

A LONGITUDINAL EXAMINATION OF THE ROLE OF INTIMATE  
PARTNER VIOLENCE, DEPRESSION AND SUBSTANCE  
USE PROBLEMS IN YOUNG ADULT  
VOCATIONAL OUTCOMES

by

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## DISSERTATION ABSTRACT

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Doctor of Philosophy

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Title: A Longitudinal Examination of the Role of Intimate Partner Violence, Depression and Substance Use Problems in Young Adult Vocational Outcomes

Intimate partner violence (IPV) is a serious public health concern in the United States and around the world, with adolescents and emerging and young adults most at-risk for IPV. Early experiences of IPV have far-reaching, immediate negative effects on individual health and developmental outcomes. There is a small body of research on the impact of IPV on young adults' vocational outcomes and the links between these two factors. This study utilized prospective, longitudinal data collected nationally from 1,386 individuals to examine how IPV experiences during adolescence impact IPV experiences, depression, and substance use problems during emerging adulthood and vocational outcomes during young adulthood. It was hypothesized that (a) IPV victimization during adolescence will be associated with vocational outcomes during young adulthood; (b) IPV experiences, depression and substance use problems during emerging adulthood would mediate the relationship between IPV victimization during adolescence and vocational outcomes during young adulthood; (c) there would be a positive association between depression and substance use problems during emerging adulthood; and (d) there would be a positive association between educational attainment and employment status during young adulthood.

Path analyses were performed using a Structural Equation Modeling framework to test study hypotheses. Study findings revealed that adolescent IPV victimization significantly predicted emerging adult IPV victimization, reciprocal IPV and depression, and young adult educational attainment. Emerging adult depression and reciprocal IPV mediated adolescent IPV victimization and young adult vocational outcomes. Depression and substance use problems during emerging adulthood and educational attainment and employment status during young adulthood were significantly associated. The present study provides support for the developmental cascading risks of IPV on individuals' development over time. This study adds to the dearth of empirical research showing a relationship between early IPV experiences and vocational development for young adult men and women and the importance of assessing for different types of IPV experiences and the differential impact on mental health and vocational outcomes, for women and men, across time. These findings support the importance of identifying key mediating factors and time points that may be targeted to interrupt the accumulation of IPV risk from adolescence into young adulthood.

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## CHAPTER I

### INTRODUCTION

Intimate partner violence (IPV) is a serious public health concern in the United States and around the world (Beydoun, 2012; Breiding, Basile, Smith, Black & Mahendra, 2015; Ellsberg, Henrica, Heise, Watts, & García-Moreno, 2008; Randle & Graham, 2011; Tjaden & Thoennes, 2000; World Health Organization [WHO], 2013). IPV is defined as experiences of physical violence, sexual violence, stalking and/or psychological aggression by a current or former intimate partner (Breiding et al., 2015). Abuse varies in frequency, type, and severity ranging from one experience to chronic or severe experiences of abuse. IPV may include but is not limited to, threats and/or acts of physical or sexual abuse, humiliation, insults, social isolation, coercive tactics, or economic and vocational development sabotage (Centers for Disease Control and Prevention [CDC], 2011; Chronister, Wettersten, & Brown, 2004; Halpern, Young, Waller, Martin, & Kupper, 2004; Heise & Garcia-Moreno, 2002; Saltzman, Fanslow, McMahon, & Shelley, 2002). Adolescents, emerging and young adults are at highest risk for IPV (Renner & Whitney, 2012; Werkerle & Wolfe, 1999), with more than 1 out of 3 women (35.6%) and 1 out of 4 men (28.5%) reporting an experience of IPV during their lifetime (Black et al., 2011). It is estimated that approximately 23% of female survivors and 14% of male survivors first experienced IPV between the ages of 11 to 17, and approximately 48% of female survivors and 44% of male survivors first experienced IPV between the ages of 18 to 24 (Black et al., 2011).

The consequences of IPV are significant and pervasive (Caetano & Cunradi, 2003; Cerdá, DiGangi, Galea, & Koenen, 2012; Dillon, Hussain, Loxton, & Rahman,

2013; Ramos, Carlson, & McNutt, 2004; Stith, Smith, Penn, Ward, & Tritt, 2004).

Researchers have documented with several systematic reviews and meta-analyses strong associations between IPV experiences and negative physical and mental health outcomes (Anda et al. 2006; Beydoun, 2012; Cerdá et al., 2012; Dillon et al., 2013; Golding, 1999; Stith et al., 2004). The link between IPV and negative mental health outcomes is particularly strong for individuals living in contexts of poverty and for racial/ethnic minority and immigrant groups who experience significant barriers to accessing healthcare such as few services provided in certain geographic regions, lack of service knowledge and financial resources, fear or inability to access services due to foreign-born status, and services provided only in English (e.g., Caetano & Cunradi, 2003; Hurwitz, Gupta, Liu, Silverman, & Raj; 2006; Ramos et al., 2004; Yick, Shibusawa, & Agbayani-Siewert, 2003; Yoshihama, 2001). Although much is known about the mental health impact of IPV on women survivors, significantly less is known about (a) the relationship between IPV and mental health during early adulthood, (b) the relationship between mental health and vocational outcomes for IPV survivors, and (c) the nature of these relationships for different groups such as men, women, and individuals from ethnically and socioeconomically diverse backgrounds over time. A greater understanding of the relationship between young adult men and women's IPV experiences and vocational outcomes, and the mental health factors that mediate this relationship over time, will advance scientific knowledge about the course of IPV and potential targets for IPV prevention and intervention.

The purpose of this dissertation study was to use a large, national data set to examine how IPV victimization during adolescence impacts IPV experiences, depression,



and substance use problems during emerging adulthood and vocational outcomes during young adulthood. The unique study contributions include: (a) the use of existing longitudinal data collected prospectively from urban areas across the United States and (b) from a community sample of more than 1,000 ethnically and socioeconomically diverse males and females to (c) examine direct and indirect influences of adolescent IPV on emerging adult mental health and young adult vocational outcomes.

### **Definitions of Key IPV Terms**

The definitions of IPV terms for this study are defined below. Given that multiple definitions are used across studies on IPV, I will specify definitions used in the various studies when appropriate. The definitions below are taken from the *Intimate Partner Violence Surveillance: Uniform Definitions and Recommended Data Elements, Version 2.0* recently published by researchers from the National Center for Injury Prevention and Control, Centers for Disease Control and Prevention (Breiding et al., 2015, p. 11-16).

- **Physical violence:** “The intentional use of physical force with the potential for causing death, disability, injury, or harm.” Some examples of physical violence include pushing; biting; choking; punching; or coercing others to commit a physical violence act.
- **Sexual violence:** “A sexual act that is committed or attempted by another person without freely given consent of the victim or against someone who is unable to consent or refuse.” Some examples of sexual violence include unwanted sexual contact; non-contact unwanted sexual experiences; or sexual acts that occur when the victim is unable to consent because of drugs or alcohol intoxication.

- **Stalking:** “A pattern of repeated, unwanted, attention and contact that causes fear or concern for one’s own safety or the safety of someone else (e.g., family member or friend). Some examples of stalking include repeated, unwanted phone calls, emails, or texts; watching or following from a distance; sneaking into the victim’s home or car; or making threats to physically harm the victim.
- **Psychological Aggression:** “The use of verbal and non-verbal communication with the intent to harm another person mentally or emotionally, and/or to exert control over another person.” Some examples of psychological aggression include expressive aggression (e.g., name-calling); coercive control (e.g., excessive monitoring of whereabouts); threats of physical or sexual violence.
- **Victim/Survivor:** “Person who is the target of IPV.” The term Survivor is used in place of the term Victim.
- **Perpetrator:** “Person who inflicts the IPV.”

