopathic traits. Emotional abuse was inversely related to traits of primary psychopathy in the full analysis only. Secondary psychopathy was predicted by maternal IPV (not paternal) and sexual abuse as well in both the full and matched samples. In the full sample, emotional abuse was negatively associated with secondary psychopathy. Summary statistics from regressions testing hypothesis 2b can be found in Tables 9 and 10.

Hypothesis 2c: Primary psychopathic traits will fully mediate the relationship between physiological hypo-arousal/numbing and CCV perpetration.

Because CCV was included in the mediation, only the matched sample was used to test hypothesis 2c. In testing mediation, Baron and Kenny (1986) describe a four step process using regression analyses. The first step is to establish a relationship between the first variable and the outcome. In this case, emotional numbing/avoidance is the primary variable and CCV is the outcome. Using the EuM sample, emotional numbing/avoidance significantly predicts CCV

perpetration, accounting for 28% of the variance in CCV. The second step is to establish a relationship between the primary variable and the mediator (in this case primary psychopathy). Analyses reveal that emotional numbing/avoidance significantly predicts traits of primary psychopathy, accounting for 20% of the variance. The third step is to establish a relationship between the mediator and the outcome. Primary psychopathy is a significant predictor of CCV and accounts for almost 25% of the variance in CCV perpetration. The final step is to evaluate whether the relationship between the predictor and the outcome changes or becomes non-significant when the mediator is introduced. A hierarchical regression was used with numbing/avoidance entered in the first step and primary psychopathy entered in the second step. The first regression is identical to the one in step 1 of the mediation testing process, the second contains all three predictors together. In this case, partial mediation is supported as both steps of the regression significantly increase the variance in CCV explained by the regression model and the relationship between general emotionality and CCV perpetration becomes non-significant when primary psychopathy is added into the regression. Together, emotional numbing/avoidance and primary psychopathy account for 40% of the variance in CCV for the current sample.

Table 11
Summary of Regression Analysis to Test Mediation Using the Matched Sample

Predictor	Outcome	<i>B</i>	<i>SE B</i>	β
Step 1				
Avoidance/Numbing	CCV Perpetration ^a	3.441	.724	.426*
General Emotionality		-1.455	.736	-.177*
Step 2				
Avoidance/Numbing	Primary Psychopathy ^b	.088	.105	.079
General Emotionality		-.453	.107	-.402*
Step 3				
Primary Psychopathy	CCV Perpetration ^c	3.653	.595	.502*
Step 4				
Avoidance/Numbing	CCV Perpetration ^d	3.190	.664	.395*
General Emotionality		-.163	.726	-.020
Primary Psychopathy		2.851	.598	.392*

Note. * $p < .05$. ^a $R^2 = .280$; ^b $R^2 = .196$; ^c $R^2 = .252$; ^d $R^2 = .403$.

Hypothesis 2d: The model will fit male data significantly better than female data.

Due to the small sample size, bootstrapping was used in conjunction with linear regression to allow for testing of differences between males and females within the EuM sample. Bootstrapping allows for a large number of random samples to be taken from the data and many regressions are run and averaged to produce the solution. For the current analyses, SPSS was instructed to use 1000 samples with a 95% confidence interval.

For males, CCV was significantly predicted by both emotional numbing/avoidance and traits of primary psychopathy. Avoidance/numbing accounted for 37% of the variance in CCV, while primary psychopathy accounted for 17%. In the sample of females, avoidance/numbing and primary psychopathy were also significantly related to CCV; however, avoidance/numbing accounted for 22% of the variance in CCV, while primary psychopathy accounted for 36%. In a combined hierarchical regression, the predictors accounted for 40% of the variance in male CCV while 52% of the variance in female CCV was accounted for. Contrary to the hypothesis that the predictors would fit male data better than female data, the current results suggest the opposite in that a significantly greater proportion of variance in female CCV was accounted for with almost identical sample sizes (56 males, 58 females).

Table 12

Summary of Bootstrapped Regression Analysis by Gender Using the Matched Sample

Predictor	Outcome	Males		Females	
		<i>B</i>	<i>SE B</i>	<i>B</i>	<i>SE B</i>
Avoidance/Numbing	CCV Perpetration	3.226*	1.056	3.210*	.762
General Emotionality		-2.435	1.261	1.402	.806
Primary Psychopathy		1.543	1.049	3.662*	.632

Note. * $p < .05$. R^2 for males = .398; R^2 for females = .516. Standardized β are not produced in the bootstrapping procedure.

CHAPTER 7

Discussion

The results of the current study demonstrated that SCV and CCV have separate pathways and related individual characteristics such as behavioral self-control and emotional reactivity, but are associated with common childhood experiences of family violence and childhood maltreatment. Findings both support previous research which demonstrated the deleterious impact of family violence and maltreatment on later involvement of IPV (Ireland & Smith, 2009) and further our understanding of the role of individual differences in the types of violence which might be perpetrated later in life. The current study also found relatively equal distribution of both psychopathy traits and CCV across genders, findings which differ from previous research. Implications of these findings are discussed below.

The primary goal was to investigate two separate, but complementary, models of IPV in a mixed-gender adolescent sample. The models included data on childhood exposure to violence and aggression, levels of physiological arousal, self-control, and traits of psychopathy to examine two different subtypes of IPV, coercive controlling violence (CCV) and situational couple violence (SCV). The most important aspect of this study is the interplay between the groups of variables and their influence on the IPV subtypes. Both sets of analyses reveal a complex interplay between the variables in the study and multiple pathways to perpetration of SCV and CCV. With respect to gender, the SCV models for males and females demonstrated similar results and suggest that, supportive of previous research, SCV is a phenomenon that functions similarly in males and females. One difference in the models was that child maltreatment significantly predicted problems with self-control for females, but not for males. In the CCV analyses, it was unexpected to find that not only was there a relatively equal number

of males and females who reported perpetrating SCV, but the analyses were better able to predict female CCV than male CCV.

Implicit in the design of this study was an investigation of the frequency of CCV and SCV within a college sample. The findings suggested that IPV occurs frequently within college dating relationships and in the proportions of CCV and SCV suggested by theory (Johnson, 1995) and previous research (e.g., Graham-Kevin & Archer, 2003; Johnson & Leone, 2005). Twenty-three percent of the total sample reported perpetrating SCV, while 4% of the sample reported perpetrating CCV. The current study applied a more strict set of criteria for perpetration of CCV than in previous research due to a lack of cohesion between the theory of CCV posited by Johnson (1995) and previous measurement. The impact of applying the stricter criteria for CCV was that the number of individuals meeting the criteria was reduced from 51 to 42. Of those who reported perpetrating IPV, 85% reported SCV. Previous research has consistently found similar ratios of CCV to SCV, but a novel finding in the current study is the frequency with which female participants perpetrated CCV. Although previous research has suggested that over 90% of CCV is perpetrated by males (Johnson, 2005), there was no statistical difference in the number of males and females who self-reported perpetrating CCV in the current sample. In reviewing previous findings regarding the gender disparity in perpetration of CCV, Johnson strongly suggests that males account for the majority of this behavior (Johnson, 1995; Kelly & Johnson, 2008); however, previous studies have reported mixed results. Many of the studies which have confirmed Johnson's theory have used samples consisting of primarily prison or shelter populations (e.g., Graham-Kevin & Archer, 2003) or have used older samples of married couples (e.g., Johnson, 2006; Leone, Johnson, & Cohan, 2007). The impact of using a male prison population or a women's shelter sample is that, by definition, the perpetrator is male.

This is a rather obvious inflation of the gender disparity of CCV since those who are imprisoned for their IPV are logically much more likely to have perpetrated chronic IPV. Some studies which have investigated female IPV in married couples have found a high degree of controlling and manipulative behavior. For instance, Hines, Brown, and Dunning (2007) reported on a sample of males who called domestic violence hotlines and found that over 90% reported their female partner was controlling, using many tactics characteristic of CCV.

