## Title

Contextual Predictors of Intimate Partner Violence Among Ethnically Diverse Newlyweds Living with Low Incomes



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# Contextual Predictors of Intimate Partner Violence Among Ethnically Diverse Newlyweds Living with Low Incomes

A dissertation submitted in partial satisfaction of the

requirements for the degree Doctor of Philosophy

in Psychology

by

Julia Friederike Hammett

2021

ABSTRACT OF THE DISSERTATION

Contextual Predictors of Intimate Partner Violence Among Ethnically Diverse Newlyweds Living with Low Incomes

by

Julia Friederike Hammett

Doctor of Philosophy in Psychology

University of California, Los Angeles, 2021

Professor Thomas Bradbury, Chair

Intimate Partner Violence (IPV) is a highly prevalent public health challenge, tied to lasting negative consequences for physical and psychological health, parenting and child development, and economic stability. Typically conceptualized as a private form of violence, most efforts to predict IPV have focused on individual-level risk markers (e.g., substance use, childhood experiences) or couple-level risk markers (e.g., relationship satisfaction, communication skills). However, because individuals and couples are affected by the environments they inhabit, the contexts within which couples operate may also impact the likelihood that a couple will experience or engage in IPV. Through three studies, this dissertation aimed to examine contextual predictors of IPV, as well as the ways in which such contextual predictors can exacerbate or decrease the risk of individual and dyadic predictors on IPV. In an effort to synthesize prior work, Study 1 examined whether the accumulation of selected factors across

individual, relational, and contextual socio-ecological layers, when considered simultaneously, predicts IPV. Results showed that even after adjusting for macro-level contextual influences (e.g., neighborhood and social network factors), individual and dyadic variables presented clear risk factors of IPV initial status. Associations between contextual variables and IPV were less robust, hinting at the possibility that the macro-contexts assessed in Study 1 may be less predictive of IPV than micro-level contextual factors. Therefore, the goal of Study 2 was to examine the effects of three micro-level contexts – perceived stress, financial strain, and experiences of discrimination. Specifically, Study 2 tested whether adversities experienced early in life serve to channel individuals into stressful circumstances (i.e., micro-contexts) that then evoke situational IPV in adulthood. Among husbands, early adversity was linked to IPV via stress, whereas for wives, no such mediation emerged. These findings indicate that the situations that are a defining feature of situational IPV may themselves be a reflection of the adversities that men face early in life; in the absence of these stressors, the association between early adversity and later IPV falls to non-significance. Finally, Study 3 of this dissertation examined whether the well-established association between psychological and physical IPV is moderated by the demands imposed upon couples by living in socially and economically disadvantaged contexts. Findings indicate that psychological and physical IPV were more likely to co-vary among husbands facing higher levels of socioeconomic disadvantage. I also tested whether negative and ineffective communication during relationship-focused conversations would moderate the association between psychological and physical IPV. Behavioral processes did indeed moderate this association, and the effect of behavioral processes was independent of the moderating effect of sociodemographic risk. Across the three studies, findings challenge the notion that IPV should be conceptualized exclusively as a private phenomenon. Instead, results

lend general support to the value of understanding couples within their larger ecological niches and underscore the idea that that contextual risk factors, in addition to individual and relational variables, have the potential to influence whether couples' arguments take on aggressive or even violent forms.

The dissertation of Julia Friederike Hammett is approved.

Benjamin R. Karney

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University of California, Los Angeles

2021

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does not imply endorsement by the publisher. Thomas N. Bradbury, Benjamin R. Karney, and Jaclyn M. Ross were co-authors. Thomas N. Bradbury supervised the data analysis and manuscript preparation, Benjamin R. Karney provided critical revision on the manuscripts, Jaclyn M. Ross contributed to data analyses.

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# GENERAL INTRODUCTION

Intimate Partner Violence (IPV), encompassing physical, sexual, psychological, and economic abuse (Hart & Klein, 2013), is highly prevalent. More than 35% of couples worldwide experience IPV in their lifetime (WHO, 2014), and the lasting consequences of IPV for physical and psychological health, parenting and child development, and economic well-being are unambiguous (e.g., Geffner, 2016; O'Campo et al., 2006; Rivera, Sullivan, Zeoli, & Bybee, 2016; Wright, Pinchevsky, Benson, & Radatz, 2015). Because of the profound inequities that it reflects and perpetuates, IPV is arguably one of the greatest public health challenges of our time. The fact that this violence arises at the hands of an intimate partner makes it especially vexing, yet this fact also means that containing and eliminating IPV requires clear understanding of the forces operating within and upon committed intimate partnerships.

In an effort to conceptualize the patterns and dynamics of violence that occur between two intimate partners, within the context of a committed relationship, different classifications of IPV – based on the type of violence used, the characteristics of the perpetrator, or a combination of both – have been suggested throughout the past decades. Most scholars agree that violence between intimate partners can take on distinct forms, which differ with regards to their causes, correlates, and consequences (Ali, Dhingra, & McGarry, 2016). One of the most well-established typologies of IPV, originally developed by Michael P. Johnson in the 1990s and subsequently revised and refined (e.g., Johnson, 2006), distinguishes between three major types of IPV. The first, coercive controlling violence, occurs when one partner in a relationship uses control and power over the other partner, including threats, intimidation, and isolation. This type of violence tends to be gender-asymmetric, is perpetrated primarily by men (Johnson, 2016), and includes severe psychological aggression for controlling purposes as well as physical violence. Coercive

controlling violence is more likely to escalate over time than other types of IPV and is more likely to involve serious injury. Because this type of IPV is most extreme, it is more likely to be represented among samples collected from domestic violence shelters or batterers' intervention programs (Johnson, 2008). Violent resistance, a second type of IPV identified by Johnson, is a form of self-defense in which violence is perpetrated by a victim against his or her abusive partner, typically an intimate terrorist. This type of violence is used primarily by women (Johnson, 2008), either instinctively in response to an initial attack or as a defense mechanism after prolonged victimization (Johnson, 2011). Lastly, situational couple violence encompasses psychological aggression and less severe acts of physical violence that erupt in response to a particular conflict. Situational couple violence is thus not based on a motive to control one's partner, and is mutual and fairly gender-symmetric. It is most often seen in representative samples collected from the community (Johnson, 2008).

Intimate partner violence is not an isolated problem but occurs at astoundingly high rates, with studies showing that 2 to 6 million women experience violence by an intimate partner every year and 25 to 30% of women who come to emergency rooms for injuries are there for domestic violence-related problems (Johnson, 2008). Studying IPV is important, not only because of its high prevalence but also because of the many negative consequences IPV entails for affected individuals. In addition to the injuries that can be an immediate consequence of IPV, there are other, longer-term, physical and psychological health risks (Holtzworth-Munroe, Smutzler, & Sandin, 1997), including physical disease, posttraumatic stress disorder (PTSD), depression, and lowered self-esteem (Kirkwood, 1993). Furthermore, IPV can impose economic dependency on the perpetrator, which prevents victims from leaving an abusive relationship. Not surprisingly, IPV has been tied to relationship decline, and dissatisfaction, distress, and relationship failure are

among IPV's most consistent correlates (Lawrence & Bradbury, 2001; 2007; Rogge & Bradbury, 1999; Testa & Leonard, 2001). As expected, average effects of situational couple violence are less severe than for coercive controlling violence, yet negative consequences for affected individuals' physical and psychological health as well as their intimate relationships are well established for all types of IPV (Johnson, 2008). For example, the prevalence of injury has been estimated to be 25% for situationally violent couples, compared to 75% for couples experiencing coercive controlling violence (Johnson, 2006). Similarly, the prevalence of PTSD is around 37% for situationally violent couples compared to 80% for couples experiencing coercive controlling violence (Johnson & Leone, 2005). Lastly, situational couple violence does not necessarily interfere with the couple's relationship, with only 13% of women who experience situational couple violence reporting low marital happiness (Johnson, Conklin, & Menon, 2002).

In addition to these negative effects on the two partners directly involved in the violent relationship, IPV also has devastating consequences for the children they raise. A systematic review of 228 studies found a low to moderate significant association between witnessing parental IPV and later IPV perpetration or victimization, potentially perpetuating the cycle of violence along with its harmful health effects (Capaldi, Knoble, Shortt & Kim, 2012). Furthermore, IPV between parents has been tied to child internalizing and externalizing disorders (Bair-Merritt et al., 2015). Finally, IPV poses enormous economic costs. Estimates indicate that IPV cost $5.8 billion dollars in 1995, including $320 million for rapes, $4.2 billion for physical assault, $342 million for stalking, and $893 million for murders (Max, Rice, Finkelstein, Bardwell, & Leadbetter, 2004). As can be seen, IPV is not only harmful for intimate partners involved in violent relationships but also for society as a whole. Thus, the potential savings from making progress on this topic and from increasing efforts to reduce IPV would be substantial.

Reduction or elimination of IPV through prevention and intervention efforts requires understanding of its risk and protective factors. Typically conceptualized as a private form of violence, most research on IPV has focused on individual-level risk markers, such as substance use, personality, and childhood experiences, or couple-level risk markers, such as relationship satisfaction and communication skills. Clear progress has been made in identifying and characterizing risky individuals and relationships (see Slep, Foran, Heyman, & Snarr, 2015). However, because individuals and couples are embedded in the environments they inhabit, the contexts within which couples operate also impact the likelihood that a couple may experience or engage in IPV (e.g., Copp et al., 2015; Jackson, 2016; Miller-Graff & Graham-Bermann, 2016). For example, social surroundings that perpetuate a culture of violence may make couples more susceptible to IPV by justifying or legitimizing direct or structural use of violence. Likewise, certain societal structures (e.g., lack of resources available in couples' communities) may impose heightened stress on partners, thereby increasing the probability that partners lash out in the heat of an argument. Contexts may also serve to lower the risk for IPV: Close-knit social networks, for example, may protect against IPV by decreasing social isolation and increasing visibility of violence, or by providing more opportunities for partners to seek social support and connections to better cope with stress and conflict experienced in the home. This dissertation aims to extend previous research by examining not only individual and dyadic but also contextual risk factors – including micro-contexts such as stress and strain and macro-contexts such as neighborhoods and social networks – among couples experiencing IPV.

## Efforts to Predict Intimate Partner Violence

The socio-ecological model (Bronfenbrenner, 1979) provides a useful framework for organizing factors believed to affect risk for IPV (Beyer, Wallis, & Hamberger, 2015; Heise,

1998). According to this model, predictors of IPV can be grouped into different categories or layers, including factors at the individual, couple, community, and societal level. As mentioned above, much of the literature has focused on the first two layers. Individual-level risk factors include demographic variables such as younger age (e.g., Rodriguez, Lasch, Chandra, & Lee, 2001), low socioeconomic or financial status (e.g., O'Donnell, Smith, & Madison, 2002), and race or ethnicity (being a member of a minority group, especially being African-American, has been found to be associated with higher likelihood of IPV; see Caetano, Field, Ramisetty-Mikler, & McGrath, 2005). Other individual-level risk factors include developmental characteristics, such as exposure to violence in one's family of origin (e.g., Ehrensaft et al., 2003), personality traits such as anger and hostility (e.g., Moffitt, Krueger, Caspi, & Fagan, 2000), and substance use. In fact, alcohol is widely considered to be a key individual-level predictor of IPV and is hypothesized to exert disinhibitory effects on aggression (Flanzer, 2005). Drug use, although less frequently examined as a predictor, also tends to correlate with IPV (e.g., cannabis, hallucinogens, and nicotine; see Feingold, Kerr, & Capaldi, 2008; marijuana and hard drug use; see Testa, Livingston, & Leonard, 2003). Lastly, low self-esteem has been found to predict IPV (e.g., Capaldi & Crosby, 1997; Ellison & Anderson, 2001), although this association has been predominantly examined in cross-sectional work (Capaldi et al., 2012).

At the couple level, predictors of IPV include relationship status variables and interactional patterns (Capaldi et al., 2012). For instance, cohabitating (e.g., Caetano et al., 2005; Cui, Durtschi, Donnellan, Lorenz, & Conger, 2010) and separated or divorced couples (O'Donnell et al., 2002; Sorenson & Telles, 1991) are at higher risk for IPV than their married counterparts. Relationship discord, characterized by high levels of marital disagreement and conflict, has been identified as a consistent risk factor for IPV (Capaldi et al., 2012). Similarly,

relationship satisfaction (or conversely dissatisfaction) has been found to correlate with IPV, although most longitudinal work finds support for IPV being a more consistent predictor of satisfaction than vice versa (e.g., Hammett, Lavner, Karney, & Bradbury, 2017). Other couple-level predictors of IPV include attachment (e.g., insecure working models of attachment; Feerick, Haugaard, & Hien, 2002; avoidant attachment; Lafontaine & Lussier, 2005), negative emotionality (Herrenkohl et al., 2004; Moffitt et al., 2000), and jealousy (Giordano, Soto, Manning, & Longmore, 2010; Kerr & Capaldi, 2011). Partners' communication styles are also believed to relate to the onset of violent episodes (Riggs & O'Leary, 1989). Specifically, demand/withdraw patterns of communication, lack of constructive communication, and contempt tend to be related to IPV, particularly among distressed couples (Holtzworth-Munroe et al., 1998).

Despite this predominant focus on individual- and couple-level risk factors, the argument has been advanced that individuals and couples cannot be studied meaningfully in isolation, because they operate within certain contexts (Beyer et al., 2015). These contexts may include different environments, circumstances, and social connections, which influence couple dynamics, including IPV. Thus, it is imperative to study contextual predictors of IPV, as well as the ways in which such contextual predictors can exacerbate or decrease the risk of individual- and couple-level predictors on IPV.

## Intimate Partner Violence in Context

Decades of research suggest that the contexts in which couples operate are a crucial element in understanding how their relationships succeed or fail. Even though IPV has historically been conceptualized as a private, within-person or within-relationship phenomenon, thus explaining why most research has focused on individual- and couple-level risk markers,

factors surrounding the couple, such as their physical and social environment, stressors, and resources, may play a role in influencing the occurrence of IPV (Beyer et al., 2015). A key aim of this dissertation is to extend and refine the growing body of research documenting how contextual influences can affect the expression of IPV in developing marriages.

In an attempt to study factors at the community and society layers of the socio-ecological model (Beyer et al., 2015; Heise, 1998), research has begun to examine the neighborhoods couples inhabit as potential risk factors for IPV. Community- or neighborhood-level indicators most frequently associated with IPV include measures related to community socioeconomics. For example, individuals living in neighborhoods and communities with high unemployment and low average incomes (O'Campo et al., 2006) as well as higher proportions of female-headed households and higher proportions of households with children (Lauritsen & Schaum, 2004) have been found to be at increased risk for IPV (Beyer et al., 2015). Moving beyond this basic socioeconomic or demographic information at the neighborhood level, I propose that the stress and level of risk (e.g., early age at time of marriage, low education, and unemployment; see Amato, 2014) couples' environments exert on them as well as the specific connections couples have with others in their social networks influence the occurrence of IPV. Cross-sectional work has begun to examine effects of stress on violence between partners, showing that financial stress (Neff, Holamon, & Schluter, 1995; Slep et al., 2015), parenting stress (Probst et al., 2008), life stress (Jasinski & Kantor, 2001), work stress (Jasinski, Asdigian, & Kantor, 1997), and acculturation stress (Caetano, Ramisetty-Mikler, Vaeth, & Harris, 2007) are related to IPV.

Furthermore, this dissertation aims to explore whether individual- or couple-level risk factors and contextual risk factors, such as stress and social networks, interact in predicting IPV. For example, two identical individuals or couples, surrounded by different kinds of

environments, might behave or respond to stress very differently depending on the people who surround them: A couple surrounded by a close-knit network of family and friends, who is faced with a sudden stressor (e.g., loss of job or illness), may be able to turn to their social network for support, both material and emotional. However, a socially isolated couple faced with the same stressor may be unable to rely on such social resources, thereby further exacerbating their stress levels, and increasing the likelihood that they will lash out at each other during an argument. Thus, stress, risk and social contacts present unique contexts to couples that have the potential to increase or decrease the likelihood of IPV, either on their own or by interacting with existing vulnerabilities at the individual or couple level. The idea that the interaction between a pre-dispositional vulnerability and stress caused by life experiences and events may result in harmful outcomes is well-known in the mental health literature, where the diathesis-stress model is used to explain a disorder, such as depression, and its trajectory (e.g., Hammen, 2015). In this dissertation, I apply a vulnerability-stress model to the study of IPV and I examine whether stressful and risky contexts influence already established effects of individual and relationship predictors on IPV.

This dissertation is composed of three studies examining predictors of IPV that go beyond the individual and couple level by focusing on the contexts or situations intimate partners inhabit. I also aim to study whether, and in what manner, these contexts influence the association between already established risk factors at the individual and couple level and IPV. I situate all three studies in samples of young, newlywed couples from low-income neighborhoods, which will provide a valuable setting for studying the aforementioned research topics for multiple reasons. First, IPV and its many correlates tend to be overrepresented among economically disadvantaged and minority group couples (e.g., Tjaden & Thoennes, 2000). In addition,

disadvantaged couples are at greater risk for relationship dissolution and have fewer overall resources. Therefore, these couples tend to be exposed to more external stress and financial strain and tend to rely more heavily on their environment, including their social network, for support (Heflin, London, & Scott, 2011). Lastly, community couples are most likely to experience lower-level, mostly situational, couple violence. This type of IPV warrants particular attention, not only because of its high prevalence but also because of the negative consequences it entails and because of its vast heterogeneity, which has obscured prior research. Examination of factors surrounding the couple may be particularly relevant to the understanding of situational couple violence, which, as opposed to other types of IPV, such as coercive controlling violence, is not driven by personality characteristics such as a general motive to control (Johnson, 2006).

**Study 1.** The first dissertation study aims to synthesize prior work by examining individual, dyadic, and contextual risk factors in one model. While it is the case that, collectively, existing literature already ties variables at each of these layers to IPV, relatively few studies have adopted a broad-based approach in which all of these factors are examined simultaneously. I propose to fill this gap by examining the predictive utility of risk across all three risk domains, in accumulation, and their association with IPV. To overcome potential bias of self-report data, I use a multi-method approach for assessing risk across multiple domains, relying not only on interview data but also on observational data collected via video-recorded codes of problem-solving discussions and interviewer ratings. In addition, I examine data from a special social network interview, during which partners listed 25 members of their social networks as well as information about each of these members.

I test two aims. My main research aim (Aim 1) is to study whether the accumulation of key indicators at the individual, the relational, and the contextual levels, when studied

simultaneously, is associated with IPV. I predict that the accumulation of risk at each of these socio-ecological layers will be related to initial levels of IPV as well as to more detrimental (i.e., increasing) IPV trajectories. Furthermore, I explore whether individual- or couple-level risk and contextual risk interact in predicting IPV (Aim 2). As noted above, individuals or couples might behave or respond to stress very differently depending on the support, or lack thereof, found in their environments . Thus, contextual risk could have the potential to increase or decrease the likelihood of IPV, either on its own or by interacting with existing vulnerabilities at the individual or couple level. I predict that individual and relational risk will be more strongly associated with IPV when coupled with contextual risk factors.

**Study 2.** The second dissertation study tests whether challenging contexts during adulthood – including financial strain, discrimination, and perceived stress – mediate the association between adversity experienced during childhood, an individual-level predictor, and situational couple violence. A link between exposure to violence in one's family of origin (in the form of direct child abuse and neglect or by witnessing parental violence) and adult IPV is well established, often coined the "cycle of violence hypothesis" or "intergenerational transmission of violence" (e.g., Heyman & Slep, 2002). However, because the majority of people who are exposed to early adversity will not grow up to participate in aggressive relationships in adulthood, questions about mechanisms remain. One possible explanation for this disjunction is that early adversity must recruit or incur other forms of adversity in order for aggression to emerge later in life; if these secondary forms of adversity are not evoked, then later aggression becomes much less likely. I propose that individuals exposed to adversity early in life either generate or otherwise encounter more stress as they move into early adulthood than those

exposed to less childhood adversity, and/or manage that stress less effectively, thus increasing the likelihood that they will be in circumstances that evoke IPV.

Using the same sample of 231 newlywed couples from low-income neighborhoods as introduced in Study 1, I test three aims. Aim 1 of Study 2 is to replicate prior findings showing associations between early adversity (including physical, psychological, and sexual abuse, neglect, and witnessing violence or mental illness in one's family of origin) and IPV as well as current stress and IPV. Aim 2 is to expand prior research by examining whether current stress mediates the association between early adversity and IPV, meaning that early adversity would operate through current stress to predict IPV. Lastly, in Aim 3, I examine the robustness of the early adversity-to-stress-to-IPV mediation model proposed in Aim 2 and test alternative models.

**Study 3.** In the first and in the second study of this dissertation, I study aggressive and violent couples in context. Due to the high amount of shared variance between psychological aggression and physical violence, I combine these measures into one overall measure of IPV (for more detailed information, see Methods sections below). The third study of this dissertation aims to explore the mechanisms or means by which context matters. Here, I not only study aggressive or violent individuals and couples in context but to also examine *how* their contexts operate on them. Due to the different health implications of psychological and physical IPV, I separate these measures in Study 3. I first replicate an interesting and well-established phenomenon, showing that psychological IPV is one of the strongest risk factors for physical IPV (Stith, Smith, Penn, Ward, & Tritt, 2004). However, while low levels of psychological aggression tend to have no bearing on physical violence, once partners reach a certain threshold or cut-off in their levels of psychological IPV, the chances of physical IPV increase dramatically (Salis, Salwen, & O'Leary, 2014). Keeping with the theme of this dissertation, the central idea of Study 3 is to examine

whether this established association between psychological and physical IPV is moderated by (a) couples' negative and ineffective communication during relationship-focused conversations and (b) the demands imposed upon couples by socially and economically disadvantaged contexts.

Addressing three research aims, I propose that the effect of psychological IPV on physical IPV may vary as a function of couples' ability to communicate effectively and their access to social and financial resources. Specifically, I hypothesize that when communication is more positive, less negative, and more effective, covariation between psychological and physical IPV should be weaker or nonsignificant (Aim 1). Second, I predict that verbal aggression will co-vary with physical aggression primarily among couples who are socially and economically vulnerable. When sociodemographic risk is low, covariation between psychological and physical IPV should be weaker or nonsignificant (Aim 2). Third, I predict that the moderating effect of observed communication will remain significant after controlling for sociodemographic risk, and that the moderating effect of sociodemographic risk will remain significant after controlling for observed communication (Aim 3). Because there is no evidence to date to suggest that the communication-based and sociodemography-based explanations are necessarily competing models, I predict that both will uniquely moderate the association between psychological and physical IPV. To test these predictions, I use data collected from a large and diverse sample of 431 newlywed couples in Los Angeles County, which assesses physical and psychological IPV as well as sociodemographic risk at the outset of marriage.

In short, research on predictors of IPV in general, and situational couple violence in particular, has traditionally focused on individual (e.g., personality, childhood history, substance use) and dyadic (e.g., relationship satisfaction, communication skills) risk factors. However, individuals and couples do not exist in a vacuum and contextual factors, such as couples'

environments and social connections, may play a crucial role in predicting IPV, either by exerting direct effects or by mediating or moderating already established associations between individual and dyadic factors and IPV. The goal of this dissertation is to understand the influence of these contextual predictors, including the economic backgrounds, social connections, and stressors that characterize low-income, ethnically diverse newlyweds and how these factors combine to affect risk for situational couple violence. With one longitudinal and two cross-sectional studies, I examine the effects of micro-level (e.g., financial strain, perceived stress) and macro-level (e.g., neighborhoods, social networks) contexts on IPV. Together, these studies will offer a detailed look at how situational risk factors are related to couple violence and aggression, and how classic conceptions of individual and dyadic risk can be embellished when considering couples' broader economic and social contexts. Findings of this work have the potential to inform the development of community-based interventions to address contextual factors related to IPV in an effort to prevent and reduce this serious public health problem.

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## STUDY 1:

### *Cumulative Risk and Intimate Partner Violence*

### Introduction

Intimate Partner Violence (IPV) is among the greatest public health challenges of our time, due to its high prevalence (WHO, 2014) and its lasting negative consequences for physical and psychological health, parenting and child development, and economic stability (e.g., O'Campo et al., 2006; Vu, Jouriles, McDonald, & Rosenfield, 2016; Wright, Pinchevsky, Benson, & Radatz, 2015). Typically conceptualized as a private form of violence, most research on IPV has focused on individual-level risk markers, such as substance use, personality, and childhood experiences, or couple-level risk markers, such as relationship satisfaction and communication skills (see Slep, Foran, Heyman, & Snarr, 2010). Because individuals and couples are embedded in their environments, efforts to conceptualize IPV in relation to various contextual factors, such as couples' physical and social surroundings, have also emerged (e.g., Copp, Kuhl, Giordano, Longmore, & Manning, 2015; Jackson, 2016; Miller-Graff & Graham-Bermann, 2016). While scholars from different perspectives vary in their emphasis of these three risk domains, attempts to examine various domains of risk simultaneously are lacking. The present study aims to synthesize prior work by examining individual, dyadic, and contextual risk factors for IPV in one model.

The socio-ecological model (Bronfenbrenner, 1979) provides a useful framework for organizing factors theorized to affect risk for IPV (Beyer, Wallis, & Hamberger, 2015; Heise, 1998). From this perspective, predictors of IPV can be grouped into different categories or layers, including factors defined at the individual, couple, and community or societal level. Individual-level risk factors include developmental characteristics, such as exposure to violence

in one's family of origin (e.g., Ehrensaft et al., 2003), personality traits (e.g., Moffitt, Krueger, Caspi, & Fagan, 2000), and substance use (Feingold, Kerr, & Capaldi, 2008; Flanzer, 2005; Testa, Livingston, & Leonard, 2003). Low self-esteem has also been found to predict IPV (e.g., Capaldi & Crosby, 1997), although this association has been predominantly examined in cross-sectional work (Capaldi, Knoble, Shortt, & Kim, 2012).

At the dyadic level, predictors of IPV center around couples' capacities for skilled communication and emotion regulation, typically when partners disagree about important relationship issues (Capaldi et al., 2012). For example, high levels of relationship distress, disagreement, and conflict increase the likelihood of IPV (Capaldi et al., 2012; cf. Hammett, Lavner, Karney, & Bradbury, 2017), and detailed behavioral analyses demonstrate that IPV is more likely to occur among couples whose interactions are marked by negative communication patterns, anger, and contempt (e.g., Sommer, Iyican, & Babcock, 2019).

In an attempt to study macro-level factors, research has begun to examine the neighborhoods couples inhabit as potential risk factors for IPV, with mixed support. For example, some studies show that individuals living in communities with high unemployment and low incomes (O'Campo et al., 2006), as well as higher proportions of female-headed households and higher proportions of households with children (Lauritsen & Schaum, 2004), are at increased risk for IPV (Beyer et al., 2015). Partners' social ties to family and friends have also been proposed as macro-level risk factors of IPV (Pinchevsky & Wright, 2012). Certain characteristics of social ties, such as increased social support and decreased social isolation, may reduce the likelihood of IPV (e.g., Lanier & Maume, 2009; Van Wyk, Benson, Fox, & DeMaris, 2003), whereas individuals who are tied to others who regularly perpetrate violence or who live in communities that evidence high rates of crime and violence may be at increased risk for IPV

(Raghavan, Mennerich, Sexton, & James, 2006). However, in outlining the possibility that IPV is embedded in specific social and economic contexts, it is important to consider an alternative view, based on the premise that IPV is a private phenomenon, not influenced by macro-level elements indicative of social cohesion and social control (Beyer et al., 2015). In support of this view, in a sample of 1,136 married and cohabitating couples, perceived neighborhood characteristics such as social cohesion and social control showed little association with IPV (Caetano, Ramisetty-Mikler, & Harris, 2010).