## CHAPTER II

### REVIEW OF THE LITERATURE

This chapter provides a review of the literature relevant to this dissertation study and is organized as follows: (a) a review of the scope of IPV during adolescence and emerging adulthood and its developmental impact; (b) a more specific review of the contribution of IPV to negative mental health outcomes, with a focus on depression and substance use problems; (c) a specific review of the impact of IPV on vocational outcomes and the relationship between vocational outcomes and mental health outcomes; and finally (d) the dissertation study purpose, research questions, and hypotheses.

#### **Scope of Intimate Partner Violence**

Individuals from all age groups, communities, and cultural backgrounds are affected by IPV (Black et al., 2011; Tjaden & Thoennes, 2000); however, overall rates of IPV are highest for those communities that experience social and cultural marginalization as well as economic oppression (Chronister, Knoble, & Bahia, 2013). In the United States, 5.3 million women ages 18 and older have experienced IPV (CDC, 2006). The National Intimate Partner and Sexual Violence Survey (NISVS; Black et al., 2011) indicated that more than 1 in 3 women and more than 1 in 4 men reported experiencing rape, physical violence, and/or stalking by an intimate partner during his/her lifetime. The NISVS revealed estimated prevalence rates for rape, physical violence, and/or stalking by an intimate partner for women: 46.0% American Indian/Alaska native women, 43.7% African American, 37.1% of Latino women, 34.6% of Caucasians women, 19.6% of Asian/Pacific Islander women, and 53.8% multiracial (non-Latino) women (Black et al., 2011). Estimated prevalence rates for rape, physical violence,

and/or stalking by an intimate partner for men were 45.3% of American Indian/Alaska Native men, 38.6% African American men, 39.3% multiracial (non-Latino) men, 26.6% Latino men, and 28.2% Caucasian men (Black et al., 2011). Higher partner violence rates were reported among women living in poor households and within immigrant communities (Chronister et al., 2013).

Although men and women experience IPV victimization and perpetrate IPV, researchers have reported consistent patterns showing that women experience violence at a rate five times greater than men and are much more likely to suffer physical and psychological injuries (Brush, 1990; Gelles, 1997; Hamby, 2000; Rand & Strom 1997; Rennison & Welchans, 2000; Tjaden & Thoennes, 2000; Wekerle & Wolfe, 1999). These statistics provide a broad summary of IPV prevalence for adults living in the United States. The next section summarizes the gender symmetry debate and focuses on experiences of IPV during the two developmental periods of highest IPV risk, adolescence and emerging adulthood.

### **IPV during Adolescence and Emerging Adulthood**

Adolescence and emerging adulthood are developmental periods of dramatically increased romantic relationship exploration and activity (Arnett, 2000, 2006; Collins, Welsh, & Furman, 2009), and correspondingly increased risk for IPV and correlated risk behaviors (Capaldi et al., 2012; Stöckl, March, Pallitto, & Garcia-Moreno, 2014; Woodin, Caldeira, & O'Leary, 2013). Adolescence and emerging adulthood, therefore, are key developmental periods on which to focus efforts to understand the initiation, course, and impact of IPV.

## **IPV during Adolescence**

Individuals between the ages of 16 and 24 years old are currently the group most at-risk for IPV (Tjaden & Thoennes, 2000; West, 2005). For a majority of young adult survivors, many experienced a form of dating violence during adolescence that occurred between the ages of 11 and 17 years old (Black et al., 2011). Available estimates indicate that 10% to 59% of high school students reported at least one experience of physical violence victimization (Alleyne, Coleman-Cowger, Crown, Gibbons, & Vines, 2010; Eaton, Davis, Barrios, Brener, & Noonan, 2007; Henton, Cate, Koval, Lloyd, & Christopher, 1983; Jezl, Molidor, & Wright, 1996; Malik, Sorenson, & Aneshensel, 1997; Sears & Byers, 2010; Simon, Miller, Gorman-Smith, Orpinas, & Sullivan, 2009). Prevalence of psychological victimization are higher with approximately 2 or 3 out of 10 adolescents reported experiencing verbal or psychological abuse during the previous year (Roberts & Klein, 2003). In the 2005 National Survey of Adolescents, over 3,600 adolescent's ages 12 to 17 years old across the United States reported an estimated prevalence of severe dating violence of 2.7% for girls and 0.6% for boys.

The national Youth Risk Behavior Surveillance (YRBS) conducted biennially by the CDC gathers information on health-risk behaviors among a representative sample of high school students in grades 9-12 across the United States. Students report information about health-risk behaviors (e.g., sexual behaviors, substance use) during the previous year. Asian/Pacific Islander and American Indian/Alaskan Native students are not sufficiently represented in the YRBS thus prevalence estimates for these ethnic minority students were not reported. Prevalence rates of physical dating violence victimization were stable across several years: 9.9% reported in 2007 (CDC, 2008), 9.8% reported in

2009 (CDC, 2010), 9.4% reported in 2011 (CDC, 2012), and a slight increase to 10.4% reported in 2013 (CDC, 2014). Overall, prevalence of physical dating violence was higher for African Americans and Latinos than White students (CDC, 2008, 2010, 2012, 2014). Prevalence rates of sexual dating violence victimization (e.g., force to have sexual intercourse) slightly increased across the years: 7.8% reported in 2007 (CDC, 2008), 7.4% reported in 2009 (CDC, 2010), 8.0% reported in 2011 (CDC, 2012), and 10.4% reported in 2013 (CDC, 2014). Other national surveys report similar findings. In the National Survey of Children's Exposure to Violence adolescents 12 to 17 years old reported a lifetime rate of IPV physical victimization of 6.4% (NatSCEV; Hamby, Finkelhor, & Turner, 2012). In a nationally representative sample of over 2,500 10th grade students from 80 schools, 35% of students reported ever experiencing IPV victimization and 31% reported IPV perpetration that include verbal and physical abuse (Haynie et al., 2013). There is a wide range of estimated IPV prevalence rates documented during adolescence, but each study confirms that IPV is a serious public health issue.

### **IPV during Emerging Adulthood**

The prevalence of IPV continues to rise as individuals move from adolescence into emerging adulthood, with peak risk at about age 30 (Gelles & Straus, 1988; O'Leary, 1999; Schafer, Caetano, & Clark, 1998). Several researchers have reported a wide range of IPV victimization rates for emerging adults. Thirty to 40% of individuals 18 years and older have reported experiencing physical dating violence victimization during the previous year (White & Koss, 1991; Stets & Henderson, 1991). In 1998 and 2002, 18 to 24 year old males and females comprised an estimated 12% of the U.S. population but

42% accounted for reports of individuals experiencing IPV victimization by their partners (Durose et al., 2005). In a national U.S. sample of over 10,000 young adults ages 18 to 27, nearly half of the respondents reported a lifetime experience of at least some form of IPV (Renner & Whitney, 2012). A majority of studies usually focus on three types of IPV: physical, psychological and sexual violence. Rates of IPV are high for young adults and college students with 25% to 35% reporting experiences of IPV (Halpern, Spriggs, Martin, & Kupper, 2009; Gover, Kaukinen, & Fox, 2008; Rhoades, Stanley, & Markman, 2010).