A further reason why CCV may be portrayed as a male-perpetrated problem is Johnson's theoretical framework for how to define CCV. Part of his definition is "the assertion of male privilege" (Kelly & Johnson, 2008). As an illustration of the behaviors involved in CCV, Johnson cited Pence and Paymar's (1993) power and control wheel, which was developed from a feminist perspective interested in explaining and quantifying male-perpetrated IPV. Because the current study used a community sample of unmarried adolescent participants, it may be that partner violence in early dating relationships is much more balanced in terms of CCV perpetration than previously thought. If so, the current study argues against the view that CCV is a misogynistic or belief-based phenomenon related to male assertion of dominance and more for personality or individual characteristics as a driving force behind the behavior.

Situational Couple Violence Findings

The findings of the current study support several hypotheses related to SCV and do not support others. The model suggests that there may be multiple pathways to SCV. There was support for the hypotheses that childhood exposure to IPV and experience of maltreatment are associated with deficits in self-control, poor emotion regulation, and physiological hyper-arousal. Factor loadings in the model suggested that exposure to maternal and paternal IPV were equally influential in the outcomes. Previous studies have produced similar findings but have typically

employed analytic techniques in which the influence of one predictor on a single outcome variable was assessed (i.e., regression analysis) (e.g., Cummings, Davies, & Campbell, 2000). The current study utilized structural modeling to investigate the interrelationships between all of the above variables as part of a single system. The benefit of such a technique is that the interplay between all of the variables can be observed simultaneously and the results can be evaluated as a system. Regression analysis can then be used to further explore the relationships between individual predictors and outcomes. The results suggest that an early experience of violence, either directly experienced or observed, leads to future difficulties with emotion regulation and behavioral self-control. In turn, problems with behavioral self-control lead to perpetration of SCV. This is the first study to apply developmental theory to Johnson's subtypes and establish a relationship between childhood experiences, underlying individual characteristics such as emotion regulation, and SCV perpetration. Understanding the experiential and behavioral correlates of SCV is important for developing prevention and intervention plans for IPV. For example, given that SCV results from problems with self-control and emotion regulation, intervention programs could target these skills for improvement as a way to prevent future incidences of violence. The influence of childhood experiences in the model can also help to identify those at risk for SCV perpetration and provide prevention services in the same regard.

One interesting finding in the model is that the influence of emotional abuse is different than the influence of either physical or sexual abuse. Some research exists in the literature that suggests a different influence of emotional abuse compared to physical or sexual abuse, but this evidence is sparse. Kaplan, Pelcovitz, and Labruna (1999) suggested that emotional abuse may have a stronger influence on externalizing behaviors and social impairment such as emotion regulation and self-control than physical or sexual abuse. They did not, however, posit an

inverse relationship with outcome variables when compared to physical and sexual abuse. When comparing the effects of emotional, physical, and sexual abuse on adolescent development, Briere and Runtz (1990) found that emotional abuse was related to low self-esteem while physical/sexual maltreatment was related to aggressive behavior toward others. In another study, Mullen and colleagues (1996) found no difference in outcomes for the three types of maltreatment. More recent studies do not tend to parse out the differences between emotional abuse and physical abuse because they so frequently co-occur (Kaplan, Pelcovitz, & Labruna, 1999; Maughan & Cicchetti, 2002). Findings of the current study suggest that more research is needed to understand the influence of different forms of child maltreatment on the development of emotion regulation and behavioral self-control. One possible distinction between emotional and physical/sexual abuse might be that emotional abuse does not directly involve physical assault, whereas physical and sexual abuse both involve threats to physical safety. The current study does not suggest that emotional abuse has a positive influence on these systems whereas physical/sexual abuse have a negative influence. The inverse relationships do suggest, however, that in the current sample, emotional abuse does not function in a similar way to physical/sexual abuse in the development of self-regulatory capacities.

Results of the current study did not support the hypothesis that hyper-arousal symptoms and emotion dysregulation directly influence the perpetration of SCV; however, there was a direct relationship of self-control deficiencies with increased SCV, which is consistent with its hypothesized function as a mediator. It is possible that the lack of direct influence of emotion regulation and autonomic hyper-arousal on the perpetration of SCV in the current study was influenced by the measurement choices made. The current findings seem to support the theory proposed by Finkel and colleagues (2009) in which they suggest that emotional states and

emotional impulses only have an influence on behavior when there is a breakdown in behavioral self-control. Therefore, measuring perpetrated SCV is a behavioral outcome which, Finkel and colleagues would propose, requires a breakdown in behavioral self-control as well. If the current study had measured the underlying desire to perpetrate IPV (e.g., aggressive impulses), there may have been a stronger relationship between emotion regulation and SCV.

Coercive Controlling Violence Findings

Results of multiple hierarchical linear regressions revealed at least partial support for each of the hypotheses related to CCV. The first hypothesis was that IPV exposure and child maltreatment would be associated with physiological hypo-reactivity and numbing. There was partial support for this hypothesis. Using the full sample, regression analysis revealed that paternal IPV, physical abuse, and sexual abuse all predicted increased numbing symptoms. Only sexual abuse predicted increased numbing in the smaller, matched sample analysis. Two possible reasons for the difference in findings between the large sample and matched sample are that (1) the larger sample size allowed for detection of smaller effect sizes, or (2) matching the samples removed any influence of individual characteristics such as SES, thereby lowering the association between the predictors and outcome. A *post-hoc* power analysis demonstrated that the power to detect a beta of .15 was increased from approximately .81 to 1.0 when the sample size was increased from 120 to 1000; thus, the change in sample size would allow for smaller effect sizes to be detected. A third possibility is that the matched sample analyses were better able to capture the true relationships between the variables because of the matching of demographic characteristics. If so, the current study suggests that the influence of sexual abuse specifically on development of social and emotional competency is stronger than other types of abuse or exposure to family violence.

The next hypothesis was that IPV exposure and child maltreatment were related to more primary psychopathic traits. One finding of the current study which is disparate from extant literature is the relatively even distribution of self-reported psychopathic traits between males and females. There is extensive research which suggests a significantly higher prevalence of such traits in males (see Dolan & Vollm, 2009). Although there were statistical differences between genders, the actual score difference on the measure of traits was not as large as would be expected. The LSRPS used in the current study to assess for primary and secondary traits of psychopathy was designed specifically for use with a typical population (Levenson, Kiehl, & Fitzpatrick, 1995), whereas most other instruments are designed for use with adjudicated populations. Although there are no studies demonstrating gender equality using the measure (Brinkley, Diamond, Magaletta, & Heigel, 2008), the LSRPS is the only psychopathy measure that this author could find that had validity and norming data for both genders rather than males exclusively. Brinkley and colleagues (2008) have suggested that males and females may report similar levels of symptoms on the LSRPS because it is designed to assess indicators of psychopathy in “community life rather than explicit criminal behavior” (p. 466). In Levenson and colleagues’ (1995) original validation of the LSRPS using a mixed-gender college sample, they reported statistically different, but similar, levels of both primary and secondary psychopathology between males and females in the sample. Studies in which males and females tend to differ significantly in their scores on measures of psychopathy use either adjudicated samples and measure more explicit behavior or use adult samples (Brinkley, Diamond, Magaletta, & Heigel, 2008). It may be that measuring “lifestyle” indicators of psychopathy rather than criminal behavior leads to similar rates of psychopathic behavior in men and women, especially in a college-aged sample.

Linear regressions provided partial support for the hypothesis that sexual abuse was significantly related to increased traits of primary psychopathy in the full sample. When using the matched sample, none of the hypothesized variables were related to differences in psychopathic traits. The influence of sexual abuse is consistent with previous research on the development and formation of psychopathic traits (e.g., Diversa, 2010; Pollack, Cicchetti, & Klorman, 1998). The influence of life experience on the development of psychopathic traits supports a developmental, rather than a developmental, theory about psychopathy (Lynam & Gudonis, 2005).