**The Present Study**

A complete understanding of the risk factors related to IPV requires consideration of a broad range of variables across individual, relational, and contextual socio-ecological layers. While it is the case that, collectively, existing literature already ties variables at each of these layers to IPV, relatively few studies have adopted a broad-based approach. I propose to fill this gap by examining the predictive utility of risk across the three domains outlined above, in accumulation, and their association with IPV. To overcome potential bias of self-report data, I use a multi-method approach for assessing risk across multiple domains, relying on interview data, observational data collected via video-recorded problem-solving discussions, interviewer ratings, and data collected via a comprehensive social network interview.

I situate my study in a sample of 231 young, newlywed couples from low-income neighborhoods who provided data at three separate time points across the first 18 months of marriage. This sample provides a valuable setting for studying the aforementioned research topics, because IPV and its many correlates tend to be overrepresented among economically disadvantaged and minority group couples (e.g., Tjaden & Thoennes, 2000). Because couples living in low-income communities tend to be exposed to more external stress and financial strain,

they tend to rely more heavily on their environment for support, thereby allowing us to better assess the potential contributions of contextual risk to IPV, in addition to individual and relational risk factors (Heflin, London, & Scott, 2011).

My primary research aim (Aim 1) is to study whether the accumulation of key indicators at the individual, relational, and contextual levels, when studied simultaneously, is associated with IPV. I specifically predict that the accumulation of risk at each of these socio-ecological layers will be related to higher initial levels of IPV and to increases in IPV over time. Furthermore, because the literature is mixed regarding the main effects of context on IPV (e.g., Caetano et al., 2010), before accepting the conclusion that contextual influences are inconsequential, we must first address whether other effects get moderated by context. Therefore, in Aim 2, I explore whether individual- or couple-level risk factors interact with contextual risk in predicting IPV. For example, two identical individuals or couples, embedded within different kinds of environments, might behave or respond to stress very differently depending on their contexts: A couple surrounded by a supportive environment (e.g., safe neighborhood, close-knit network of family and friends), who is faced with a sudden stressor (e.g., loss of job or illness), may be able to turn to their environment for support, both material and emotional. However, a couple in a non-supportive environment (e.g., neighborhood with high crime rates, socially isolated) faced with the same stressor may be unable to rely on such resources, thereby further exacerbating their issue and increasing the likelihood that they will lash out at each other during an argument. Thus, contextual risk may increase or decrease the likelihood of IPV, either on its own or by interacting with existing vulnerabilities at the individual or couple level. I predict that individual and relational risk will be more strongly associated with IPV when coupled with contextual risk factors.

## Method

### Sampling

Sampling was undertaken to yield couples in which partners were living in high-poverty neighborhoods in Harris County, Texas. Recently married couples were identified through names and addresses on marriage license applications. License records were obtained from the Harris County Recorder's Office between 2014 and 2015. Addresses were matched with census data to identify applicants living in high-poverty communities, defined as census block groups for which no less than 30% of the households were categorized by the census as living below poverty, thereby oversampling an understudied population of couples living in high-poverty neighborhoods. These couples were screened by telephone or in person to ensure that they were married, neither partner had been previously married, in a different-sex relationship, and in their first marriage. A total of 4,916 couples were identified through addresses listed on their marriage licenses. Among the couples contacted, 3,535 could not be reached and 1,157 agreed to be screened for eligibility. Of those, 506 couples were screened as eligible, and 401 of them agreed to participate in the study, with 231 couples actually participating before the close of the recruitment window.

### Participants

The sample consisted of 231 couples in their first marriages identified with the above procedures. At baseline, husbands ranged in age from 18 to 53 years ($M$ = 29.5, $SD$ = 7.5) and wives ranged in age from 18 to 56 years ($M$ = 28.1, $SD$ = 7.4). Fifty-two percent of husbands and 53% of wives were Hispanic. Of the remaining participants, husbands and wives were either Black (32% and 35%, respectively), White (10% and 9%), or Other/Multiracial (6% and 3%). Average relationship length was 4.7 years. Approximately 60% of couples had children, and

household income averaged $40,885 (SD = $29,146). On average, the highest level of formal education was completion of high school diploma (or GED), for husbands (60%) and for wives (54%). About 12% of husbands and 16% of wives completed college.

**Procedure**

Couples were visited in their homes by two interviewers who took spouses to separate areas to obtain informed consent and to orally administer self-report measures at baseline ($N$ = 231), 9-months ($N$ = 193), and 18-months ($N$ = 157) follow-up. Couples were compensated for their participation in the study ($100, $140, and $180 per couple at Time 1, 2, and 3, respectively).

After completing self-report measures individually, partners were reunited for 8-min videotaped discussions. Discussions took place in a location of the couples' choosing that would enable them to talk privately and without interruption. Partners were asked to identify a topic of disagreement in their relationship and to devote 8 minutes working toward a mutually satisfying resolution of that topic. Common topics included management of money, chores, communication, and spending time together as a couple. Twelve undergraduate research assistants trained in the coding procedures, and four trained observers, on average, were assigned to code a given video (i.e., 8-minute conflict interaction) each week, rating each couple member in the assigned video. Most of the discussions took place in English (76%), and 24% of videos took place in Spanish. Coders participated in a 6-hour introductory training, followed by 1-hour trainings each week. Videos were viewed three times, once without rating, and then once again for each partner in the couple. Videos were presented in blocked-randomized order so that order of video and whether husband or wife was rated first differed across observer within a block. Reliabilities of each coded interaction were calculated each week and reviewed in weekly

observer meetings. As argued by Girard and Cohn (2016), such meetings can combat observer "drift" (i.e., error because of fatigue, forgetting, apathy, or the accumulation of bad habits) by analyzing and standardizing the criteria that observers use to assign measurements to items. Inter-rater reliability was assessed using intraclass correlations (McGraw & Wong, 1996), which permit the inclusion or exclusion of between-rater variance as part of the error variance.

Following the interaction task, partners separately participated in social network interviews (Kennedy, Jackson, Green, Bradbury, & Karney, 2015). Interview questions first generated the names of 25 people over the age of 18 in the respondent's social network (network "alters"), information about each alter, and information about the relationships between each unique pair of network alters. Specifically, questions were asked about each of these alters to determine their demographic characteristics and the nature of their relationship with the respondent. These questions provide raw data for constructing measures of network composition (e.g. % relatives, % friends, % supportive, % interfering, etc.; McCarty, 2002). The RAND Corportaion Human Subjects Protection Committee approved all procedures.

**Measures**

**Predictors: Cumulative risk indices.** I calculated three cumulative risk indices composed of individuals' scores on six (individual risk), five (relational risk), and ten (contextual risk) measures. Husbands and wives were given one point when their scores on the individual measure comprising the risk index fell into the riskiest quartile as measured in the current sample (e.g., highest 25% of substance use; see Rauer, Karney, Garvan, & Hou, 2008). The 21 measures, all assessed at Time 1, are described in Table 1.1.

To quantify observed positivity and negativity as derived from behavioral data, two composite behavioral scores were created based on coders' ratings on a questionnaire. Examples

of ratings included, “Was each spouse engaged in the discussion?” and, “Did each spouse blame, accuse, and criticize the other?” Husband and wife positivity scores were created by averaging codes that tapped into individuals’ engagement, listening, willingness, caring, acknowledgement, productive contribution, positivity, solutions, expressiveness, discussion, acceptance of responsibility, and cooperation as observed during video-recorded discussions (ICCs = 0.78, 0.65, 0.81, 0.74, 0.77, 0.74, 0.78, 0.80, 0.33, 0.74, 0.61, 0.84 for husbands and 0.73, 0.65, 0.82, 0.64, 0.77, 0.71, 0.77, 0.74, 0.83, 0.87, 0.71, 0.78 for wives). Husband and wife negativity scores were created by averaging codes that tapped into individuals’ negativity, demands, blame, interruption, and defensiveness as observed during video-recorded discussions (ICCs = 0.78, 0.75, 0.80, 0.79, 0.79 for husbands and 0.80, 0.77, 0.79, 0.68, 0.73 for wives).

**Outcome: Intimate partner violence**. Couples’ IPV was assessed at baseline, 9-month follow-up, and 18-month follow-up using an adapted version of the revised Conflict Tactics Scales (CTS-R; Straus & Douglas, 2004) assessing seven acts of aggression and violence during the past nine months. The seven acts included (1) insulting or swearing, (2) stomping out of the room, or leaving the house during an argument, (3) threatening to hit, (4) throwing something, (5) pushing, grabbing, or shoving, (6) slapping, hitting, biting, or punching, and (7) beating up. For each item, participants were asked if they had engaged in the act described (i.e., perpetration) and if their spouse had engaged in the act described (i.e., victimization). If they responded positively to the item, participants were asked to indicate the number of times each event had occurred, with the response options being 1 (Once or twice), 2 (Several times), and 3 (Often). To control for underreporting, maximum reported perpetration scores (created by comparing individual reports of perpetration and partner reports of victimization and using the higher of the two), resulting in one husband- and one wife-perpetrated IPV score, were used for all analyses

(see Salis, Salwen, & O'Leary, 2014). IPV means were highest at Time 1, for husbands and wives, and then decreased at Time 2 and Time 3 (see Table 1.2).

**Analytic Plan**

Structural equation modeling (SEM) analyses were conducted in Mplus Version 8 with Maximum Likelihood Robust (MLR) as the estimator. MLR accommodates for non-normal distribution of the data and for missing data (i.e., all models were estimated using all $N = 231$ observations). In order to statistically account for the effects that a partner has on an individual's outcome, husband and wife variables were allowed to correlate in all models, thereby accounting for the non-independence of partners' data (see Kenny, Kashy, & Cook, 2006).

I conducted Latent Growth Curve Modeling (LGCM) using husbands' and wives' IPV scores at baseline, 9-month follow-up, and 18-month follow-up as indicators for the IPV intercept and slope variables. To test whether partners' IPV intercepts and slopes differed significantly from zero, I first ran a model including only husband and wife intercepts and slopes (and correlations between intercepts and slopes and husband and wife variables) but not predictor variables. To test Aim 1, examining whether different facets of cumulative risk are associated with intercept levels and changes in IPV across time, I ran a LGCM that included husband and wife individual, relational, and contextual cumulative risk as predictors and husband and wife IPV intercepts and slopes as outcomes. In this model, intercept growth factors are interpreted as husbands and wives' initial level of IPV or the systematic part of variation in husbands and wives' IPV at baseline. Slope growth factors are interpreted as husbands and wives' IPV growth rate or the systematic part of the increase in husbands and wives' IPV for a time score increase of one unit (i.e., 9 months). All husband and wife variables as well as intercept and slope variables were allowed to correlate (see Figure 1.1). To test Aim 2, exploring

whether context moderates the effects of individual and relational risk on IPV, I ran a LGCM that included husband and wife individual, relational, and contextual cumulative risk as well as interactions between individual and contextual risk and between relational and contextual risk as predictors and husband and wife IPV intercepts and slopes as outcomes. All husband and wife variables as well as intercept and slope variables were allowed to correlate. For significant interaction terms, I conducted simple slope analyses examining differences between individual (or relational) risk and IPV for husbands and wives with high, medium, and low contextual risk.

To determine overall model fit, I assessed the root mean square error of approximation (RMSEA), an index of overall model fit with values less than .08 indicative acceptable model fit (Steiger, 1990), and the Standardized Root Mean Residual (SRMR), an absolute index of overall model fit with values less than .08 indicative acceptable model fit (Hu & Bentler, 1999). A power analysis was conducted to estimate the required sample size to detect an effect for the model including the highest number of latent and observed variables. To achieve $d = .80$ with $\alpha = .05$, the minimum sample size to detect an effect was $N = 200$ (Soper, 2020), supporting appropriateness of the current sample size of $N = 231$ couples for the present analyses.

## Results

### Preliminary Analyses

I first examined correlations between the three facets of risk. Individual risk correlated with relational risk ($r = .28$ for husbands and $r = .20$ for wives, both $p < .01$) as well as contextual risk ($r = .33$ for husbands and $r = .16$ for wives, both $p < .05$). Relational risk also correlated with contextual risk ($r = .20$ for husbands and $r = .20$ for wives, both $p < .01$). Means, standard deviations, and coefficient alpha of all measures included in the risk indices can be found in Table 1.2. I then examined husbands and wives' IPV at different levels of risk by

dividing them into three equal groups based on their individual, relational, and contextual risk scores. As expected, for all types of risk, IPV was highest in the high-risk group, followed by the medium-risk group and then the low-risk group (see Table 1.3).

**Main Analyses (Aim 1): Latent Growth Curve Model**

A LGCM including husband and wife IPV intercept and slope latent variables (but no predictors) showed that correlations between the intercept and slope latent variables for husbands ($r$ = -0.40, $p$ = .43) and wives ($r$ = -0.68, $p$ = .25) were not statistically significant. IPV intercept latent variables significantly differed from zero ($M$ = 2.53, $p < .001$ for husbands and $M$ = 3.17, $p < .001$ for wives), as did IPV slope latent variables ($M$ = -0.25, p = .001 for husbands and $M$ = -0.33, $p < .001$ for wives). Significant individual variability was found for intercept latent variables ($\sigma^2$ = 5.05, $p < .001$ for husbands and $\sigma^2$ = 8.65, $p < .001$ for wives) and for wives' ($\sigma^2$ = 1.19, $p$ = .01) but not husbands' ($\sigma^2$ = 0.47, $p$ = .30) IPV slope latent variable. Thus, husbands' and wives' IPV intercept and slope latent variables were included in all subsequent analyses.

Table 1.4 shows estimates, standard errors, and p-values of a LGCM including baseline levels of husband and wife individual, relational, and contextual cumulative risk as predictors and husband and wife IPV intercepts and slopes (calculated from data collected across three time points spaced by 9-months intervals) as outcomes. Figure 1.2 provides a visual depiction of these results. Overall, higher cumulative risk at baseline was associated with higher initial levels of IPV (i.e., intercepts) but not with IPV trajectories (i.e., slopes). Specifically, higher husband ($b$ = 0.30, $p$ = 0.01) and higher wife ($b$ = 0.27, $p$ = 0.01) individual risk, higher husband ($b$ = 0.35, $p$ = 0.02) and wife ($b$ = 0.36, $p$ = 0.02) relational risk, and higher wife contextual risk ($b$ = 0.19, $p$ = 0.05) at baseline were related to higher initial levels of husband IPV. Higher wife individual risk ($b$ = 0.41, $p$ = 0.01) and higher husband relational risk ($b$ = 0.55, $p$ = 0.01) at baseline were also

related higher initial levels of wife IPV. Higher husband individual risk ($b = 0.25$, $p = 0.09$) and higher wife relational risk ($b = 0.37$, $p = 0.06$) at baseline were marginally related to higher initial levels of wife IPV. All other effects were non-significant (see Table 1.4).

**Exploratory Analyses (Aim 2): Interactions by Context**

Because contextual risk factors surround individuals and couples and may not be as closely tied to IPV perpetration as risk factors at the individual or relational level, I aimed to examine whether contextual risk might be better understood as a moderator rather than a direct predictor. This prediction was in line with results of the LGCM described above showing more consistent patterns of associations between individual and relational risk and IPV. To test whether the associations between individual/relational risk and IPV differed for husbands and wives exposed to different levels of contextual risk, I added interaction terms of individual-by-contextual risk and relational-by-contextual risk as predictors to the above-described LGCM. Estimates, standard errors, and p-values are shown in Table 1.3. Only one of the 16 possible interaction effects (Wife relational-by-contextual risk to Wife IPV Intercept, $b < 0.18$, $p = 0.04$) was statistically significant, lending minimal support for the prediction that contextual risk may be better understood as a moderating variable. Examination of simple effects showed that the association between wife relational risk at baseline and initial levels of wife IPV was statistically significant for wives exposed to low ($b = 0.80$, $p < 0.01$) and medium ($b = 0.44$, $p = 0.02$) contextual risk but not for wives exposed to high contextual risk ($b = 0.08$, $p = 0.73$).

## Discussion

Violence between intimate partners presents a serious challenge to public health, leading to lasting negative consequences for individuals, couples, and society in general (e.g., O'Campo et al., 2006; Wright et al., 2015). In an attempt to understand this common and costly

phenomenon, I simultaneously examined multivariate risk indices at each layer of Bronfenbrenner's (1979) socio-ecological model among a sample that was not only prone to aggression but also ranged in socioeconomic status, sampled specifically from low-income neighborhoods. Results of dyadic Latent Growth Curve Models showed that individual and relational risk were consistently related to IPV initial status, for both husbands and wives. Effects of contextual risk on IPV were less consistent, with only one statistically significant association from wives' contextual risk to husbands' IPV intercept. Risk did not predict IPV trajectories across the first 18 months of marriage. Furthermore, examination of interaction effects between individual risk and relational risk by contextual risk did not support moderation: Individual and dyadic deficits put partners at higher risk for IPV, independent of whether partners live in supportive or non-supportive environments.

These results provide the necessary synthesis to integrate prior knowledge: Even after adjusting for potential distal influences, individual and dyadic variables present clear risk factors of IPV initial status. I did not find significant associations between contextual variables and IPV intercepts and slopes. However, I did find evidence for correlations between all three facets of risk, lending support for the idea that risky individuals in risky relationships tend to be found in risky environments. The weak associations between risk and IPV trajectories suggest that changes in aggression are largely independent of early couple characteristics and that even very risky couples could cycle out of early patterns of aggression. However, it is also possible that the 18-month time span used in the present study was too short to capture such effects, which might become more evident when studying couples across longer periods of time.

**Limitations and Future Research**

Although the use of a multi-method approach (social network, observational, and self-report dyadic data collected across three time points) and a large and diverse sample from an understudied population are key strengths of this work, interpretation of my findings is limited by several factors. Despite taking steps to reduce underreporting, IPV was assessed via self-report and may be subject to uncontrolled bias. In addition, generalization of my findings is as yet unknown, and I cannot say whether these results would apply to dating couples or couples in more established relationships, same-sex couples, higher income couples, or couples with higher levels of aggression and violence. Similarly, although the use of three time points of data collection allowed me to study latent growth curves and effects of risk on initial levels of IPV as well as IPV trajectories, the relatively brief intervals between assessments might mask potential trajectory effects that might only become evident when using longer time intervals. Future research could address the aforementioned limitations, for example by studying additional types of couples (e.g., dating couples or more established marriages) across longer periods of time. In addition, it is possible that a more proximal assessment of context is needed. Although the present study does not support previously identified associations between macro-contexts, such as neighborhoods and social networks, and IPV, it could be that micro-level contextual factors, such as perceptions of stress (Hammett, Karney, & Bradbury, 2020), are more strongly related to IPV. Therefore, future research could compare the effects of macro- and micro-contexts on IPV, for example by not only examining more remote neighborhood and socioeconomic contexts but also more immediate contexts that could exert stress and strain. It is also possible that previous research identifying associations between contextual risk and IPV has confounded context with marital status. For example, although prior work supports an association between socio-

economic variables and IPV, these effects may appear stronger than they actually are because the samples used in these studies contained couples of various statuses including unmarried and cohabitating couples (e.g., Beyer et al., 2015). As individuals with low incomes are less likely to be married (Ooms & Wilson, 2004), cohabitators and dating couples may be more likely to engage in IPV, not because they have low incomes but because they may be less committed than married couples. Future research could address this possibility by comparing associations between context and IPV among married versus cohabitating and dating couples.

**Research and Clinical Implications**

Notwithstanding these limitations, the present findings may have implications for understanding the way in which risk across different socio-ecological levels of analysis influences the expression of intimate partner aggression and violence among underserved populations. Even after adjusting for potential distal influences, individual and dyadic variables emerged as clear risk factors of IPV. Although there were no significant associations between contextual variables and IPV intercepts and slopes in LGCM, I did find evidence for correlations between all three facets of risk. Based on these correlations showing that risky individuals in risky relationships tend to be found in risky environments, I recommend locating interventions that target individual and relational risk (e.g., anger management and couple communication training) specifically within higher-risk environments. It is important to note that future research is needed to tease apart exactly which environmental facets are involved in determining risk for IPV as it is possible that a more proximal assessment of context (e.g., stress) would result in stronger associations with aggression and violence.

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# Tables and Figures

**Table 1.1. Description of Measures Included in Cumulative Risk Indices**

| Variable (Source) | # of items | Scale | Description |
|---|---|---|---|
| | | **Individual Risk** | |
| Neuroticism (Goldberg,1993) | 8 items | 4-pt scale | Higher scores indicate higher levels of neuroticism |
| Self-esteem (Rosenberg, 1965) | 4 items | 4-pt scale | Higher scores indicate higher levels of slef-esteem |
| Substance use (Mayfield, McLeod, & Hall, 1974) | 7 items | binary (0 = no, 1 = yes) | Higher scores indicate higher levels of substance sue problems |
| Adverse childhood experiences (Felitti et al., 2019) | 14 items | binary (0 = no, 1 = yes) | Higher scores indicate more direct physical, psychological, and sexual abuse, and observed violence in one's family of origin |
| Parental divorce (developed by authors) | 1 item | binary (0 = no, 1 = yes) | "Did your parents ever divorce or separate permanently?" |
| Family environment (Rivera et al., 2008; Snyder & Aikman, 1999) | 7 items | binary (0 = no, 1 = yes) | Higher scores indicate more conflict |
| | | **Relational Risk** | |
| Relationship satisfaction (Funk & Rogge, 2007) | 10 items | 6-pt scale | Higher scores indcate higher global satisfaction |
| Ineffective arguing (Kurdek, 1994) | 6 items | 4-pt scale | Higher scores indicate more arguing |
| Marital problems (Fincham & Bradbury, 1992) | 6 items | 10-pt scale | Higher scores indicate more problems |
| Observed positivity (developed by authors) | 12 behavioral codes | n/a | Higher scores indicate higher levels of observed positivity |
| Observed negativity (developed by authors) | 5 behavioral codes | n/a | Higher scores indicate higher levels of observed negativity |
| | | **Contextual Risk** | |
| Use of government services (OKDHS, 2018) | 7 items | binary (0 = no, 1 = yes) | Higher scores indicate using more services |
| Social support (developed by authors) | 4 items | 3-pt scale | Higher scores indicating more people to count on when needing emotional and material help |
| Neighborhood (Molina, Alegría, & Chen, 2012) | 6 items | 4-pt scale | Higher scores indicate less disorder |
| Annual household income (developed by authors) | 1 item | n/a | Couples' self-reported income from all sources |
| Observed home environment (developed by authors) | 7 items | binary (0 = no, 1 = yes) | Interviewer ratings of couple's home environment, with higher scores indicating a more disordered living environment |
| Proportion of good relationships (developed by authors) | 1 item | binary (0 = no, 1 = yes) | From the social network interview (please see Procedures section): How is your relationship with [NAME]? Would you say good, neutral, or bad? |
| Proportion married (developed by authors) | 1 item | binary (0 = no, 1 = yes) | From social network interview (please see Procedures section): Is [NAME] currently married? |
| Proportion employed (developed by authors) | 1 item | binary (0 = no, 1 = yes) | From social network interview (please see Procedures section): Is [NAME] currently employed? |
| Proportion tangible support (developed by authors) | 1 item | binary (0 = no, 1 = yes) | From social network interview (please see Procedures section): Which of the people you just mentioned do you turn to when you need concrete support, such |
| Proportion emotional support (developed by authors) | 1 item | binary (0 = no, 1 = yes) | From social network interview (please see Procedures section): Which of the people you just mentioned do you turn to when you need emotional support, |

**Table 1.2. Means, Standard Deviations, and Alpha Coefficients of Study Variables**

| | Husbands | | | | | Wives | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | **Minimum** | **Maximum** | **Mean** | **SD** | **Alpha** | **Minimum** | **Maximum** | **Mean** | **SD** | **Alpha** |
| **Individual Risk** | 0.00 | 6.00 | 1.84 | 1.44 | -- | 0.00 | 6.00 | 1.77 | 1.35 | -- |
| Neuroticism | 0.00 | 23.00 | 9.17 | 5.21 | 0.83 | 0.00 | 23.00 | 12.94 | 4.79 | 0.81 |
| Self-esteem | 4.00 | 11.00 | 6.92 | 1.97 | 0.62 | 4.00 | 13.00 | 6.91 | 1.99 | 0.63 |
| Substance use | 0.00 | 7.00 | 0.65 | 1.15 | 0.66 | 0.00 | 7.00 | 0.30 | 0.86 | 0.72 |
| Adverse childhood experiences | 0.00 | 14.00 | 2.69 | 3.04 | 0.83 | 0.00 | 13.00 | 3.21 | 3.47 | 0.86 |
| Parental divorce | | 26.8% divorced | | | -- | | 31.2% divorced | | | -- |
| Family environment | 0.00 | 7.00 | 1.65 | 1.98 | 0.80 | 0.00 | 7.00 | 2.21 | 2.40 | 0.87 |
| **Relational Risk** | 0.00 | 5.00 | 1.32 | 1.45 | -- | 0.00 | 5.00 | 1.31 | 1.45 | -- |
| Relationship satisfaction | 10.00 | 52.00 | 44.12 | 7.93 | 0.91 | 9.00 | 52.50 | 43.32 | 8.84 | 0.94 |
| Ineffective arguing | 0.00 | 17.00 | 7.35 | 4.08 | 0.80 | 0.00 | 18.00 | 7.46 | 4.03 | 0.80 |
| Marital problems | 0.00 | 58.00 | 18.47 | 12.84 | 0.78 | 0.00 | 60.00 | 21.13 | 13.06 | 0.76 |
| Observed positivity | 1.00 | 5.00 | 3.40 | 1.11 | 0.93 | 1.00 | 5.00 | 3.55 | 1.02 | 0.90 |
| Observed negativity | 1.00 | 5.00 | 2.03 | 1.03 | 0.84 | 1.00 | 5.00 | 1.92 | 0.96 | 0.85 |
| **Contextual Risk** | 0.00 | 9.00 | 3.35 | 2.05 | -- | 0.00 | 9.00 | 3.12 | 2.01 | -- |
| Use of government services | 0.00 | 3.00 | 0.60 | 0.89 | 0.51 | 0.00 | 4.00 | 1.07 | 1.06 | 0.57 |
| Social support | 0.00 | 8.00 | 5.60 | 2.18 | 0.82 | 0.00 | 8.00 | 5.58 | 2.11 | 0.78 |
| Neighborhood | 0.00 | 17.00 | 7.12 | 4.15 | 0.76 | 0.00 | 18.00 | 7.73 | 4.37 | 0.83 |
| Annual household income | 0.00 | 170000.00 | 40885.15 | 29146.05 | -- | -- | -- | -- | -- | -- |
| Observed home environment | 0.00 | 6.00 | 0.96 | 1.28 | 0.58 | 0.00 | 6.00 | 1.22 | 1.22 | 0.46 |
| Proportion of good relationships | 0.00 | 1.00 | 0.83 | 0.21 | -- | 0.00 | 1.00 | 0.75 | 0.22 | -- |
| Proportion married | 0.00 | 0.96 | 0.47 | 0.20 | -- | 0.08 | 0.92 | 0.47 | 0.17 | -- |
| Proportion employed | 0.12 | 1.00 | 0.78 | 0.14 | -- | 0.21 | 1.00 | 0.73 | 0.14 | -- |
| Proportion tangible support | 0.00 | 1.00 | 0.20 | 0.20 | -- | 0.00 | 0.96 | 0.25 | 0.23 | -- |
| Proportion emotional support | 0.00 | 1.00 | 0.18 | 0.21 | -- | 0.00 | 1.00 | 0.24 | 0.21 | -- |
| **Intimate Partner Violence (IPV)** | | | | | | | | | | |
| Time 1 IPV | 0.00 | 13.00 | 2.51 | 2.51 | 0.70 | 0.00 | 16.00 | 3.16 | 3.17 | 0.80 |
| Time 2 IPV | 0.00 | 17.00 | 2.42 | 2.90 | 0.78 | 0.00 | 18.00 | 2.92 | 3.47 | 0.82 |
| Time 3 IPV | 0.00 | 13.00 | 2.03 | 2.47 | 0.72 | 0.00 | 20.00 | 2.64 | 3.34 | 0.81 |

