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A Self-Determination Model of Childhood Exposure, Perceived Prevalence, Justification, and Perpetration of Intimate Partner Violence

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Abstract

The present research was designed to evaluate self-determination theory as a framework for integrating factors associated with intimate partner violence (IPV) perpetration. The proposed model suggests that childhood exposure to parental violence may influence global motivational orientations which, in turn result in greater cognitive biases (overestimating the prevalence of IPV and justification of IPV) which, in turn, contribute to an individual's decision to use abusive behavior. Participants included 124 men who had engaged in abusive behavior toward an intimate partner. Results provided reasonable support for the proposed model and stronger support for a revised model suggesting that controlled orientation, rather than autonomy orientation, appears to play a stronger role in the association between childhood exposure to parental violence and cognitive biases associated with abusive behavior.

Keywords

domestic violence; autonomy orientation; controlled orientation; social norms

A Self-Determination Model of Childhood Exposure, Perceived Prevalence, Justification, and Perpetration of Intimate Partner Violence

Intimate partner violence (IPV) is a serious and costly social problem that affects millions of adult victims and their families each year. Findings from the National Violence Against Women Survey indicated that approximately 1.3 million American women and 835,000 men are physically assaulted by an intimate partner each year (Tjaden & Thoennes, 2000).

Abusive partners tend to be male, with over 85% of victims of physical assault (female and male) identifying their perpetrator as male. The costs associated with IPV in 2003 were estimated to exceed \$8.3 billion dollars annually (Max et al., 2004). This figure is considered to be an underestimate because the costs associated with the criminal justice system have not been measured in any large national survey. Victims lose nearly eight million days of paid work and almost 5.6 million days of household productivity each year. The annual cost of lost productivity due to IPV is estimated at \$728.8 million, with over 7.9 million paid workdays lost each year (CDC, 2003). Despite the high prevalence and cost to society of IPV, we have a limited understanding of factors that contribute to IPV perpetration.

Research suggests developmental, cognitive, personality, and environmental factors may all be associated with IPV perpetration but few models have attempted to integrate factors across domains. We were specifically interested in considering self-determination theory as a framework for integrating factors associated with IPV perpetration, including childhood exposure to parental violence, motivational orientations, and cognitions related to IPV. Specifically, we propose that exposure to childhood violence is differentially associated with autonomous and controlled motivational orientations. Autonomous orientation refers to a tendency to engage in behaviors based on personal interests, intrinsic motivations, self-endorsed values, and feelings of genuine choice (Deci and Ryan, 1985a). Alternatively, the controlled orientation represents a tendency to engage in behaviors based on extrinsic motivations, feelings of obligation, others' expectations, and is associated with feeling pressured (Deci & Ryan, 1985a). Autonomous and controlled orientations are in turn differentially associated with cognitions that support IPV (i.e., justification of IPV and perceiving IPV perpetration as relatively common). These cognitions are in turn expected to predict IPV perpetration. We suggest a process model to explain why IPV perpetrators use force with their intimate partners. This model is informed by empirical evidence and developmental theory to suggest that exposure to IPV as a child contributes to the development of motivational orientations related to contingencies, hostility and rigidity that lead to cognitive factors associated with perpetrating physical violence against a loved one (Chemtob & Carlson 2004, Ehrensaft et al 2009, Suglia, Enlow, Kullowatz, & Wright 2009).

Childhood exposure to IPV

Exposure to IPV as a child can increase a child's chances of experiencing child abuse (Edleson, 1999) or being used manipulatively by the perpetrator against the non-abusive parent (Bancroft & Silverman, 2002). It is unsurprising that exposure to IPV as a child can lead to adverse and enduring effects (Edleson, 1999, Fantuzzo & Mohr, 1999). Exposure to IPV as a child can influence the way in which perceptions of the world and relationships are developed which ultimately may influence behavior. A review of the current research in the IPV field led Gewirtz and Edleson (2007) to propose that exposure to IPV as a child may interfere with the healthy development of self-regulation, secure attachments and social competence. Disruptions in these areas may in turn lead to an increase in aggressiveness.

Children who witness IPV in the home are more likely to demonstrate aggressive and externalizing behaviors when compared to non-exposed children (Gewirtz & Edleson, 2007; Fantuzzo et al., 1991; Hughes, 1988). Other studies suggest exposure to domestic violence as a child may affect social competence (Fantuzzo, et al., 1991). Dodge and colleagues (Dodge, Pettit, Bates, & Valente, 1995) found childhood abuse to be associated with distorted social information processing patterns including encoding errors, hostile attributional biases, accessing of aggressive responses, and positive evaluations of aggression. These processes were associated with subsequent externalizing conduct problems. We propose that childhood exposure to parental violence may have similar

sequelae with lasting consequences to an individual's motivational orientation as described in the context of self-determination theory (Deci & Ryan, 1985a, 2000).