These first two hypotheses were tested to establish a relationship between early life experience, and individual characteristics which might become risk factors for perpetration of CCV. Results suggest that early experience of IPV, especially male-perpetrated, and physical and sexual abuse are particularly influential in the development of decreased emotionality and arousal, and that sexual abuse may foster the development of primary psychopathic traits. The third hypothesis tested was that traits of primary psychopathy would fully mediate the relationship between numbing symptoms and CCV perpetration. The current study demonstrated that primary psychopathy partially mediated the relationship between numbing and CCV. Together, numbing and primary psychopathy accounted for 40% of the variance in CCV perpetration.

Taken together, the results of the CCV analyses support the proposed model as a source for future research. The proposed negative life experiences during childhood significantly predicted individual characteristics, which are risk factors for perpetrating CCV, and those risk factors accounted for almost half of the variance in CCV perpetration. These results support many other previous studies which have investigated some part of this system independently, but

this is the first instance known to the author in which all of these findings have been demonstrated in a single study. The current study highlights for both CCV and SCV the importance of taking a developmental approach to understanding partner violence and that similar childhood experiences (i.e., IPV exposure and maltreatment) can follow divergent paths to influence personal characteristics which are risk factors for perpetrating either CCV or SCV.

Gender Analysis Findings

The final hypotheses for each model related to gender differences and there were some unexpected findings in the current study given prior theory and extant research. This is the first study to systematically investigate developmental correlates of these two IPV subtypes in a mixed-gender sample. Perhaps the most significant finding is the proportion of male and female participants who endorsed having perpetrated CCV. The literature suggests that approximately 90% of CCV is perpetrated by males (Graham-Kevin & Archer, 2003); however, the current study found that an equal number of males and females reported CCV perpetration. There are several possible reasons for this. One possibility is that CCV in females is more common in a college-aged sample than in samples of older married subjects typically used in IPV research. Previous research suggests that females tend to follow the adolescent-onset trajectory of antisocial behaviors in similar numbers to their male peers (Xie, Drabick, & Chen, 2011), but are less likely to persist in this behavior over time. Other research also suggests that females are equally represented in the trajectory characterized by increasing delinquency during adolescence and that this is a significant predictor of IPV at age 19 (Miller, Malone, & Dodge, 2010). This means that females may be represented in relatively equal numbers to males in adolescent samples, but less frequently in middle- and late-adulthood samples typical of IPV research.

Structural models for SCV were completed separately for each gender and suggested that pathways function similarly for males and females in the current sample. One significant difference in the model was that child maltreatment was significantly related to poor self-control in females but not in males. *Post-hoc* analyses showed that there were no differences in the frequency of IPV exposure, sexual abuse, or physical abuse between males and females, but females reported a greater incidence of emotional abuse. The difference, however, was less than two points on a scale ranging from actual scores of 5 to 46 with a standard deviation of 8 points. Few studies could be located that directly investigated the influence of emotional abuse on behavioral self-control. One study which used a developmental psychopathology model to test the influence of emotional abuse on socioemotional competence in early adolescence found that emotional abuse was related to social withdrawal, but only in boys (Shaffer, Yates, & Egeland, 2009). Another study on the influence of emotional maltreatment on psychological distress in college students found that the relationship between abuse in childhood and later functioning was related to schemas of vulnerability and shame (Wright, Crawford, and Del Castillo, 2009). There was no gender difference found.

Results from analyses with CCV data did not support the hypothesis that male CCV perpetration would be better explained than female CCV perpetration. In fact, the opposite was found. Whereas 40% of the variance in male CCV was accounted for by the hypothesized variables, 52% of the variance in female CCV was accounted for. As discussed above, the relatively equal distribution of both primary psychopathic traits and CCV between males and females in the current sample was contrary to expectations and previous research. There has been some precedent in previous research that, using a measure designed to capture psychopathic traits in the community, males and females are more evenly distributed on the scale. For

instance, a recent article using the Psychopathic Personality Inventory-Revised (PPI-R) demonstrated that male and female college students did not significantly differ on most scales of psychopathy (Anestis, Caron, & Carbonell, 2011). It is important to keep in mind that the measure used in the current study is not diagnostic and measures traits of psychopathy along a continuum.

As for perpetration of CCV, there is no study that implies an even distribution of behavior across gender. Thus, this is the first study to suggest that women also perpetrate chronic, manipulative, and violent partner violence at similar levels to men.

Limitations

There were several limitations to the current investigation which may have affected the findings. First, the current study was only able to recruit a small number of individuals who reported perpetrating CCV. The base rate proposed by Johnson (1995) and, for the most part, borne out in previous community-based studies, suggests that less than 3% of the general population likely engage in CCV. Therefore, a significantly large sample would be necessary to obtain enough statistical power to be able to analyze a complex model such as the one proposed in the current study. It may have been too ambitious to plan such a sample-size dependent analytic model, but, the model was able to serve the purpose of being a guideline for a set of regressions which were able to address the hypotheses.

The current sample was also limited to a Midwestern college population. While this fulfilled the aims of the study, such a sample may not be generalizable to non college-educated or minority populations in the same age range. Future studies could recruit a community sample with more varied SES range and focus on identifying minority samples to investigate the similarities and differences between these groups in SCV and CCV.

The current study was also limited because it is a cross-sectional design with only self-report data available. Although participants did not seem hesitant to identify themselves as having perpetrated IPV against a partner, corroborating evidence from partners could help further classification accuracy in CCV and SCV groups as well as discover differences between perpetrator and “victim” perceptions. The cross-sectional nature of the data means that all reports of childhood exposure to family violence and child maltreatment are retrospective. As such, the current study was unable to speak to the etiology of SCV and CCV directly. Although the assessment procedures are designed for retrospective reporting, we were limited in our ability to determine the influence of timing of exposure on any of the outcomes. Future studies could gather either second reporter data from parents or siblings, or use a longitudinal design to assess these experiences with more specificity and study the etiology of these behaviors.

The analyses chosen for the current study also did not test whether the proposed pathways to SCV and CCV are specific to those outcomes. Additional analyses and statistical modeling would be required to rule out equifinality and multifinality with regard to the constructs in the current study.

Despite these limitations, the current study was able to recruit over 1000 undergraduate students and obtained a significantly large number of participants who reported perpetrating partner violence. This is one of a very few studies which have investigated the role of IPV in college students specifically and can shed light on IPV behavior in general as well as specifically for SCV and CCV in this population.

Conclusion

The current study contributes to and extends current understanding of IPV in several ways. First, the *a priori* goals of the current study were to investigate antecedents and individual

differences related to CCV and SCV as well as to assess gender differences. Separate original models were proposed and analyzed for CCV and SCV using a mixed-gender sample of college undergraduates. Perhaps the most compelling aspect of the findings was that the proposed pathways functioned well in explaining both CCV and SCV despite difficulties in recruiting a large enough sample size of CCV perpetrators. One implication of these findings is that there are separate individual characteristics that are particularly relevant to CCV and SCV, which strengthens the need to investigate subtypes of IPV rather than treating it as a unitary construct. Not only are SCV and CCV different behaviors, they seem to have separate underlying structures as far as development and genesis. SCV is borne from impulsivity and poor emotion regulation, while CCV is influenced by callousness and emotional numbness. Importantly, both of these sets of outcomes were influenced by negative childhood experiences such as maltreatment and exposure to family violence.