In a national sample of college students across 19 states ( $N = 4,533$ ; mean age of 21) more than half of the college students reported ever experiencing two or more types of IPV victimization experiences (e.g., psychological, sexual, physical abuse) within the prior year (Sabina & Straus, 2008). In a larger sample of 140 colleges across the United States, the American College Health Association (ACHA) biannually collects data on college students' health habits, behaviors, and perceptions in the National College Health Assessment (NCHA). More than 66,000 male and female college students were surveyed in the Spring 2014 NCHA and 9.4% reported being in an emotionally abusive intimate relationship, 2.0% reported being in a physically abusive intimate relationship and 1.8% reported being in a sexually abusive intimate relationship within the previous 12 months (NCHA, 2014). College students experience high rates of IPV victimization and college-aged women are especially vulnerable to IPV through dating violence, acquaintance/date sexual assaults and rape (Daley & Nolan, 2001; Amar & Gennaro, 2006).

Revictimization rates for survivors are also alarming. In a study of over 1,500 women aged 18 to 19 years old entering college for the first time, women who experienced

physical IPV as adolescents were at greater risks of revictimization their first year of college (Smith, White, & Holland, 2003). From adolescence through their fourth year of college, 88% experienced at least one incident of physical or sexual IPV and about 64% experienced both forms of IPV (Smith et al., 2003). Each subsequent year, women survivors remained at greater risk for revictimization than those who had not experienced IPV.

### **Gender Symmetry Debate**

The gender symmetry debate highlights the unique features of IPV documented for many adolescent and emerging adult romantic couples. Thus, the debate is summarized here to provide a broader relationship context in which IPV occurs during adolescence and emerging adulthood and to highlight the importance of examining males' and females' IPV experiences during these particular developmental periods.

There is debate among scholars about men's and women's IPV experiences and whether violence is perpetrated more by men than women; this debate is known as the gender symmetry debate. Scholars in the *gender asymmetry* position argue that IPV occurs in a patriarchal social system in which males use violence to gain power and control over female partners (Dobash & Dobash, 1999; Walker, 1979). Scholars in the *gender symmetry* or parity position support the notion that both males and females engage in reciprocal IPV at similar rates (Archer, 2000; Straus, 2011). The third position is the *moderate asymmetry hypothesis*, which purports that males' and females' IPV experiences differ in type and severity of abuse, and that there are some gender differences and similarities in IPV victimization and perpetration rates (Hamby, 2009).



Scholars have documented high levels of mutual or bidirectional IPV during adolescence and emerging adulthood (Capaldi & Kim, 2007; Chronister & Aldarondo, 2012; Gray & Foshee, 1997; Hamby, 2009; Halpern, Oslak, Young, Martin, & Kupper, 2001; Halpern, Young, Waller, Martin, & Kupper, 2004; Jouriles, McDonald, Garrido, Roselfield, & Brown, 2005; Renner & Whitney, 2010; Straus, 2008). The occurrence of mutual partner IPV has been reported in 45% to 84% of relationships (Cantos, Neidig, & O'Leary, 1994; Gray & Foshee, 1997; Whitaker, Haileyesus, Swahn, & Saltzman, 2007). High rates of mutual partner IPV have been documented with samples from the general population, community, school and university, clinical, and criminal justice/police-related settings (Capaldi et al., 2007; Capaldi & Owen, 2001; Henton et al., 1983; Hines & Saudino, 2003; Orcutt, Garcia, & Pickett, 2005; Próspero & Kim, 2009; Renner & Whitney, 2012; Robertson & Murachver, 2007; Stets & Straus, 1989; Straus, 2008). Although scientists are documenting more bidirectional violence during adolescence and early adulthood, females continue to experience more frequent and serious injuries and scholars caution that differences and similarities in IPV rates are often due to differences in the type of data collected, participant samples, and how IPV is operationalized (Hamby, 2005, 2009, 2014). Given the different views of how men and women experience IPV, this study includes both men and women, survivors and perpetrators, to better understand how IPV experiences impact vocational outcomes across gender.

### **Immediate and Long-Term Consequences of IPV**

The impact of IPV during adolescence has immediate negative consequences and longer-lasting effects during early adulthood and beyond (Tjaden & Thoennes, 2000). For youth who experience dating violence during adolescence, girls are at higher risk of

revictimization and boys are at higher risk of perpetration in future relationships (Kerig, 2010; Smith et al., 2003). Adolescents experiencing IPV are at risk for multiple negative physical and mental health outcomes (Banyard & Cross, 2008; Callahan, Tolman, & Saunders, 2003; Coker, Smith, McKeown, & King, 2000; Coker, Smith, Bethea, King, & McKeown, 2000). Research on adverse health outcomes and IPV for adolescents has focused on female survivors, with limited information on outcomes for boys and outcomes associated with IPV perpetration.

Researchers have documented negative associations between IPV and various health outcomes for males and females. IPV is related to disordered eating and body image issues, alcohol and substance use, mental health issues that included depression, anxiety, posttraumatic stress disorder, suicidal thoughts, and low self-esteem during adolescence and early adulthood (Ackard & Neumark-Sztainer, 2002; Banyard & Cross, 2008; Callahan et al., 2003; Coker et al., 2000; Davies, Myers, Cummings, & Heindel, 1999; Foshee et al., 2004; Foshee et al., 1996; Halpern et al., 2004; Howard & Wang, 2003; Plichta, 1996; Singer, Anglin, Song, & Lunghofer, 1995). Adolescent girls who reported physical and sexual IPV victimization experiences were also more likely to report risky sexual behaviors (e.g., first intercourse at an early age, and having multiple sexual partners) (Cunningham, Stiffman, & Dore, 1994; Brener, McMahon, Warren, & Douglas, 1999; Nagy, DiClemente, & Adcock, 1996; Shrier, Pierce, Emans, & DuRant, 1994; Silverman, Raj, Mucci, & Hathaway, 2001; Wingood, DiClemente, McGree, Harrington, & Davies, 2001). Female adolescent IPV survivors also report immediate and dramatic declines in school performance, declines in ability and motivation to engage in extra-curricular activities, negative self-image, changes in body image/weight and diet,

increases in substance use, and mental health problems (Chronister, Marsiglio, Linville & Lantrip, 2014).

For emerging adults who experienced IPV victimization as adolescents, previous victimization and current victimization were associated with increased depressive symptoms (Fletcher, 2010). IPV exposure also was associated with increases in depressive symptoms for young men and women whether they experienced IPV during adolescence or young adulthood (Johnson, Giordano, Longmore, & Manning, 2014). Adolescent IPV female survivors also reported increased drinking, depressive symptoms, suicidal ideation, smoking, and IPV victimization during emerging adulthood compared to females who had not experienced IPV victimization (Exner-Cortens, Eckenrode & Rothman, 2013). Males who experienced IPV victimization as adolescents reported increased antisocial behavior, suicidal ideation, marijuana use, and IPV victimization during emerging adulthood compared to males who had not experienced IPV victimization (Exner-Cortens et al., 2013). In sum, IPV victimization during adolescence is associated with short-term and long-term negative adjustment across several domains of development (Avant, Swopes, Davis, & Elhai, 2012; Halpern et al., 2009; Lindhorst & Oxford, 2008; Shorey, Cornelius, & Bell, 2008).