**Table 1.3. Intimate Partner Violence by Risk**

| Variable | Risk Means | | | Tukey HSD Mean Difference Tests | | |
|---|---|---|---|---|---|---|
| | High | Medium | Low | High vs Medium | High vs Low | Medium vs Low |
| Husbands | | | | | | |
| Individual Risk | 3.70 | 2.26 | 1.95 | 1.44* | 1.75* | 0.31 |
| Relational Risk | 4.31 | 2.49 | 1.60 | 1.81* | 2.71* | 0.89* |
| Contextual Risk | 3.01 | 2.57 | 2.11 | 0.44 | 0.91 | 0.46 |
| Wives | | | | | | |
| Individual Risk | 4.59 | 2.45 | 2.74 | 2.14* | 1.85* | 0.28 |
| Relational Risk | 5.82 | 2.85 | 2.25 | 2.97* | 3.57* | 0.60 |
| Contextual Risk | 3.85 | 3.23 | 2.67 | 0.62 | 1.19 | 0.57 |

*$p < .05$

**Table 1.4. Unstandardized Estimates, Standard Errors, and P-Values of Main Effect and Moderation Latent Growth Curve Models**

| Outcome | Husband IPV Intercept | | | Husband IPV Slope | | | Wife IPV Intercept | | | Wife IPV Slope | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Estimate | S.E. | P-Value | Estimate | S.E. | P-Value | Estimate | S.E. | P-Value | Estimate | S.E. | P-Value |
| **Main Effect Model** | | | | | | | | | | | | |
| Husband Individual Risk | 0.30* | 0.11 | 0.01 | <-0.01 | 0.08 | 0.98 | 0.25 | 0.15 | 0.09 | <0.01 | 0.08 | 0.96 |
| Wife Individual Risk | 0.27* | 0.11 | 0.01 | -0.02 | 0.06 | 0.76 | 0.41* | 0.15 | 0.01 | -0.02 | 0.09 | 0.77 |
| Husband Relational Risk | 0.35* | 0.15 | 0.02 | -0.03 | 0.07 | 0.68 | 0.55* | 0.20 | 0.01 | -0.09 | 0.10 | 0.38 |
| Wife Relational Risk | 0.36* | 0.16 | 0.02 | -0.05 | 0.07 | 0.48 | 0.37 | 0.19 | 0.06 | 0.02 | 0.10 | 0.87 |
| Husband Contextual Risk | -0.09 | 0.09 | 0.31 | -0.05 | 0.05 | 0.30 | <-0.01 | 0.10 | 0.94 | -0.04 | 0.06 | 0.48 |
| Wife Contextual Risk | 0.19* | 0.1 | 0.05 | 0.02 | 0.06 | 0.68 | 0.10 | 0.12 | 0.40 | -0.01 | 0.06 | 0.88 |
| **Moderation Model** | | | | | | | | | | | | |
| Husband Individual Risk | 0.18 | 0.23 | 0.44 | -0.06 | 0.13 | 0.65 | 0.04 | 0.23 | 0.86 | 0.06 | 0.15 | 0.68 |
| Wife Individual Risk | 0.14 | 0.21 | 0.51 | 0.04 | 0.11 | 0.71 | 0.56* | 0.25 | 0.03 | -0.12 | 0.15 | 0.45 |
| Husband Relational Risk | 0.13 | 0.24 | 0.58 | 0.01 | 0.13 | 0.96 | 0.20 | 0.28 | 0.48 | -0.27 | 0.22 | 0.23 |
| Wife Relational Risk | 0.48 | 0.28 | 0.08 | 0.01 | 0.13 | 0.97 | 1.00* | 0.34 | <0.01 | -0.12 | 0.29 | 0.55 |
| Husband Contextual Risk | -0.26* | 0.11 | 0.02 | -0.07 | 0.07 | 0.35 | -0.29* | 0.25 | 0.05 | -0.05 | 0.09 | 0.57 |
| Wife Contextual Risk | 0.20 | 0.15 | 0.16 | 0.07 | 0.07 | 0.28 | 0.45* | 0.25 | <0.01 | -0.09 | 0.08 | 0.26 |
| Husband Individual*Contextual | 0.04 | 0.05 | 0.48 | 0.02 | 0.04 | 0.70 | 0.07 | 0.07 | 0.30 | -0.02 | 0.03 | 0.52 |
| Wife Individual*Contextual | 0.03 | 0.06 | 0.59 | -0.02 | 0.03 | 0.54 | -0.06 | 0.07 | 0.42 | 0.03 | 0.05 | 0.58 |
| Husband Relational*Contextual | 0.06 | 0.06 | 0.27 | -0.01 | 0.04 | 0.73 | 0.09 | 0.07 | 0.17 | 0.06 | 0.06 | 0.36 |
| Wife Relational*Contextual | 0.04 | 0.07 | 0.62 | -0.02 | 0.03 | 0.65 | -0.18* | 0.09 | 0.04 | 0.03 | 0.04 | 0.42 |

* $p < 0.05$

*Note* . Main Effect Model: RMSEA = 0.13, SRMR = 0.03. Moderation Model: RMSEA = 0.35, SRMR = 0.23

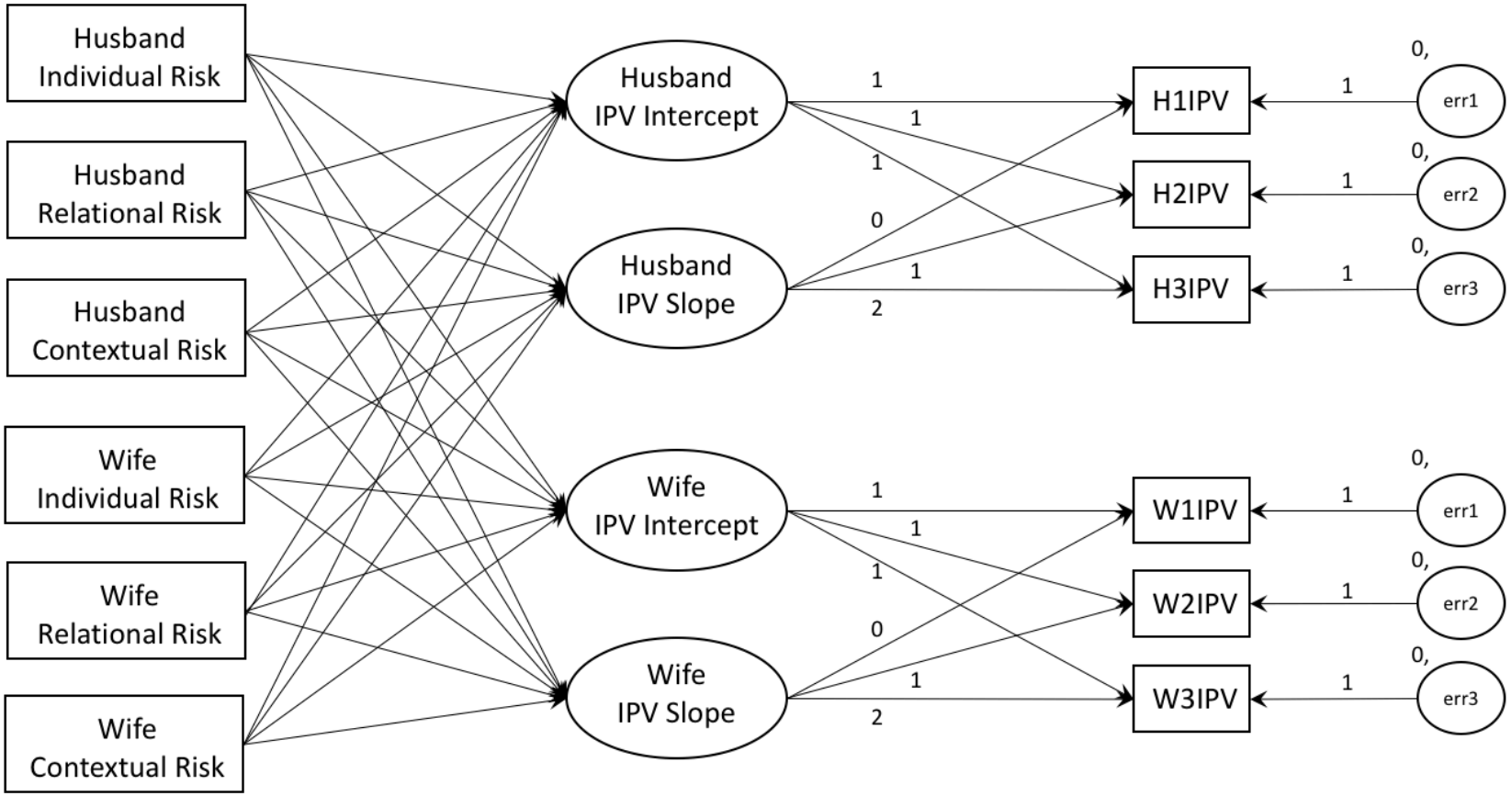


*Figure 1.1.* Visual depiction of Latent Growth Curve Model (LGCM) Linking Three Domains of Risk with IPV Intercepts and Slopes for Husbands and Wives.

*Note:* In addition to the paths depicted here, all husband and wife variables were allowed to correlate.

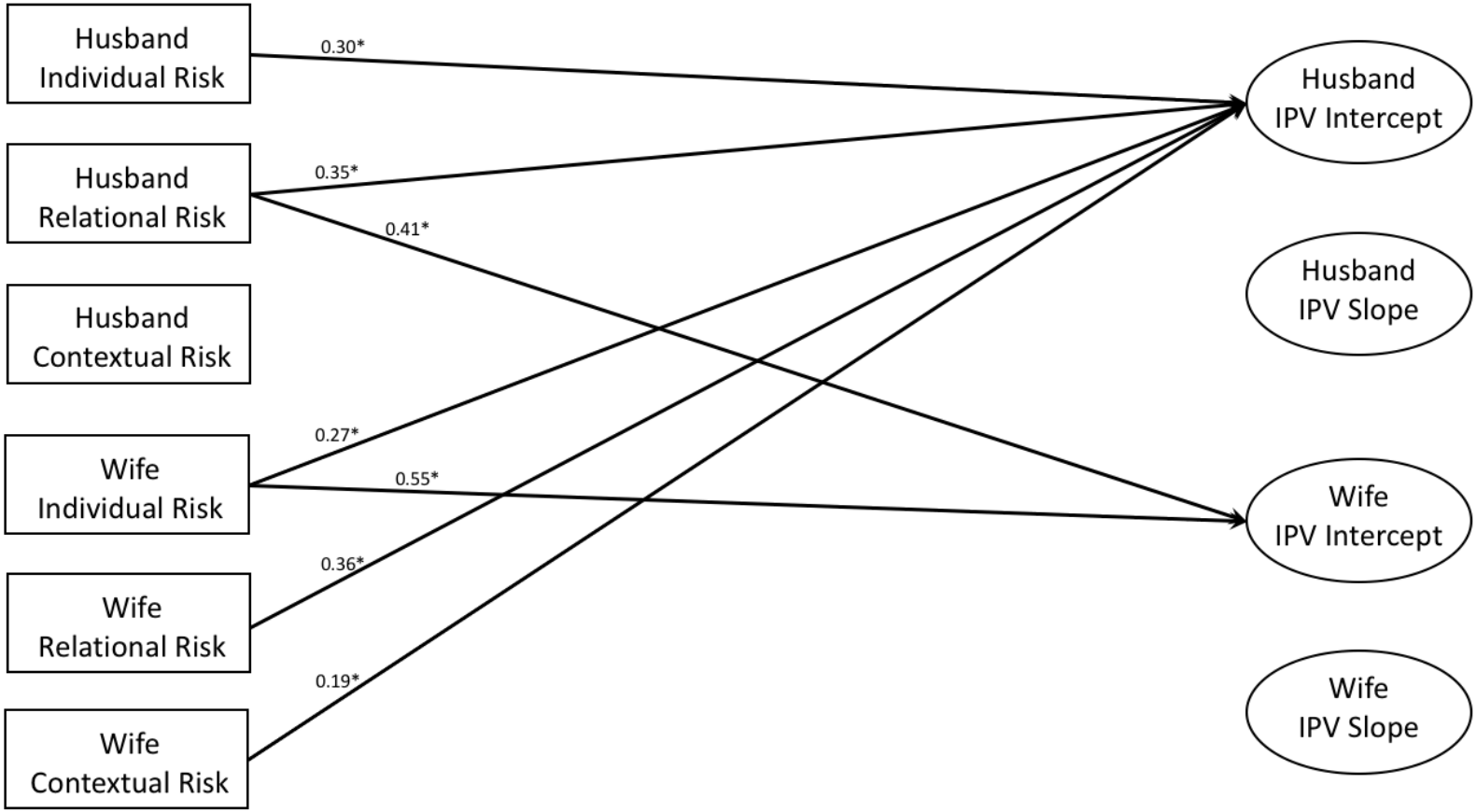


*Figure 1.2.* Results of Latent Growth Curve Model (LGCM) Linking Three Domains of Risk with IPV Intercepts and Slopes for Husbands and Wives.
*Note:* **p* < .05. Non-significant paths not shown.

## STUDY 2:

### *Adverse Childhood Experiences, Stress, and Intimate Partner Violence*

### Introduction

The interdependence that characterizes intimate relationships serves to promote partners' emotional health and well-being, but also brings with it the possibility of hostility, abuse, and violence. Affecting millions of Americans each year (Breiding, 2015), Intimate Partner Violence (IPV) is associated with poor mental and physical health (Coker et al., 2002) and relationship distress and family disruption (Stith, Green, Smith, & Ward, 2008), imposing a profound burden upon society in general (e.g., Max, Rice, Finkelstein, Bardwell, & Leadbetter, 2004). Prevention and reduction of couples' hostile acts, through identification of risk and protective factors, are high priorities for researchers and policy makers alike. The present study aims to advance this agenda by examining whether adversity experienced during childhood predicts situational couple violence in newlywed marriages and, more critically, whether these early experiences of adversity foreshadow the stressful life circumstances that make IPV more likely.

Adverse Childhood Experiences (ACE) have been identified as a long-range predictor of a variety of negative physical and mental health outcomes (for a recent meta-analytic review, see Hughes et al., 2017). IPV is among these negative outcomes (e.g., Capaldi, Knoble, Shortt, & Kim, 2012). To the extent that children are exposed to abuse, neglect, or inter-parental violence, their likelihood of being in an aggressive or hostile relationship also increases, with meta-analyses estimating an effect size of $r = .30$ linking family adversity during childhood with IPV in adulthood (Stith et al., 2000). While there is now little doubt that early adversity increases emotionally dysregulated interpersonal exchanges later in life, the majority of people who are exposed to early adversity will not grow up to participate in aggressive relationships in adulthood

(e.g., Heyman & Slep, 2002). One possible explanation for this disjunction is that early adversity must recruit or incur other forms of adversity in order for aggression to emerge later in life; thus, early adversity may lead to later secondary forms of adversity, which in turn make later aggression more likely. This explanation is in line with the more general concept of stress generation, which is familiar in the literature on psychopathology. Where it was once held that stress was a principle cause of depression, for example, depression and vulnerabilities to depression (e.g., rumination, doubt, self-blame, social withdrawal) are now known to increase the likelihood that stressful events will later occur, thus activating depressive vulnerabilities and worsening the course of depression (Hammen, 2005).

In a similar manner, recent theoretical approaches aimed at understanding violence towards intimate partners propose that behavior in couples can be conceptualized as "a dynamic developmental system in which behavior in the dyad is inherently interactive and also responsive to developmental characteristics of each of the partners and to both broader and more proximal contextual factors" (Capaldi & Kim, 2007, p. 7). The Dynamic Developmental Systems Model thus emphasizes not only characteristics that partners bring into the relationship but also the current risk context and contextual factors that affect aggression toward a partner. In line with this approach, I suggest that violence and adversity may be bidirectionally associated, contributing to the recurrence and chronicity of violence and continuing stressors. Specifically, I propose that individuals exposed to family adversity during childhood may encounter more stress as they move into adulthood than those exposed to less family adversity, and/or have a decreased ability to manage that stress effectively, thus increasing the likelihood that they will be in circumstances that evoke IPV. This proposition addresses a question that is untested in the literature on situational couple violence: rather than ask what kinds of situations may trigger

couple violence, I aim to explain why individuals vary in their exposure to situations that make later IPV more likely. I argue that these risky situations are not random but are themselves an outgrowth of individuals' earlier adversity, such that vulnerable individuals are confronted with circumstances that challenge or erode their capacity to resolve rapidly escalating relationship disagreements.

As examples of risky situations, I focus not only on individuals' perceptions of general stress but also on their perceptions of financial stress and discrimination. Limited financial strain and experiences of discrimination are salient and severe stressors that have been shown to exert effects on IPV (e.g., Schwaab-Reese, Peek-Asa, & Parker, 2016; Trail, Goff, Bradbury, & Karney, 2012). I propose that individuals with a history of family adversity may be more susceptible to financial hardship and perceptions of financial strain, and more vulnerable to discrimination, as compared to individuals without a history of family adversity. Testing such stress-based mechanisms holds promise, first because it may help to identify a specific subgroup of individuals who are especially prone to IPV, and second because it could help to explain why early adversity is associated with a wide range of outcomes, including PTSD (Swopes, Simonet, Jaffe, Tett, & Davis, 2013) and substance use (Brown et al., 2015). On the other hand, if I discover that stress does not mediate the association between early adversity and IPV, then focus could appropriately turn to intrapersonal and interpersonal mediators more explicitly.

Although I am unaware of any efforts to test stress as a mediator of the robust early adversity to IPV association, evidence has been presented in support of the subsidiary paths. For example, individuals who experience high levels of adversity in childhood are more vulnerable to low educational achievement and economic productivity in adulthood (e.g., Shonkoff et al., 2012) and are more likely to experience their lives as stressful as a consequence (Evans &

English, 2002). Stress itself is known to compromise dyadic exchanges in adulthood. Experimental manipulation of stress in a laboratory undermines the quality of support exchanged between partners (Bodenmann et al., 2015), for example, and the likelihood of IPV grows with increases in financial stress (Slep, Foran, Heyman, & Snarr, 2010), parenting stress (Probst et al., 2008), work stress (Jasinski, Asdigian, & Kantor, 1997), and acculturation stress (Caetano, Ramisetty-Mikler, Vaeth, & Harris, 2007). Thus, while the literature appears to support adversity-to-stress and stress-to-IPV links, missing from this literature is formal consideration of whether stress that appears to result from early adversity does in fact co-vary with IPV. The present study aims to fill this gap.

**The Present Study**

Aim 1 of the current study is to replicate prior findings showing associations between early adversity (including physical, psychological, and sexual abuse, neglect, and witnessing violence as well as mental illness in one's family of origin) and IPV, and between current stress and IPV. Because little is known about which facets of stress matter the most, I examine multiple aspects, including perceived stress, financial strain, and experiences of discrimination, all of which may be particularly consequential among couples living with low incomes (Trail et al., 2012).

With Aim 2, I expand prior research by examining whether current stress mediates the association between early adversity and IPV. Although theorists have suggested that the intergenerational transmission of violence may operate differently for men and women, evidence for gender differences has been inconsistent. Generally, growing up in a violent home has been found to relate more strongly to IPV perpetration for male as compared to female offspring, suggesting that men are socialized to be aggressive and to use violence to settle disputes (Stith et

al., 2000). However, not all studies find this effect (e.g., Cappell & Heiner, 1990). Similarly, various dimensions of stress have been found to relate more consistently to men's IPV as compared to women's IPV (e.g., discrimination, Trail et al., 2012; financial strain, Ulibarri et al., 2019). This difference might arise as a result of expectations that men will be the primary or sole breadwinner, potentially leading to increased strain when this expectation goes unmet (e.g., because of poor job prospects), increasing the likelihood of IPV perpetration in turn. However, again, other work fails to find such gender differences (e.g., Capaldi et al., 2012). In view of contradictory evidence regarding the etiology of IPV for men and women, I take no specific stand on this issue but instead examine effects of early adversity and current stress on couple IPV separately for husbands and wives, and I test for differences in the strength of husbands' and wives' effects.

In Aim 3, I examine the robustness of the early adversity-to-stress-to-IPV mediation model proposed in Aim 2 by testing three alternative models. First, given the importance of relationship satisfaction in determining a variety of dyadic outcomes, including IPV (e.g., Stith et al., 2008), I examine the mediational pathway from early adversity to stress to IPV while controlling for satisfaction. Second, to test whether mediational effects of early adversity to stress to negative outcomes would extend to outcomes besides IPV, I examine mediational pathways from early adversity to current stress to relationship satisfaction. Third, I test whether the combination of early and current life stress and trauma may be multiplicatively problematic, in that current stress may moderate – rather than mediate – the association between early adversity and IPV.

I situate this study within a population of first-time newlywed couples living with low incomes, for several reasons. First, IPV and its many correlates tend to be overrepresented

among economically disadvantaged, minority group couples (Capaldi et al., 2012) and, despite their high rates of relationship distress and dissolution, these couples remain understudied (Manning, Brown, Payne, & Wu, 2014). I chose to focus on newlywed couples, as they are undergoing a major transition in their lives, one often marked by significant changes in work, finances, personal identities, household composition, and family development (e.g., Neff & Karney, 2005). Because newlyweds' behaviors and changes in their union at the onset of marriage can foreshadow their long-term fate (Huston, Caughlin, Houts, Smith, & George, 2001; Karney & Bradbury, 1995, 1997), studying the effects of family adversity during childhood on IPV at this stage may shed light on how couples navigate the early transition to committed partnerships. Finally, younger individuals are more likely to engage in violent behavior, such as IPV, and pre-marital IPV is predictive of later relationship dysfunction (Lawrence & Bradbury, 2001), providing further support for sampling from a newlywed population.

## Method

### Sampling

Sampling was undertaken to yield newlywed different-sex couples in which partners were living in high-poverty neighborhoods in Harris County, Texas, the third most populous county in the United States and a region with a large and diverse population. Recently married couples were identified through names and addresses on marriage license applications. License records were obtained from the Harris County Recorder's Office between 2014 and 2015. Addresses were matched with census data to identify applicants living in high-poverty communities, defined as census block groups for which no less than 30% of the households were categorized by the census as living below poverty, thereby oversampling an understudied and rarer population of couples living in high-poverty neighborhoods. These couples were screened

on the telephone or in person to ensure that they were married, neither partner had been previously married, and were not same-sex partners. A total of 4,916 couples were identified through addresses listed on their marriage licenses. Among the couples contacted, 3,535 could not be reached and 1,157 agreed to be screened for eligibility. Of those, 506 couples were screened as eligible (i.e., they were married, neither partner had been previously married, and partners were of the same sex), and 401 of them agreed to participate in the study, with 231 couples actually participating before the close of the study window. The time window for assessment was March 2015 to March 2016.

**Participants and Procedure**

The sample was comprised of 231 couples in their first marriages identified with the above procedures. Husbands ranged in age from 18 to 53 years ($M$ = 29.51, $SD$ = 7.46) and wives ranged in age from 18 to 56 years ($M$ = 28.07, $SD$ = 7.41). Fifty-two percent of husbands and 53% of wives were Hispanic. Of the remaining participants, husbands and wives were either Black (32% and 35%, respectively), White (10% and 9%), or Other/Multiracial (6% and 3%). Average relationship length was 4.7 years. Approximately 60% of couples had children, and household income averaged $40,885 (SD = $29,146). The majority of husbands (60%) and wives (54%) had less than/equal to a high school diploma / GED. Couples were visited in their homes by two interviewers who took spouses to separate areas to obtain informed consent and to orally administer self-report measures. Couples were compensated $100 ($50 per partner) for their participation in the study. The RAND Corporation Institutional Review Board approved all procedures.

## Measures

**Adverse Childhood Experiences (ACE).** Mirroring the ACE Study (Felitti et al., 2019), husbands' and wives' ACE were measured with eight items assessing direct physical, psychological, and sexual abuse [including a parent or adult in the household (1) swearing insulting, putting down, or humiliating; (2) inducing fear of being physically hurt; (3) pushing, grabbing, slapping; (4) hitting so hard that it left marks; and (5) trying or succeeding in doing something sexual; as well as (6) not feeling loved; (7) feeling that the family did not look out for each other; and (8) feeling that there was not enough to eat, having to wear dirty clothes, and having no one for protection]; three items assessing observed violence in one's family of origin [including (9) witnessing someone in the family being pushed, grabbed, or slapped; (10) witnessing someone in the family being kicked, bitten, hit with a fist, or hit with something hard; and (11) witnessing someone in the family being beaten up or threatened with a gun or knife]; and three additional items assessing (12) substance use, (13) mental illness such as depression or suicidality, and (14) incarceration in one's family of origin. Items elicited a binary response (0 = no, 1 = yes). The 14 observed ACE items were used as indicators of husband and wife ACE latent variables, respectively. Coefficient alpha was 0.83 for husbands and 0.86 for wives.

**Financial strain.** Using items from the Welfare, Children, and Families: Three-City Study questionnaire (Angel, Burton, Chase-Lansdale, Cherlin, & Moffitt, 2012) husbands' and wives' financial strain were measured with five items assessing the degree of difficulty the couple had fulfilling financial obligations and purchasing necessary items (e.g., "How much difficulty did your household have paying bills?"). Items were scored on a 4-point scale (1 = no difficulty at all or never, 2 = a little difficulty or rarely, 3 = some difficulty or sometimes, 4 = a great deal of difficulty or often). The five observed financial strain items were used as indicators

of husband and wife financial strain latent variables, respectively. Coefficient alpha was 0.73 for husbands and 0.79 for wives.

**Experiences of discrimination.** Using items from the MacArthur Foundation Midlife Development in the United States survey (MIDUS; Kessler, Mickelson, & Williams, 1999), husbands' and wives' experiences of discrimination were measured with six items assessing the degree of discrimination partners experienced for any reason on a day-to-day basis (e.g., "Do people act as if you are inferior?"). Items were scored on a 4-point scale (0 = never, 1 = rarely, 2 = sometimes, 3 = often). The six observed discrimination items were used as indicators of husband and wife experiences of discrimination latent variables, respectively. Coefficient alpha was 0.79 for husbands and 0.76 for wives.