Self-determination theory

Self-determination theory (Deci & Ryan, 1985a, 2000) presents a theoretical structure which describes motivational dimensions within relationships. Research suggests that parenting style can affect the development of children's motivational orientations. For example, repeated exposure to controlling environments contributes to the development of a motivational style that is centered in control (Deci & Ryan, 1985a). Homes where IPV is occurring may function as controlling environments in which coercion, control, force and lack of choice are dominant themes (Neighbors, Walker, Roffman, Mbilinyi, & Edleson, 2008). For example, Kasser and colleagues have shown that early childhood exposure to restrictive parenting impacts motivations and values 26 years later (Kasser, Koestner, & Lekes, 2002). Moreover, controlling versus autonomy supportive environments may have a continuing influence as they are integrated in the self and manifested in the form of dispositional motivational orientations. Two such motivational orientations which have been examined at length include controlled orientation and autonomy orientation. Self-determination theory posits that exposure to autonomy supportive environments facilitates the development of a more autonomous orientation whereas exposure to controlling environments leads to the development of a more controlled orientation (Deci & Ryan, 1985a). Autonomy supportive environments include those which support more choices for behavior, acknowledgement of opinions and feelings, optimal challenges, meaningful rationales for requested behavior, and competence promoting feedback whereas controlling environments have less of these features and also include threats, pressures, coercion (Williams, Cox, Hedberg, & Deci, 2000; Williams & Deci, 1998; Williams, Deci, & Ryan, 1995). Accordingly, we propose that childhood exposure to IPV, which is likely to occur in the context of a more controlling, rather than autonomy supportive environment, may influence global motivational orientations which, in turn, results in greater cognitive biases (overestimating the prevalence of IPV and justification of IPV) which, in turn, contribute to an individual's decision to use abusive behavior. It is important to note that this model is not inconsistent with social learning (i.e., modeling or imitative learning) explanations (e.g., Bandura, 1986) of intergenerational IPV perpetration, but provides a more elaborate explanation.

Controlled orientation represents a tendency to regulate behaviors based on internal and external contingencies, often experienced as pressure or coercion (Ryan & Deci, 2000). A controlled orientation may initially form as a function of chronic exposure to external demands and coercive forces and/or models in the environment, such as might be experienced by children growing up in a home characterized by coercions and violence. Once formed, a controlled orientation may perpetuate in the way an individual experiences the world, regulates emotions, and interacts with others. Individuals higher in controlled orientation are also higher in aggressive traits such as hostility, external locus of control, Type-A coronary prone behavior, and negativity (Deci & Ryan, 1985a), anger and aggression (Goldstein & Iso-Ahola, 2008; Knee & Neighbors, 2001; Neighbors, Vietor, & Knee, 2002) and emotional reactivity (Koestner & Losier, 1996). Controlled orientation has been associated with less adaptive coping, emotion regulation, and higher levels of defensiveness (Hodgins & Knee, 2002; Weinstein & Hodgins, 2009). In the context of IPV perpetration, individuals who are higher in controlled orientation may be more likely to hold cognitive distortions that help them justify and make sense of their behaviors.

Individuals also vary in their orientations toward autonomy. The autonomy orientation represents a tendency to regulate behaviors based on intrinsic interests and integrated values (Ryan & Deci, 2000). Autonomy orientation has previously been associated with higher

self-actualization, and supporting autonomy in others (Deci & Ryan, 1985a). Autonomy support has in turn been associated with greater satisfaction, closeness, honesty, and security in peer and romantic relationships (Deci, La Guardia, Moller, Scheiner, & Ryan, 2006; Hodgins, Koestner, & Duncan, 1996). Autonomy orientation has also been associated with greater consistency between one's values and behaviors and less reactance to potentially threatening information (Bober & Grollnick, 1995; Koestner, Bernieri, & Zuckerman, 1992).

Cognitive antecedents of IPV perpetration

Witnessing domestic violence in the home may contribute to beliefs and normative misperceptions about using violence in a relationship. Research on social norms theory suggests that perceptions about the frequency and acceptability of a behavior are correlated with engaging in the behavior. Beliefs are an important area to study in IPV because research shows a strong relationship between perpetration of violence and acceptance or justification of violence or hostility toward women (Holtzworth-Munroe, Meehan, Herron, Rehamn, & Stuart, 2000; Taylor & Sorenson, 2004). For example, Neighbors et al., (2010) found that IPV-perpetrating men overestimated the prevalence of IPV behavior and these misperceptions were associated with higher rates of IPV behavior. Marcus and colleagues (2001) found that children's perceptions of aggression as common was a mediator in the relationship between teacher reports of aggressive behavior and interparental conflict. Similarly, boys who have witnessed violence between their parents are more likely to consider relationship aggression justifiable and to report that their friends engage in higher levels of abusive behavior in their dating relationships (Kinsfogel & Grych, 2004). Also, children from homes where violence occurs are more likely to perceive interparental conflict as resulting in violence than children from non-violent homes (Grych, Wachsmuth-Schlaefler, & Klockow, 2002). Thus, men who engage in IPV are already more likely to view IPV as more common, which may contribute to their use of these behaviors. A history of IPV exposure may also lead to beliefs and expectations about the acceptability and normative nature of using violence with an intimate partner.