IPV also negatively impacts adolescent and young adult academic and vocational outcomes. Scholars, to date, have focused on the impact of IPV on economic and vocational outcomes for adult women survivors. Researchers have found that the physical and mental health consequences of IPV impact women's job performance, ability to maintain work and advance, vocational self-efficacy, outcome expectations, career achievements, and long-term employment stability (Chronister & McWhirter,

2003; Crowne et al., 2011). Adolescent girls' IPV experiences impact wage earnings in early adulthood (Adams, Greeson, Kennedy, & Tolman, 2013) and IPV affects low-income women's ability to maintain employment up to three years after the IPV ended (Adams, Tolman, Bybee, Sullivan, & Kennedy, 2012).

Not only does IPV negatively impact women's vocational and economic development, it interferes with vocational engagement that protects women from the consequences of such relationship violence and facilitates their rehabilitation. Rothman, Hathaway, Stidsen, and de Vries, (2007) found that employment was helpful to women IPV survivors in the following ways: (1) improved their finances, (2) promoted physical safety, (3) increased self-esteem, (4) improved social connectedness, (5) provided mental respite, and (6) provided motivation or a sense of purpose in their life (p. 138). Stability and advancement in adolescents' and emerging adults' vocational and economic development protects them from IPV over time. More scholarly attention is needed to advance IPV prevention and intervention efforts; however, very little is known about the impact of IPV on young adults' vocational development and how vocational engagement may protect young adults' from IPV and its consequences over time.

In one of the few studies conducted, to date, Chronister and colleagues (2014) examined the effects of IPV on adolescent girls and early adult women's academic and vocational outcomes. Adolescent girls ages 13 to 18 who had experienced dating violence reported losing interest in their vocational goals and future plans because of their abuse experiences and its consequences. The girls reported that as a result of their IPV experiences, they were isolated from family and peers by their partners, or engaged in self-isolation, and partners interfered with their school and work via sabotage and

harassment. In their examination of IPV victimization among college women between 19 to 25 years old, Albaugh and Nauta (2005) found that the frequency with which women experienced sexual IPV was associated with lower career decision self-efficacy. That is, the IPV affected young women's confidence in their ability to engage in accurate self-appraisal, select career goals, and problem solve about issues related to their careers.

In sum, early experiences of IPV have far-reaching, immediate negative effects on individual health and developmental outcomes and continue to impact health and development well into adulthood. The risk for IPV and the associated consequences are particularly high for those adolescents and young adults who identify with, or come from, communities that are socially and economically marginalized. There is a dearth of research on the impact of IPV on young adult's vocational outcomes and the links between these two factors. More information is needed to help build future targets for intervention, areas for service improvement, and identification of young adults most at risk. Adolescent IPV victimization may impact young adult vocational outcomes through mediating mechanisms such as IPV experiences (i.e., victimization, perpetration, mutual violence) and mental health outcomes during emerging adulthood. Research and information on mechanisms that impact IPV and vocational outcomes is potential target for intervention, assessment point and screening information. This dissertation examined the longitudinal relationship between males and females' adolescent experiences of IPV and their vocational outcomes later in young adulthood, and the mechanism (IPV victimization, perpetration, reciprocal IPV, depression and substance use problems) that may impact these two factors.

## **Developmental Cascade Theory of IPV Risk**

A developmental cascade theory of risk is the foundational theoretical framework for this dissertation study. Developmental cascades are the cumulative developmental consequences of several interactions and transactions in developing systems that can alter the course of development (Masten & Cicchetti, 2010). The results of the interactions and transactions can cause changes across levels, domains, systems or generations and have implications for development over time. Cascade effects can help explain why risk and outcomes during childhood influence an individual's development during adulthood (Masten & Cicchetti, 2010; Masten et al., 2005; Sameroff, 2000; Thelen, 1989); that is, through a cascade of events and processes, IPV risk may accumulate across development. Thus, prevention or intervention efforts implemented during key periods of development can interrupt negative cascades that could result in maladaptive behaviors or adverse outcomes. The interruption helps prevent problems from cascading into other domains.

Different types of cascades have been examined ranging from marital problems that cascade to divorce (Gottman, 1993) as well as conduct problems during childhood that cascade into serious violence during adolescence (Moffitt, 1993). Several researchers have tested a dynamic cascade model for violent behavior during adolescence (Dodge, Greenburg, Malone, & The Conduct Problems Prevention Research Group, 2008). They found that children born into adverse or disadvantaged families are put at risk for adolescent violence because the family context makes it difficult for parents to practice positive parenting strategies when disciplining their children. In turn, harsh parenting styles create a family environment and processes that increase risk for violence later in life. For example, the Adverse Childhood Experiences (ACE) Study documents

positive associations between physical and sexual abuse and exposure to domestic violence during childhood and increased risk for IPV victimization and perpetration during adulthood (Anda et al., 2006). An individual's relationship with peers also has positive and negative effects on the individual's health and development (Capaldi, Dishion, Stoolmiller, & Yoerger, 2001). Capaldi and colleagues (2001) used a developmental cascade model of risk to examine the role of adolescent male deviant peers on male participants' aggressive behavior toward female intimate partners during young adulthood. For their sample of 206 boys, involvement with deviant male peers during mid-adolescence was associated with hostile talk with male peers, antisocial behavior, and delinquency during late adolescence. For these men, violence during adolescence cascaded into antisocial outcomes during young adulthood.

The Dynamic Developmental Systems framework (DDS; Capaldi, Shortt, & Crosby, 2003; Capaldi, Shortt, & Kim, 2005; Capaldi, Knoble, Shortt, & Kim, 2012; Capaldi & Gorman-Smith 2003; Capaldi & Kim, 2007) is an application of the developmental cascade theory of risk to IPV, with experiences of IPV during adolescence cascading into other risks and outcomes. The course and nature of IPV during adolescence and emerging adulthood may be distinct in several ways from the course and nature of IPV documented during adulthood. The DDS was developed to better understand the nature of aggression exhibited by young adult couples (Capaldi et al., 2003, 2005, 2012; Capaldi & Gorman-Smith 2003; Capaldi & Kim, 2007). The DDS framework purports that each partner's developmental history (e.g., biology, individual characteristics, contextual factors and socialization), relationship characteristics, and

dyadic interactions develop and change across time and, correspondingly, influence IPV risk.

Scholars have validated the tenets of the DDS framework during the past 15 years, documenting that male and female partners engage in aggression (Capaldi & Crosby, 1997; Gray & Foshee, 1997; Moffitt & Caspi, 1999; O’Leary et al., 1989) and that romantic relationship dynamics influence the nature and course of IPV (Capaldi et al., 2005). Capaldi and colleagues (2003) measured physical and psychological aggression with a sample of 105 at-risk couples over a 2.5 year period. Rates of IPV physical and psychological aggression were high for males and females who had the same partner across the 2.5 year period, with men’s aggression decreasing with initiation of a new romantic relationship and increasing with partner depression.

The relationship between IPV during adolescence and vocational outcomes may be explained by the cascading impact through negative mental health outcomes and IPV experiences during emerging adulthood. The current dissertation is advantageous because it examines the accumulation of IPV risk across time, and investigates mental health mediators that may influence the relationship between adolescent IPV experiences and young adult vocational outcomes. Identification of key mediating factors and time points that may be targeted to interrupt the accumulation of IPV risk from adolescence into young adulthood is important and addresses a significant gap in the IPV literature.