**Perceived stress.** Using an adapted version of the Life Stress Interview (LSI; Hammen, 1991), husbandd' and wives' perceived stress was measured with twelve items assessing partners' perceptions of the stressfulness of a number of situations (e.g., participants' living situation, financial status) during the past nine months. Items were scored on a 3-point scale (0 = not at all stressful, 1 = somewhat stressful, 2 = extremely stressful). The twelve observed perceived stress items were used as indicators of husband and wife perceived stress latent variables. Coefficient alpha was 0.80 for husbands and 0.71 for wives.

**Intimate partner violence**. Couples' IPV was assessed using an adapted version of the revised Conflict Tactics Scales (CTS-R; Straus & Douglas, 2004), asking each partner to report on seven acts of perpetration (e.g., "Did you ever …?") and on seven corresponding acts of victimization (e.g., "Did your partner ever …?") during the past nine months (the current data were drawn from a larger study with multiple assessments at nine-month intervals). The seven acts assessed included (1) insulting or swearing, (2) stomping out of the room, or leaving the

house during an argument, (3) threatening to hit, (4) throwing something, (5) pushing, grabbing, or shoving, (6) slapping, hitting, biting, or punching, and (7) beating up. For each item, participants were asked if they had engaged in the act described (i.e., perpetration) and if their spouse had engaged in the act described (i.e., victimization). If they responded positively to the item, participants were asked to indicate the number of times each event had occurred, with the response options being 1 (Once or twice), 2 (Several times), and 3 (Often). Due to the small number of psychological and physical IPV items, all items were combined into one measure.

Previous research (e.g., Copp, Giordano, Manning, & Longmore, 2016) indicates that situational IPV among community couples may be more appropriately captured through the use of a measure tapping "any" reports of relationship violence versus separate measures of perpetration or victimization. Therefore, in line with these recommendations and because of the high correlations between husbands and wives' perpetration and victimization scores (all $p$s < .001), husbands and wives' self-reports of perpetration and victimization were combined into one overall couple-level measure of IPV. Specifically, I calculated a couple IPV latent variable, indicated by four summed scores for husband perpetration, husband victimization, wife perpetration, and wife victimization. Statistical evidence in the current sample further supported this decision, showing that a large majority of respondents in this sample (70.6%) reported mutual violence, thus preventing a nuanced analysis of various forms of violence. Furthermore, there was a high correlation of male-to-female and female-to-male IPV ($r = .74$, $p < .001$). Coefficient for the individual summed scores for husband and wife perpetration and husband and wife victimization were 0.67, 0.73, 0.75, and 0.59, respectively. Coefficient alpha for the combined index of 28 items was 0.88.

**Relationship satisfaction.** Husband and wife relationship satisfaction, conceptualized as spouses' global sentiment towards the relationship, was an adapted measure using ten items from the Couple Satisfaction Index (CSI-16; Funk & Rogge, 2007), with higher scores indicating higher levels of satisfaction. The items assessed global satisfaction (e.g., "My relationship with my partner makes me happy") and were rated on a 6-point scale. The ten observed relationship satisfaction items were used as indicators of husband and wife relationship satisfaction latent variables, respectively. Coefficient alpha was 0.91 for husbands and 0.94 for wives.

**Analytic Plan**

Structural equation modeling (SEM) analyses were conducted in Mplus Version 8 with Maximum Likelihood Robust (MLR) as the estimator. MLR accommodates for non-normal distribution of the data and for missing data (i.e., all models were estimated using all $N = 231$ observations). Partners in intimate relationships do not operate independently of one another. Rather, their behaviors and perceptions tend to be inter-related. For example, if a husband experiences high levels of stress, the likelihood that his wife will also feel stressed is higher. Similarly, partners may select themselves into relationships based on similarity in certain historical variables, so that, for example, a woman with a history of family adversity is drawn to a partner with similar background. In order to statistically account for the effects that a partner has on an individual's outcome, Kenny, Kashy, and Cook (2006) proposed dyadic approaches using the couple as the unit of analysis, rather than the individual. Following this approach, in the present study, husband and wife variables were allowed to correlate in all models, thereby accounting for the non-independence of partners' data.

To determine overall model fit, I assessed the root mean square error of approximation (RMSEA), an absolute index of overall model fit with values less than .08 indicative acceptable

model fit (Steiger, 1990), and the Standardized Root Mean Residual (SRMR), an absolute index of overall model fit with values less than .08 indicative acceptable model fit (Hu & Bentler, 1999). To determine whether mediation effects were statistically significant, I calculated confidence intervals for indirect effects using unstandardized regression coefficients (see Soper, 2018). A mediated effect is supported if the 95% confidence interval does not contain 0, which would suggest that ACE influences the trajectory of the mediator (financial strain, experiences of discrimination, or perceived stress), which, in turn, is associated with couple IPV.

## Results

### Descriptive Statistics

As can be seen in Table 2.1, husbands and wives reported about three ACE. With regards to adult stress, husbands reported slightly lower levels of perceived stress compared to wives, but reported similar levels of financial strain and discrimination. Descriptive statistics derived from the four summed scores that served as indicators for the couple IPV latent variable showed that husbands self-reported lower levels of IPV perpetration than wives and reported higher levels of IPV victimization than wives. These results are in line with previous findings about IPV frequencies among community couples. As would be expected among a sample of newlywed couples, levels of relationship satisfaction were relatively high for husbands and for wives. I report means, standard deviations, and mean comparisons (t-values) based on descriptive statistics of summed scores in the table.

Bivariate correlations among study variables are shown in Table 2.1. Consistent with predictions, husbands and wife ACE were significantly associated with husband and wife current stress (with the exception of wives' ACE and their financial strain, $r = .09$, *ns*) and couple IPV such that individuals reporting more ACE also reported more financial strain, experiences of

discrimination, perceived stress, and couple IPV. In addition, current stress was significantly associated with IPV in that more husband and wife financial strain, experiences of discrimination, and perceived stress were associated with more couple IPV.

**Aim 1: Associations Among ACE, Stress, and IPV**

To replicate and extend prior findings linking adverse experiences during childhood and current stress in adulthood, to IPV in adulthood, I tested four separate structural equation models with direct paths from husband and wife ACE (Model 1), husband and wife financial strain (Model 1a), experiences of discrimination (Model 1b), and perceived stress (Model 1c) to couple IPV. These analyses were distinct from the correlational analyses described above as husband and wife predictors were included in the same model and were allowed to correlate, thereby controlling for a given husband's predictor when assessing the effect of the wife's predictor on couple IPV and vice versa. All predictors were significantly related to couple IPV ($\beta$s = .25 and .26 for husband and wife ACE; $\beta$ = .45 for husband financial strain, $\beta$ = .32 for husband discrimination, $\beta$s = .34 and .23 for husband and wife perceived stress, all $p$s < .05), except for wives' financial strain ($\beta$ = -.16, *ns*) and wives' experiences of discrimination ($\beta$ = .13, *ns*), thereby providing a strong set-up for the mediational models examined below. Wald tests comparing the strength of the effects of husbands' and wives' stressors on IPV indicated that husbands' financial strain was more strongly related to couple IPV than wives' financial strain (Wald = 5.58, $p$ = .02). All other husband and wife effects were of similar strength. For values of all standardized coefficients, standard errors, indirect effects and CIs, and overall model fit indices, see Table 2.2.

**Aim 2: Mediation Analyses from ACE to Stress to IPV**

For Aims 2 and 3, I used the Holm alpha correction method (Holm, 1979) to account for multiple comparisons (i.e., 3 paths for the husband mediation and 3 paths for the wife mediation).

Addressing Aim 2, I tested three separate structural equation models examining whether the effect of husband and wife ACE to couple IPV would operate through husband and wife financial strain (Model 2a), experiences of discrimination (Model 2b), and perceived stress (Model 2c). For values of all standardized coefficients, standard errors, indirect effects and CIs, and overall model fit indices, see Table 2.3. Figure 2.1 provides a visual depiction of Model 2a.

**Financial strain.** For husbands, results indicated that there was a full mediation: ACE were a significantly related to financial strain ($\beta$ = .19, $p$ = .02) and financial strain was significantly related to couple IPV ($\beta$ = .39, $p$ < .01). ACE were no longer significantly related to couple IPV after controlling for the mediator, financial strain ($\beta$ = .17, *ns*). The indirect effect was significant ($b$ = 3.16, 95% CI = 0.52, 5.81).

For wives, results indicated that there was no mediation: ACE were not significantly related to financial strain ($\beta$ = .05, *ns*) and financial strain was not significantly related to couple IPV ($\beta$ = -.16, *ns*). ACE remained significantly related to couple IPV after controlling for the mediator, financial strain ($\beta$ = .25, $p$ < .01). The indirect effect was not significant ($b$ = -0.32, 95% CI = -1.84, 1.21). Wald tests indicated that husbands' financial strain was more strongly related to couple IPV than wives' financial strain (Wald = 4.91, $p$ = .02). The other two husband and wife effects were of similar strength.

**Experiences of discrimination.** For husbands, results indicated that there was a full mediation: ACE were significantly related to discrimination ($\beta$ = .43, $p$ < .01) and discrimination

was significantly related to couple IPV ($\beta$ = .23, $p$ = .02). ACE were no longer significantly related to couple IPV after controlling for the mediator, discrimination ($\beta$ = .15, *ns*). The indirect effect was significant ($b$ = 4.17, 95% CI = 1.25, 7.10).

For wives, results indicated that there was no mediation: Although ACE were significantly related to discrimination ($\beta$ = .28, $p$ < 0.01), discrimination was not significantly related to couple IPV ($\beta$ = .07, *ns*). ACE remained significantly related to couple IPV after controlling for the mediator, discrimination ($\beta$ = .21, $p$ = .01). The indirect effect was not significant ($b$ = 0.87, 95% CI = -1.47, 3.21). Wald tests indicated that all three effects were of similar strength.

**Perceived stress.** For husbands, results indicated that there was a full mediation: ACE were significantly related to perceived stress ($\beta$ = .24, $p$ = .02) and perceived stress was significantly related to couple IPV ($\beta$ = .27, $p$ = .02). ACE were no longer significantly related to couple IPV after controlling for the mediator, perceived stress ($\beta$ = .16, *ns*). The indirect effect was significant ($b$ = 2.84, 95% CI = 0.32, 5.35).

For wives, results indicated that there was no mediation: ACE were not significantly related to perceived stress ($\beta$ = .22, *ns*), perceived stress was not significantly related to couple IPV ($\beta$ = .19, *ns*), and ACE were not significantly related to couple IPV after controlling for the mediator, perceived stress ($\beta$ = .15, *ns*). The indirect effect was not significant ($b$ = 1.84, 95% CI = -0.43, 4.11). Wald tests comparing effects for husbands and wives indicated that all three effects were of similar strength.

Supplemental, exploratory analyses indicated that when including all mediators (i.e., husband and wife financial strain, discrimination, and perceived stress) simultaneously in one model, the only mediation effect that remained statistically significant was the effect routed

through husbands' financial strain ($b$ = 2.74, 95% CI = 0.18, 5.30).

**Aim 3.1: Mediation Analyses from ACE to Stress to IPV Controlling for Satisfaction**

Next, I examined whether the pattern of results from Models 2a – 2c would remain after controlling for relationship satisfaction. Therefore, in Models 3.1a – 3.1c, I added husbands and wives' satisfaction scores to the three separate structural equation models described above. Results of Models 3.1a and 3.1c were consistent with Models 2a and 2c, indicating that for husbands, the association between ACE and partner aggression was mediated by financial strain and perceived stress, respectively, whereas for wives, no support for mediational pathways was found. For Model 3.1b, I found support for neither husbands nor wives' experiences of discrimination in mediating the association between ACE and partner aggression. Wald tests comparing husbands' and wives' effects indicated that husbands' financial strain was more strongly related to couple IPV than wives' financial strain (Wald = 5.37, $p$ = .02). All other husband and wife effects in the three models were of similar strength. For values of all standardized coefficients, standard errors, indirect effects and CIs, and overall model fit indices, see Table 2.3.

**Aim 3.2: Mediation Analyses from ACE to Stress to Satisfaction**

To test whether ACE and stress would also co-vary with other relationship outcomes, I first tested a model including husband ACE as a predictor of husband relationship satisfaction and wife ACE as a predictor of wife relationship satisfaction. Husbands who reported more ACE were less satisfied with their relationships ($\beta$ = -.17, $p$ = .02). For wives, the association between ACE and relationship satisfaction was marginally significant ($\beta$ = -.14, $p$ = .06). Then, three separate structural equation models examined the effects of husband and wife ACE on husband and wife relationship satisfaction through husband and wife financial strain (Model 3.2a),

experiences of discrimination (Model 3.2b), and perceived stress (Model 3.2c). Results did not support the mediation hypothesis: Although husband and wife ACE were significantly positively associated with stress (with the exception of wife financial strain), stress was significantly negatively associated with relationship satisfaction (with the exception of husband experiences of discrimination), and the association between ACE and relationship satisfaction was not significant after controlling for stress, none of the six indirect effects examined were statistically significant. Wald tests comparing husbands' and wives' effects indicated that all effects across the four models were of similar strength. For values of all standardized coefficients, standard errors, indirect effects and CIs, and overall model fit indices, see Table 2.3.

**Aim 3.3: Moderation Analyses from ACE-by-Stress to IPV**

Lastly, I tested alternative models examining whether stress would moderate the association between ACE and IPV. Therefore, I included interactions between husband ACE and husband financial strain and wife ACE and wife financial strain (Model 3.3a), husband ACE and husband experiences of discrimination and wife ACE and wife experiences of discrimination (Models 3.3b), and husband ACE and husband perceived stress and wife ACE and wife perceived stress (Model 3.3c) in my models. None of the six interaction effects examined across the three models were statistically significant, thereby lending no support for a multiplicative effect of ACE and stress on IPV. Wald tests comparing husbands' and wives' effects indicated that husbands' financial strain was more strongly related to couple IPV than wives' financial strain (Wald = 4.70, $p$ = .03). The other two husband and wife effects were of similar strength. For values of all standardized coefficients, standard errors, and overall model fit indices, see Table 2.4.

## Discussion

Early family adversity foreshadows a variety of negative consequences, increasing the likelihood of physical and mental health problems and risk-promoting behaviors later in life (Capaldi et al., 2012). Although there is little doubt that IPV in adulthood is among these negative consequences, this cycle of violence is not a sealed fate and most individuals exposed to early adversity do not grow up to participate in aggressive relationships in adulthood (Heyman & Slep, 2002). Thus, it is important to examine specific pathways that may explain how early adversity co-varies with IPV later in life. Drawing from the concept of stress generation and the Dynamic Developmental Systems approach to understanding IPV, I examined mediational models testing whether individuals exposed to adversity early in life would encounter more stress as they move into adulthood as compared to those individuals exposed to less family adversity, thus increasing their risk of IPV.

Replicating previous research (e.g., Stith et al., 2000), I found that early family adversity correlated with adversity in adulthood. I also discovered that the way in which early adversity and IPV co-varied differed for husbands and wives. For husbands, early adversity was related to IPV through current financial strain, experiences of discrimination, and perceived stress. For wives, in contrast, I found no support for such mediation. These findings are consistent with the possibility that the more adversity husbands experience early in life, the more stress they may encounter in adulthood, which in turn may undermine their capacity to manage problems or conflicts effectively, thereby predisposing them to experience IPV. Although a history of family adversity was also related to IPV for wives, this association could not be explained by current stress. One possible explanation is that there is a direct pathway linking wives' early adversity to later IPV. This proposition would align with social learning accounts suggesting that wives' IPV

may be initially acquired through modeling during childhood and may then be maintained through acts of reinforcement (Bell & Naugle, 2008), independent of other, environmental factors. Alternatively, other mediators not examined in the current research may help explain the association between early adversity and IPV for wives. These differential gender effects are in line with prior research showing, for example, a lack of significant association between women's discrimination and IPV (Trail et al., 2012) or between women's financial strain and IPV (Ulibarri et al., 2019), hinting at the possibility that such stressors are more likely to influence risk for violence among men than among women. Furthermore, when including all three mediators simultaneously in a single model, only the mediational path for husbands' financial strain remained statistically significant. Thus, although various facets of stress during adulthood appear to emanate from early adversity, finance-related stress may be the factor that positions newlywed husbands to be most likely to engage in IPV. I emphasize, however, that the current findings are correlational in nature and therefore cannot support causal inferences.

Thus, in keeping with the concept of stress generation and the Dynamic Developmental Systems perspective, the present findings are not inconsistent with the view that the situations that make couple violence more likely are a reflection of men's childhood upbringing, rendering men vulnerable to higher levels of stress in adulthood. These findings should not be interpreted to suggest that men with risky backgrounds are in any way blameworthy for these backgrounds or for their increased tendency to engage in IPV. Rather, similar to stress generation in the course of depression, whereby individuals are in no manner made responsible for their depressive symptoms, I intend to underscore the added vulnerability to later adversity that may be brought about by adverse experiences in childhood. Tests of alternative models enhance confidence in the present findings. Results remained intact when controlling for relationship satisfaction, a

consistent correlate of IPV (e.g., Stith et al., 2008), and I found no evidence that the main mediational configuration extended to dyadic outcomes other than IPV, as there were no mediational pathways from early adversity to stress to relationship satisfaction, for husbands or for wives. Lastly, I found no evidence that the association between early adversity and later IPV was stronger for those people exposed to greater levels of stress in adulthood, ruling out the idea that early and later forms of adversity combine in a multiplicative manner to predict IPV.

**Limitations**

Several factors limit interpretation of these findings. The use of subjective measures (i.e., self-report data) may have introduced bias across multiple domains: First, retrospective self-reporting of childhood experiences may introduce bias due to inaccuracies in reporters' memory (Baldwin, Reuben, Newbury, & Danese, 2019). Although my models assume that adverse childhood experiences temporally precede adult stress and IPV, these data were actually collected concurrently. Second, partners may have underreported their experiences with IPV. The argument might also be made, however, that finding significant effects despite such underreporting may make findings more conservative, thereby increasing my confidence in the current results. Third, there may also be a reporting bias inflating the association between early adversity and IPV as individuals more willing to disclose violence experienced during childhood may be more willing to disclose violence experienced in adulthood. In addition, perhaps the greatest limitation of this work is the reliance on cross-sectional data to test mediational models. At best these findings provide 'proof of concept' that the stress generation model can be extended to IPV, but longitudinal data are needed to properly address this proposition. The use of a low-income, predominantly ethnic minority sample of newlyweds is a strength of this study, providing insight into relationship functioning among an understudied group that is at higher risk

for stress and IPV. Nevertheless, I cannot say whether these results generalize to other kinds of samples, including dating couples or couples in more established relationships, same-sex couples, higher income couples, or clinical samples. It should be noted that rates of *physical* aggression, assessed by asking about only three different acts of physical IPV, were relatively low in this sample of newlywed couples, who predominantly experienced *psychological* forms of IPV. Thus, it is unclear whether findings will generalize to couples with higher rates of physical violence. Finally, it is important to acknowledge that effect sizes of significant effects in the mediation models (effect sizes ranging from .15 to .43) and the moderation models (effect sizes ranging from .14 to .39) were relatively small. Future research, possibly using larger samples, is needed to validate the current findings.

**Implications**

Future research could consider examining other facets of adult adversity that may serve as mediators in the association between childhood family adversity and IPV, particularly for women. For example, support from family and friends has been shown to be particularly important for women (Nelson & Burke, 2018). Social support, or, more broadly, the structure and composition of social networks, may act as a more consistent mediator (or moderator) for women. For example, a wife who is confronted with early adversity may experience a higher chance of social isolation in adulthood, which may in turn increase her risk for IPV. On the one hand, this could occur because a limited availability of mates may result in more destructive, potentially violence-prone romantic relationships, and on the other hand because once in a destructive relationship, there may be fewer people available to support, warn, or protect her. Similarly, it is possible that childhood family adversity and adult stress are both due to a third variable (e.g., poverty) that is present throughout partners' lives. This hypothesis could be

explored by future studies. In addition, future research could examine protective factors, including interactions between partner variables. For example, it is possible that one partner's early adversity interacts with the other partner's capacity to offset stress experienced in everyday life. As such, although individuals who experienced early adversity are generally at higher risk for adversity in adulthood, such adulthood adversity may be lower if individuals are in a particularly supportive relationship. Therefore, the presence of an emotionally warm and understanding partner, who can calm their partner when faced with stressful situations, has the potential to decrease the risk that arguments escalate into violence. Lastly, examining other facets of early family adversity, such as community violence and exposure to crime, will be important points of study in future research. Such variables may be difficult to assess using retrospective reporting due to participants' difficulties in remembering and accurately judging their surroundings at an early age. Thus, collecting concurrent reports of adversity is recommended. Similarly, teasing apart the differential effects of different facets of ACEs (e.g., directly experienced versus observed abuse) would be an important future research direction.

Bearing the aforementioned limitations in mind, the current study advances understanding of the interplay between adversity experienced during childhood and adulthood in predicting risk for IPV and may thereby elucidate how intimate relationships that are commonly thought of as sources of joy and pleasure also may bring about the possibility of hostility, abuse, and violence. According to the present results, IPV is not necessarily a reflection of problems that lie within a couple or within an individual but might be, at least in part, a reflection of the difficult circumstances that partners face. These difficult circumstances may include the risk that partners bring to the relationship, including experiences encountered early in life, as well as the circumstances they currently face, including financial strain, perceived discrimination, and stress.

Clinicians, policy makers, and advocates may make use of this knowledge to identify couples at risk for IPV, namely those couples who have a history of early life adversity and who are currently exposed to high amounts of stress, especially financial stress for men. Furthermore, intervention strategies that alleviate stress, for example in the form of financial assistance, may prove particularly beneficial for these couples, perhaps in combination with communication skills training, potentially breaking the link between early adversity and IPV.

In sum, retrospective reports of early adversity co-vary with emotionally dysregulated interpersonal exchanges later in life and may, for a minority of affected men and women, lead to IPV in adulthood. However, the pathway by which early- and later-life violence are interconnected may differ for men and women. The present study shows that for men, early adversity is linked to IPV via stress, whereas for women, no such mediation emerges. Future research may benefit from exploring how other features of the early childhood environment accumulate to guide individuals into circumstances that render hostile behavior more likely, inadvertently perpetuating the cycle of violence.

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## Tables and Figure

Table 2.1 Bivariate Correlations between Study Variables

| Measure | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| 1. ACE | **.11** | .25* | .39* | .25* | .24* | -.19* |
| 2. Financial Strain | .09 | **.51*** | .29* | .33* | .27* | -.23* |
| 3. Discrimination | .26* | .22* | **.17*** | .37* | .31* | -.29* |
| 4. Perceived Stress | .29* | .35* | .43* | **.32*** | .32* | -.23* |
| 5. Intimate Partner Violence+ | .30* | .15* | .24* | .31* | --- | -.38* |
| 6. Satisfaction | -.16* | -.19* | -.16* | -.28* | -.38* | **.50*** |
| Husbands: Mean (SD) | 2.69 (3.04) | 5.59 (3.07) | 3.20 (3.30) | 4.99 (3.63) | P[a]: 12.33 (15.17) V[b]: 14.12 (18.61) | 43.12 (7.93) |
| Wives: Mean (SD) | 3.21 (3.47) | 5.84 (3.20) | 2.95 (3.06) | 6.13 (3.50) | P[a]: 14.61 (17.00) V[b]: 10.36 (12.99) | 42.32 (8.84) |
| Mean Difference (t) | -1.82 | -1.19 | -4.17* | 0.95 | -2.10* 3.08* | 1.14 |

*Note:* ACE = Adverse childhood experiences. Intercorrelations between husbands' characteristics are reported above the diagonal and wives' characteristics are reported below the diagonal. Values along the diagonal represent correlations between husbands and wives' characteristics.
+Intimate Partner Violence is assessed at the couple-level, thus no correlation could be calculated.
[a]P = IPV Perpetration
[b]V = IPV Victimization
*$p < .05$

Table 2.2 Aim 1: Associations between ACE, Stress, and IPV (Models 1a-1c)

| Predictor | beta | SE | Wald | Overall Model Fit | |
|---|---|---|---|---|---|
| | | | | RMSEA | SRMR |
| ACE and IPV | | | | | |
| Husbands | .25* | .25 | 0.01 | .06 | .07 |
| Wives | .26* | .26 | | | |
| Financial Strain and IPV | | | | | |
| Husbands | .45* | .14 | 5.58* | .08 | .06 |
| Wives | -.16 | .14 | | | |
| Discrimination and IPV | | | | | |
| Husbands | .32* | .08 | 1.66 | .07 | .08 |
| Wives | .13 | .10 | | | |
| Perceived Stress and IPV | | | | | |
| Husbands | .34* | .11 | 0.79 | .06 | .07 |
| Wives | .23* | .11 | | | |

*Note:* ACE = Adverse childhood experiences, IPV = Intimate partner violence. Wald test value <.05 indicates that the difference in strength of effects from husband predictor to outcome versus wife predictor to outcome is statistically significant. RMSEA < .07 and SRMR < .08 are indicative of acceptable overall model fit.

*$p < .05$

Table 2.3 Aims 2, 3.1, and 3.2: Mediation Analyses

| Mediator Variable | beta(A) | Wald(A) | beta(B) | Wald(B) | beta(C) | Wald(C) | beta(CV) | Wald(CV) | Indir. Eff. | 95% CI (L) | 95% CI (U) | Overall Model Fit RMSEA | Overall Model Fit SRMR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Mediation Analyses from ACE to Stress to IPV** | | | | | | | | | | | | | |
| Financial Strain | | | | | | | | | | | | | |
| Husbands | .19* | 1.47 | .39* | 4.91* | .17 | 0.56 | --- | --- | 3.16 | 0.52 | 5.81 | .05 | .07 |
| Wives | .05 | | -.16 | | .25* | | --- | | -0.32 | -1.84 | 1.21 | | |
| Discrimination | | | | | | | | | | | | | |
| Husbands | .43* | 0.47 | .23* | 1.07 | .15 | 0.26 | --- | --- | 4.17 | 1.25 | 7.10 | .05 | .07 |
| Wives | .28* | | .07 | | .21* | | --- | | 0.87 | -1.47 | 3.21 | | |
| Perceived Stress | | | | | | | | | | | | | |
| Husbands | .24* | 0.10 | .27* | 0.53 | .16 | 0.01 | --- | --- | 2.84 | 0.32 | 5.35 | .05 | .08 |
| Wives | .22 | | .19 | | .15 | | --- | | 1.84 | -0.43 | 4.11 | | |
| **Mediation Analyses from ACE to Stress to IPV Controlling for Satisfaction** | | | | | | | | | | | | | |
| Financial Strain | | | | | | | | | | | | | |
| Husbands | .20* | 1.55 | .36* | 5.37* | .12 | 0.61 | -.27* | 0.71 | 3.05 | 0.45 | 5.65 | .05 | .07 |
| Wives | .05 | | -.23 | | .21* | | -.20* | | -0.47 | -2.24 | 1.30 | | |
| Discrimination | | | | | | | | | | | | | |
| Husbands | .43* | 0.46 | .13 | 0.21 | .13 | 0.19 | -.30* | 1.35 | 2.34 | -0.32 | 5.00 | .05 | .08 |
| Wives | .29* | | .07 | | .18* | | -.15 | | 0.83 | -1.47 | 3.13 | | |
| Perceived Stress | | | | | | | | | | | | | |
| Husbands | .25* | 0.12 | .24 | 0.80 | .12 | 0.04 | -.27* | 0.79 | 2.56 | 0.10 | 5.03 | .05 | .08 |
| Wives | .23 | | .10 | | .14 | | -.16 | | 1.02 | -1.15 | 3.19 | | |
| **Mediation Analyses from ACE to Stress to Satisfaction** | | | | | | | | | | | | | |
| ACE to Satisfaction | | | | | | | | | | | | | |
| Husbands | -.17* | 0.04 | --- | --- | --- | --- | --- | --- | --- | --- | --- | .05 | .06 |
| Wives | -.14 | | --- | | --- | | --- | | --- | --- | --- | | |
| Financial Strain | | | | | | | | | | | | | |
| Husbands | .19* | 1.37 | -.24* | 0.01 | -.12 | 0.29 | --- | --- | -0.09 | -0.53 | 0.36 | .05 | .07 |
| Wives | .04 | | -.18* | | -.13 | | --- | | -0.02 | -0.41 | 0.37 | | |
| Discrimination | | | | | | | | | | | | | |
| Husbands | .42* | 0.42 | -.16 | 0.46 | -.11 | 0.02 | --- | --- | -0.13 | -0.69 | 0.44 | .05 | .07 |
| Wives | .28* | | -.20* | | -.09 | | --- | | -0.15 | -0.72 | 0.42 | | |
| Perceived Stress | | | | | | | | | | | | | |
| Husbands | .24* | 0.11 | -.28* | 0.65 | -.11 | 0.02 | --- | --- | -0.13 | -0.64 | 0.38 | .05 | .08 |
| Wives | .22* | | -.35* | | -.06 | | --- | | -0.21 | -0.85 | 0.43 | | |

*Note:* ACE = Adverse childhood experiences, IPV = Intimate partner violence, CV = Covariate, Indir. Eff. = Indirect effect. Standardized coefficients reported here. For Columns 1 through 6, (A) refers to the path from predictor to mediator, (B) refers to the path from mediator to outcome, and (C) refers to the path from predictor to outcome. Indirect effect calculated using unstandarized coefficients. A mediated effect is supported if the 95% confidence interval does not contain 0. RMSEA < .07 and SRMR < .08 are indicative of acceptable overall model fit.