The present study

This research was part of a larger intervention study funded by the National Institute on Drug Abuse (NIDA). The larger project evaluated an intervention targeting substance using perpetrators of IPV. The present paper utilizes data assessed prior to intervention, thus we have not included significant details regarding the interventions. In sum, the present research was designed to evaluate an integrative model linking childhood exposure to violence, motivational orientations, cognitive biases, and perpetration of intimate partner violence. We proposed that childhood exposure to domestic violence would be positively associated with controlled orientation and negatively associated with autonomy orientation. We expected that controlled orientation would be positively associated with justification of IPV and higher estimated prevalence of domestic violence and that both of these cognitive biases would, in turn be associated with perpetration of psychological abuse and physical assault. We were also interested in evaluating mediation paths implied by the proposed model and comparing the proposed model with alternative plausible models.

Method

Participants

Participants were selected from among 348 men who called in response to various forms of marketing including radio, print, and multimedia advertisement for the Men's Domestic Abuse Check-Up (MDACU). Of the callers, 129 met eligibility criteria and 124 of these were successfully recruited to baseline. Recruitment was halted when the proposed sample of 124, based on a power analysis, was recruited. MDACU was designed to reach substance-

using men who were currently engaging in IPV but had not been adjudicated (i.e., arrested or otherwise undergoing legal actions related to their behavior). All participants met the following criteria: abusive behavior toward an intimate partner in the past 90 days; substance use in the past 90 days; not currently (past 90 days) in treatment or adjudicated for IPV or substance abuse; no arrests in the past 90 days for domestic violence or substance use. Extensive details regarding recruitment have been published elsewhere (Mbilinyi et al., 2008, 2009; Roffman et al., 2008). The racial/ethnic breakdown included White/Caucasian (65%), Black/African American (17%), Asian (2%), American Indian/Alaska Native (4%), Native Hawaiian/Other Pacific Islander (3%), multiracial(2%), and other (7%). Participants were on average 39.4 years old ($SD = 11.3$).

Procedure

Participants responded to a marketing campaign for the study that targeted men concerned about their behaviors toward their intimate partners and interested in free, non-judgmental, brief, and anonymous telephone services. Advertisements included images of diverse individuals combined with prototypical statements reflecting abusive men who are concerned about their behaviors. Marketing materials included radio ads, newspaper ads, flyers, and bus billboards (for details see Mbilinyi et al., 2008).

participants who called were briefly screened. Those who met initial criteria and were interested in participating were scheduled for a more comprehensive screening followed by a baseline assessment. All procedures were approved by the University's Institutional Review Board. Additional details regarding assessments and the larger trial are available elsewhere (Mbilinyi et al., 2009).

Measures

Childhood exposure to violence was assessed by a single item which asked participants "When you were a child, how often did the adults in your household hit each other? Response options were coded from 1 (*never*) to 5 (*daily*). In this sample, 28% of the men reported at least annual childhood exposure to physical violence.

Autonomy and controlled orientations were assessed using the General Causality Orientation Scale (Deci & Ryan, 1985b). This measure includes 12 vignettes, each of which is followed by an autonomous response and a controlled response. Participants rate the likelihood that they would make each response from 1 (*very unlikely*) to 7 (*very likely*). For example, one of the vignettes reads "You have a school-age daughter. On parents' night the teacher tells you that your daughter is doing poorly and doesn't seem involved in the work. You are likely to:" The autonomous response was assessed by the participant's rating of the likelihood that he would "Talk it over with your daughter to understand further what the problem is." The controlled response was assessed by the participant's rating of the likelihood that he would "Make sure she does the assignments, because she should be working harder." In another example, the vignette reads "You have just received the results of a test you took, and you discovered that you did very poorly. Your initial reaction is likely to be:" The autonomous response was assessed by the participant's rating of the likelihood that he would think "I wonder how it is I did so poorly' and feel disappointed." The controlled response was assessed by the participant's rating of the likelihood that he would think "That stupid test doesn't show anything' and feel angry." Autonomy orientation scores reflect the mean of the 12 likelihood ratings for autonomous responses ($\alpha = .65$). Scores for the controlled orientation reflect the mean of the 12 likelihood ratings for controlled responses ($\alpha = .69$). Thus, possible scores range from 1 to 7 for both constructs.

Beliefs that IPV is justified were assessed with the 8-item IPV Is Justified subscale from the short form of the Inventory of Beliefs about IPV (Saunders, Lynch, Grayson & Linz, 1987)¹. Response options were provided on Likert-type scales from 1 (*strongly agree*) to 5 (*strongly disagree*). IPV was defined as “repeated hitting intended to inflict pain.” Items were recoded so that higher scores reflected greater endorsement that IPV is justified. Example items included “Wives could avoid being battered by their husband if they knew when to stop talking”, “A sexually unfaithful wife deserves to be beaten,” and “Even if a wife’s behavior challenges her husband’s manhood, he’s not justified in beating her” (reversed). Scores reflect the sum of the eight items ($\alpha = .78$).