### **IPV and Mental Health Outcomes**

IPV is associated with a variety of negative developmental and health outcomes including adverse health (e.g., traumatic brain injuries), reproductive problems (e.g., unintended pregnancy), psychological distress (e.g., depression), social concerns (e.g.,



isolation from social networks), negative health behaviors (e.g., decreased condom use), and vocational and economic difficulties (e.g., low career and educational attainment) (Black et al., 2011; Chronister & McWhirter, 2003; Heise & Garcia-Moreno, 2002; Silverman et al., 2011; Tjaden & Thoennes, 2000). The focus of this dissertation study was on the impact of IPV on emerging adult depression and substance use problems.

### **Depression and IPV**

IPV victimization is associated with increased frequency and severity of depression and heightened recreational (e.g., amphetamines) and non-recreational substance use (e.g., sleeping pills) for IPV survivors and perpetrators (Carbone-López, Kruttschnitt & Macmillan, 2006).

**Victimization.** Depression is one of the most prevalent negative mental health outcomes for women IPV survivors (Beydoun, 2012; Cascardi & O’Leary, 1992; Cascardi, O’Leary, Lawrence, & Schlee, 1995; Cerulli, Poleshuck, Raimondi, Veale, & Chin, 2012; Dienemann et al., 2000; Ellsberg et al., 2008; Golding, 1999; Houry, Reddy, & Parramore, 2006; Sugarman, Aldarondo, & Boney-McCoy, 1996; Stith et al., 2004). For women who experienced male-to-female physical violence, researchers have documented higher rates of depression and more severe symptoms among women IPV survivors in comparison to non-abused women (Cascardi & O’Leary, 1992; Cascardi et al., 1995; Houry et al., 2006; Sugarman et al., 1996; Pico-Alfonso et al., 2006). The World Health Organization (WHO) conducted an observational study to examine the impact of IPV on health outcomes for women from ten countries (Ellsberg et al., 2008). Among the 24,097 women surveyed, survivors from all ten countries reported significantly more emotional distress and more suicidal thoughts and attempts than non-

abused women. Thus, the co-occurrence of IPV and depression is well-documented and is a serious public-health issue that affects women IPV survivors nationally and globally. There are also empirical links between male IPV victimization and high levels of depression, post traumatic symptoms, and suicidal ideation (Caetano & Cunradi, 2003; Cascardi, Langhinrichsen, & Vivian, 1992; Próspero, 2007; Simonelli & Ingram, 1998; Stets & Straus, 1990).

**Perpetration.** There are also documented links between men's and women's IPV perpetration and depression. Researchers examined the associations between depression and IPV victimization, perpetration, and mutual violence among a sample of women and men in Canada (Graham, Bernards, Flynn, Tremblay, & Wells, 2012). Among the 14,063 men and women surveyed, women survivors reported experiencing more depression than men; however, depression was also more strongly associated with women's aggression towards their male partners. In an initial study, researchers found that rates of depression were higher among male IPV perpetrators compared to non-violent men (Maiuro, Cahn, Vitaliano, Wagner, & Zegree, 1988). Since that initial study, the direct link between male IPV perpetration and depression has been found across several studies (Dinwiddie, 1992; Feldbau-Kohn, Heyman, & O'Leary, 1998; Julian & McKenry, 1993; Pan, Neidig, & O'Leary, 1994; Schumacher, Feldbau-Kohn, Smith-Slep, & Heyman, 2001; Sugarman et al., 1996). In the few studies that examined female-to-male physical violence, female IPV perpetrators reported higher levels of depression compared to non-violent women and men (Caetano & Cunradi, 2003; Cascardi et al., 1992; Próspero, 2007; Simonelli & Ingram, 1998).

**Couple interactions and depression.** The adjustment and well-being of each romantic partner influences the couple dyadic interaction patterns and the IPV perpetrated and experienced. Capaldi and colleagues (2003), for example, found that the female partner's depressive symptoms were associated with her male partner's aggression across developmental periods. During adolescence, girls' depressive symptoms (e.g., irritability) predicted their male partners' IPV perpetration (Cleveland, Herrera, & Stuewig, 2003), and women's depressive symptoms were positively associated with their male partners' psychological (Kim & Capaldi, 2004) and physical aggression during emerging and young adulthood (Kim, Laurent, Capaldi, & Feingold, 2008). In no way are these findings to be interpreted that women's depression and negative mental health is the cause of IPV, but rather these findings provide empirical support for the contribution of dyadic interactions to the initiation, maintenance, and growth of IPV in the romantic relationship. In essence, depression is both a risk factor and a negative outcome associated with IPV. Depression may be a mediating factor between adolescent IPV and vocational outcomes in young adulthood. To interrupt the negative cascading effects of IPV, a point of intervention may be addressing adolescent and young adult depression individually and within couple contexts.

### **Substance Use and IPV**

Meta-analyses results show clear associations between alcohol and drug use and IPV perpetration (Foran & O'Leary, 2008; Langenderfer, 2013; Stuart et al., 2008) and documented rates of IPV and substance use co-occurrence range from 20% to 60% (Baskin-Sommers & Sommers, 2006; Bennett & Bland, 2008; Fals-Stewart, 2003; Fals-Stewart & Kennedy, 2005; Smith, Homish, Leonard, & Cornelius, 2012). IPV has been

linked consistently with perpetrators' substance use (Foran & O'Leary, 2008; Keller, El-Sheikh, Keiley, & Liao, 2009; Langenderfer, 2013; Moore et al., 2008; Stuart et al., 2006; Stuart, O'Farrell, & Temple, 2009) and survivors' substance use (Boden, Fergusson, & Horwood, 2012; Carbone-López et al., 2006; Peters, Khondkaryan, & Sullivan, 2012). Alcohol problems are significantly correlated with male-perpetrated IPV (Hove, Parkhill, Neighbors, McConchie, & Fossos, 2010) with violent men reporting more binge drinking behaviors, heavy alcohol use, and alcohol use disorders compared to non-violent men (Lipsky & Caetano, 2011). Researchers found similar associations between alcohol and drug use and IPV experiences for a national sample of more than 25,700 male and female young adults (Smith et al., 2012). Alcohol use disorders and cocaine were more prevalent among those young adults who perpetrated IPV, and cannabis and opioid use were more prevalent among those young adults who experienced IPV victimization. For emerging adult women, their substance abuse at age 15 was associated with IPV victimization and perpetration experiences with partners at age 21 (Magdol, Moffitt, Caspi, & Silva, 1998).

Alcohol and drug use is hypothesized to be an IPV risk factor because it lowers inhibition to use violence in the romantic relationship (Stuart, Moore, Kahler, & Ramsey, 2003). A majority of male IPV perpetrators meet criteria for a drug use disorder and/or alcohol use disorder, indicating that these problems existed prior to their abusive behaviors towards their partners (Hove et al., 2010; Shorey, Febres, Brasfield, & Stuart, 2012; Stuart et al., 2003). Among women and men arrested for IPV perpetration, drug use was a stronger predictor of IPV than alcohol problems (Stuart et al., 2008).

Scholars also have documented associations between IPV perpetration and substance use problems with young adult community samples as well. Feingold, Kerr and Capaldi (2008) examined the links between substance use problems and IPV with an at-risk community sample of 150 men from ages 19 to 28. Men who had substance use problems perpetrated more IPV toward their female partners than men without substance use problems. Similarly, women with a history of hard drug dependency (e.g., amphetamines) were more likely to perpetrate IPV and women dependent on cocaine were more likely to experience victimization (Feingold & Capaldi, 2014).