*Statistically significant p-value following Holm alpha adjustment.

Table 2.4 Moderation Analyses from ACE-by-Stress to IPV

| Predictor Variable | beta | SE(beta) | Wald | Overall Model Fit AIC | Overall Model Fit BIC |
|---|---|---|---|---|---|
| **Moderation by Financial Strain** | | | | | |
| H ACE | .16 | .09 | 0.51 | | |
| W ACE | .25* | .07 | | | |
| H Financial Strain | .39* | .14 | 4.70* | 17381.23 | 17856.28 |
| W Financial Strain | -.17 | .13 | | | |
| H ACE*Financial Strain | .06 | .18 | <0.01 | | |
| W ACE*Financial Strain | .08 | .10 | | | |
| **Moderation by Discrimination** | | | | | |
| H ACE | .17 | .08 | 0.14 | | |
| W ACE | .21* | .07 | | | |
| H Discrimination | .29* | .09 | 2.62 | 17603.64 | 18099.35 |
| W Discrimination | .08 | .10 | | | |
| H ACE*Discrimination | -.14 | .07 | 1.50 | | |
| W ACE*Discrimination | -.03 | .06 | | | |
| **Moderation by Perceived Stress** | | | | | |
| H ACE | .15 | .09 | 0.12 | | |
| W ACE | .12 | .07 | | | |
| H Perceived Stress | .27 | .13 | 0.33 | 21187.34 | 21806.98 |
| W Perceived Stress | .20 | .12 | | | |
| H ACE*Perceived Stress | -.06 | .11 | 0.44 | | |
| W ACE*Perceived Stress | .08 | .15 | | | |

*Note:* H = Husband, W = Wife, ACE = Adverse childhood experiences, IPV = Intimate partner violence, AIC = Akaike information criterion, BIC = Bayesian information criterion. Standardized coefficients reported here. AIC and BIC were used to assess model fit as absolute fit statistics, such as RMSEA and SRMR, are not available for models where numerical integration is required.
*Statistically significant p-value following Holm alpha adjustment.

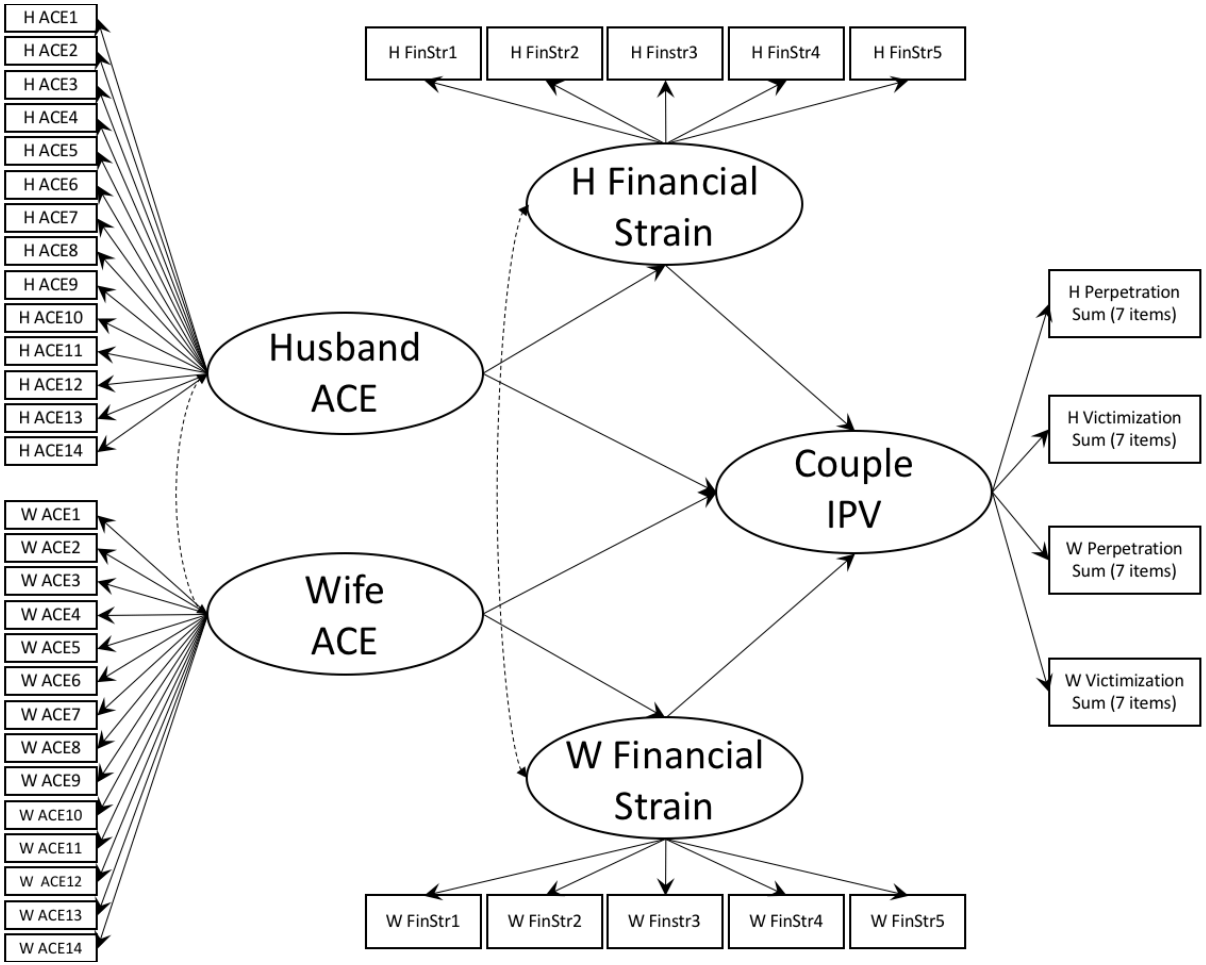


*Figure 2.1.* Mediation Analyses from ACE to Financial Strain to Intimate Partner Violence (Model 2a). ACE = Adverse Childhood Experiences. IPV = Intimate Partner Violence. FinStr = Financial Strain. H = Husband. W = Wife. Straight lines indicate regression paths, dotted lines indicate correlations. Models 2b and 2c are similar to Model 2a, replacing the Husband and Wife Financial Strain latent variables with latent variables for Husband and Wife Discrimination and Perceived Stress, respectively.

## STUDY 3:

### *When Does Verbal Aggression in Relationships Co-vary With Physical Violence?*

### Introduction

Intimate Partner Violence (IPV) is a pervasive, costly, and even lethal phenomenon that manifests in a variety of forms. Physical IPV, which has a lifetime prevalence of 28.1 to 32.9%, is defined as the intentional use of physical force with the potential to cause death, disability, injury, or harm. It includes, but is not limited to, scratching, pushing, shoving, throwing, grabbing, biting, choking, shaking, hair-pulling, slapping, punching, hitting, burning, use of a weapon, and use of restraints or one's body, size, or strength against another person. Psychological IPV, which has a lifetime prevalence of 48.4 to 48.8%, is defined as the use of verbal and non-verbal communication with the intent to harm another person mentally or emotionally, and/or exert control over another person. It includes, but is not limited to, acts of expressive aggression, coercive control, threats of physical violence, and exploitation of vulnerability (Breiding et al., 2015). Although psychological aggression, in some cases, may not be perceived as aggression by outside observers because it is covert and manipulative in nature, psychological aggression is an essential component of IPV that can significantly influence the impact of other forms of violence (Breiding et al., 2015). Similarly, it has often been observed that psychological IPV is more common in relationships where physical IPV is also present (Carney & Barner, 2012) and that psychological IPV is a precursor to physical IPV (Cadely et al., 2020). However, even though virtually all physically aggressive couples report also engaging in psychological IPV (Carney & Barner, 2012), the opposite is not true: most psychologically aggressive couples do not engage in slapping and hitting—particularly when psychological IPV is less frequent and severe (Salis, Salwen, & O'Leary 2014).

Why might some verbally aggressive couples manage to keep physical aggression out of their interpersonal repertoires while others fail to do so? The dynamic developmental systems (DDS) perspective, which conceptualizes IPV as an interactional pattern, responsive to the conjoint developmental characteristics and behaviors of each partner, as well as contextual factors and relationship influences (Capaldi, Kim, & Shortt, 2004), may provide a possible answer to this question. Using the DDS perspective as an organizing conceptual framework, I propose that the interactional pattern underlying the association between psychological and physical IPV is responsive to couples' communication skills (a relationship influence) and to couples' sociodemographic risk (a contextual factor). Here, I test (a) whether either of these two factors moderates the association between psychological aggression and physical violence and (b) whether either moderating effect is independent of the other.

Decades of observational research highlight effective communication and emotion regulation as critical ingredients for well-functioning relationships. Skillful management of conflict neutralizes negative affect and promotes closeness (e.g., Bloch, Haase, & Levenson, 2014), whereas persistent mismanagement of this key task increases the likelihood of aggressive exchanges (e.g., Babcock, Jacobson, Gottman, & Yerington, 2000). Couples' capacity for effective communication and emotion regulation is implicated in all leading models of IPV (e.g., Finkel, 2007). While it is apparent that couples who struggle to communicate effectively are also inclined toward hostile outbursts, empirical work does not yet demonstrate whether verbally aggressive couples who communicate poorly are at greater risk for engaging in more destructive acts of physical violence. Addressing this hypothesis directly can serve to refine models that address how hostile verbal exchanges become physical, and evidence consistent with this hypothesis would lend support to interventions that aim to modify communication skills with the

goal of reducing hostile escalation (e.g., Babcock, Graham, Canady, & Ross, 2011).

Although analysis of interpersonal processes holds promise for identifying which psychologically aggressive couples will also engage in physical aggression, this view fails to acknowledge robust evidence linking couples' life circumstances with their capacity to effectively manage emotionally charged situations in their relationship. Lower socioeconomic status (SES)—as indexed by lower incomes, lower rates of stable employment, and lower levels of formal education—is a reliable risk marker for IPV (e.g., Sokoloff & Dupont, 2005); at all levels of IPV severity, couples living with lower incomes, fewer resources, more discrimination, and greater financial strain display IPV at higher rates (e.g., Matjasko, Niolon, & Valle, 2013). Critically, however, effects are sometimes weak, and some studies fail to demonstrate an association between SES and IPV (e.g., Neff, Holaman, & Schluter, 1995), underscoring the fact that many under-resourced couples are not physically aggressive (and that many relatively affluent couples are). Because main effect models fail to fully capture the sociodemographic strain-to-IPV association, I propose that verbally aggressive couples are most likely to also be physically aggressive when their level of sociodemographic disadvantage is relatively high. In contrast, when sociodemographic risk is low, verbal and physical aggression are less likely to co-vary, even within a sample of couples who report verbal aggression and who are economically vulnerable (Matjasko et al., 2013). To my knowledge, this prediction remains untested. Evidence that the association between psychological and physical IPV is stronger among couples enduring higher levels of social and economic disadvantage would lend support to efforts that aim to reduce aggression through reductions in stress and economic hardship, potentially preventing acts of verbal aggression from developing into physical violence.

Separate testing of behavioral and socioeconomic moderators could provide insight into

why only some verbally aggressive couples also engage in acts of physical aggression. However, there is growing appreciation for the need to examine these two levels of analysis simultaneously: Couples with high-quality communication may nevertheless encounter high levels of social and economic deprivation, and well-resourced couples living with low stress may nevertheless struggle to communicate their needs and feelings effectively. In either case, moments of psychological aggression might escalate to physical violence, even as communication skills are adequate or sociodemographic vulnerability is low. In response to calls for joint investigation of "the context and proximal events associated with IPV episodes" (Bell & Naugle, 2008, p. 1101), I will examine both moderators simultaneously, consistent with the view that various 'contextual units' such as socioeconomic status are implicated in IPV, and that within each defined contextual unit, there are a number of behavioral 'proximal variables' that render violent acts more likely. On the basis of prior research (Bell & Naugle, 2008; Capaldi et al., 2004), I expect that both moderating effects will remain significant when considered simultaneously.

With data from a large, ethnically diverse, and economically disadvantaged sample of newlywed couples, I test three main predictions. First, using observational data collected from couples' in-home discussions of salient relationship concerns, I predict that reports of verbal aggression will co-vary with concurrent reports of physical aggression primarily among couples who display interactional skill deficits. For the purpose of this study, "interactional skill deficits" is used synonymously with "non-adaptive behavioral processes," which are operationalized as (a) more negative or hostile tone or emotional content (e.g., insulting and interrupting one's spouse), (b) less positive emotional content (e.g., sharing in jokes, complimenting one's spouse), and (c) less effectiveness in working toward a resolution of one's issues (e.g., proposing possible

solutions, soliciting one's spouse's opinion) as observed during behavioral interactions (see Williamson, Bradbury, Trail, & Karney, 2011 for details). I hypothesize that when communication is more positive, less negative, and more effective, covariation between psychological and physical IPV should be weaker or nonsignificant (Aim 1). Second, using a cumulative index of sociodemographic risk developed and validated by Amato (2014), I predict that verbal aggression will co-vary with physical aggression primarily among couples who are socially and economically vulnerable. When sociodemographic risk is low, covariation between psychological and physical IPV should be weaker or nonsignificant (Aim 2). Third, I predict that the moderating effect of observed communication will remain significant after controlling for sociodemographic risk, and that the moderating effect of sociodemographic risk will remain significant after controlling for observed communication (Aim 3). Because there is no evidence to date to suggest that the communication-based and sociodemography-based explanations are necessarily competing models, I predict that both will uniquely moderate the association between psychological and physical IPV. Under Aim 3, I also control for relationship satisfaction, to test whether variance shared with the proposed moderators or the IPV variables generates spurious findings. As this is a community sample, my emphasis is on situational couple violence rather than on coercive controlling violence or battering, which likely have different causes and topographies (Johnson, 2017).

## Method

### Participants

The sampling procedure was designed to yield only first-married newlywed couples in which both partners were of the same ethnicity (Hispanic, African American, or Caucasian), living in neighborhoods with a high proportion of low-income residents in Los Angeles County.

Recently married couples were identified through names and addresses on marriage license applications. Addresses were matched with census data to identify applicants living in low-income communities, defined as census block groups wherein the median household income was no more than 160% of the 1999 federal poverty level for a 4-person family. Next, names on the licenses were weighted using data from a Bayesian Census Surname Combination, which integrates census and surname information to produce a multinomial probability of membership in each of four racial/ethnic categories. Couples were chosen using probabilities proportionate to the ratio of target prevalences to the population prevalences, weighted by the couple's average estimated probability of being Hispanic, African American, or Caucasian. These couples were telephoned and screened to ensure that they had married, that neither partner had been previously married, and that both spouses identified as Hispanic, African American, or Caucasian. A total of 3,793 couples were contacted through addresses listed on their marriage licenses; of those, 2,049 could not be reached and 1,522 (40%) responded to the mailing and agreed to be screened for eligibility. Of those who responded and agreed to be screened for eligibility, 824 couples were screened as eligible, and 658 of those couples agreed to participate in the study, with 431 couples actually completing the study within the data collection window.

In the final sample of 431 couples, marriages averaged 4.8 months in duration (*SD* = 2.5), and 39% of couples had children. Husbands' mean age was 27.9 (*SD* = 5.8) and wives' mean age was 26.2 (*SD* = 5.0). Couples had a median household income of $45,000 (*M* = $55,364, *SD* = $42,671). Eighty-nine (21%) of husbands and 63 (15%) of wives had less than a high school degree, 117 (27%) of husbands and 108 (25%) of wives had a high school degree, 140 (32%) of husbands and 139 (32%) of wives had completed some college, and 84 (20%) of husbands and 121 (28%) of wives had a college degree or higher. Two-hundred eighty husbands (65%) and

200 wives (46%) reported working full time, and 77 husbands (18%) and 85 wives (20%) reported working part-time. Fifty couples (12%) were Caucasian, 51 (12%) were African American, and 330 (76%) were Hispanic.

**Procedure**

Couples were visited in their homes by two interviewers who took spouses to separate areas to obtain informed consent and orally administer self-report measures assessing psychological and physical IPV, sociodemographic risk, and relationship satisfaction. Couples were debriefed and paid $75 for participating. After completing self-report measures individually, partners were reunited for three 8-min videotaped discussions that were used to measure adaptive behavioral processes. Discussions took place in a location of the couples' choosing that would enable them to talk privately and without interruption. For the first interaction, partners were asked to identify a topic of disagreement in their relationship and to then devote 8 minutes working toward a mutually satisfying resolution of that topic. Common topics included management of money, chores, communication, and spending time together as a couple. The second and third discussion used procedures designed to assess social support behaviors (Pasch & Bradbury, 1998). One randomly chosen spouse was asked to "talk about something you would like to change about yourself" while the partner was instructed to "be involved in the discussion and respond in whatever way you wish." Spouses were instructed to avoid selecting or discussing topics that were sources of tension or difficulty within the relationship. After a short break, a second discussion was held that was identical to the first discussion, with the roles reversed. Common topics included losing weight, making a career change, and dealing with stress. Videotapes were scored by 16 trained coders using the Iowa Family Interaction Rating Scales (IFIRS; Melby et al., 1998).

## Measures

**Husband- and wife-perpetrated intimate partner violence.** IPV during the past nine months was assessed with an adapted version of the revised Conflict Tactics Scales (CTS-2; Straus, Hamby, Boney-McCoy, & Sugarman, 1996), which contained a total of 14 items (7 items assessing perpetration and 7 items assessing victimization). There were 3 items discussing psychological IPV (swearing at partner; stomping out of the room after an argument; threatening to hit partner) and 4 items discussing physical IPV (throwing something at partner; pushing, grabbing, or shoving partner; slapping, kicking, biting, or punching partner; beating partner). For each item, participants were asked if they had engaged in the act described (i.e., perpetration) and if their spouse had engaged in the act described (i.e., victimization). If they indicated that an act had happened, participants were asked to indicate the number of times each event had occurred, with the response options being 1 (Once or twice), 2 (Several times), and 3 (Often). To control for underreporting, maximum reported perpetration scores (created by comparing individual reports of perpetration and partner reports of victimization and using the higher of the two) were used for all analyses (see Salis et al., 2014). Psychological IPV (3 acts) and physical IPV (4 acts) items were then summed separately for husband- and wife-perpetrated IPV.

**Couple adaptive behavioral processes.** Six indicators – husband and wife positivity, husband and wife negativity, and husband and wife effectiveness – all assessed via video-taped discussions, were used to define a latent variable of couple adaptive behavioral processes. A composite *positivity* behavioral scale was created by averaging an individual's scores on the group enjoyment, positive mood, warmth/support, physical affection, humor/laugh, endearment, and listener responsiveness codes. A composite *negativity* behavioral scale was created by averaging an individual's scores on the hostility, disruptive process, contempt, denial, angry

coercion, dominance, verbal attack, interrogation, and externalized negative codes. A composite *effectiveness*, or problem-solving skill, behavioral scale was created by averaging an individual's scores on the assertiveness, communication, effective process, solution quality, and solution quantity. Positivity, negativity, and effectiveness scores were calculated for each of the three discussion tasks and then the three scores were averaged to create a positivity composite (ICC = .83 for husbands, .81 for wives), a negativity composite (ICC = .73 for husbands, .74 for wives), and an effectiveness composite (ICC= .74 for husbands, .80 for wives).

**Couple sociodemographic risk**. Risk at the outset of marriage was assessed following guidelines as outlined by Ross, Karney, Nguyen, and Bradbury (2018), using a 10-item index developed originally by Amato (2014). Couples were given 1 point for the presence of each of the following items: (a) either partner was under the age of 23, (b) husband had less than a high school education, (c) wife had less than a high school education, (d) husband was unemployed, (e) wife was unemployed, (f) couple's income was below the poverty line, (g) husband was receiving public assistance, (h) wife was receiving public assistance, (i) husband reported no one to help in an emergency, and (j) wife reported no one to help in an emergency. Actual values on the risk index ranged from 1 to 9 (out of 10 possible). This index has been shown to moderate the effects of skill-based interventions on couple communication and satisfaction, lending some support to its validity (Williamson, Hsueh, Altman, & Bradbury, 2016).

**Relationship satisfaction.** An 8-item questionnaire was used to assess relationship satisfaction, conceptualized as spouses' global sentiment toward the relationship. The measure was adapted from Rauer, Karney, Garvan, and Hou (2008) and included items from the General Social Survey (Davis, Smith, & Marsden, 2006). It has been used in large surveys with low-income couples (e.g., Rauer et al., 2008) and has been shown to co-vary systematically with

observed communication, thus lending support to its validity as an indicator of relationship functioning (Williamson, Karney, & Bradbury, 2013). Five items asked how satisfied the respondent was with certain areas of their relationship (e.g., "satisfaction with the amount of time spent together") and were scored on a 5-point scale (1 = *Very dissatisfied,* 2 = *Somewhat dissatisfied,* 3 = *Neutral,* 4 = *Somewhat satisfied*, 5 = *Very satisfied*). Three items asked to what degree the participant agreed with a statement about their relationship (e.g., "how much do you trust your partner") and were scored on a 4-point scale (1 = *Not at all*, 2 = *Not that much*, 3 = *Somewhat,* 4 = *Completely*). Scores could range from 8 (very dissatisfied) to 37 (very satisfied). Coefficient alpha was .72 for husbands and .74 for wives.

**Analytic Plan**

Structural Equation Modeling (SEM) in Mplus Version 8 with Maximum Likelihood Robust (MLR) as the estimator was used for all analyses. MLR accommodates for missing data so that models were estimated using all available observations ($N = 431$ couples for each of the models described below). Furthermore, the use of MLR was appropriate due to non-normal distribution of the data. Partners in intimate relationships do not operate independently of one another. Rather, their behaviors and perceptions tend to be inter-related. In order to statistically account for the effects that a partner has on an individual's outcome, Kenny, Kashy, and Cook (2006) have proposed dyadic approaches using the couple as the unit of analysis, rather than the individual. Following this approach, in the present study, husband and wife variables were allowed to correlate in all models, thereby accounting for the non-independence of partners' data.

I first examined the association between psychological IPV and physical IPV as established in previous research (e.g., Salis et al., 2014) by testing a model that included

husband- and wife-perpetrated psychological IPV as predictors and husband- and wife-perpetrated physical IPV as outcomes. To account for dyadic interdependence of data, husband- and wife-perpetrated psychological IPV and husband- and wife-perpetrated physical IPV were allowed to correlate. I also tested two additional models that were consistent with this first model but included (a) couple adaptive behavioral processes (latent variable) and (b) couple sociodemographic risk as additional predictors.

Then, three separate models were fit to the data to address the main research questions. In Aim 1, I examined whether couples' adaptive behavioral processes moderate the association between psychological and physical IPV. This model included husband- and wife-perpetrated psychological IPV, couple behavioral processes, and husband-perpetrated psychological IPV-by-couple behavioral processes and wife-perpetrated psychological IPV-by-couple behavioral processes interactions as predictors. See Figure 3.1 for a visual depiction of the model for Aim 1. In Aim 2, I examined whether couples' sociodemographic risk moderates the association between psychological and physical IPV. This model included husband- and wife-perpetrated psychological IPV, couple sociodemographic risk, and husband-perpetrated psychological IPV-by-couple sociodemographic risk and wife-perpetrated psychological IPV-by-couple sociodemographic risk interactions as predictors. To test the robustness of my moderation findings from Aims 1 and 2, I ran additional models including (a) husband and wife satisfaction and (b) the second moderator (couple sociodemographic risk in the psychological IPV-by-behavior model and couple adaptive behavioral processes in the psychological IPV-by-risk model) as covariates (Aim 3). For models with statistically significant interaction terms, I tested simple slope effects at low (-1 SD), mean, and high (+1 SD) levels of adaptive behavioral processes and sociodemographic risk.

To determine overall model fit, I assessed the root mean square error of approximation (RMSEA), an absolute index of overall model fit with values less than .08 indicating acceptable model fit (Steiger, 1990), and the Standardized Root Mean Residual (SRMR), an absolute index of overall model fit with values less than .08 indicative acceptable model fit (Hu & Bentler, 1999). ChiSquare tests are reported for completeness. I also report Loglikelihood, Akaike information criterion (AIC), Bayesian information criterion (BIC), and sample-size adjusted BIC as RMSEA, SRMR, and ChiSquare are not calculated in models with latent variable interaction terms.

A power analysis was conducted to estimate the required sample size to detect an effect for the most comprehensive model, including the highest number of latent and observed variables (i.e., Aim 3a: Behavior and Psychological IPV to Physical IPV, controlling for Husband and Wife Satisfaction). To achieve $d = .80$ with $\alpha = .05$, the minimum sample size to detect an effect was $N = 87$ (Soper, 2020), supporting appropriateness of the current sample size of $N = 431$ couples for the present analyses.

## Results

### Descriptive Statistics and Preliminary Results

Table 3.1 shows means, standard deviations and correlations of all study variables. Means for psychological IPV and physical IPV perpetration were higher for wives than for husbands and for psychological as compared to physical IPV (all $p$ values < 0.001). Correlations between psychological and physical IPV were 0.48 and 0.59 for husbands and wives, respectively. The intercorrelations between husbands and wives' psychological IPV ($r = 0.62$) and between husbands and wives' physical IPV ($r = 0.65$) were medium in magnitude. Correlations between behavioral skills and psychological and physical IPV, and between

sociodemographic risk and psychological and physical IPV, were relatively low, ranging from $r$ = |0.03| to |0.18|.