Perceived prevalence of violence was assessed with seven items in which participants were asked to estimate the percentage of men who have ever engaged in specific abusive behaviors toward an intimate partner (Neighbors et al., 2010). Behaviors included throwing something at their partner that could hurt; pushing, grabbing or shoving their partner; slapping or hitting their partner; choking their partner; beating up their partner; threatening their partner with a gun; and making their partner have sex with them or “give in” to sex when their partner didn’t want to. Scores reflect the mean of the seven items ($\alpha = .92$).

Psychological abuse and physical assault were assessed using the revised Conflict Tactics Scale (Strauss et al, 1996), modified to reflect the frequency of abusive behaviors perpetrated over the previous 90 days. *Psychological abuse* was assessed with eight items (e.g., called your partner fat or ugly; destroyed something that belonged to partner). All participants reported engaging in at least one incidence of psychological abuse in the past 90 days. The score reflects the sum of the eight items with all items capped at a maximum of 90 to reduce outlier influence ($\alpha = .80$). *Physical assault* was assessed with 18 items (e.g., choked your partner; slammed your partner against a wall). Because of a relatively low incidence over the past 90 days this variable was scored dichotomously indicating whether or not participants had engaged in any acts of physical assault toward their partner over the past 90 days.

Results

Descriptives

Means, standard deviations, and correlations for all variables are presented in Table 1. Childhood exposure to violence was significantly and positively associated with controlled orientation, justification of IPV, perceived prevalence of violence, and perpetration of psychological abuse. Autonomy was marginally and negatively associated with justification of IPV but was otherwise independent of variables in the model. In contrast, controlled orientation was marginally positively associated with perpetration of physical violence and significantly and positively associated with all other variables in the model. Perceived prevalence of IPV was significantly associated with perpetration of psychological abuse but was not associated with perpetration of physical violence. In contrast, justification of IPV was marginally associated with perpetration of psychological abuse and significantly associated with perpetration of physical violence.

Path Analyses

AMOS 16 was used to evaluate the proposed model. Full information maximum likelihood estimation was used to account for missing data (Shafer & Graham, 2002). Model fit was

¹Saunders et al. (1987) used the label ‘wife beating’ in the title of their measure. We have replaced the out-dated term ‘wife beating’ with ‘IPV’ in referring to this measure throughout the manuscript. This is supported by APA writing suggestions regarding sensitivity (APA, 2009).

assessed with several absolute and incremental fit indices, including chi-square, root mean square error of approximation (RMSEA), the Tucker-Lewis index (TLI), incremental fit index (IFI), comparative fit index (CFI), and Akaike's information criteria (AIC; Bentler, 1990; Bentler and Bonett, 1980; Bollen, 1989; Browne and Cudeck, 1993). Three of the variables (childhood exposure to violence, perpetration of psychological abuse, and perpetration of physical violence) were not normally distributed. To accommodate non-normality, the Bollen-Stine bootstrap, with 2000 drawn samples, was also used as an overall test of model fit. Changes in χ^2 were used to compare the fit between models. RMSEA values less than .08 and NFI, NNFI, and CFI values over .90 indicate reasonable fit (Browne and Cudeck, 1993; Hoyle, 1995). The Bollen-Stine test represents the proportion of significant chi-square values obtained in a given number of drawn samples (in the present study 2000 samples were drawn). Values less than .05 indicate a poor fit. Tests of specific parameter estimates were also conducted using bootstrapped standard errors to accommodate non-normality.

Hypothesized model—The initial model proposed childhood exposure to violence as a precursor to autonomy and controlled orientations which in turn predicted justification of IPV and perceived prevalence of violence. Justification of IPV and perceived prevalence of violence were, in turn, proposed as predictors of perpetration of psychological abuse and physical violence. Thus, no direct paths were specified from childhood exposure to cognitive variables (i.e., justification of IPV; perceptions of IPV prevalence) or to abusive behavior. Similarly, no direct paths were specified from motivational orientations (i.e., autonomy or controlled orientation) to perpetration. As can be seen in Figure 1, the proposed model provided a reasonable fit to the data, $\chi^2 (9, 124) = 14.92, p = .093$; Bollen-Stine $p = .163$; RMSEA = .075; TLI = .84; IFI = .94; CFI = .93. AIC = 66.92.

Tests of specific paths in the model, utilizing bootstrapped standard errors, are provided in Table 2. Figure 1 presents a diagram of the path model with standardized path coefficients. Results indicated that controlled and autonomous orientations were significantly and positively correlated in these data. Childhood exposure to violence was positively associated with controlled but not autonomy orientation. Controlled orientation was, in turn, positively associated with justification of IPV and perceiving higher rates of IPV whereas autonomy orientation was negatively associated with justification of IPV but not related to perceived prevalence of violence. Finally, justification of IPV was positively associated with physical assault but not associated with psychological abuse. In contrast, perceived prevalence of violence was positively associated with psychological abuse but not associated with physical assault. Psychological abuse and physical assault were significantly but not strongly correlated.