Drug use by both partners is an important factor to include in the study of IPV during adolescence and young adulthood, and like depression, may be an important mechanism via which IPV impacts young adult vocational development and could be targeted for intervention. Most studies have focused on the associations between substance use and IPV experiences for adults, with a focus on male perpetrators. This study will examine associations between substance use problems (e.g., alcohol and drug use problems causing issues at school or work) and IPV experiences for both males and females.

### **IPV and Vocational Outcomes**

Similar to the impact on survivors' mental health, IPV is devastating to survivors' vocational and economic development. IPV and its consequences (e.g., physical injuries, mental illness) interfere with women's ability to search for work, maintain employment, and engage in other work-related activities (Chronister et al., 2004; Shepard & Pence, 1988; Tolman & Rosen, 2001). Perpetrators of abuse use tactics to prevent women from attending work and advancing vocationally and economically (Postmus, Plummer,

McMahon, Murshid, & Kim, 2012; Ptacek, 1997; Schutte, Malouff, & Doyle, 1988; Shepard & Pence, 1988). Women who experience IPV victimization lose approximately eight million days of paid work every year (CDC, 2006). Women survivors of non-fatal IPV lose an estimated \$900 million in terms of lost productivity at work and from household chores. IPV victimization is associated with higher rates of unemployment for women (Neroien & Schei, 2008). Rates of unemployment and IPV for women survivors were found to be 20% for psychological IPV, 18% for physical IPV, and 19% for PTSD symptoms (Kimerling et al., 2009). Overall, IPV decreases women survivors' career-related self-efficacy and outcome expectations (Chronister & McWhirter, 2004), their ability to explore and pursue educational and career interests (Chronister et al., 2004), to go to work, perform and advance in their jobs, and attain economic stability (Bell, 2003; Chronister et al., 2009; Chronister & McWhirter, 2003; Moe & Bell, 2004; Wettersten et al., 2004).

Understanding how IPV impacts vocational outcomes during early adulthood is important to prevention and intervention efforts. Poor vocational outcomes and economic instability are linked directly with increased IPV risk and revictimization over time (Adams et al., 2012; Alexander, 2011; Chronister et al., 2004; Staggs & Riger, 2005). In contrast, vocational support and success as well as economic stability are protective factors (Farmer & Tiefenthaler, 1997; Rothman et al., 2007). Researchers found that improvement in women's economic status was a factor that contributed to the decline of IPV during the 1990s as reported in the National Crime Victimization Surveys (NCVS; Farmer & Tiefenthaler, 1997). In the United States, a woman's income was the best predictor for whether she left her abusive partner or stayed in the relationship

(Anderson & Saunders, 2003). IPV survivors would benefit from financial tools and resources to increase their economic self-sufficiency and well-being (Postmus et al., 2012). Vocational success is a key protective factor for IPV risk by providing financial improvements and increased sense of self (Farmer & Tiefenthaler, 1997; Rothman et al., 2007).

Much of the research on the impact of IPV on vocational outcomes, to date, has been conducted primarily with adult women. Very little is known about the impact of IPV on adolescents' and young adults' vocational development and the relationship between IPV, vocational development, and mental health over time. In fact, a thorough review of the literature using IPV, career development, and employment, search terms in PsychInfo, PsyArticles, and PsyNET search engines yielded only 54 published studies in this area with only three focused on young adults, with the majority focused on women. To date, there are no published studies of IPV and vocational outcomes that include young adult men. Yet, negotiations of academic, work, and vocational transitions are key developmental tasks for adolescents and young adults (Arnett, 2000). Successful negotiation of these vocational transitions predicts longer-term health and well-being (Borgen, Amundson, & Tench, 1996; Nurmi & Salmela-Aro, 2002; Schulenberg, Bryant, & O'Malley, 2004; WHO, 2002).

A recent examination of adolescent girls' experiences of IPV revealed that partners' emotional and physical abuse tactics interfered with girls' ability to attend school, engage in extracurricular and work activities, and to perform well academically (Chronister et al., 2014). IPV is negatively associated with girls and women's academic, work, and career outcomes. Young adults who experience IPV during adolescence and

early adulthood report academic and employment difficulties. These individuals often withdraw from classes, change career majors or schools, or drop out of school completely because of difficulties concentrating in class and class absences that affect their grades, trouble maintaining employment, engaging in extracurricular activities and difficulty accessing academic resources (Chronister et al., 2013, 2014). Psychological distress such as IPV victimization could contribute to negative academic and employment consequences by delaying or interrupting young women's educational and vocational developments and achievements that could result in poorer vocational outcomes. Vocational outcomes such as vocational attainment, employment stability, and wage earnings are directly linked to survivors' well-being and safety (Chronister et al., 2014; Hinkelman & Luzzo, 2007; Kates, Greiff, & Hagen, 1993).

In sum, fostering IPV survivors' vocational development and increasing access to economic resources is necessary for IPV prevention (Chronister, Harley, Aranda, Barr & Luginbuhl, 2012; Farmer & Tiefenthaler, 1997; Rothman et al., 2007; Tauchen, Witte, & Long, 1991; Sullivan, 1991; Sullivan & Bybee, 1999; Tolman & Rosen, 2001). There are few studies on IPV and its association with young adult vocational outcomes. This dissertation will contribute uniquely to the literature by examining the longitudinal effects of IPV victimization during adolescence on employment status (e.g., full-time employed, unemployed) and educational attainment (e.g., no high school degree, college graduate) in young adulthood for both men and women.

### **Summary**

IPV is a prevalent and important experience to focus on during adolescence and young adulthood. IPV is associated with numerous negative and pervasive consequences



to individuals' mental health and vocational outcomes across the lifespan. Although many researchers have studied IPV with various populations, significantly less is known about how experiences of IPV during adolescence affect mental health and vocational outcomes during emerging and young adulthood for males and females.

### **Study Contributions**

The primary objectives of this study were to use a large, national data set to examine if adolescent and emerging adult IPV experiences predicted young adult vocational outcomes, and to determine if emerging adult IPV experiences, depression and substance use problems mediated the relationship between adolescent IPV victimization and young adult vocational outcomes. A non-experimental, correlational research design with prospective, longitudinal data collected nationally from 1,386 individuals living in urban areas across the United States was used to answer the following research questions. See Figure 1 for the hypothesized relationships among study variables.

### **Research Questions and Hypotheses**

**Research Question 1:** Does IPV Victimization during adolescence predict Educational Attainment and Employment Status during young adulthood? It is hypothesized that IPV Victimization during adolescence will be associated with (a) lower Educational Attainment during young adulthood and (b) lower-hour Employment Status during young adulthood.

**Research Question 2:** Do IPV experiences during emerging adulthood mediate the relationship between IPV Victimization during adolescence and Educational Attainment and Employment Status during young adulthood? It is hypothesized that IPV Victimization during adolescence will be associated with IPV Victimization, Perpetration

and Reciprocal IPV during emerging adulthood, which in turn will be associated with (a) lower Educational Attainment during young adulthood and (b) lower-hour Employment Status during young adulthood.

**Research Question 3:** Does Depression during emerging adulthood mediate the relationship between IPV Victimization during adolescence and Educational Attainment and Employment Status during young adulthood? It is hypothesized that IPV Victimization during adolescence will be associated with greater Depression during emerging adulthood, which in turn will be associated with (a) lower Educational Attainment during young adulthood and (b) lower-hour Employment Status during young adulthood.