Although previous literature had suggested that CCV was primarily a male-perpetrated behavior, the current study challenges that notion in demonstrating a similar number of male and female participants reporting CCV perpetration. This adds to the already heated debate about gender differences in perpetration of IPV and whether these differences exist only in theory or in practice as well (See Kelly & Johnson, 2008). Importantly, some underlying influences of CCV, such as traits of primary psychopathy, were also found to be more equivalent across gender than previous research suggests. Thus, Johnson's (1995) theory about the underlying individual traits associated with CCV and SCV may have been accurate, but the rate of these behaviors in men and women may be different (i.e., more equal) than he expected. The influence of age in the current sample may account for some of the differences with prior research, as adolescent females have been shown to be much more similar to males in antisocial behavior than adult

females (Miller, Malone, & Dodge, 2010). Further research is needed on this topic to assess whether, as trajectories of antisocial behavior in females decline, CCV declines as well. If so, intervention programs for IPV in adolescents may need to focus on both males and females, rather than adapting the same treatment programs used in adult populations, where males dominate the offender pools.

Future research may also be able to further understanding about the specific influence of different types of early childhood experience as well as assessing for more specific timing in regards to critical periods (e.g., exposure during first 5 years of life, versus age 5-10 years). The current study found that emotional abuse tended to have an opposite effect on several developmental outcomes as compared to physical and sexual abuse. There is very little existing research which differentiates between the influences of specific types of child maltreatment on negative outcomes.

Overall, the current study significantly adds to the existing research on IPV subtypes by not only addressing CCV and SCV from the perspective of developmental theory, but challenging previously held conceptions about gender disparity in these subtypes. Results suggest an individual differences approach to studying CCV and SCV may be more fruitful, rather than a gender differences approach typically seen in past research. Another future direction may be to include a behavioral-genetics design using twin research to assess whether any of these traits are heritable and to what degree these heritable traits influence perpetration of SCV and CCV.

APPENDICES

APPENDIX A

MEASURES

Demographics

1. Please indicate your gender: M F
2. What is your current age? _____
3. How would you identify your ethnicity? Please circle **all** that apply.
Caucasian
Black/African-American
Hispanic/Latin/Chicano
Asian/Pacific-Islander
Multi-racial
Not listed _____
4. Please estimate your family's income over the past year:
Less than \$10,000
\$10,000 – \$29,999
\$30,000 - \$49,999
\$50,000 - \$69,999
\$70,000 - \$89,999
\$90,000 - \$109,999
Greater than \$110,000
5. Please indicate your current relationship status:
Single
Dating
Cohabitating (living together)
Married
Separated/Divorced
Not listed _____
6. Length of current or most recent relationship (in months) _____

THE CTS2 - SF Parent-Report

No matter how well parents get along, there are times when they disagree, get annoyed with each other, want different things from each other, or just have spats or fights because they are in a bad mood, are tired, or for some other reason. Parents also have many different ways of trying to settle their differences with each other. This is a list of things that might happen when your parents had differences or were angry with each other.

If your mother and father (or step-mother or step-father) were not living together when you were about in middle school (age 11-14) and you were living with your mother, please answer about your mother and the man she was living with then. If you were living with your father or step father, but not your mother, please answer about your father and the woman he was living with then. Please circle how many times each of them did 'the things on this list while you were in middle school. If a parent did not do one of these things when you were in middle school but it happened some other year before or after that, circle "9".

How often did this happen?

1 = Once or twice during that period

2 = 3-5 times during that period

3 = 6-10 times during that period

4 = 11-20 times during that period

5 = More than 20 times during that period

9 = Not during that period, but it did happen before

10 = This has never happened

1. Mother explained her side or suggested a compromise for a disagreement with Father.	1	2	3	4	5	9	10
2. Father explained his side or suggested a compromise for a disagreement with Mother.	1	2	3	4	5	9	10
3. Mother insulted or swore or shouted or yelled at Father.	1	2	3	4	5	9	10
4. Father insulted or swore or shouted or yelled at Mother.	1	2	3	4	5	9	10

5. Mother had a sprain, bruise, or small cut, or felt pain the next day because of a fight with Father.	1	2	3	4	5	9	10
6. Father had a sprain, bruise, or small cut or felt pain the next day because of a fight with Mother.	1	2	3	4	5	9	10
7. Mother showed respect for, or showed that she cared about Father's feelings about an issue they disagreed on.	1	2	3	4	5	9	10
8. Father showed respect for, or showed that he cared about mothers feelings about an issue they disagreed on.	1	2	3	4	5	9	10
9. Mother pushed, shoved, or slapped Father.	1	2	3	4	5	9	10
10. Father pushed, shoved, or slapped Mother.	1	2	3	4	5	9	10
11. Mother punched or kicked or beat-up Father.	1	2	3	4	5	9	10
12. Father punched or kicked or beat Mother up.	1	2	3	4	5	9	10
13. Mother destroyed something belonging to Father or threatened to hit Father.	1	2	3	4	5	9	10
14. Father destroyed something belonging to Mother or threatened to hit Mother.	1	2	3	4	5	9	10
15. Mother went see a doctor (M.D.) or needed to see a	1	2	3	4	5	9	10

doctor because of a fight with Father.							
16. Father went to see a doctor (M.D.) or needed to see a doctor because of a fight with Mother.	1	2	3	4	5	9	10
17. Mother did something to spite Father.	1	2	3	4	5	9	10
18. Father did something to spite Mother.	1	2	3	4	5	9	10
19. Mother choked or tried to choke Father.	1	2	3	4	5	9	10
20. Father choked or tried to choke Mother.	1	2	3	4	5	9	10

CTQ

These questions ask about some of your experiences growing up as a child and a teenager. Although these questions are of a personal nature, please try to answer as honestly as you can. For each question, circle the response that best describes how you feel.

WHEN I WAS GROWING UP...

- | | | | | | |
|--|-------------------|--------------------|-----------------------|-------------------|-------------------|
| 1. I didn't have enough to eat. | Never True | Rarely True | Sometimes True | Often True | Very Often |
| 2. I knew that there was someone to take care of me and protect me. | Never True | Rarely True | Sometimes True | Often True | Very Often |
| 3. People in my family called me things like "stupid," "lazy," or "ugly." | Never True | Rarely True | Sometimes True | Often True | Very Often |
| 4. My parent(s) were too drunk or high to take care of the family. | Never True | Rarely True | Sometimes True | Often True | Very Often |
| 5. There was someone in my family who helped me feel that I was important or special. | Never True | Rarely True | Sometimes True | Often True | Very Often |
| 6. I had to wear dirty clothes. | Never True | Rarely True | Sometimes True | Often True | Very Often |
| 7. I felt loved. | Never True | Rarely True | Sometimes True | Often True | Very Often |
| 8. I thought that my parent(s) wished I had never been born. | Never True | Rarely True | Sometimes True | Often True | Very Often |
| 9. I got hit so hard by someone in my family that I had to see a doctor or go to the hospital. | Never True | Rarely True | Sometimes True | Often True | Very Often |
| 10. There was nothing I wanted to change about my family. | Never True | Rarely True | Sometimes True | Often True | Very Often |

WHEN I WAS GROWING UP...

- | | | | | | |
|--|-------------------|--------------------|-----------------------|-------------------|-------------------|
| 11. People in my family hit me so hard that it left me with bruises or marks. | Never True | Rarely True | Sometimes True | Often True | Very Often |
| 12. I was punished with a belt, a board, a cord, or some other hard object. | Never True | Rarely True | Sometimes True | Often True | Very Often |
| 13. People in my family looked out for each other. | Never True | Rarely True | Sometimes True | Often True | Very Often |
| 14. People in my family said hurtful or insulting things to me. | Never True | Rarely True | Sometimes True | Often True | Very Often |
| 15. I believe that I was physically abused. | Never True | Rarely True | Sometimes True | Often True | Very Often |
| 16. I had the perfect childhood. | Never True | Rarely True | Sometimes True | Often True | Very Often |
| 17. I got hit or beaten so badly that it was noticed by someone like a teacher, neighbor, or doctor. | Never True | Rarely True | Sometimes True | Often True | Very Often |
| 18. I felt that someone in my family hated me. | Never True | Rarely True | Sometimes True | Often True | Very Often |
| 19. People in my family felt close to each other. | Never True | Rarely True | Sometimes True | Often True | Very Often |
| 20. Someone tried to touch me in a sexual way, or tried to make me touch them. | Never True | Rarely True | Sometimes True | Often True | Very Often |

WHEN I WAS GROWING UP...