After evaluating the proposed model, a subsequent model was fit with the four non-significant paths trimmed. Constraining these four paths to zero did not result in a significant decrement in fit, $\chi^2 \Delta (4, 124) = 1.96, p = .743$. Moreover the more parsimonious trimmed model provided a better fit to the data on all fit indices, $\chi^2 (13, 124) = 16.87, p = .205$; Bollen-Stine $p = .305$; RMSEA = .050; TLI = .928; IFI = .959; CFI = .956. AIC = 60.87.

Mediation analyses—Mediation analyses were conducted to evaluate the significance of mediated paths implied by the model. Mediation was evaluated by testing the significance of indirect effects using the ab products of coefficients method outlined by MacKinnon and colleagues (MacKinnon, Lockwood, Hoffman, West and Sheets, 2002). Methods which assume normality of products tend to underestimate mediation effects (MacKinnon, Lockwood, & Williams, 2004). In the present research we used the PRODCLIN program which provides asymmetric confidence intervals for ab products (MacKinnon, Fritz,

Williams and Lockwood, 2007). Coefficients and bootstrapped standard presented in Table 2 were used to test mediation pathways. Table 3 provides mediation tests.

Empirical support was found for five of the 12 possible mediation paths implied by the hypothesized model. Results were consistent with controlled orientation acting as a mediator of the relationship between childhood exposure to violence and between childhood exposure to violence and justification of IPV. In turn, results supported justification of IPV as a mediator of the association between controlled orientation and physical assault whereas perceived prevalence mediated the association between controlled orientation and psychological abuse. Evidence also emerged in support of justification of IPV as a mediator of the negative association between autonomy orientation and physical assault violence. In sum, support was found for four of the six possible mediated paths involving controlled orientation whereas only one of the six possible mediated paths involving autonomy orientation was supported.

Plausible alternative models—A critical limitation of cross-sectional data is the inability to establish causal direction. Causal modeling using structural equation modeling or path analysis does not in itself mitigate concerns regarding causal ordering of variables in a given model. In the absence of longitudinal data, which can provide more confidence in making causal inferences, comparisons among non-nested alternative plausible models can provide some direction with respect to the likelihood of one model versus another model being correct. For example, although we found support for our theoretically based model suggesting that childhood exposure precedes motivational orientations, which causally precede distorted cognitions, which in turn causally precede IPV perpetration, there are at least two plausible alternative models that could be argued. We are making the assumption that none of the other variables are likely to have caused childhood exposure to violence. Although one could argue that other variables might have affected willingness to report childhood exposure to violence, for the purpose of these analyses we have specified childhood exposure as the starting place.

One plausible alternative model consists of exchanging the positions of the motivational orientations (autonomy and controlled) with distorted cognitions (justification and perceived prevalence). According to this alternative model, childhood exposure to violence would lead directly to justification of IPV and perceiving IPV to be more prevalent, which would in turn impact orientations toward autonomy and control, which would in turn be associated with IPV perpetration. This model did not provide a good fit to the data relative to our hypothesized model, $\chi^2(9, 124) = 20.57, p = .015$; Bollen-Stine $p = .067$; RMSEA = .104; TLI = .69; IFI = .88; CFI = .87. AIC = 72.57.

A second plausible alternative model consists of exchanging the position of distorted cognitions (justification and perceived prevalence) with IPV perpetration (psychological abuse and physical assault violence). According to this alternative model, motivational orientations would have a direct association with IPV perpetration, which would in turn impact cognitions. Thus, engaging in IPV might cause men to justify their behavior and to perceive it as being more common. This model also did not provide a good fit with the observed data relative to our hypothesized model, $\chi^2(9, 124) = 39.02, p < .001$; Bollen-Stine $p = .001$; RMSEA = .168; TLI = .20; IFI = .70; CFI = .66. AIC = 91.02.

Discussion

This study evaluated a model, based on self-determination theory, examining factors associated with perpetrating intimate partner violence. Childhood exposure to adult IPV, motivational orientations, beliefs about IPV, and normative beliefs about IPV were

considered in relation to perpetration of IPV. Overall, the proposed model provided a reasonable fit to the data. The experience of witnessing IPV in childhood was found to be related to controlled but not autonomous orientation. Controlled orientation was, in turn, associated with cognitive biases as evident in greater justification of IPV and higher perceived prevalence of violence. Autonomy orientation was associated with less justification of IPV but was not associated with perceived prevalence of violence. Moreover, justification of IPV was associated with physical assault violence but not psychological abuse whereas perceived prevalence of IPV was associated with psychological abuse but not physical assault. This is the first study to our knowledge that has examined a path model incorporating family history of IPV, self-determination, cognitions about IPV and abusive behavior.