Seventy-eight percent of husbands and 81% of wives reported engaging in one or more acts of psychological IPV in the past 9 months and 17% of husbands and 29% of wives reported engaging in one or more acts of physical IPV in the past 9 months. With regards to psychological IPV, 22.5% of husbands and 19.0% of wives reported having engaged in no IPV in the past nine months, 37.4% of husbands and 33.9% of wives reported having engaged in one type, 37.1% of husbands and 39.9% of wives reported having engaged in two types, and 3.0% and 7.2% reported having engaged in all three types. With regards to physical IPV, 82.6% of husbands and 70.3% of wives reported having engaged in no IPV in the past nine months, 11.8% of husbands and 14.4% of wives reported having engaged in one type, 4.4% of husbands and 7.0% of wives reported having engaged in two types, and 1.2% and 8.4% reported having engaged in three types. Thus, as required for my analysis, substantial numbers of couples engaged in IPV.

As seen in Table 3.2, there was a significant association between husbands' psychological IPV and husbands' physical IPV ($\beta = 0.31$, $p < 0.01$) as well as between wives' psychological IPV and both husbands' physical IPV ($\beta = 0.27$, $p < 0.01$) and wives' physical IPV ($\beta = 0.53$, $p < 0.01$). The association between husbands' psychological IPV and wives' physical IPV was not statistically significant ($\beta = 0.09$, $p = 0.11$), although the significant wife-to-husband and the non-significant husband-to-wife partner effects were not statistically different from one another ($TRd = 0.27$, $p = 0.60$). These findings support previous research highlighting significant and positive actor effects between psychological and physical IPV.

Controlling for husbands and wives' psychological IPV, higher couple adaptive behavioral processes were related to lower physical IPV for wives ($\beta = -0.09$, $p = 0.01$).

However, there was no statistically significant association between couple adaptive behavioral processes and husbands' physical IPV ($\beta$ = -0.07, $p$ = 0.12). Furthermore, controlling for husbands and wives' psychological IPV, higher couple sociodemographic risk was related to higher physical IPV for husbands ($\beta$ = 0.08, $p$ = 0.03) and for wives ($\beta$ = 0.10, $p$ = 0.01).

All model fit indices of structural equation models are provided in Table 3.4.

**Aim 1: Do Adaptive Behavioral Processes Moderate the Association between Psychological IPV and Physical IPV?**

As seen in Table 3.3 and Figure 3.1, the behavior-by-psychological IPV interaction was statistically significant for husbands ($\beta$ = -0.28, $p$ = 0.01) and for wives ($\beta$ = -0.14, $p$ = 0.02). Specifically, for husbands, the positive association between psychological and physical IPV was statistically significant for low ($b$ = 0.33, $p < 0.01$) and medium behavioral skills ($b$ = 0.15, $p < 0.01$) and statistically non-significant for high behavioral skills ($b$ = -0.03, $p$ = 0.71). For wives, the positive association between psychological and physical IPV was significant for all behavioral skills levels ($b$ = 0.66, 0.52, and 0.37, all $p < 0.01$ for low, medium, and high behavioral skills, respectively; see Figure 3.2). To test whether the interaction effect differed between husbands versus wives, I constrained the two interaction paths to be equal and tested whether there was a significant decrease in model fit. There was no statistically significant decrease in fit, indicating that sex did not moderate the interaction effect ($TRd$ = 0.37, $p$ = 0.54).

**Aim 2: Does Sociodemographic Risk Moderate the Association between Psychological IPV and Physical IPV?**

As seen in Table 3.3 and Figure 3.1, the risk-by-psychological IPV interaction was statistically significant for husbands ($\beta$ = 0.30, $p$ = 0.02) but not for wives ($\beta$ = 0.14, $p$ = 0.20). Specifically, for husbands, the positive association between psychological and physical IPV was

statistically non-significant for low risk couples ($b = 0.09$, $p = 0.07$) and statistically significant for medium risk ($b = 0.17$, $p < 0.01$) and high risk ($b = 0.25$, $p < 0.01$) couples. For wives, the positive association between psychological and physical IPV was statistically significant for all risk levels ($b = 0.49$, 0.56, and 0.63, all $p < 0.01$ for low, medium, and high risk, respectively; see Figure 3.2). To test whether the interaction effect differed between husbands and wives, I constrained the two interaction paths to be equal and tested whether there was a significant decrease in model fit. There was no statistically significant decrease in fit, indicating that gender did not moderate the interaction effect ($TRd = 0.05$, $p = 0.82$).

**Aim 3: Do Results Hold When Controlling for the Alternative Moderator Effect and for Relationship Satisfaction?**

Under Aim 3, I re-ran the Aim 1 and 2 models, while also controlling for the alternative interaction term and relationship satisfaction. The pattern of results remained unchanged in both instances. I then computed a new model that included both interaction terms and relationship satisfaction simultaneously; results again remained unchanged (see Table 3.3).

## Discussion

Verbal hostility is common among intimate partners, yet only some of these psychologically aggressive couples also engage in acts of physical aggression. Why might this be? One line of research and theory asserts that basic skills in communication will enable some couples to avoid or exit situations marked by frustration and intense emotion, whereas less skilled couples will struggle to navigate these same situations, de-escalate their negative exchanges at a slower rate, and engage in acts of physical violence. A second tradition, not necessarily at odds with the first, instead situates couples within the larger set of social and economic forces that impinge upon them, asserting that psychologically aggressive couples are

more likely to be physically aggressive to the extent that they are under-resourced and compromised by chronic economic strain and social isolation. After replicating the robust association between psychological and physical IPV in a sample of ethnically diverse couples living with low incomes, I obtained evidence for both explanations, thus providing (a) grounds for integrating behavioral and socioeconomic models of risk for physical aggression (Karney & Bradbury, 1995) and (b) justification for identifying risky couples on the basis of their communication skills and social disadvantage, and for actively targeting both domains in preventive efforts.

My primary finding is that the association between psychological and physical IPV is stronger among couples who display lower-quality communication (that is, less positivity, more negativity, and less effectiveness) and among husbands who report greater levels of socioeconomic disadvantage (as indexed by, e.g., education, income, employment). Effects remained intact after controlling for the alternative interaction term (thus documenting their independent effects), and after controlling for relationship satisfaction (thus indicating that spouses' global appraisals of the relationship were not inflating associations). In short, whereas *main effects* relating observed behavior and socioeconomic risk to physical IPV are relatively weak, there is consistent evidence that these two variables *moderate* the psychological-to-physical IPV association, thereby serving to specify two key conditions that may govern expression of potentially harmful physical acts in intimate relationships.

Results were similar but not identical for husbands and wives. Communication operated as a reliable moderator for husbands and for wives, but the moderating effect of sociodemographic risk differed reliably from zero only for husbands. On one hand, the failure of sociodemographic risk to moderate effects among wives might reflect a greater tendency for men

to be exposed to discrimination or the demands of lower-wage jobs (e.g., because men in this sample were more likely than women to work outside the home). On the other hand, it is important to point out that effects were consistently larger among wives than husbands. Moreover, among couples with the highest communication quality, slope effects were nonsignificant for husbands but reliable for wives. These findings hint at the possibility that wives' IPV may be more responsive to interpersonal and extra-dyadic influences, and future work is needed to corroborate this possibility. The overarching conclusion, however, is that verbal aggression co-varies with physical violence when communication quality is low and sociodemographic risk is high, with no formal evidence of moderation by gender.

**Limitations**

Although observational data, dyadic data, and a large and diverse sample from an understudied population are key strengths of this work, interpretation of my findings is limited by several factors. Perhaps the greatest limitation of this work is my reliance on cross-sectional data, preventing conclusions about any causal relationships. However, by focusing on hypothesized moderators, my primary emphasis was not on causal relationships but on the relational and environmental conditions under which psychological and physical aggression are most closely associated. Furthermore, the directional order of psychological to physical IPV is in line with the literature (e.g., Cadely et al., 2020), strengthening confidence in the present results. Second, although I did take steps to reduce underreporting of IPV, IPV was assessed via self-report and may be subject to uncontrolled biases due to couples' discomfort in discussing such a sensitive topic. Furthermore, bias may have been introduced as 60% of the eligible couples were never reached, potentially excluding couples in more dysfunctional relationships. Third, generalization of my findings is as yet unknown, and I cannot say whether these results would

apply to dating couples, couples in more established relationships, or same-sex couples. Similarly, it is unclear whether my results would generalize to higher income couples. Couples from low-income communities, as represented in the current research, may be particularly susceptible to effects of sociodemographic risk and communication skills; future research may benefit from exploring whether the moderating effects of these two variables on the association between psychological and physical IPV remains among couples of different sociodemographic strata. It is important to note that my assessment of psychological and physical IPV was based on only three and four items, respectively, and that relatively few couples engaged in severe levels of psychological IPV. Therefore, it is unknown whether the current results would generalize to couples with higher levels and severity of aggression and violence. Finally, although my choice of controlling for underreporting of IPV by choosing the highest score of partners' reported IPV is supported by prior research (e.g., Salis et al., 2014) and provides a more conservative approach, results might look differently with another analytic choice (e.g., averaging partners' reports).

**Research Implications**

Notwithstanding these limitations, the present findings may have implications for understanding the association between psychological and physical IPV. In trying to tease apart how hostile verbal exchanges become physical, previous research has called for integration across socioecological levels of analysis (Capaldi et al., 2004). However, the specifics for such an integration remain unclear, as few studies link factors at different socioecological levels. I provide some of these specifics, suggesting that IPV may need to be conceptualized differently than previously thought. Rather than focusing on main effects of risk on IPV, focusing on moderated effects in the association between psychological and physical IPV may be more

important. I show that verbally aggressive couples are most likely to also be physically aggressive when their communication skills are relatively low and their level of sociodemographic disadvantage is relatively high. Critically, these two levels of analysis are independent of one another, showing that poor communication skills and sociodemographic strain, each on their own, may influence whether psychological and physical IPV co-vary.

The current work did not document specific instances when psychological aggression either did or did not eventuate into acts of physical aggression as a function of the moderators tested. My findings set the stage for such work. For example, future studies could include (a) diary studies that track instances of escalation of aggression for various types of couples and (b) experimental studies in which moderators are manipulated (e.g., via communication skills or stress management training) and pre-post effects of the intervention on the escalation of aggression are examined. Furthermore, future work may be aimed at examining alternative models using longitudinal data. For example, it could be that factors such as communication skills and sociodemographic risk contribute to increased psychological aggression, which in turn leads to physical IPV.

**Prevention and Clinical Implications**

With regard to intervention, findings support efforts to improve couple communication. However, given that the moderating effects of communication and sociodemographic strain were independent of one another, focusing on communication alone may not be sufficient, because even partners with strong communication skills, when exposed to stressful environments, will be at risk for violence escalation. For these partners, greater appreciation of the harsh contexts they find themselves in will be of utmost importance. I conclude that in addition to behavioral skills training, which is already a component in many programs, efforts that reduce economic hardship

and stress, such as support in the form of financial assistance, Medicaid, and financial education (Matjasko et al., 2013), may have the potential to prevent IPV. In fact, it may be easier to prevent escalation of violence by identifying at-risk couples than to modify violent behavior once it has started. Targeted prevention efforts, specifically focusing on high-risk couples, such as those living in low-income, high-crime environments, may be indicated.

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## Tables and Figures

Table 3.1. Means, Standard Deviations, and Correlations of Study Variables

| Variable Name | 1. | 2. | 3. | 4. | 5. |
|---|---|---|---|---|---|
| 1. Physical IPV | **0.65*** ** | 0.59*** | 0.01 | 0.09 | -0.18*** |
| 2. Psychological IPV | 0.48*** | **0.62*** ** | -0.06 | -0.03 | -0.15** |
| 3. Satisfaction | -0.06 | -0.15** | **0.47*** ** | -0.17** | 0.22*** |
| 4. Risk | 0.10* | 0.09 | -0.19** | -- | -0.18*** |
| 5. Observed Behavior | -0.15** | -0.15** | 0.23*** | -0.18*** | -- |
| *M* (*SD*) for Husbands | 0.37 (0.93) | 1.67 (1.41) | 3.99 (1.06) | 2.47 (2.12) | 0.00 (0.00) |
| *M* (*SD*) for Wives | 0.84 (1.68) | 2.00 (1.62) | 3.85 (1.04) | | |

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

*Note*. Husbands' correlations are reported below the diagonal and wives' correlations are reported above the diagonal. Intercorrelations between husbands and wives' variables are reported on the diagonal.
Risk and Behavior are couple-level variables.
All values are derived from the standardized Mplus output with MLR as the estimator and thus make use of the full sample ($N = 431$ couples).
All variables reported here are considered observed variables, except for Behavior, which is a latent variable and thus by default has a mean and standard deviation of zero.

Table 3.2. Results of Main Effect Analyses Examining the Effects of Psychological IPV, Behavior, and Risk on Physical IPV

| Regression Path | Estimate | S.E. | Est./S.E. | p-value |
|---|---|---|---|---|
| **Psychological IPV to Physical IPV** | | | | |
| H Physical ON | | | | |
| H Psychological | 0.31 | 0.08 | 4.19 | <0.01 |
| W Psychological | 0.27 | 0.07 | 4.01 | <0.01 |
| W Physical ON | | | | |
| H Psychological | 0.09 | 0.06 | 1.59 | 0.11 |
| W Psychological | 0.53 | 0.06 | 9.04 | <0.01 |
| **Behavior and Psychological IPV to Physical IPV** | | | | |
| H Physical ON | | | | |
| H Psychological | 0.31 | 0.08 | 4.10 | <0.01 |
| W Psychological | 0.27 | 0.07 | 3.95 | <0.01 |
| Couple Behavior | -0.07 | 0.04 | -1.54 | 0.12 |
| W Physical ON | | | | |
| H Psychological | 0.09 | 0.06 | 1.46 | 0.14 |
| W Psychological | 0.52 | 0.06 | 8.40 | <0.01 |
| Couple Behavior | -0.09 | 0.03 | -2.68 | 0.01 |
| **Risk and Psychological IPV to Physical IPV** | | | | |
| H Physical ON | | | | |
| H Psychological | 0.30 | 0.07 | 4.02 | <0.01 |
| W Psychological | 0.28 | 0.07 | 4.20 | <0.01 |
| Couple Risk | 0.08 | 0.04 | 2.32 | 0.03 |
| W Physical ON | | | | |
| H Psychological | 0.08 | 0.06 | 1.25 | 0.21 |
| W Psychological | 0.55 | 0.06 | 8.73 | <0.01 |
| Couple Risk | 0.10 | 0.04 | 2.46 | 0.01 |

Note: H=Husband, W=Wife. Estimate values from overall model represent standardized coefficients that can be interpreted as effect sizes (STDYX output). “Behavior” variable is a latent variable; all other variables are observed variables.

Table 3.3. Results of Moderation Analyses Examining the Effects of Psychological IPV, Behavior, and Risk on Physical IPV

| Regression Path | Behavior as a Moderator | | | | Risk as a Moderator | | | |
|---|---|---|---|---|---|---|---|---|
| | Estimate | S.E. | Est./S.E. | p-value | Estimate | S.E. | Est./S.E. | p-value |
| **No Covariates** | | | | | | | | |
| H Physical ON | | | | | | | | |
| Intercept | -0.25 | 0.05 | -4.85 | <0.01 | -0.21 | 0.07 | -2.86 | <0.01 |
| H Psychological | 0.23 | 0.07 | 3.52 | <0.01 | 0.12 | 0.08 | 1.43 | 0.15 |
| W Psychological | 0.27 | 0.07 | 3.92 | <0.01 | 0.31 | 0.07 | 4.59 | <0.01 |
| Moderator | 0.18 | 0.07 | 2.46 | 0.01 | -0.07 | 0.06 | -1.30 | 0.19 |
| H Psych*Moderator | -0.28 | 0.10 | -2.77 | 0.01 | 0.30 | 0.12 | 2.40 | 0.02 |
| W Physical ON | | | | | | | | |
| Intercept | -0.22 | 0.06 | -4.01 | <0.01 | -0.28 | 0.08 | -3.62 | <0.01 |
| H Psychological | 0.07 | 0.06 | 1.15 | 0.25 | 0.07 | 0.06 | 1.12 | 0.26 |
| W Psychological | 0.51 | 0.06 | 8.76 | <0.01 | 0.49 | 0.09 | 5.41 | <0.01 |
| Moderator | 0.04 | 0.05 | 0.76 | 0.45 | 0.02 | 0.05 | 0.40 | 0.69 |
| W Psych*Moderator | -0.14 | 0.06 | -2.30 | 0.02 | 0.14 | 0.11 | 1.29 | 0.20 |
| Simple Slopes | | | | | | | | |
| H Low Moderator | 0.33 | 0.09 | 3.75 | <0.01 | 0.09 | 0.05 | 1.73 | 0.08 |
| H Medium Moderator | 0.15 | 0.05 | 3.28 | <0.01 | 0.17 | 0.05 | 3.54 | <0.01 |
| H High Moderator | -0.03 | 0.09 | -0.38 | 0.71 | 0.25 | 0.07 | 3.76 | <0.01 |
| W Low Moderator | 0.66 | 0.11 | 6.06 | <0.01 | 0.49 | 0.10 | 4.77 | <0.01 |
| W Medium Moderator | 0.52 | 0.08 | 6.66 | <0.01 | 0.56 | 0.09 | 6.44 | <0.01 |
| W High Moderator | 0.37 | 0.09 | 3.99 | <0.01 | 0.63 | 0.10 | 6.29 | <0.01 |
| **Satisfaction as a Covariate** | | | | | | | | |
| H Physical ON | | | | | | | | |
| Intercept | -0.68 | 0.20 | -3.48 | <0.01 | -0.33 | 0.22 | -1.53 | 0.13 |
| H Psychological | 0.23 | 0.06 | 3.78 | <0.01 | 0.12 | 0.08 | 1.48 | 0.14 |
| W Psychological | 0.25 | 0.06 | 3.96 | <0.01 | 0.31 | 0.07 | 4.61 | <0.01 |
| Moderator | 0.14 | 0.08 | 1.78 | 0.08 | -0.07 | 0.06 | -1.18 | 0.24 |
| H Psych*Moderator | -0.25 | 0.10 | -2.45 | 0.01 | 0.29 | 0.12 | 2.36 | 0.02 |
| H Satisfaction | 0.09 | 0.04 | 2.14 | 0.03 | 0.03 | 0.04 | 0.59 | 0.56 |
| W Physical ON | | | | | | | | |
| Intercept | -1.76 | 0.13 | -13.12 | <0.01 | -0.74 | 0.16 | -4.60 | <0.01 |
| H Psychological | 0.11 | 0.06 | 2.06 | 0.04 | 0.09 | 0.06 | 1.38 | 0.17 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| W Psychological | 0.42 | 0.06 | 7.47 | <0.01 | 0.48 | 0.09 | 5.35 | <0.01 |
| Moderator | -0.07 | 0.05 | -1.22 | 0.22 | 0.03 | 0.05 | 0.53 | 0.60 |
| W Psych*Moderator | -0.10 | 0.05 | -1.90 | 0.06 | 0.15 | 0.11 | 1.38 | 0.17 |
| W Satisfaction | 0.35 | 0.03 | 11.92 | <0.01 | 0.10 | 0.03 | 3.23 | <0.01 |
| Simple Slopes | | | | | | | | |
| H Low Moderator | 0.33 | 0.09 | 3.68 | <0.01 | 0.09 | 0.05 | 1.79 | 0.07 |
| H Medium Moderator | 0.16 | 0.05 | 3.50 | <0.01 | 0.17 | 0.05 | 3.60 | <0.01 |
| H High Moderator | -0.01 | 0.09 | -0.12 | 0.91 | 0.25 | 0.07 | 3.79 | <0.01 |
| W Low Moderator | 0.61 | 0.10 | 5.85 | <0.01 | 0.48 | 0.10 | 4.76 | <0.01 |
| W Medium Moderator | 0.49 | 0.08 | 6.25 | <0.01 | 0.55 | 0.09 | 6.45 | <0.01 |
| W High Moderator | 0.38 | 0.10 | 3.90 | <0.01 | 0.63 | 0.10 | 6.32 | <0.01 |
| **Behavior/Risk as a Covariate** | | | | | | | | |
| H Physical ON | | | | | | | | |
| Intercept | -0.31 | 0.07 | -4.52 | <0.01 | -0.19 | 0.07 | -2.59 | 0.01 |
| H Psychological | 0.23 | 0.07 | 3.41 | <0.01 | 0.11 | 0.08 | 1.38 | 0.17 |
| W Psychological | 0.28 | 0.07 | 4.03 | <0.01 | 0.30 | 0.07 | 4.53 | <0.01 |
| Moderator | 0.19 | 0.07 | 2.58 | 0.01 | -0.08 | 0.06 | -1.46 | 0.14 |
| H Psych*Moderator | -0.28 | 0.10 | -2.72 | 0.01 | 0.30 | 0.12 | 2.40 | 0.02 |
| H Behavior/Risk | 0.05 | 0.04 | 1.46 | 0.15 | -0.05 | 0.04 | -1.22 | 0.22 |
| W Physical ON | | | | | | | | |
| Intercept | -0.32 | 0.07 | -4.40 | <0.01 | -0.24 | 0.08 | -3.07 | <0.01 |
| H Psychological | 0.05 | 0.06 | 0.90 | 0.37 | 0.07 | 0.06 | 1.04 | 0.30 |
| W Psychological | 0.53 | 0.06 | 8.96 | <0.01 | 0.48 | 0.09 | 5.33 | <0.01 |
| Moderator | 0.05 | 0.05 | 1.01 | 0.31 | 0.01 | 0.05 | 0.13 | 0.90 |
| W Psych*Moderator | -0.14 | 0.06 | -2.25 | 0.02 | 0.14 | 0.11 | 1.32 | 0.19 |
| W Behavior/Risk | 0.08 | 0.04 | 2.08 | 0.04 | -0.08 | 0.03 | -2.39 | 0.02 |
| Simple Slopes | | | | | | | | |
| H Low Moderator | 0.32 | 0.09 | 3.64 | <0.01 | 0.08 | 0.05 | 1.70 | 0.09 |
| H Medium Moderator | 0.14 | 0.05 | 3.19 | <0.01 | 0.17 | 0.05 | 3.50 | <0.01 |
| H High Moderator | -0.04 | 0.08 | -0.42 | 0.68 | 0.25 | 0.07 | 3.72 | <0.01 |
| W Low Moderator | 0.67 | 0.11 | 6.10 | <0.01 | 0.48 | 0.10 | 4.73 | <0.01 |
| W Medium Moderator | 0.53 | 0.08 | 6.71 | <0.01 | 0.55 | 0.09 | 6.38 | <0.01 |
| W High Moderator | 0.39 | 0.09 | 4.13 | <0.01 | 0.62 | 0.10 | 6.23 | <0.01 |

Note: H=Husband, W=Wife. Estimate values from overall model represent standardized coefficients that can be interpreted as effect sizes (STDYX output). Simple slope estimates are not available in STDYX output and thus represent unstandardized coefficients. “Behavior” variable is a latent variable; all other variables are observed variables.

Table 3.4. Model Fit Indices for Structural Equation Models

| | Log | AIC | BIC | Adj. BIC | ChiSqu (df) | RMSEA | SRMR |
|---|---|---|---|---|---|---|---|
| **Main Effect Models** | | | | | | | |
| Psychological IPV to Physical IPV | -2652.74 | 5333.47 | 5390.40 | 5345.97 | 0.00 (0)* | 0.00* | 0.00 |
| Behavior and Psychological IPV to Physical IPV | -5119.29 | 10310.57 | 10456.95 | 10342.71 | 361.68 (29)* | 0.16* | 0.11 |
| Risk and Psychological IPV to Physical IPV | -2649.22 | 5330.44 | 5395.50 | 5344.72 | 8.33 (2)* | 0.09 | 0.02 |
| **Interaction Models** | | | | | | | |
| Behavior as Moderator (No Covariates) | -5104.40 | 10284.79 | 10439.31 | 10318.72 | -- | -- | -- |
| Behavior as Moderator (Satisfaction as a Covariate) | -5920.85 | 11941.70 | 12145.01 | 11986.34 | -- | -- | -- |
| Behavior as Moderator (Risk as a Covariate) | -5102.17 | 10284.35 | 10446.99 | 10320.06 | -- | -- | -- |
| Risk as Moderator (No Covariates) | -2642.34 | 5320.68 | 5393.87 | 5336.74 | 438.38 (8)* | 0.35* | 0.20 |
| Risk as Moderator (Satisfaction as a Covariate) | -3417.72 | 6893.43 | 7011.35 | 6919.32 | 613.05 (16)* | 0.29* | 0.17 |
| Risk as Moderator (Behavior as a Covariate) | -5109.62 | 10299.25 | 10461.89 | 10334.95 | 1123.52 (55)* | 0.21* | 0.17 |

*$p < .05$

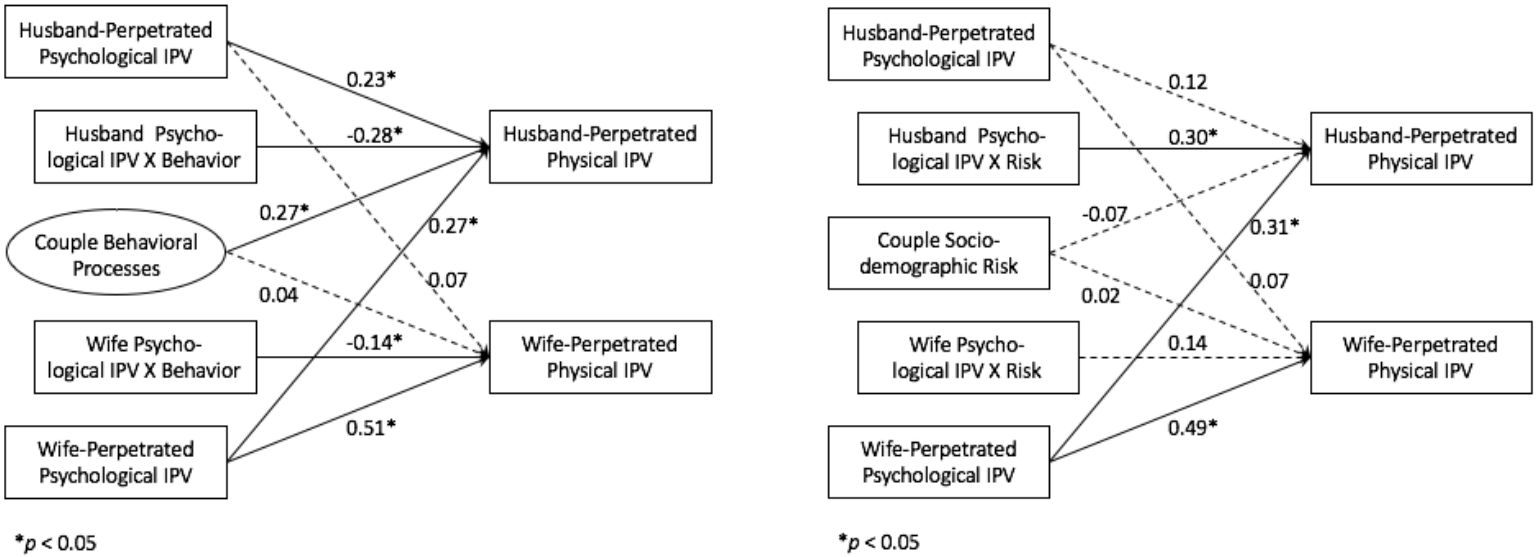


*Figure 3.1.* Aims 1 and 2 examining couple adaptive behavioral processes and sociodemographic risk as moderators in the association between husband and wife psychological and physical intimate partner violence (IPV).
Straight lines indicate statistically significant regression paths; dotted lines indicate non-significant paths.
Model fit (Aim 1): Log = -5104.40, AIC = 10284.79, BIC = 10439.31, Adj. BIC = 10318.72.
Model fit (Aim 2): $\chi^2$ (8) = 438.38, RMSEA = 0.35, SRMR = 0.20.