- | | | | | | |
|---|-------------------|--------------------|-----------------------|-------------------|-------------------|
| 21. I had the best family in the world. | Never True | Rarely True | Sometimes True | Often True | Very Often |
| 22. Someone tried to make me do sexual things or watch sexual things. | Never True | Rarely True | Sometimes True | Often True | Very Often |
| 23. Someone molested me. | Never True | Rarely True | Sometimes True | Often True | Very Often |

- | | | | | | |
|--|-------------------|--------------------|-----------------------|-------------------|-------------------|
| 24. I believe that I was emotionally abused. | Never True | Rarely True | Sometimes True | Often True | Very Often |
| 25. There was someone to take me to the doctor if I needed it. | Never True | Rarely True | Sometimes True | Often True | Very Often |
| 26. I believe that I was sexually abused. | Never True | Rarely True | Sometimes True | Often True | Very Often |
| 27. My family was a source of strength and support. | Never True | Rarely True | Sometimes True | Often True | Very Often |

PCLS

Instructions: Below is a list of problems and complaints that people sometimes have in response to stressful life experiences. Please read each one carefully, then circle one of the numbers to the right to indicate how much you have been bothered by that problem *in the past 3 months*.

	1=Not at all	2=A little bit	3=Moderately	4=Quite a bit	5=Extremely
1. Repeated, disturbing memories, thoughts or images of the stressful experience?	1	2	3	4	5
2. Repeated, disturbing dreams of the stressful experience?	1	2	3	4	5
3. Suddenly acting or feeling as if the stressful experience were happening again (as if you were reliving it)?	1	2	3	4	5
4. Feeling very upset when something reminded you of the stressful experience?	1	2	3	4	5
5. Having physical reactions (e.g. heart pounding, trouble breathing, sweating) when something reminded you of the stressful experience?	1	2	3	4	5
6. Avoiding thinking about or talking about your stressful experience or avoiding having feelings related to it?	1	2	3	4	5
7. Avoiding activities or situations because they reminded you of your stressful experience?	1	2	3	4	5

8. Trouble remembering important parts of the stressful experience?	1	2	3	4	5
9. Loss of interest in activities that you used to enjoy?	1	2	3	4	5
10. Feeling distant or cut off from other people?	1	2	3	4	5
11. Feeling emotionally numb or being unable to have loving feelings for those close to you?	1	2	3	4	5
12. Feeling as if your future somehow will be cut short?	1	2	3	4	5
13. Trouble falling or staying asleep?	1	2	3	4	5
14. Feeling irritable or having angry outbursts?	1	2	3	4	5
15. Having difficulty concentrating?	1	2	3	4	5
16. Being 'super-alert' or watchful or on guard?	1	2	3	4	5
17. Feeling jumpy or easily startled?	1	2	3	4	5

DERS

Please indicate how often the following statements apply to you by writing the appropriate number from the scale below on the line beside each item:

1-----	2-----	3-----	4-----	5-----
almost never (0-10%)	sometimes (11-35%)	about half the time (36-65%)	most of the time (66-90%)	almost always (91-100%)

1) I am clear about my feelings.	1	2	3	4	5
2) I pay attention to how I feel.	1	2	3	4	5
3) I have no idea how I am feeling.	1	2	3	4	5
4) I have difficulty making sense out of my feelings.	1	2	3	4	5
5) I am attentive to my feelings.	1	2	3	4	5
6) I know exactly how I am feeling.	1	2	3	4	5
7) I care about what I am feeling.	1	2	3	4	5
8) I am confused about how I feel.	1	2	3	4	5
9) When I'm upset, I acknowledge my emotions.	1	2	3	4	5
10) When I'm upset, I become angry with myself for feeling that way.	1	2	3	4	5
11) When I'm upset, I become embarrassed for feeling that way.	1	2	3	4	5

12) When I'm upset, I have difficulty getting work done.	1	2	3	4	5
13) When I'm upset, I believe that I will remain that way for a long time.	1	2	3	4	5
14) When I'm upset, I believe that I'll end up feeling very depressed.	1	2	3	4	5
15) When I'm upset, I believe that my feelings are valid and important.	1	2	3	4	5
16) When I'm upset, I have difficulty focusing on other things.	1	2	3	4	5
17) When I'm upset, I can still get things done.	1	2	3	4	5
18) When I'm upset, I feel ashamed with myself for feeling that way.	1	2	3	4	5
19) When I'm upset, I know that I can find a way to eventually feel better.	1	2	3	4	5
20) When I'm upset, I feel like I am weak.	1	2	3	4	5
21) When I'm upset, I feel guilty for feeling that way.	1	2	3	4	5
22) When I'm upset, I have difficulty concentrating.	1	2	3	4	5
23) When I'm upset, I believe that there is nothing I can do to make myself feel better.	1	2	3	4	5

24) When I'm upset, I become irritated with myself for feeling that way.	1	2	3	4	5
25) When I'm upset, I start to feel very bad about myself.	1	2	3	4	5
26) When I'm upset, I believe that wallowing in it is all I can do.	1	2	3	4	5
27) When I'm upset, I have difficulty thinking about anything else.	1	2	3	4	5
28) When I'm upset, I take time to figure out what I'm really feeling.	1	2	3	4	5
29) When I'm upset, it takes me a long time to feel better.	1	2	3	4	5
30) When I'm upset, my emotions feel overwhelming.	1	2	3	4	5

ERNS

Important Instructions

With this questionnaire, we are trying to get a sense of the kinds of different emotional reactions you are able to experience. Using the numbers below, rate how much each of the statements describes your tendency to experience these feelings.

1 - Not at all typical of me

2 - A little typical of me

3 - Somewhat typical of me

4 - Very typical of me

5 - Entirely typical of me

Please note, we are NOT asking about how likely you would be to show these feelings to other people. Instead, we are asking how you would feel inside. Please keep this in mind as you read each item.

1. I am able to feel a wide range of emotions (e.g., happiness, sadness, anger, and fear).	1	2	3	4	5
2. I get angry when someone treats me badly.	1	2	3	4	5
3. I become angry when someone has done something to hurt me.	1	2	3	4	5
4. Even after a significant loss, I don't have feelings of sadness.	1	2	3	4	5
5. If a loved one was in danger, I would be scared.	1	2	3	4	5
6. I get angry if someone threatens me.	1	2	3	4	5
7. I feel cut off from my emotions.	1	2	3	4	5
8. In situations when other people have strong responses, I don't feel anything at all.	1	2	3	4	5

9. There are certain emotions that I cannot feel.	1	2	3	4	5
10. I think of myself as a very emotional person.	1	2	3	4	5
11. I have a hard time feeling close to people, even my friends or family.	1	2	3	4	5
12. I feel like I am emotionally numb.	1	2	3	4	5
13. I feel afraid when I am in dangerous situations.	1	2	3	4	5
14. I get really annoyed when someone hassles me.	1	2	3	4	5
15. I get angry if I don't get something I really want and deserve.	1	2	3	4	5
16. I would be afraid if I was being threatened.	1	2	3	4	5
17. I don't get angry.	1	2	3	4	5
18. There are some negative emotions that I rarely feel even when there is reason to.	1	2	3	4	5
19. I feel somewhat nervous in new, unfamiliar situations.	1	2	3	4	5
20. I get annoyed when I am insulted.	1	2	3	4	5

21. It is very hard to push my buttons.	1	2	3	4	5
22. I have a hard time feeling angry, even when there are reasons for me to feel that way.	1	2	3	4	5
23. I feel tense when I watch suspenseful movies.	1	2	3	4	5
24. I get angry if someone criticizes me.	1	2	3	4	5
25. I feel scared when I think I may be hurt or harmed in some way.	1	2	3	4	5

ISC

Please indicate how well each of the following statements typically describes you.