In these data, autonomy did not seem as consistently associated with other factors in comparison to controlled orientation. While it is not clear why this may be the case, it is consistent with previous research that has found controlled orientation to be more strongly associated with hostility and aggression (Deci & Ryan, 1985a; Goldstein & Iso-Ahola, 2008; Knee & Neighbors, 2001; Neighbors, Vietor, & Knee, 2002). In addition, it is possible there may be differences in means and/or variances of autonomy and controlled orientations between IPV perpetrators and less deviant populations that may account for these relationships. Additional research is needed to evaluate these constructs in a perpetrator and non-perpetrator population.

These findings have several implications for intervening with children exposed to IPV in their households. Because a family history of IPV was associated with controlled orientation, interventions could directly attempt to alter the motivational orientations to support stronger connections to ideas and concepts related to autonomy and/or incompatible with control. Experimental studies have shown that motivational orientations can be modified, at least in the short term (e.g., Hodgins, Yacko, & Gottlieb, 2006; Weinstein & Hodgins, 2009). In practice for example, support groups for children with IPV exposure could seek out opportunities to find examples in daily life that illustrate autonomy-supportive ways of viewing interactions with people or understanding life events. Asking kids to discuss difficult interactions with others and how they were thinking about themselves, the other person and the situation during these interactions could expose ways of thinking that are more controlled or autonomous. As physical abuse is generally associated with psychological abuse, the inclusion of questions such as these in studies has predictive implications in physical abuse. Dissecting the downsides of controlled views of the world and the upsides of autonomous views could promote the adoption of a stronger autonomy orientation.

These findings also have implications for intervening with parents. The literature on self-determination theory shows that parenting environments that are more authoritarian in nature (e.g., controlling behavior through pressure, external rewards, and punitive disciplinary techniques) are related to the development of controlled orientation in children. Conversely, autonomy supportive parents have children who are more intrinsically motivated (Grolnick, Deci, & Ryan, 1997). Mothers and fathers of children exposed to IPV could be trained in parenting styles that emphasize authoritative (versus authoritarian or permissive) interactions with children such as valuing children's feelings and perspectives, provision of opportunities to make developmentally appropriate decisions, and setting reasonable boundaries with clear explanations (Grolnick, Kurowski, & Gurland, 1999). Autonomy, competence and relatedness are proposed as three needs that underlie the development of intrinsic motivation (Deci & Ryan, 1985a). Parenting that provides opportunities for children to have choices over their actions (rather than feeling controlled),

master activities they are interested in, and connect with important family members or friends may serve to impede the development of a controlled orientation style.

Targeting normative beliefs about IPV is also a natural variable to consider for intervention. Research on social norms has shown that in general individuals overestimate the degree to which others engage in risky behaviors. This is particularly true for people who themselves engage in risky behaviors. In fact estimates of risky behaviors are positively associated with the extent the individual engages in risky behaviors. These findings have been documented with respect to alcohol use (Baer et al., 1991; Borsari & Carey, 2001; Lewis & Neighbors, 2004), marijuana and other drug use (Kilmer et al., 2006), risky sexual behavior (Chia & Gunther, 2006; Lewis et al., 2006), body image concerns and disordered eating behavior (Bergstrom, Neighbors, & Lewis, 2004; Bergstrom & Neighbors, 2006), and gambling (Larimer & Neighbors, 2003; Neighbors et al., 2007). Providing accurate information on the prevalence of IPV could combat perceptions of “normality” that might come with witnessing IPV. Understanding that IPV behavior is indeed outside the norm and unacceptable might make it less likely that an individual would choose to engage in such behavior presently or in the future (Neighbors, et al., 2010). Intervention and treatment approaches which have been successful in changing perceived norms have been relatively successful in changing behavior, especially drinking behavior (Borsari & Carey, 2000; Neighbors et al., 2004; Neighbors, Lewis, Bergstrom, & Larimer, 2006; Lewis & Neighbors, 2007).

A related topic supported by these results is intervening with children exposed to IPV through cognitive correction. The present findings support previous research suggesting that exposure to IPV can shape beliefs about family relationships and the justifiability of using aggression to resolve conflict in intimate relationships (Kingsfogel and Grych, 2004). Similarly, the findings add to the literature identifying a relationship between permissive beliefs about aggression as a mediator of aggressive behavior in adolescents (Marcus, Lindahl, & Malik, 2001; Riggs & O’Leary, 1989, 1996) and adults (Jin, Eagle, & Yoshioka, 2007; Stith, et al., 2004). Some treatment interventions for perpetrators incorporate challenges to these beliefs as part of therapy (Craig, Robyak, Torosian, & Hummer, 2006; Schmidt, et al., 2007). Prevention efforts may benefit from incorporating these techniques early by monitoring beliefs about women, aggression and normative perceptions and challenging and correcting them when these beliefs support IPV. Existing training approaches developed to focus on social and cognitive skills for children who exhibit aggression may be beneficial when applied preventively to children exposed to inter-parental violence (Bierman & Furman, 1984; Lochman & Curry, 1986).