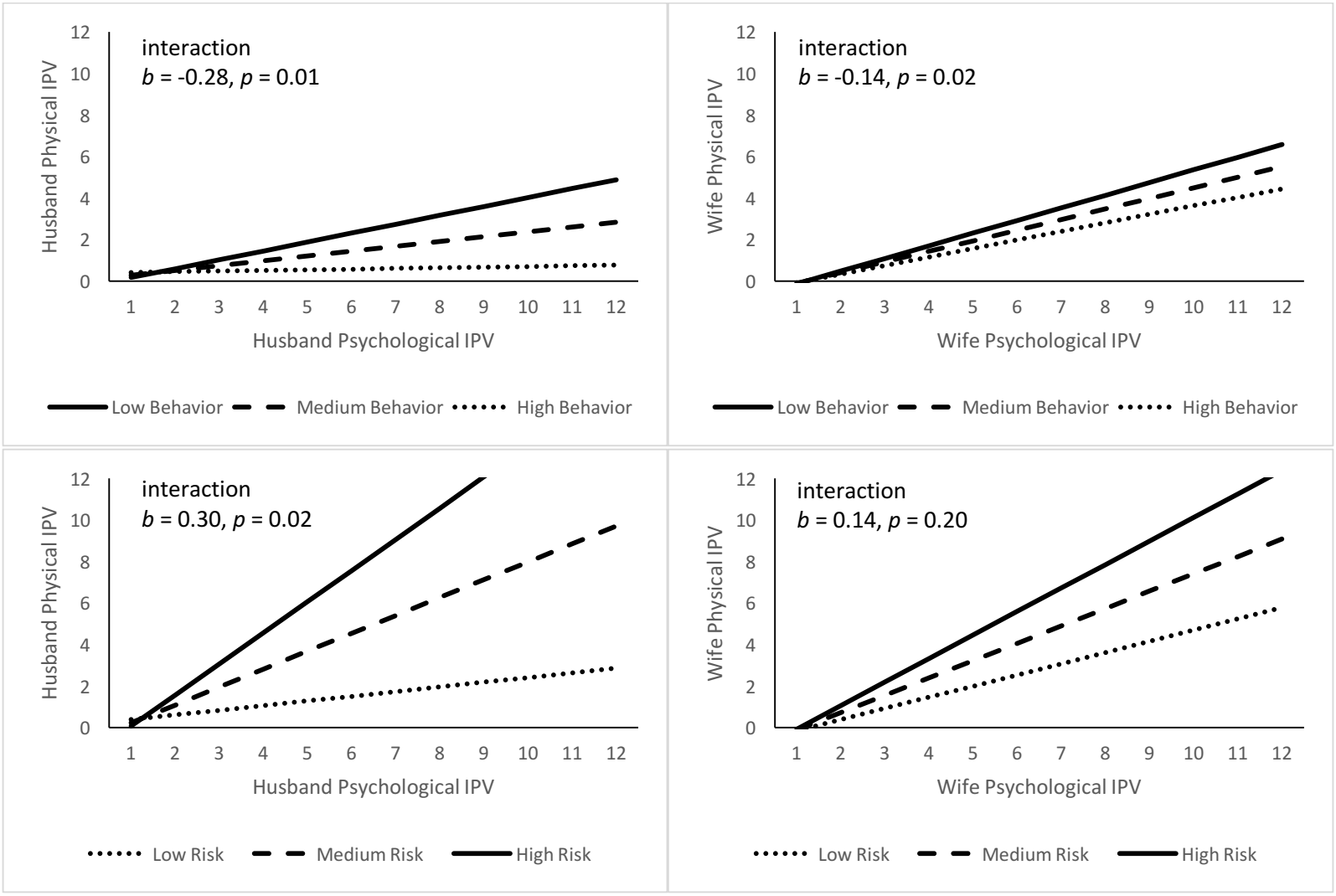


*Figure 3.2*. Couple Behavior and Sociodemographic Risk as Moderators of the Association between Husband and Wife Psychological and Physical Aggression.
Note: The lines above portray standardized coefficients.

# GENERAL DISCUSSION

Every year, intimate partner violence impacts the lives of millions of people worldwide (WHO, 2014), leading to negative consequences for physical and mental health as well as social and economic well-being (e.g., Geffner, 2016; O'Campo et al., 2006; Rivera, Sullivan, Zeoli, & Bybee, 2016; Wright, Pinchevsky, Benson, & Radatz, 2015). Although multiple efforts have been devoted to trying to understand IPV and identify its risk and resiliency factors, most of these efforts have focused on individual-level variables, such as substance use, personality, and childhood experiences, or couple-level variables, such as relationship satisfaction and communication skills. Multiple lines of research have now reliably identified risky individuals and relationships (Slep, Foran, Heyman, & Snarr, 2010). However, more recently, scholars have begun to argue that individuals and couples cannot be studied in isolation as they are embedded in the environments they inhabit. Therefore, close examination of the contexts within which couples operate may help identify additional risk and protective factors for IPV (Miller-Graff & Graham-Bermann, 2016).

The proposition to examine risk factors of IPV not only at the individual and relational level but to also take into account the contexts within which individuals and couples operate is in line with Bronfenbrenner's (1979) socioecological model, highlighting the importance of understanding micro- as well as macro-level elements. While it is the case that existing literature already reliably ties variables at the individual and relational layer to IPV, the relative dearth of studies examining contextual predictors and of studies using a broad-based approach across all layers of analysis prevents us from being able to fully evaluate the applicability of Bronfenbrenner's (1979) model to the phenomenon of IPV.

The goal of this dissertation was to fill this gap, by extending and refining the growing body of research documenting how contextual influences can affect the expression of IPV in developing marriages. Through three studies, this dissertation also aimed to discern whether, and in what manner, contextual factors – including neighborhood factors, income, various facets of stress (e.g., finances, discrimination), as well as resources from social networks – influence the association between established risk factors at the individual and couple level and IPV.

While the three studies of this dissertation differ in the specific contextual facets they emphasize, all share a focus on understanding the manner in which fundamental processes in relationships might operate differently depending on the contextual risk couples face. Such risk tends to be particularly pronounced for couples living toward the lower end of socioeconomic functioning, who are at greater risk for relationship dissolution, have fewer overall resources, and therefore are likely exposed to more external stress and financial strain. As a result, disadvantaged couples may rely more heavily on their environment for support (Heflin, London, & Scott, 2011) and contextual stressors have the potential to directly influence partners' risk for IPV, over and above factors at the individual and relational level. For these reasons, I specifically examined samples of newlywed couples living in neighborhoods relatively high in poverty, via publicly-available marriage licenses. This strategy allowed me to overcome limitations associated with convenience sampling. Furthermore, each of the three studies aimed to capture couple processes by going beyond self-report data, including data from in-home visits, comprehensive social network interviews, and coded behavioral observations.

Across the three studies, findings lend general support to the value of understanding couples within their larger ecological niches (Bronfenbrenner, 1979), demonstrating that factors outside of the couple can influence within-couple processes such as IPV. This notion challenges

the proposition that IPV should be conceptualized as a private phenomenon and underscores that contextual risk factors, in addition to individual and relational variables, have the potential to influence whether couples' arguments take on aggressive or even violent forms. Below, I outline the main results from each study in further detail.

## Summary of Key Results

In an effort to synthesize prior work, Study 1 of this dissertation examined whether the accumulation of selected factors across individual, relational, and contextual socio-ecological layers, when considered simultaneously, predicts IPV. While it is the case that, collectively, existing literature already ties variables at each of these layers to IPV, relatively few studies have adopted a broad-based approach. Study 1 therefore set out to provide a more complete understanding of the micro- and macro-level elements related to IPV, considering a broad range of variables across all three domains. Results of latent growth curve analyses showed that individual and relational risk were consistently related to IPV initial status (i.e., intercepts), for husbands and wives. Effects of contextual risk on IPV were less consistent. All risk indices were unrelated to 18-month changes in IPV. Given the unexpectedly weak associations between contextual risk and IPV, I then tested for moderation by context (see Baron and Kenny, 1986). However, individual and dyadic deficits put partners at higher risk for IPV, independent of their contextual risk. These results provide the necessary synthesis to integrate prior knowledge: Even after adjusting for potential distal influences, individual and dyadic variables present clear risk factors of IPV initial status. Although I did not find robust associations between contextual variables and IPV, I did find evidence for correlations between all three facets of risk, lending support for the idea that risky individuals in risky relationships tend to be found in risky environments. Furthermore, it is possible that the macro-contexts assessed in Study 1, such as

neighborhoods and social networks, may be less predictive of IPV, as compared to micro-level contextual factors, such as perceptions of stress. Study 2 set out to examine exactly this possibility.

The goal of Study 2 was to examine whether adversities experienced early in life serve to channel individuals into stressful circumstances that then evoke situational IPV in adulthood. Rather than thinking about context more broadly, as done in Study 1, in Study 2, I focused on the specific micro-level contexts of perceived stress, financial strain, and experiences of discrimination. Replicating prior research, reports of early adversity and current life stress co-varied reliably with IPV, for husbands and wives. Among husbands, early adversity was linked to IPV via stress, whereas for wives, no such mediation emerged. Results remained robust against alternative models (e.g., controlling for relationship satisfaction, substituting relationship satisfaction for IPV, examining the interaction between adversity and stress as a predictor of IPV). These findings indicate that the situations that are a defining feature of situational IPV may themselves be a reflection of the adversities that men face early in life; in the absence of these stressors, the association between early adversity and later IPV falls to non-significance.

After having studied aggressive and violent couples in context in the first and in the second dissertation studies, Study 3 of this dissertation aimed to explore the mechanisms or means by which context matters. This study set out to not only study aggressive or violent individuals and couples in context but to also examine *how* their contexts operate on them, by examining whether the well-established association between psychological and physical IPV is moderated by couples' negative and ineffective communication during relationship-focused conversations and the demands imposed upon couples by living in socially and economically disadvantaged contexts. Results showed that the association between psychological and physical

aggression was stronger among couples who displayed lower-quality communication and among husbands facing higher levels of socioeconomic disadvantage. The moderating effect of couple communication remained significant after controlling for socioeconomic disadvantage, and the moderating effect of socioeconomic disadvantage remained significant after controlling for communication. All effects remained after controlling for relationship satisfaction. While results supporting the moderating role of communication in the association between psychological and physical IPV corroborate expectations based on existing literature, the evidence that contextual factors also moderate this association to a comparable degree may be more surprising. These findings indicate that specific communication skills and broad indices of socioeconomic vulnerability make independent contributions to acts of physical aggression among psychologically aggressive couples.

Before discussing the implications of this work, it is important to acknowledge a few limitations spanning across all three studies: Despite taking steps to reduce underreporting in both of the samples this dissertation draws from, IPV was assessed via self-report and may be subject to uncontrolled bias. However, although it is possible that partners underreported the degree of IPV experienced, significant effects were found, making findings more conservative and increasing confidence in the current results. In addition, although the use of low-income, ethnically diverse samples of newlyweds is a strength of the three studies, generalization of the current findings is as yet unknown. Thus, I cannot say whether these results apply to other kinds of samples, including dating couples or couples in more established relationships, same-sex couples, higher income couples, or more clinical samples with higher rates of aggression and violence. Lastly, the reliance on cross-sectional data in Studies 2 and 3 prevents conclusions about any causal relationships among study variables. However, the directional order of

childhood to adulthood adversity and of psychological to physical IPV is in line with the literature (e.g., Cadely et al., 2020), strengthening confidence in the present results.

## Implications and Future Directions

These new data refine existing models trying to understand risk and protective factors of IPV. The three studies presented here clearly oppose conceptualizations of IPV as a 'private phenomenon' (Caetano, Ramisetty-Mikler, & Harris, 2010), not influenced by the environments or contexts partners inhabit. Rather, the current data reinforce a socioecological understanding of IPV (Heise, 1998), lending support for variables at each layer of Bronfenbrenner's (1979) model as potential risk factors of IPV. My data not only replicate associations between individual and relational risk and IPV, which have been widely examined in prior research, but also support risk factors at the contextual level.

In addition to replicating and synthesizing prior work, this dissertation extends existing models by pointing to the idea that the ways 'contexts' are defined and the ways contexts are treated in theoretical and statistical approaches (e.g., main effects versus mediators or moderators) matter. Specifically, macro-contexts further removed from the couple (e.g., neighborhoods and social networks; see Study 1) may show weaker associations with IPV than micro-contexts that closely touch the couple at risk (e.g., stress and strain; see Study 2). Furthermore, although some contextual factors may not exert direct effects on IPV (or effects may be relatively weak, at least compared to effects of individual and relational factors), they may have the potential to influence established associations related to patterns of IPV. As such, contextual variables may act as mediators (Study 2) or moderators (Study 3) in these associations, showing that similar experiences or behaviors take on different meanings depending on the environments or situations couples confront. For example, as shown in Study

3, verbal forms of aggression may be more likely to co-vary with more severe, physical acts of violence for couples facing sociodemographic disadvantage.

Looking forward, these studies suggest several directions for research on understanding the interplay between individual/relational and contextual risk factors related to IPV. One promising avenue for future research is to determine whether the current findings generalize to couples of varying relationship statuses, such as dating or cohabitating couples. A comparison across relationship status would help disentangle whether socioeconomic factors matter more for dating and cohabitating couples (as could be assumed based on prior research; e.g., Beyer, Wallis, & Hamberger, 2015), or whether stronger associations between socioeconomic variables and IPV are based on the fact that these couples are more likely to engage in IPV due to being less committed than married couples. Future research might also benefit from examining other characteristics of couples' micro- and macro-level environments and the ways in which these characteristics influence relationship dynamics such as violence between partners. For example, additional viable micro-level contexts salient in the lives of low-income couples could include access to health care and health stress (Flor, Turk, & Scholz, 1987; Hafstrom & Schram, 1984; Mayou, Foster, & Williamson, 1978). Examining micro-level contextual factors (e.g., stress) and macro-level contextual factors (e.g., neighborhood safety) in the same study would allow direct tests of the proposition that micro-contexts have stronger associations with IPV than those further removed from the couple. The studies in this dissertation also present methodological advances that future research may capitalize upon and extend. The use of Census data and coded observations of behavior permitted elimination of shared-method variance, while extensive social network data of specific network members prevented an overreliance on couples' global perceptions. Future research may make use of similar approaches.

According to the findings of this dissertation, IPV is not only a reflection of problems that lie within a couple or within an individual but might be, at least in part, a reflection of the difficult circumstances that partners face. These difficult circumstances may include the risk that partners bring to the relationship, including experiences encountered early in life, as well as the circumstances they currently face, including current stressors and sociodemographic disadvantage. Clinicians, policy makers, and advocates may make use of this knowledge to identify couples at risk for IPV, namely those couples who have a history of early life adversity, evidence high levels of verbal aggression, and who are currently exposed to high amounts of stress and socioeconomic strain. Furthermore, intervention strategies that alleviate stress and strain, for example in the form of financial or housing assistance, may prove particularly beneficial for these couples, perhaps in combination with individual- (e.g., anger management) or couple-based (e.g., communication skills training) approaches.

## Conclusion

This dissertation highlights that appreciating the environments and contexts that surround individuals is essential for understanding hostile exchanges among couples living with low incomes. The three studies presented here begin to delineate how context can affect relationship dynamics such as aggression and violence between intimate partners. Traditional approaches have assumed IPV to be a private phenomenon, occurring within couples' homes, and several factors at the individual and relational level have been identified that may increase or decrease partners' risk for IPV. The present research replicates these associations and also lends support for the importance of considering macro-level factors, such as the environments and contexts within which partners operate, when examining predictors of IPV. Going forward, designing interventions will likely benefit by departing from earlier conceptual frameworks that focused

exclusively on individual characteristics (e.g., anger management) and couple dynamics (e.g., communication skills training). Instead, this dissertation proposes new avenues of intervention that address the contexts couples inhabit, including interventions that target couples' chronic stressors and economic security. While not losing sight of the power of individual risk indicators and couples' dyadic interactions, future work on contextual factors has the potential to enhance theoretical understanding of relationships and ultimately inform interventions designed to prevent IPV among vulnerable couples.

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## APPENDIX

### Copies of Key Measures Used in Houston Data Collection

**Measures Used in Studies 1 & 2**

**Intimate Partner Violence**

IPV1a
Sometimes even happy couples can get into serious arguments, and sometimes those arguments can get pretty intense. I have a few questions about how you and [FILL SPOUSE NAME] behave during a serious argument. Please remember we will not share your answers with your spouse.

Thinking of the last nine months, that is since {FILL 9 MONTHS AGO}, did [FILL SPOUSE NAME] ever insult you or swear at you?

1 YES
0 NO → GO TO IPV2a

IPV1b
About how many times did this happen?

SHOWCARD H

1 Once or twice
2 Several times
3 Often

IPV2a
Did you ever insult or swear at [FILL SPOUSE NAME]?

1 YES
0 NO → GO TO IPV3a

IPV2b

About how many times did this happen?

1 Once or twice
2 Several times
3 Often

IPV3a
In the last nine months, did [FILL SPOUSE NAME] ever stomp out of the room, or leave the house during an argument?

1 YES
0 NO → GO TO IPV4a

IPV3b

About how many times did this happen?

1 Once or twice
2 Several times
3 Often

IPV4a
Did you ever stomp out of the room or leave the house during an argument with [FILL SPOUSE NAME]?

1 YES
0 NO → GO TO IPV5a

IPV4b
About how many times did this happen?

1 Once or twice
2 Several times
3 Often

IPV5a
Again, thinking of the last nine months, that is since {FILL 9 MONTHS AGO}, did [FILL SPOUSE NAME] ever threaten to hit you?

1 YES
0 NO → GO TO IPV6a

IPV5b
About how many times did this happen?

1 Once or twice
2 Several times
3 Often

IPV6a
Did you ever threaten to hit [FILL SPOUSE NAME]?

1 YES
0 NO → GO TO IPV7a

IPV6b
About how many times did this happen?

1 Once or twice
2 Several times
3 Often

IPV7a

In the last nine months, did [FILL SPOUSE NAME] ever throw something at you?

1 YES
0 NO → GO TO IPV8a

IPV7b
About how many times did this happen?

1 Once or twice
2 Several times
3 Often

IPV8a
Did you ever throw something at [FILL SPOUSE NAME]?

1 YES
0 NO → GO TO IPV9a

IPV8b
About how many times did this happen?

1 Once or twice
2 Several times
3 Often

IPV9a
In the last nine months, did [FILL SPOUSE NAME] ever push, grab, or shove you?

1 YES
0 NO → GO TO IPV10a

IPV9b
About how many times did this happen?

1 Once or twice
2 Several times
3 Often

IPV10a
Did you ever push, grab, or shove [FILL SPOUSE NAME]?

1 YES
0 NO → GO TO IPV11a

IPV10b
About how many times did this happen?

1 Once or twice
2 Several times
3 Often

IPV11a
In the last nine months, did [FILL SPOUSE NAME] ever slap, kick, bite, or punch you?

1 YES
0 NO → GO TO IPV12a

IPV11b
About how many times did this happen?

1 Once or twice
2 Several times
3 Often

IPV12a
Did you ever slap, kick, bite, or punch [FILL SPOUSE NAME]?

1 YES
0 NO → GO TO IPV13a

IPV12b
About how many times did this happen?

1 Once or twice
2 Several times
3 Often

IPV13a
In the last nine months, did [FILL SPOUSE NAME] ever beat you up?

1 YES
0 NO → GO TO IPV14a

IPV13b
About how many times did this happen?

1 Once or twice
2 Several times
3 Often

IPV14a
Did you ever beat up [FILL SPOUSE NAME]?

1 YES
0 NO → GO TO INFID1

IPV14b
About how many times did this happen?

1 Once or twice
2 Several times
3 Often

**Adverse Childhood Experiences (ACE)**

Now I would like you to think about your life before you were 18 years old. While you were growing up, during your first 18 years of life:

ACE1
Did a parent or other adult in the household **often or very often s**wear at you, insult you, put you down, or humiliate you?
YES = 1 NO = 0

ACE2
Did a parent or other adult in the household **often or very often** act in a way that made you afraid that you might be physically hurt?
YES = 1 NO = 0

ACE3
Did a parent or other adult in the household **often or very often** push, grab, slap, or throw something at you?
YES = 1 NO = 0

ACE4
Did a parent or other adult in the household **ever** hit you so hard that you had marks or were injured?
YES = 1 NO = 0

ACE5
Did an adult or person at least 5 years older than you **ever** try or succeed in doing something sexual to you or make you do something sexual to them against your wishes?
YES = 1 NO = 0

ACE6
Did you **often or very often** feel that no one in your family loved you or thought you were important or special?
YES = 1 NO = 0

ACE7
Did you **often or very often** feel that your family didn't look out for each other, feel close to each other, or support each other?
YES = 1 NO = 0

ACE8
Did you **often or very often** feel that you didn't have enough to eat, had to wear dirty clothes, and had no one to protect you?
YES = 1 NO = 0

ACE9
Did you **often or very often** witness someone in your family being pushed, grabbed, slapped, or had something thrown at them?
YES = 1 NO = 0

ACE10
Did you s**ometimes, often, or very often** witness someone in your family being kicked, bitten, hit with a fist, or hit with something hard?
YES = 1 NO = 0

ACE11
Did you **ever** witness someone in your family being beaten up or threatened with a gun or knife?
YES = 1 NO = 0

ACE12
Did you live with anyone who was a problem drinker or alcoholic or who used street drugs?
YES = 1 NO = 0

ACE13
Was a household member depressed or mentally ill, or did a household member attempt suicide?
YES = 1 NO = 0

ACE14
Did a household member go to prison?
YES = 1 NO = 0

**Marital Quality** (from Couple Satisfaction Index and Quality Marriage Index; 12 items including everything from QMI, CSI4, CSI16)

MARQUAL1
All things considered, how happy are you in your relationship with [SPOUSE'S NAME].

1 Extremely unhappy
2 Fairly unhappy
3 A little unhappy
4 A little happy
5 Fairly happy
6 Extremely happy
7 Perfect

MARQUAL2
In general, how often do you think that things between you and your partner are going well?

1 All of the time
2 Most of the time
3 More often than not
4 Occasionally
5 Rarely
0 Never

MARQUAL3
How much do you agree with these statements:

SHOWCARD E

Our relationship is strong.

0 Not at all true
1 A little true
2 Somewhat true
3 Mostly true
4 Almost completely true
5 Completely true

MARQUAL4
My relationship with my partner makes me happy

0 Not at all true
1 A little true
2 Somewhat true
3 Mostly true
4 Almost completely true
5 Completely true

MARQUAL5
I have a warm and comfortable relationship with my partner

0 Not at all true
1 A little true
2 Somewhat true
3 Mostly true
4 Almost completely true
5 Completely true

MARQUAL6
I really feel like part of a team with my partner

0 Not at all true
1 A little true

2 Somewhat true
3 Mostly true
4 Almost completely true
5 Completely true

MARQUAL7
We have a good marriage.

0 Not at all true
1 A little true
2 Somewhat true
3 Mostly true
4 Almost completely true
5 Completely true

MARQUAL8
My relationship with my partner is very stable.

0 Not at all true
1 A little true
2 Somewhat true
3 Mostly true
4 Almost completely true
5 Completely true

MARQUAL9
How rewarding is your relationship with your partner?

0 Not at all
1 A little
2 Somewhat
3 Mostly
4 Almost completely
5 Completely

MARQUAL10
How well does your partner meet your needs?

0 Not at all
1 A little
2 Somewhat
3 Mostly
4 Almost completely
5 Completely

MARQUAL11

How much has your relationship met your expectations?

| | |
|---|---|
| 0 | Not at all |
| 1 | A little |
| 2 | Somewhat |
| 3 | Mostly |
| 4 | Almost completely |
| 5 | Completely |

MARQUAL12

In general, how satisfied are you with your relationship?

| | |
|---|---|
| 0 | Not at all |
| 1 | A little |
| 2 | Somewhat |
| 3 | Mostly |
| 4 | Almost completely |
| 5 | Completely |

**Measures Used in Study 1 Only**

**Neuroticism** (from the Goldberg web site)

NEUR1

Now I would like to ask you some more questions about yourself and how you have been doing lately.

SHOWCARD I

How much does each of the following phrases describe you?

I worry about things.

0 Not at all like me
1 Not much like me
2 Somewhat like me
3 Very much like me

NEUR2

I get upset easily.

0 Not at all like me
1 Not much like me
2 Somewhat like me
3 Very much like me

NEUR3

I get stressed out easily.

0 Not at all like me
1 Not much like me
2 Somewhat like me
3 Very much like me

NEUR4

I am easily bothered by things.

0 Not at all like me
1 Not much like me
2 Somewhat like me
3 Very much like me

NEUR5

I am relaxed most of the time.

0 Not at all like me
1 Not much like me
2 Somewhat like me
3 Very much like me

NEUR6

My mood changes a lot.

0 Not at all like me
1 Not much like me
2 Somewhat like me

3 Very much like me

NEUR7
I get irritated easily.

0 Not at all like me
1 Not much like me
2 Somewhat like me
3 Very much like me

NEUR8
I often feel sad.

0 Not at all like me
1 Not much like me
2 Somewhat like me
3 Very much like me

**Neuroticism for Spouse** (adapted from the Goldberg web site)
NEURS1
Now I would like to ask you the same questions about your spouse.

SHOWCARD J
How much does each of the following phrases describe your spouse?

[SPOUSE'S NAME] worries about things.

0 Not at all like my spouse
1 Not much like my spouse
2 Somewhat like my spouse
3 Very much like my spouse

NEURS2
[SPOUSE'S NAME] gets upset easily.

0 Not at all like my spouse
1 Not much like my spouse
2 Somewhat like my spouse
3 Very much like my spouse

NEURS3
[SPOUSE'S NAME] gets stressed out easily.

0 Not at all like my spouse
1 Not much like my spouse
2 Somewhat like my spouse
3 Very much like my spouse

NEURS4
[SPOUSE'S NAME] is easily bothered by things.

0 Not at all like my spouse
1 Not much like my spouse
2 Somewhat like my spouse

3 Very much like my spouse

NEURS5
[SPOUSE'S NAME] is relaxed most of the time.

0 Not at all like my spouse
1 Not much like my spouse
2 Somewhat like my spouse
3 Very much like my spouse

NEURS6
[SPOUSE'S NAME]'S mood changes a lot.