1 = Strongly Disagree

2 = Disagree Somewhat

3 = Agree Somewhat

4 = Strongly Agree

	Strongly Disagree	Disagree	Agree	Strongly Agree
1. I do not devote time and effort to preparing for the future.	1	2	3	4
2. If I have a choice, I will do something physical rather than something mental.	1	2	3	4
3. I lose my temper easily.	1	2	3	4
4. I act on the spur of the moment without stopping to think.	1	2	3	4
5. I feel better when I am on the move than when I am sitting and thinking.	1	2	3	4
6. When I am angry at people I feel more like hurting them than talking to them about why I am angry.	1	2	3	4
7. I do things that bring me pleasure here and now, even at the cost of future goals.	1	2	3	4
8. I'd rather go out and do things than read and contemplate ideas.	1	2	3	4
9. When I am really angry, other people better stay away from me.	1	2	3	4

10. I base my decisions on what will happen to me in the short run rather than the long run.	1	2	3	4
11. Compared to other people my age, I have a greater need for physical activity.	1	2	3	4
12. When I have a serious disagreement with someone, it's usually hard for me to talk calmly about it without getting upset.	1	2	3	4

LSRPS

These questions are designed to help us learn more about you and the way you think about things in general. Please read the following questions and tell us how much you agree that each statement describes you.

	Strongly Disagree	Disagree	Agree	Strongly Agree
1. Success is based on survival of the fittest; I am not concerned about the losers.	1	2	3	4
2. For me, what's right is whatever I can get away with.	1	2	3	4
3. I don't plan anything very far in advance.	1	2	3	4
4. In today's world, I feel justified in doing anything I can get away with to succeed.	1	2	3	4
5. My main purpose in life is getting as many goodies as I can.	1	2	3	4
6. Making a lot of money is my most important goal.	1	2	3	4
7. I quickly lose interest in tasks I start.	1	2	3	4
8. When I get frustrated, I often "let off steam" by blowing my top.	1	2	3	4
9. I let others worry about higher values; my main concern is with the bottom line.	1	2	3	4
10. People who are stupid enough to get ripped off usually deserve it.	1	2	3	4
11. Cheating is not justified because it is unfair to others.	1	2	3	4
12. Looking out for myself is my top priority.	1	2	3	4
13. I find myself in the same kinds of trouble, time after time.	1	2	3	4

14. I would be upset if my success came at someone else's expense.	1	2	3	4
15. I am often bored.	1	2	3	4
16. I often admire a really clever scam.	1	2	3	4
17. Most of my problems are due to the fact that other people just don't understand me.	1	2	3	4
18. Love is overrated.	1	2	3	4
19. I feel bad if my words or actions cause someone else to feel emotional pain.	1	2	3	4
20. Before I do anything, I carefully consider the possible consequences.	1	2	3	4
21. I have been in a lot of shouting matches with other people.	1	2	3	4
22. Even if I were trying very hard to sell something, I wouldn't lie about it.	1	2	3	4
23. I find that I am able to pursue one goal for a long time.	1	2	3	4
24. I enjoy manipulating other people's feelings.	1	2	3	4
25. I make a point of trying not to hurt others in pursuit of my goals.	1	2	3	4
26. I tell other people what they want to hear so that they will do what I want them to do.	1	2	3	4

THE CTS2-SF Self-report

No matter how well a couple gets along, there are times when they disagree, get annoyed with the other person, want different things from each other, or just have spats or fights because they are in a bad mood, are tired or for some other reason. Couples also have many different ways of trying to settle their differences. This is a list of things that might happen when you have differences. Please mark how many times you did each to these things in the past year, and how many times your partner did them in the past year. If you or your partner did not do one of these things in the past year, but it happened before that, mark a "9" on your answer sheet for that question. If it never happened, mark "10" on your answer sheet.

How often did this happen?

1 = Once or twice during that period

2 = 3-5 times during that period

3 = 6-10 times during that period

4 = 11-20 times during that period

5 = More than 20 times during that period

9 = Not during that period, but it did happen before

10 = This has never happened

1. I explained my side or suggested a compromise for a disagreement with my partner.	1	2	3	4	5	9	10
2. My partner explained his or her side or suggested a compromise for a disagreement with me.	1	2	3	4	5	9	10
3. I insulted or swore or shouted or yelled at my partner.	1	2	3	4	5	9	10
4. My partner insulted or swore or shouted or yelled at me.	1	2	3	4	5	9	10
5. I had a sprain, bruise, or small cut, or felt pain the next day because of a fight with my partner.	1	2	3	4	5	9	10

6. My partner had a sprain, bruise, or small cut or felt pain the next day because of a fight with me.	1	2	3	4	5	9	10
7. I showed respect for, or showed that I cared about my partner's feelings about an issue we disagreed on.	1	2	3	4	5	9	10
8. My partner showed respect for, or showed that he or she cared about my feeling about an issue we disagreed on.	1	2	3	4	5	9	10
9. I pushed, shoved, or slapped my partner.	1	2	3	4	5	9	10
10. My partner pushed, shoved, or slapped me.	1	2	3	4	5	9	10
11. I punched or kicked or beat-up my partner.	1	2	3	4	5	9	10
12. My partner punched or kicked or beat-me-up.	1	2	3	4	5	9	10
13. I destroyed something belonging to my partner or threatened to hit my partner.	1	2	3	4	5	9	10
14. My partner destroyed something belonging to me or threatened to hit me.	1	2	3	4	5	9	10
15. I went see a doctor (M.D.) or needed to see a doctor because of a fight with my partner.	1	2	3	4	5	9	10

16. My partner went to see a doctor (M.D.) or needed to see a doctor because of a fight with me.	1	2	3	4	5	9	10
17. I used force (like hitting, holding down, or using a weapon) to make my partner have sex.	1	2	3	4	5	9	10
18. My partner used force (like hitting, holding down, or using a weapon) to make me have sex.	1	2	3	4	5	9	10
19. I insisted on sex when my partner did not want to or insisted on sex without a condom (but did not use physical force).	1	2	3	4	5	9	10
20. My partner insisted on sex when I did not want to or insisted on sex without a condom (but did not use physical force).	1	2	3	4	5	9	10

PMWI – SF - partner

Please rate how often a romantic partner did each of the following behaviors to you in the last year using the following scale:

Never 1	Rarely 2	Sometimes 3	Frequently 4	Very Frequently 5
------------	-------------	----------------	-----------------	-------------------------

1. My partner called me names.	1	2	3	4	5
2. My partner swore at me.	1	2	3	4	5
3. My partner yelled and screamed at me.	1	2	3	4	5
4. My partner treated me like an inferior.	1	2	3	4	5
5. My partner monitored my time and made me account for where I was.	1	2	3	4	5
6. My partner used our money or made important financial decisions without talking to me about it.	1	2	3	4	5
7. My partner was jealous or suspicious of my friends.	1	2	3	4	5
8. My partner accused me of having an affair (cheating) with another person.	1	2	3	4	5
9. My partner interfered in my relationships with other family members.	1	2	3	4	5