Limitations and conclusions

This study represents an initial investigation of the relationships among family history of IPV, self-determination, beliefs about IPV, and IPV perpetration. There are several caveats to consider when interpreting the results, however. The study was conducted on a small sample of male IPV perpetrators. Future work should replicate these findings with a larger sample size and with non-perpetrators included.

The data from this study were cross-sectional, thus, it is difficult to make causal inferences about the relationship between personality constructs, beliefs about IPV and engaging in IPV behavior. This study did not obtain parental reports of IPV, but rather relied on the perception of adult participants to describe what they witnessed as children. Without collateral verification it is difficult to determine the extent to which current beliefs about IPV and perpetration behavior might contribute to recall bias. Longitudinal research would be valuable to further elucidate some of these relationships. Although in our evaluation of alternative models we did not consider childhood exposure to parental violence as an

endogenous variable, it is conceivable that controlled orientation of the child may lead to increased violence between parents. Longitudinal studies could help tease apart how environmental factors (such as witnessing IPV or parental motivational orientation) influence the development of motivational orientations and beliefs about IPV. While we did consider and find limited support for alternative models, longitudinal data are needed to draw more definitive conclusions regarding causal direction and temporal precedence. Nevertheless, given the dearth of longitudinal research on children exposed to IPV, this work contributes a piece of the puzzle to assist in informing the development of intervention and prevention programs targeting IPV. Furthermore, the restrictive inclusion criteria for participants may limit the generalizability of the results. Further research on varying populations such as minority groups or across culture is needed to increase the understanding of self-determination in substance use. As noted in the introduction this research was part of a larger NIDA funded intervention study evaluating an intervention for substance using perpetrators of IPV. Thus, substance use was a screening criterion in this study and is an important factor in IPV. It was also associated with psychological abuse and physical violence in this sample. However, neither controlled nor autonomy orientations were associated with drug use and only controlled orientation was associated with alcohol use. Moreover, childhood exposure to violence was not significantly associated with either alcohol or drug use. Thus, while substance use is an important factor to consider in generalizing to other samples, it seems unlikely to provide an alternative explanation for the proposed model. Another limitation may be that the use of a 90 day duration from whence perpetration can have occurred may not be long enough. Violence may occur with irregular frequency, thus some perpetrators may not have qualified for inclusion in the study even though they engage in IPV. Future studies could better understand this intermittent violent behavior by incorporating a time continuum such as thirty days, three months, six months, ninety days, and so on.

The use of the Saunders et al. (1987) scale to assess justification of IPV was not ideal. While this measure is among the few empirically validated measures available to assess the construct, it fails to incorporate important advances in our understanding of IPV over the intervening years. A valuable contribution to the field would be the development and validation of a measure of justification which takes into account the contemporary view that IPV is linked more to issues of power and control rather than to a desire to inflict pain. The present study was also limited in considering childhood exposure to *physical* violence. Additional research might be well served in considering exposure to multiple forms of IPV and further distinguish relationships among perpetrators and victims. Another measurement related issue to consider is the relatively low reliability for the measures of controlled and autonomy orientations. These scales have been used most often in college populations with alphas typically in the low to mid .7 to .8 range (Deci & Ryan, 1985; Knee et al., 2001). This may be a function of the study population. IPV perpetrating men from the general population may have greater variance in their responses to vignettes related to autonomy and control relative to college students.

This study is a step toward gaining further understanding about self-determination theory, directions for future research, and developing informed treatment programs. Further research in self-determination theory and IPV, such as the influence of alcohol and other substance use on motivational orientation and subsequently on behavior, will help increase the understanding of how additional factors contribute to changes in motivation orientation. Additionally, studies evaluating the malleability of autonomous and controlled motivational orientations (e.g., Hodgins, Yacko, & Gottlieb, 2006; Weinstein & Hodgins, 2009) may contribute to innovative interventions in the prevention of IPV. Future studies may also consider autonomous or controlled self-regulations specifically related to abuse behaviors. Focusing on motivations that are more proximal to the behavior of interest may be easier to

change and more strongly associated with behavior (Vallerand, 1997). Longitudinal studies are needed to build this literature, and if findings support that childhood IPV exposure correlates to higher levels of controlled rather than autonomous motivation orientation, intervention strategies supporting the psychological needs of children and minimizing authoritarian practices through parent education such as classes in Family Treatment Courts may be considered. Lastly, the self-determination personality construct of impersonal orientation was not assessed in the current study. Children exposed to IPV may have higher rates of depression (Quereshi & Maloney, 1997; Sternberg et al., 1993), anxiety (Kerig, 1998) and lower self-worth (O'Brien, Bahadur, Gee, Balto, & Erber, 1997; Rogers & Holmbeck, 1997). There are undoubtedly a number of directions regarding the impersonal orientation that might be fruitful to explore in this context.