0 Not at all like my spouse
1 Not much like my spouse
2 Somewhat like my spouse
3 Very much like my spouse

NEURS7
[SPOUSE'S NAME] gets irritated easily.

0 Not at all like my spouse
1 Not much like my spouse
2 Somewhat like my spouse
3 Very much like my spouse

NEURS8
[SPOUSE'S NAME] often feels sad.

0 Not at all like my spouse
1 Not much like my spouse
2 Somewhat like my spouse
3 Very much like my spouse

**Self-Esteem** (from Rosenberg)
ESTEEMinfo
I am now going to read you a list of statements. Please indicate how strongly you agree or disagree with each one.

ESTEEM1
On the whole, I am satisfied with myself.

1 Strongly agree
2 Agree
3 Disagree
4 Strongly disagree

ESTEEM2
I feel that I have a number of good qualities.

1 Strongly agree
2 Agree
3 Disagree
4 Strongly disagree

ESTEEM3
I wish I could have more respect for myself.

1 Strongly agree
2 Agree
3 Disagree
4 Strongly disagree

ESTEEM4
All in all, I feel that I am a failure.

1 Strongly agree
2 Agree
3 Disagree
4 Strongly disagree

**Perceived Negative Consequences from Substance Abuse (from Nebraska Client Barriers study – the CAGE, Mayfield, McLeod, & Hall, 1974)**

USE1
Now I would like to ask you a little bit about your experiences with drinking or drug use during the past 9 months... Again, that would be since [the date nine months ago].

In the past 9 months, have you ever felt that you ought to cut down on your drinking or drug use?

1 YES
0 NO
5 NEVER DRANK OR USED DRUGS ANY TIME IN LIFE (IF VOLUNTEERED) → GO TO HEALTH 1

USE2
In the past 9 months, have people ever annoyed you by criticizing your drinking or drug use?

1 YES
0 NO

USE3
In the past 9 months, have you ever felt bad or guilty about your drinking or drug use?

1 YES
0 NO

USE4
In the past 9 months, was there a time when your drinking or drug use, or being hung over frequently interfered with your work at school, on a job, or at home?

1 YES
0 NO

USE5

In the past 9 months, have you frequently gotten into physical fights while drinking or using drugs?

1 YES
0 NO

USE6
In the past 9 months, has your drinking or drug use frequently caused trouble between you and a family member or friend?

1 YES
0 NO

USE7
In the past 9 months, have you often been under the influence of alcohol or drugs in situations where you could get hurt, for example when riding a bicycle, driving, operating a machine or anything else?

1 YES
0 NO

**Parental Divorce**
FAM5
Did your parents ever divorce or separate permanently?

1 YES → GO TO FAM7
0 NO → GO TO FAM8

**Environment in Family of Origin** (Items taken from the Snyder FAM scale, the Moos FES, and the Collaborative Psychiatric Epidemiological Studies: Family Cohesion Scale)

Now I would like to ask you a few questions about what your home life was like for you when you were growing up. I am thinking mostly of the years before you were 14 years old. For each one, I'd like you to tell me if the statement is true or false.

FAMENV1
The members of my family were always very close to each other.

1 TRUE
0 FALSE

FAMENV2
I had a very unhappy childhood.

1 TRUE
0 FALSE

FAMENV3

We fought a lot in our family.

1 TRUE
0 FALSE

FAMENV4
Family members often criticized each other.

1 TRUE
0 FALSE

FAMENV5
Family members really helped and supported one another.

1 TRUE
0 FALSE

FAMENV6
There was a feeling of togetherness in our family.

1 TRUE
0 FALSE

FAMENV7
My family members respected one another

1 TRUE
0 FALSE

**Self-Reported Problem Solving** (Adapted from The Ineffective Arguing Inventory by Kurdek, 1994)

ARGUEintro
All couples have disagreements sometimes. Thinking of the last 9 months, how true is each of the following statements about the way you and [SPOUE'S NAME] disagree or argue?
SHOWCARD D

ARGUE1
Overall, I'd say we're pretty good at solving our problems.

1 very true,
2 somewhat true,
3 not very true, or
0 not at all true.

ARGUE2
We tend to argue or disagree about the same topics over and over again.

1 very true,
2 somewhat true,
3 not very true, or
0 not at all true.

ARGUE3
When we have a disagreement or an argument, it can last for days.

1 very true,
2 somewhat true,
3 not very true, or
0 not at all true.

ARGUE4
Our disagreements seem to end without anything being resolved.

1 very true,
2 somewhat true,
3 not very true, or
0 not at all true.

ARGUE5
We need to get better at settling our differences.

1 very true,
2 somewhat true,
3 not very true, or
0 not at all true.

ARGUE6
Overall, our arguments and disagreements are short and we resolve them quickly.

1 very true,
2 somewhat true,
3 not very true, or
0 not at all true.

**Marital Problems (Relationship Problems Inventory and Attributions)**

PROB1intro
All couples experience some difficulties or differences of opinion in their marriage, even if they are only very minor ones. I have a list of some issues that can be difficulties in a marriage. For each issue, I would like to ask you to rate how much that issue is a source of difficulty or disagreement between you and your spouse, on a scale from 0 to 10. At the low end of the scale (0-2) are issues that rarely if ever raise conflict or disagreement, and at the high end (8-10) are issues that raise frequent or intense conflict or disagreements between you.

SHOWCARD G
PROB1a
So the first issue is: *Household chores and responsibilities*. On a scale of 0 to 10, how much would you say this is an issue that comes between you and [SPOUSE]? _____

PROB1b [IF PROB1a > 0 ASK, ELSE GO TO PROB2a]

How much would you say this is a problem because of [SPOUSE'S] behavior or something about him/her?

1 Completely
2 Mostly
3 A little bit
0 Not at all

PROB1c
How much would you say this is a problem because of your behavior or something about you?

1 Completely
2 Mostly
3 A little bit
0 Not at all

PROB1d
How much would you say this is a problem because of circumstances outside of your relationship?

1 Completely
2 Mostly
3 A little bit
0 Not at all

PROB2a
The next issue is: *decisions about money*. On a scale of 0 to 10, how much would you say this is an issue that comes between you and [SPOUSE]? _____

PROB2b [IF PROB2a > 0 ASK, ELSE GO TO PROB3a]
How much would you say this is a problem because of [SPOUSE'S] behavior or something about him/her?

1 Completely
2 Mostly
3 A little bit
0 Not at all

PROB2c
How much would you say this is a problem because of your behavior or something about you?

1 Completely
2 Mostly
3 A little bit
0 Not at all

PROB2d
How much would you say this is a problem because of circumstances outside of your relationship?

1 Completely
2 Mostly
3 A little bit
0 Not at all

PROB3a
The next issue is: *in-laws and family*. On a scale of 0 to 10, how much would you say this is an issue that comes between you and [SPOUSE]? _____

PROB3b [IF PROB3a > 0 ASK, ELSE GO TO PROB4a]

How much would you say this is a problem because of [SPOUSE'S] behavior or something about him/her?

1 Completely
2 Mostly
3 A little bit
0 Not at all

PROB3c
How much would you say this is a problem because of your behavior or something about you?

1 Completely
2 Mostly
3 A little bit
0 Not at all

PROB3d
How much would you say this is a problem because of circumstances outside of your relationship?

1 Completely
2 Mostly
3 A little bit
0 Not at all

PROB4a
The next issue is: *moods and tempers*. On a scale of 0 to 10, how much would you say this is an issue that comes between you and [SPOUSE]? _____

PROB4b [IF PROB4a > 0 ASK, ELSE GO TO PROB5a]
How much would you say this is a problem because of [SPOUSE'S] behavior or something about him/her?

1 Completely
2 Mostly
3 A little bit
0 Not at all

PROB4c
How much would you say this is a problem because of your behavior or something about you?

1 Completely
2 Mostly
3 A little bit
0 Not at all

PROB4d
How much would you say this is a problem because of circumstances outside of your relationship?

1 Completely
2 Mostly
3 A little bit
0 Not at all

PROB5a
The next issue is: *problems with expressing affection and closeness*. On a scale of 0 to 10, how much would you say this is an issue that comes between you and [SPOUSE]? _____

PROB5b [IF PROB5a > 0 ASK, ELSE GO TO PROB6a]
How much would you say this is a problem because of [SPOUSE'S] behavior or something about him/her?

1 Completely
2 Mostly
3 A little bit
0 Not at all

PROB5c
How much would you say that this is a problem because of your behavior or something about you?

1 Completely
2 Mostly
3 A little bit
0 Not at all

PROB5d
How much would you say this is a problem because of circumstances outside of your relationship?

1 Completely
2 Mostly
3 A little bit
0 Not at all

PROB6a
The next issue is: *problem with spending time together*. On a scale of 0 to 10, how much would you say this is an issue that comes between you and [SPOUSE]? _____

PROB6b [IF PROB6a > 0 ASK, ELSE GO TO CURREL1]
How much would you say this is a problem because of [SPOUSE'S] behavior or something about him/her?

1 Completely
2 Mostly
3 A little bit
0 Not at all

PROB6c
How much would you say this is a problem because of your behavior or something about you?

1 Completely
2 Mostly

3 A little bit
0 Not at all

PROB6d
How much would you say this is a problem because of circumstances outside of your relationship?

1 Completely
2 Mostly
3 A little bit
0 Not at all

**Utilization of government services (from Oklahoma Department of Human Services survey of TANF clients)**

SERV1a
Now, I would like to ask you about your experiences with government services. In the past 9 months, that is since {FILL 9 MONTHS} have you ever received cash assistance from a government agency for yourself or on behalf of a related child?

1 YES
0 NO → GO TO SERV2a

**Social Support**

SUPP1
When you feel low and need someone to listen to your problems, are there..

1 Enough people you can count on
2 Too few people
0 No one you can count on

SUPP2 [ASK ONLY IF CHILD1-4>0, ELSE GO TO SUPP3]
When you need help with child care, are there…

1 Enough people you can count on
2 Too few people
0 No one you can count on

SUPP3
When you need help with errands (like transportation, grocery shopping or housecleaning), are there…

1 Enough people you can count on
2 Too few people
0 No one you can count on

SUPP4
When you need extra money to cover expenses or pay bills, are there…

1 Enough people you can count on

2 Too few people
0 No one you can count on

**Neighborhood (from CPES)**

NEIGHBOR1
How true is each of the following statements about your neighborhood - very true, somewhat true, not very true, or not at all true?

SHOWCARD D

The first statement is:

People in this neighborhood can be trusted.
1 very true,
2 somewhat true,
3 not very true, or
0 not at all true.

NEIGHBOR2
I have neighbors who would help me if I had an emergency.
1 very true,
2 somewhat true,
3 not very true, or
0 not at all true.

NEIGHBOR3
People in my neighborhood look out for each other.
1 very true,
2 somewhat true,
3 not very true, or
0 not at all true.

NEIGHBOR4
I feel safe being out alone in my neighborhood at night.
1 very true,
2 somewhat true,
3 not very true, or
0 not at all true.

NEIGHBOR5
How much of a problem is the selling and use of drugs in your neighborhood?
1 very serious,
2 fairly serious,

3 not too serious, or
0 not at all serious.

NEIGHBOR6
How much of a problem are muggings, burglaries, or assaults in your neighborhood?
1 very serious,
2 fairly serious,
3 not too serious, or
0 not at all serious.

**Income (3 Cities)**

INCOME05
(IF INCOME01@a=1, then include these instructions as well "Now I want to shift back from thinking about the past month, to thinking about the past year.") Adding up, your annual income and the annual income of everyone else who contributes to the household, what was your total household income from all sources before taxes in the past 12 months?

$_____
RANGE: $0 to $300,000
IF "d" GO TO INCOME06, ELSE GO TO INCOME07

**Social Network Interview**

**RESPONDENT ID TO FILL FROM CASES CMS. SHOULD BE 5 DIGITS PLUS EITHER AN "h" or "w" TO INDICATE HUSPAND OR WIFE INTERVIEW.**

**INTRO.**

An important part of this project is to find out how couples are affected by people outside the relationship, so, for the last part of what we will be doing today, I would like to ask you about the people you know and who know you. I will be asking you first to list people you know, then I will ask just a few questions about each of those people, and then I will ask about how those people know each other. The entire interview will take about 45 minutes, and then we will pay you and be done for the day.

To get started, I'd like for you to name 25 people that you know and who know you. Here's the kind of person we are hoping you will name:
--They have to be adults, aged 18 years old or older -- -- do not give me the names of children under age 18.
--These should be people you have had contact with sometime during the past year or so – either face-to-face, by phone, mail or e-mail.
--These do not have to be people you like, just people you know and who know you.

Let's start by naming your spouse, and after that you can name any adults you know no matter who they are or where they live. Please give us their first and last names. Remember, all of the information you give us is confidential.

INTERVIEWER: IF THEY ARE CONCERNED ABOUT GIVING LAST NAMES, Say, "We need to know last names so that we can distinguish between people who have the same first names. If you don't know the last name you can give me a nickname or a description."

INTERVIEWER (TRAINING NOTES):

IF RESPONDENT IS CONCERNED ABOUT NAMING LAST NAMES, YOU CAN ASK THEM IF THEY ARE WILLING TO GIVE THE FIRST TWO OR THREE LETTERS OF THEIR LAST NAME. IF THEY REFUSE TO GIVE LAST NAMES OR IF THEY DON'T KNOW THE LAST NAME, THEY CAN ALSO GIVE NICK-NAMES OR DESCRIPTIONS.

IF TWO ALTERS HAVE THE SAME FIRST AND LAST NAMES, ASK FOR A NICKNAME OR SOME DESCRIPTIVE TERM.

IF THE RESPONDENT IS HAVING TROUBLE NAMING 25 PEOPLE: It can be hard to come up with 25, we recognize that, but let me repeat what I said at the beginning that these do not have to be people you necessarily like, just people you have contact with, positive or negative.

Think back to the places you have been in the past 12 months, or think of the things you have done in the past 12 months. Who was there?

RECORD LIST OF ALTERS.

**COMP4.** Is [NAME] currently married?

Please select 1 response

| | |
|---|---|
| 1 | YES |
| 0 | NO |
| -8 | DON'T KNOW |
| -9 | REFUSED |

**COMP7.** Is [NAME] currently employed?

Please select 1 response

| | |
|---|---|
| 1 | YES |
| 0 | NO |
| -8 | DON'T KNOW |
| -9 | REFUSED |

**COMP14.** How is your relationship with [NAME]? Would you say good, neutral, or bad? INTERVIEWER: SHOW CARD C

Please select 1 response

| | |
|---|---|
| 2 | GOOD |
| 1 | NEUTRAL |
| 0 | BAD |
| -8 | DON'T KNOW |
| -9 | REFUSED |

**COMP15:** Which of the people you just mentioned do you turn to when you need concrete support, such as money, transportation, food, or anything else you need?

INTERVIEWER: READ EACH NAME AND SELECT "YES" IF THE RESPONDENT SAYS YES. IF THE RESPONDENT SAYS "NO" SELECT "NO" OR LEAVE ALTER ROW BLANK. REPEAT QUESTION AS NECESSARY. IF ALL "NO", CLICK "Set All Unanswered To...NO" LINK AT BOTTOM
Please select 1 response for each row

| | |
|---|---|
| 1 | YES |
| 0 | NO |
| -8 | DON'T KNOW |
| -9 | REFUSED |

**COMP16**. Which of the people you just mentioned do you turn to when you need emotional support, like encouragement or someone to talk to about your feelings?

INTERVIEWER: READ EACH NAME AND SELECT "YES" IF THE RESPONDENT SAYS YES. IF THE RESPONDENT SAYS "NO" SELECT "NO"

Please select 1 response for each row

| | |
|---|---|
| 1 | YES |
| 0 | NO |
| -8 | DON'T KNOW |
| -9 | REFUSED |

**Harris County Marriage Project**
**INTERVIEWER OBSERVATIONS**

Interviewer: Please answer the following questions the best you can. You should answer based on what you know or have

seen so far. Do not explore the home more than you already have in order to answer these questions.

Response Options
Yes
No
No chance to observe

Q11a. Inside the home is unsafe; i.e., one or more potentially dangerous health or structural hazards (for example: frayed
electrical wires, rodents, glass, poisons, falling plaster, broken stairs, peeling paint)?

Q11b. Outside home (yard, entranceway, halls and stairs) unsafe; i.e., one or more potentially dangerous structural or health hazards (for example: unlit entrance or stairway, broken steps, broken glass, alcohol, or drugs in entranceway or yard)?

Q11c. Interior of home depressing or gloomy?

Q11d. Visible rooms of house / apartment are reasonably clean? (ex: no trash strewn around, no or few dirty dishes in
kitchen, floor and furniture have been cleaned or dusted fairly recently)

Q11e. Visible rooms of house / apartment are minimally cluttered? (ex: visible rooms are neat or are minimally cluttered
with clothes, vacuum cleaner, children's school work, shoes and socks, other objects)

Q11f. Are the furnishings inside the home sparse (e.g., missing some essential items like places to sit, tables, etc.)?

Q11g. Is the inside of home crowded (e.g., many people living in a very small house or apartment, difficult to find a private place to interview respondents, frequent interruptions and people bumping into each other)?

**Measures Used in Study 2 Only**

**Financial Strain (3 City)**

FIN1

Sometimes people have trouble paying their bills or getting by month to month.

During the past 9 months, how much difficulty did your household have paying bills? Would you say...

0 no difficulty at all,
1 a little difficulty,
2 some difficulty,
3 a great deal of difficulty

FIN2

Does your household have enough money to afford the kind of housing, food and clothing you feel you should have? Would you say...

0 definitely no,
1 not quite,
2 mostly, or
3 definitely yes?

FIN3

How often can your household afford to do things just for fun like going to the movies or eating out? Would you say...

0 never,
1 rarely
2 sometimes
3 often

FIN4

How often does your household put off buying something you need because you don't have money? Would you say...

0 never,
1 rarely
2 sometimes
3 often

FIN5

Thinking about the end of each month over the past 9 months, did your household generally end up with...

1 more than enough money left over,
2 some money left over,
3 just enough to make ends meet, or
4 not enough to make ends meet?

**PERCEIVED STRESS** (Measure adapted from Hammen)

PERCSTRESS1
Still thinking about the past nine months……..

| | | Not at All Stressful | Somewhat Stressful | Extremely Stressful | Does Not Apply |
|---|---|---|---|---|---|
| @a | How much has your living situation (for example the condition of your home and the people you live with) been a source of stress for you? | 0 | 1 | 2 | 3 |
| @b | [ASK IF CHILD1-4>0, ELSE, GO TO @c] how much has being a parent been a source of stress for you? | 0 | 1 | 2 | 3 |
| @c | how much has your finances been a source of stress for you? | 0 | 1 | 2 | 3 |
| @d | how much has work been a source of stress for you? | 0 | 1 | 2 | 3 |
| @e | how much has school been a source of stress for you? | 0 | 1 | 2 | 3 |
| @f | how much has being a homemaker been a source of stress for you? | 0 | 1 | 2 | 3 |

PERCSTRESS2
Still thinking about the past nine months……..

| | | Not at All Stressful | Somewhat Stressful | Extremely Stressful | Does Not Apply |
|---|---|---|---|---|---|
| @a | how much has being unemployed been a source of stress for you? | 0 | 1 | 2 | 3 |
| @b | how much has your health been a source of stress for you? | 0 | 1 | 2 | 3 |
| @c | how much has [SPOUSE'S] health been a source of stress for you? | 0 | 1 | 2 | 3 |
| @d | how much has your relationship with your own family been a source of stress for you? | 0 | 1 | 2 | 3 |
| @e | how much has your relationship with [SPOUSE'S] family been a source of stress for you? | 0 | 1 | 2 | 3 |

| | | | | | |
|---|---|---|---|---|---|
| @f | how much has your relationships with friends been a source of stress for you? | 0 | 1 | 2 | 3 |

**Experience of Discrimination**

DISCRIMi

I am interested in finding out if other people discriminate against you. Specifically, I want to ask you a series of questions about how people might treat you because of some characteristic like your gender, race, ethnicity, or religion.

DISCRIM1

How often on a day-to-day basis do you experience each of the following types of discrimination for any reason? For each one, tell me if it occurs never, rarely, sometimes, often.

SHOWCARD B

How often . . .

| | | NEVER | RARELY | SOMETIMES | OFTEN |
|---|---|---|---|---|---|
| @a | do people act as if you are inferior (not as good as other people)? | 0 | 1 | 2 | 3 |
| @b | do people act as if they are afraid of you? | 0 | 1 | 2 | 3 |
| @c | are you treated with less respect than others? | 0 | 1 | 2 | 3 |
| @d | do people act as if you are dishonest? | 0 | 1 | 2 | 3 |
| @e | are you called names or insulted? | 0 | 1 | 2 | 3 |
| @f | are you threatened or harassed? | 0 | 1 | 2 | 3 |

## Copies of Key Measures Used in Los Angeles Data Collection

**Measures Used in Study 3**

**Intimate Partner Violence**

IPV1a

Sometimes even happy couples get into arguments, and sometimes those arguments can get pretty intense. I have a few questions about how you and [FILL SPOUSE NAME] behave during an argument. Please remember we will not share your answers with your spouse.

Thinking of the last nine months, that is since {FILL 9 MONTHS AGO}, did [FILL SPOUSE NAME] ever insult you or swear at you?

1 YES
0 NO → GO TO IPV2a

IPV1b

About how many times did this happen?

1 Once or twice
2 Several times
3 Often

IPV2a

Did you ever insult or swear at [FILL SPOUSE NAME]?

1 YES
0 NO → GO TO IPV3a

IPV2b

About how many times did this happen?

1 Once or twice
2 Several times
3 Often

IPV3a

In the last nine months, did [FILL SPOUSE NAME] ever stomp out of the room, or leave the house during an argument?

1 YES
0 NO → GO TO IPV4a

IPV3b

About how many times did this happen?

1 Once or twice
2 Several times
3 Often

IPV4a
Did you ever stomp out of the room or leave the house during an argument with [FILL SPOUSE NAME]?

1 YES
0 NO → GO TO IPV5a

IPV4b
About how many times did this happen?

1 Once or twice
2 Several times
3 Often

IPV5a
Again, thinking of the last nine months, that is since {FILL 9 MONTHS AGO}, did [FILL SPOUSE NAME] ever threaten to hit you?

1 YES
0 NO → GO TO IPV6a

IPV5b
About how many times did this happen?

1 Once or twice
2 Several times
3 Often

IPV6a
Did you ever threaten to hit [FILL SPOUSE NAME]?

1 YES
0 NO → GO TO IPV7a

IPV6b
About how many times did this happen?

1 Once or twice
2 Several times
3 Often

IPV7a
In the last nine months, did [FILL SPOUSE NAME] ever throw something at you?

1 YES
0 NO → GO TO IPV8a

IPV7b
About how many times did this happen?

1 Once or twice
2 Several times
3 Often

IPV8a
Did you ever throw something at [FILL SPOUSE NAME]?

1 YES
0 NO → GO TO IPV9a

IPV8b
About how many times did this happen?

1 Once or twice
2 Several times
3 Often

IPV9a
In the last nine months, did [FILL SPOUSE NAME] ever push, grab, or shove you?

1 YES
0 NO → GO TO IPV10a

IPV9b
About how many times did this happen?

1 Once or twice
2 Several times
3 Often

IPV10a
Did you ever push, grab, or shove [FILL SPOUSE NAME]?

1 YES
0 NO → GO TO IPV11a

IPV10b
About how many times did this happen?

1 Once or twice
2 Several times
3 Often

IPV11a
In the last nine months, did [FILL SPOUSE NAME] ever slap, kick, bite, or punch you?

1 YES
0 NO → GO TO IPV12a

IPV11b
About how many times did this happen?

1 Once or twice
2 Several times
3 Often

IPV12a
Did you ever slap, kick, bite, or punch [FILL SPOUSE NAME]?

1 YES
0 NO → GO TO IPV13a

IPV12b
About how many times did this happen?

1 Once or twice
2 Several times
3 Often

IPV13a
In the last nine months, did [FILL SPOUSE NAME] ever beat you up?

1 YES
0 NO → GO TO IPV14a

IPV13b
About how many times did this happen?

1 Once or twice
2 Several times
3 Often

IPV14a
Did you ever beat up [FILL SPOUSE NAME]?

1 YES
0 NO → GO TO SPOU1

IPV14b
About how many times did this happen?

1 Once or twice
2 Several times
3 Often

Measures used in Cumulative Risk Index

**Age (Three Cities)**

AGE1
Could I get your date of birth?

@m _____MONTH [RANGE 1-12]
@d _____DAY [RANGE 1-31]
@y _____YEAR [RANGE 1920-1992]

**Education (Three Cities)**

EDUC1
What is the highest grade in school or the highest educational degree that you have completed?

00 = KINDERGARTEN
01 = FIRST GRADE
02 = SECOND GRADE
03 = THIRD GRADE
04 = FOURTH GRADE
05 = FIFTH GRADE
06 = SIXTH GRADE
07 = SEVENTH GRADE
08 = EIGHTH GRADE
09 = NINTH GRADE
10 = TENTH GRADE
11 = ELEVENTH GRADE
12 = TWELFTH GRADE (BUT NO DIPLOMA)
13 = H.S. DIPLOMA
14 = HIGH SCHOOL EQUIVALENCY (e.g., GED)
15 = VOCATIONAL/TECHNICAL DIPLOMA (e.g., trade school, certification)
16 = ASSOCIATE DEGREE
17 = ANY YEAR OF COLLEGE (i.e., a 4-year college)
18 = COMPLETED COLLEGE DEGREE
19 = BEYOND COLLEGE (ANY YEAR BEYOND COLLEGE DEGREE)

**Employment (Florida Baseline and Three Cities)**
WORK1
I'd like to ask you about your work. Last week, what was your work status? Were you... (CODE ONE ONLY)

1 working full-time; that is, 35 or more hours per week in one or more jobs; including self-employment

2 working part-time (less than 35 hours per week)
3 have a job, but OUT due to illness, leave, furlough, or strike [FURLOUGH = GRANTED LEAVE OF ABSENCE FROM ARMED FORCES]
4 have seasonal work, but currently not working
5 unemployed/ looking for work
6 unemployed/ not looking for work
7 full-time homemaker
8 in school only
9 retired
10 disabled for work (such as SSI)
other (SPECIFY)_____

**Income (3 Cities) & Public Assistance**

INCOME1
Now I would like to ask you some questions about your financial situation. For these questions, I would like to ask you about the past year. In the last 12 months, did you personally as an individual receive money from any of the following sources? CODE ALL THAT APPLY

| | | YES | NO |
|---|---|---|---|
| @a | Earnings (e.g., from a job) | 1 | 0 |
| @b | Public assistance, welfare, or food stamps | 1 | 0 |
| @c | Unemployment insurance, workmen's compensation, disability, or social security benefits | 1 | 0 |
| @d | Child support | 1 | 0 |
| @e | Family and friends who do not live with you (e.g., gifts or loans) | 1 | 0 |
| @f | Other (SPECIFY)_____ | 1 | 0 |
| @g | None/No Income in last 12 months | 1 | 0 |

INCOME2
[IF INCOME1@a=0, GO TO INCOME4]
How much would you say [you] personally as an individual earned in total from all work in the last 12 months, before taxes and deductions?

$_____
RANGE: $0 to $300,000

**Help in an emergency**
SUPP4

If you needed someone to loan you money in an emergency, are there…

1 Enough people you can count on

2 Too few people

3 No one you can count on