**Research Question 4:** Do Substance Use Problems during emerging adulthood mediate the relationship between IPV Victimization during adolescence and Educational Attainment and Employment Status during young adulthood? It is hypothesized that IPV Victimization during adolescence will be associated with greater Substance Use Problems during emerging adulthood, which in turn will be associated with (a) lower Educational Attainment during young adulthood and (b) lower-hour Employment Status during young adulthood.

**Research Question 5:** What is the relationship between Depression and Substance Use Problems during emerging adulthood? It is hypothesized that there will be a positive association between Depression and Substance Use Problems during emerging adulthood.

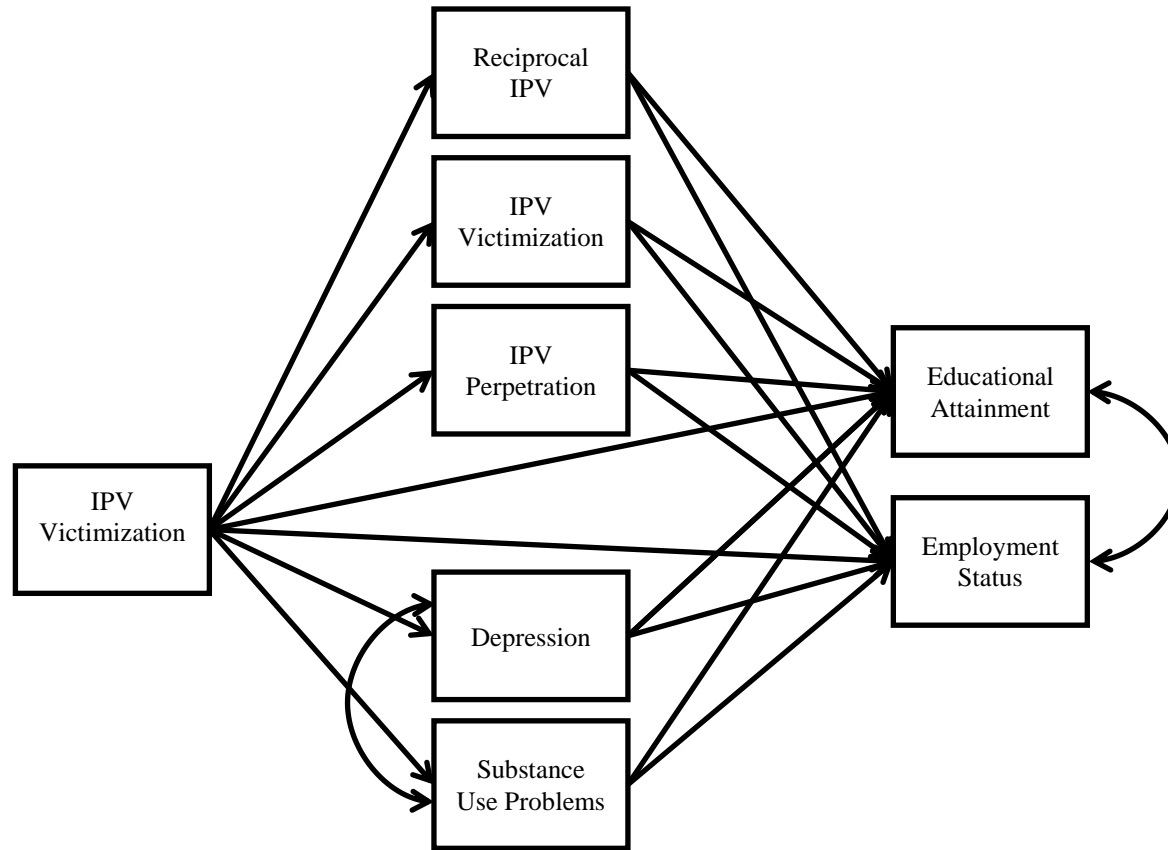
**Research Question 6:** What is the relationship between Educational Attainment and Employment Status during young adulthood? It is hypothesized that there will be a

positive association between Educational Attainment and Employment Status during  
young adulthood

Adolescence  
Ages 13-17  
Wave II, 1996

Emerging Adulthood  
Ages 18-25  
Wave III, 2001-2002

Young Adulthood  
Ages 26-30  
Wave IV, 2008-2009



**Figure 1.** Hypothesized relationships among study variables across adolescence, emerging adulthood and young adulthood.

## CHAPTER III

### METHODS

#### **Participants**

##### **Data Set**

The study sample was drawn from the National Longitudinal Study of Adolescent to Adult Health (ADD Health; Harris et al., 2009). ADD Health is a prospective, longitudinal study for which multi-method, multi-agent data were collected. Researchers collected four waves of data, from adolescence through young adulthood, using an integrative approach to examine how different life experiences affect individual health. Researchers utilized a stratified cluster design to identify a random sample of high schools in the United States. A sample of 80 high schools, and 52 junior high and middle schools was selected with unequal probability of selection. High schools were sorted by school size, type, census region, urbanization level and ethnicity. See Table 1 for information about each wave of data collection. More detailed information about the ADD Health research design and study components can be found in Harris et al., 2009 and at the website <http://www.cpc.unc.edu/projects/addhealth/design>.

**Public use vs. restricted use dataset.** The ADD Health study (Harris et al., 2009) has public use and restricted use datasets. The public use datasets contained all the same information as the restricted use datasets except for participant disposition, genetics, weight and STD information, political context, alcohol density, and field interviewer characteristics. For the purpose of this dissertation, all necessary study information (i.e., demographics, intimate relationship experiences, depression, substance

use problems, education and employment information) was available in the public use datasets, but with a subset of the sample.

### **Participant Pool**

There were a total of 6,504 participants [3,146 males (48.4%) and 3,356 females (51.6%)] in the wave I public use home interview dataset; one person did not indicate gender. Participants had sampling weights to assure national representativeness.

Participants identified as being in one of five monoracial groups, as biracial, or multiracial. Of the participant pool ( $N = 6,504$ ), participants identified racially as: White ( $n = 3744$ , 57.60%); Black or African American ( $n = 1469$ , 22.6%); American Indian or Native American ( $n = 40$ , 0.6%); Asian or Pacific Islander ( $n = 209$ , 3.2%); Hispanic or Latino ( $n = 326$ , 5.0%); biracial ( $n = 615$ , 9.5%), multiracial ( $n = 46$ , 0.7%), and 55 participants (0.8%) did not indicate their racial/ethnic background. These participants were in the following grades: 7<sup>th</sup> grade (979, 15.1%), 8<sup>th</sup> grade (992, 15.3%), 9<sup>th</sup> grade (1107, 17.0%), 10<sup>th</sup> grade (1144, 17.6%), 11<sup>th</sup> grade (1122, 17.3%), and 12<sup>th</sup> grade (993, 15.3%). There was no grade information for 167 (2.6%) participants.