In conclusion, this research represents an important contribution in the development and evaluation of multivariate theoretical models of IPV perpetration. Self-determination theory presents one useful framework for understanding this phenomenon. IPV perpetration is a complex behavior, likely emerging from multiple causes in multiple domains. These results suggest that the childhood exposure to IPV may contribute to a more controlled orientation which may in turn facilitate cognitive biases associated with IPV perpetration. Additional longitudinal research and treatment research from the perspective of self-determination theory are likely to be fruitful.

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Figure 1.

Table 1

Means, Standard Deviations, and Correlations among Variables

	1.	2.	3.	4.	5.	6.	7.
1. Childhood exposure	--	0.02	0.21 [*]	0.24 ^{***}	0.26 ^{***}	0.19 [*]	0.08
2. Autonomy orientation	0.02	--	0.34 ^{***}	-0.16 [†]	0.07	0.01	-0.01
3. Controlled orientation	0.21 [*]	0.34 ^{***}	--	0.27 ^{***}	0.39 ^{***}	0.31 ^{***}	0.15 [†]
4. Justification of IPV	0.24 ^{***}	-0.16 [†]	0.27 ^{***}	--	0.22 [*]	0.16 [†]	0.23 [*]
5. Perceived prevalence of IPV	0.26 ^{***}	0.07	0.39 ^{***}	0.22 [*]	--	0.40 ^{***}	0.09
6. Psychological abuse	0.19 [*]	0.01	0.31 ^{***}	0.16 [†]	0.40 ^{***}	--	0.22 [*]
7. Physical assault	0.08	-0.01	0.15 [†]	0.23 [*]	0.09	0.22 [*]	--
Mean	1.50	5.68	4.78	12.47	22.26	53.75	0.49
Standard Deviation	0.94	0.66	0.81	3.86	17.07	84.60	0.50

Note. N's ranged from 121 to 124 depending on missing responses.

 $p < .001$.**
 $p < .01$.*
 $p < .05$.†
 $p < .10$.

Table 2

Parameter estimates and bootstrapped standard errors for model paths

Model path	β	B	S.E. (B)	C.R.
Childhood exposure $\rightarrow$ Controlled orientation	0.20	0.17	0.076	2.18*
Childhood exposure $\rightarrow$ Autonomy orientation	0.03	0.02	0.070	0.27
Controlled orientation $\longleftrightarrow$ Autonomy orientation	0.36	0.19	0.052	3.62***
Controlled orientation $\rightarrow$ Justification of IPV	0.37	1.79	0.470	3.80***
Controlled orientation $\rightarrow$ Perceived prevalence of IPV	0.43	9.15	1.828	5.01***
Autonomy orientation $\rightarrow$ Justification of IPV	-0.29	-1.67	0.561	-2.98**
Autonomy orientation $\rightarrow$ Perceived prevalence of IPV	-0.09	-2.28	2.270	-1.01
Justification of IPV $\rightarrow$ Psychological abuse	0.08	1.68	2.070	0.81
Perceived prevalence of IPV $\rightarrow$ Psychological abuse	0.39	1.94	0.612	3.18***
Justification of IPV $\rightarrow$ Physical assault	0.21	0.03	0.012	2.33*
Perceived prevalence of IPV $\rightarrow$ Physical assault	0.03	0.00	0.003	0.33
Psychological abuse $\longleftrightarrow$ Physical assault	0.20	7.68	3.473	2.21*

Note. C.R. = Critical ratio.

 $p < .001$.**
 $p < .01$.*
 $p < .05$.

Table 3

Tests for mediated paths with asymmetric confidence intervals

Mediation pathway	$\alpha^*\beta$	SE $\alpha^*\beta$	95% CI (lower)	95% CI (upper)
Childhood Exposure → Controlled Orientation → Justification	0.30*	0.16	0.04	0.65
Childhood Exposure → Controlled Orientation → Perceived Prevalence	1.56*	0.76	0.20	3.19
Childhood Exposure → Autonomy Orientation → Justification	-0.03	0.12	-0.28	0.20
Childhood Exposure → Autonomy Orientation → Perceived Prevalence	-0.05	0.17	-0.44	0.28
Controlled Orientation → Justification → Psychological Abuse	3.01	3.79	-4.09	11.08
Controlled Orientation → Justification → Physical Assault	0.05*	0.03	0.01	0.11
Controlled Orientation → Perceived Prevalence → Psychological Abuse	17.75**	6.63	6.21	32.08
Controlled Orientation → Perceived Prevalence → Physical Assault	0.01	0.03	-0.04	0.06
Autonomy Orientation → Justification → Psychological Abuse	-2.81	3.58	-10.69	3.76
Autonomy Orientation → Justification → Physical Assault	-0.05*	0.03	-0.11	-0.01
Autonomy Orientation → Perceived Prevalence → Psychological Abuse	-4.42	4.62	-14.61	3.87
Autonomy Orientation → Perceived Prevalence → Physical Assault	0.00	0.01	-0.02	0.01

Note. Justification = Justification of IPV.

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