10. My partner tried to keep me from doing things to help myself.	1	2	3	4	5
11. My partner restricted my use of the telephone.	1	2	3	4	5
12. My partner told me my feelings were irrational or crazy.	1	2	3	4	5
13. My partner blamed me for his/her problems.	1	2	3	4	5
14. My partner tried to make me feel like I was crazy.	1	2	3	4	5
15. Restricted your use of social networking sites (Facebook, Myspace, Twitter, etc.).	1	2	3	4	5
16. Monitored who you communicated with online.	1	2	3	4	5
17. Made you give him/her your online passwords to monitor your eMail/Facebook/etc.	1	2	3	4	5
18. Checked your computer browsing history.	1	2	3	4	5
19. Checked your call and text history on your phone.	1	2	3	4	5
20. Read your eMail or other personal communications without your permission and/or knowledge.	1	2	3	4	5

PMWI – SF - self

Please rate how often you did each of the following behaviors to your romantic partners in the last year using the following scale:

Never 1	Rarely 2	Sometimes 3	Frequently 4	Very Frequently 5
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1. I called my partner names.	1	2	3	4	5
2. I swore at my partner.	1	2	3	4	5
3. I yelled and screamed at my partner.	1	2	3	4	5
4. I treated my partner like an inferior.	1	2	3	4	5
5. I monitored my partner's time and made him/her account for where he/she was.	1	2	3	4	5
6. I used our money or made important financial decisions without talking to my partner about it.	1	2	3	4	5
7. I was jealous or suspicious of my partner's friends.	1	2	3	4	5
8. I accused my partner of having an affair (cheating) with another person.	1	2	3	4	5
9. I interfered in my partner's relationships with other family members.	1	2	3	4	5

10. I tried to keep my partner from doing things to help himself/herself.	1	2	3	4	5
11. I restricted my partner's use of the telephone.	1	2	3	4	5
12. I told my partner his/her feelings were irrational or crazy.	1	2	3	4	5
13. I blamed my partner for my problems.	1	2	3	4	5
14. I tried to make my partner feel like he/she was crazy.	1	2	3	4	5
15. Restricted your partner's use of social networking sites (Facebook, Myspace, Twitter, etc.).	1	2	3	4	5
16. Monitored who your partner communicated with online.	1	2	3	4	5
17. Made your partner give you his/her online passwords to monitor their eMail/Facebook/etc.	1	2	3	4	5
18. Checked your partner's computer browsing history.	1	2	3	4	5
19. Checked your partner's call and text history on their phone.	1	2	3	4	5
20. Read your partner's eMail or other personal communications without their permission and/or knowledge.	1	2	3	4	5

SEA

Directions: Please read the following list of things some people do to hurt their partner or ex-partner financially. Could you tell me, to the best of your recollection, how frequently your partner or ex-partner has done any of the following things since your relationship began?

1 = *never*, 2 = *hardly ever*, 3 = *sometimes*, 4 = *often*, 5 = *quite often*

- _____ 1. Do things to keep you from going to your job.
- _____ 2. Threaten you to make you leave work.
- _____ 3. Demand that you quit your job.
- _____ 4. Take money from your purse, wallet, or bank account without your permission and/or knowledge.
- _____ 5. Force you to give him/her money or let them use your checkbook, ATM card, or credit card.
- _____ 6. Steal your property.
- _____ 7. Take your paycheck, financial aid check, tax refund check, disability payment, or other support payments from you.
- _____ 8. Decide how you could spend money rather than letting you spend it how you saw fit.
- _____ 9. Demand to know how money was spent.
- _____ 10. Demand that you give him/her receipts and/or change when you spent money.
- _____ 11. Gamble with your money or your shared money.
- _____ 12. Have you ask your family or friends for money but not let you pay them back.
- _____ 13. Convince you to lend him/her money but not pay it back.
- _____ 14. Pay bills late or not pay bills that were in your name or in both of your names.
- _____ 15. Pawn your property or your shared property.

SEA

Directions: Please read the following list of things some people do to hurt their partner or ex-partner financially. Could you tell me, to the best of your recollection, how frequently you have done any of the following things to your most recent partner since your relationship began?

1 = *never*, 2 = *hardly ever*, 3 = *sometimes*, 4 = *often*, 5 = *quite often*

- _____ 1. Do things to keep him/her from going to their job.
- _____ 2. Threaten to make him/her leave work.
- _____ 3. Demand that they quit their job.
- _____ 4. Take money from his/her purse, wallet, or bank account without their permission and/or knowledge.
- _____ 5. Force them to give you money or let you use their checkbook, ATM card, or credit card.
- _____ 6. Steal his/her property.
- _____ 7. Take his/her paycheck, financial aid check, tax refund check, disability payment, or other support payments from them.
- _____ 8. Decide how they could spend money rather than letting them spend it how they saw fit.
- _____ 9. Demand to know how money was spent.
- _____ 10. Demand that they give you receipts and/or change when they spent money.
- _____ 11. Gamble with their money or your shared money.
- _____ 12. Have them ask their family or friends for money but not let them pay it back.
- _____ 13. Convince them to lend you money but not pay it back.
- _____ 14. Pay bills late or not pay bills that were in their name or in both of your names.
- _____ 15. Pawn his/her property or your shared property.

APPENDIX B

CONSENT FORM

Consent

Study Description: This research, titled “College Dating Relationships Study,” is a survey of undergraduates at Michigan State University. We hope to gather information about how childhood experiences can impact people as they become adults and about some of your personal experiences in recent romantic relationships. If you decide to take part in this research study, you will be asked questions about how you have been feeling recently, some ways you describe yourself, events that you experienced during childhood, and about any romantic relationships you have had in the past year. Some of the questions are regarding sensitive topics such as family violence. The total interview will take 60-90 minutes. Participation is voluntary.

Compensation: You will have a choice to be compensated with either 1.5 HPR research credit hours or be entered into a drawing for one of three \$50 cash prizes for your participation.

Confidentiality: All information that you give us will be kept strictly confidential among the project staff and the Institutional Review Board of Michigan State University (IRB), who oversees the conduct of research at this university. Your name will not be on any questionnaires. All of your answers will be kept in a password protected computer file located on the Psychology Department secured server, accessible only by research project staff and the IRB, and maintained for a minimum period of 3 years. Your identity will not be revealed in any reports written about this study. We will summarize information from all study participants and will not report information about yourself or any individuals. Your confidentiality will be protected to the maximum extent allowable by law.

Risks: Risks associated with this study are minimal. Many of the questions are personal and some of the questionnaires ask about experiences that can be psychologically distressing; however, in our experience, the use of similar questionnaires has not contributed to significant distress in other participants. If you experience distress during or after completing the study, referrals for psychological services are available.

Benefits: You may directly benefit from your participation in this study if you are awarded one of the three cash prizes. Your participation in this study may also contribute to the understanding of romantic relationships.

Participant Rights: You have the right to refuse to answer any questions or to withdraw from this study at any point with no penalty or negative consequences. If you choose to withdraw, your data will be permanently deleted and you will receive research credits equal to the amount of time you have spent completing the questionnaires up to 1.5 credit hours. You may not be entered to receive a cash prize until you complete the entire study. Your decision about whether to participate or not will not affect your relationship with any agencies or Michigan State University.

Contact Information: If you have concerns or questions about this study, such as scientific issues, how to do any part of it, or to report an injury (psychological, physical, social, or financial), please contact the researchers, Anne G. Bogat or Parker Huston [44 Psychology Bldg., Michigan State University, East Lansing, MI 48824; (517) 432-1447; Bogat@msu.edu or hustonp1@msu.edu].

If you have questions or concerns about your role and rights as a research participant, would like to obtain information or offer input, or would like to register a complaint about this study, you may contact, anonymously if you wish, the Michigan State University's Human Research Protection Program at 517-355-2180, Fax 517-432-4503, or e-mail irb@msu.edu or regular mail at 207 Olds Hall, MSU, East Lansing, MI 48824.

I have read the above information and agree to participate in this study:

Participant signature

Date

APPENDIX C

FIGURES NOT INCLUDED IN THE TEXT

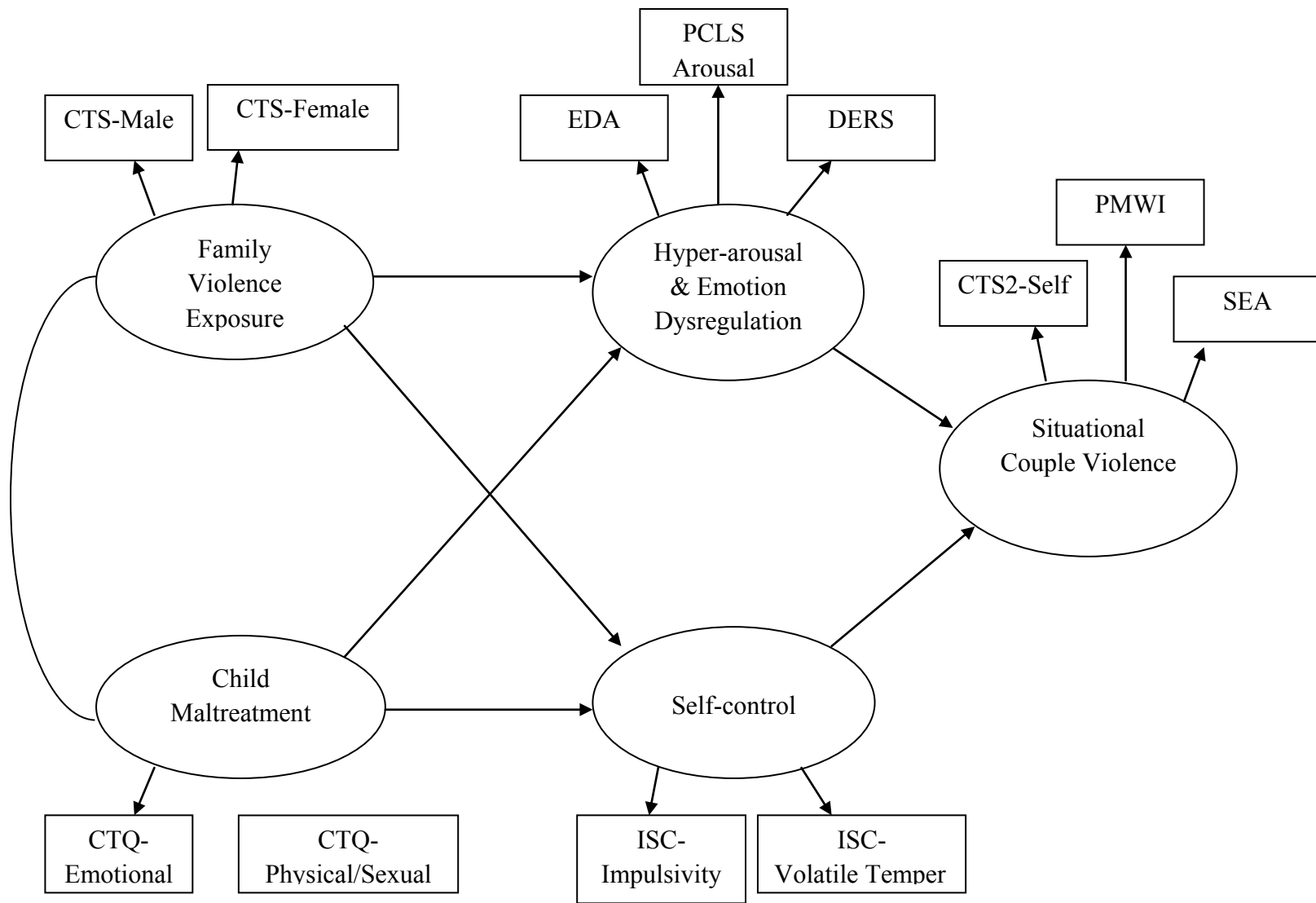


Figure 6: Conceptual Model for SCV.

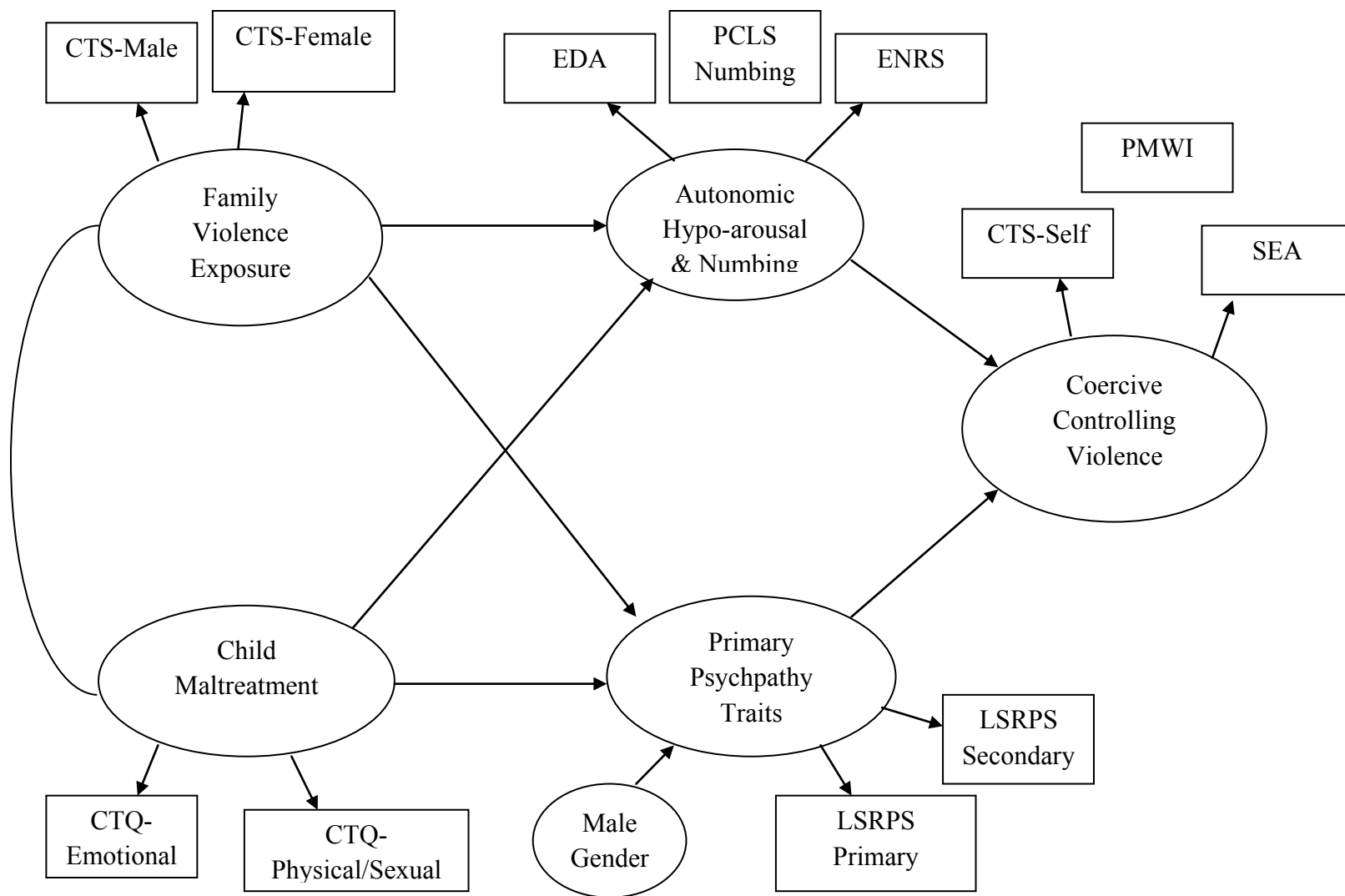


Figure 7: Conceptual Model for CCV.

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