### **Sample**

The present dissertation study included 1,386 participants total from the ADD Health study (Harris, et al., 2009), male ( $n = 565$ , 40.8%) and female ( $n = 821$ , 59.2%). Inclusion criteria for this dissertation study were participants (a) who completed home interviews at waves II, III and IV, which involved data collection from 1996 to 2008; (b) had sampling weights to assure national representativeness; (c) were between 13 to 17 years old at time of wave II data collection; and (d) were involved in at least one intimate relationship (operationally defined as being in at least one dating and/or sexual

Table 1

*Information for Wave I to IV Data Collection*

Wave	Year	Age	Data collected	N	Attrition Rates (n)
I	1994-1995	13 to 17 years old (Grades 7-12)	Adolescents' health and risk behaviors (e.g., alcohol use)	20,745	
II	1996	13 to 17 years old (Participants from wave I, except high school seniors)	Adolescents' health and risk behaviors (e.g., alcohol use)	14,738	29% (6,007)
III	2001-2002	18 to 26 years old (Participants from wave I, who could be located)	Health and behavior outcomes during emerging and young adulthood (e.g., educational outcomes)	15,197	27% (5,548)
IV	2008-2009	24 to 32 years old (Participants from wave I, who could be located)	Collection of data (e.g., psychological experiences) to study the developmental trajectories from adolescence into later adulthood	15,701	24% (5,044)

relationship within the past 18 months) at wave II. The following ADD Health data were used for the dissertation study: wave II - IPV victimization; wave III - IPV victimization and perpetration, depression, and substance use problems; wave IV - educational attainment and employment status. See Figure 2 for information on how participants were selected for this dissertation study.

Participants identified as being in one of five monoracial groups, as biracial, or multiracial. Of the total sample ( $N = 1,386$ ), participants identified racially as: White ( $n = 901, 65.0%$ ); Black or African American ( $n = 296, 17.7%$ ); American Indian or Native American ( $n = 8, 0.6%$ ); Asian or Pacific Islander ( $n = 35, 2.5%$ ); Hispanic or Latino ( $n = 9, 0.6%$ ); biracial ( $n = 177, 12.8%$ ), multiracial ( $n = 8, 0.6%$ ), and two participants (0.1%) did not indicate their racial/ethnic background. See Table 2 for more demographic information.

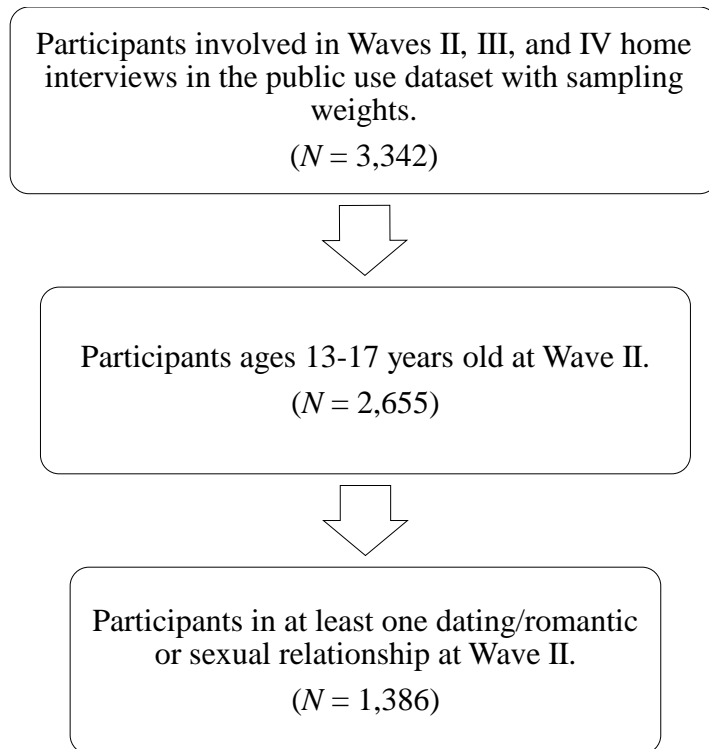
## **Measures**

A description of study constructs and measures are summarized in Table 3. All measures are located in Appendices A thru F.

### **Dating/romantic and sexual relationship activity at wave II and III.**

Relationship data included dating/romantic relationship activity and sexual relationship activity. For this study, the term *intimate relationship* was defined as “having at least one dating/romantic relationship and/or sexual relationship.” For wave II, participants reported the initials of each of their intimate partners and answered subsequent questions about IPV related behaviors for each of the partners they identified being involved with during the past 18 months. Participants could report IPV data at wave II for a minimum of one or a maximum of six intimate relationships.





**Figure 2.** Dissertation Study Participant Selection Flow Chart.

For the purposes of this dissertation study, data on participants' reports of IPV experiences for *all* reported intimate relationships within the past 18 months during wave II was utilized. For example, Participant A reported IPV data for two dating/romantic relationships and three sexual relationships. Data on five intimate relationships, therefore, were included in this dissertation study for Participant A.

***Dating relationship activity at wave II.*** Participants responded to original items about dating relationship status. Participants were asked, "In the last 18 months have you had a romantic relationship with any one?" If they answered "yes," they were asked to answer items about their relationship activity with partner #1. If they answered "no," they were asked to proceed with the next section.

Table 2

*Descriptive Statistics for Participants' Demographics by Race*

	Total		White		Black or African American		American Indian or Native American		Asian or Pacific Islander		Hispanic or Latino		Biracial		Multiracial	
Sample	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Sample	1386	100%	901	65.0%	246	17.7%	8	0.6%	35	2.5%	9	0.6%	177	12.8%	8	0.6%
Sex																
Female	821	59.2%	533	38.5%	150	10.8%	7	0.5%	18	1.3%	5	0.4%	102	7.4%	5	0.4%
Male	565	40.8%	368	26.6%	96	6.9%	1	0.1%	17	1.2%	4	0.3%	75	5.4%	3	0.2%
Age W2																
13	48	3.5%	27	1.90%	12	0.9%	0	0%	0	0%	1	0.1%	7	0.5%	0	0%
14	229	16.5%	145	10.5%	45	3.2%	0	0%	5	0.4%	1	0.1%	31	2.2%	2	0.1%
15	306	22.1%	204	14.7 %	53	3.8%	1	0.1%	7	0.5%	1	0.1%	38	2.7%	1	0.1%
16	387	27.9%	255	18.4%	68	4.9%	4	0.3%	13	0.9%	3	0.2%	41	3.0%	3	0.2%
17	416	30.0%	270	19.5%	68	4.9%	3	0.2%	10	0.7%	3	0.2%	60	4.3%	2	0.1%
Age W3																
18	8	0.6%	5	0.4%	2	0.1%	0	0%	0	0%	0	0%	1	0.1%	0	0%
19	164	11.8%	103	7.4%	37	2.7%	0	0%	1	0.1%	2	0.1%	19	1.4%	1	0.1%
20	266	19.2%	169	12.2%	47	3.4%	0	0%	11	0.8%	1	0.1%	36	2.6%	1	0.1%
21	342	24.7%	237	17.1%	53	4.3%	2	0.1%	7	0.5%	1	0.1%	41	3.0%	1	0.1%
22	427	30.8%	265	19.1%	84	6.1%	4	0.3%	12	0.9%	4	0.3%	53	3.8%	5	0.4%
23	179	12.9%	129	8.8%	23	21.7%	2	0.1%	4	0.3%	1	0.1%	27	1.9%	0	0%
24	2	0.1%	1	0.1%	0	0%	0	0%	0	0%	1	0.1%	0	0%	0	0%
25	71	5.1%	46	3.3%	16	1.4%	0	0%	0	0%	0	0%	8	0.6%	1	0.1%

(Table 2 continued).

	Total		White		Black or African American		American Indian or Native American		Asian or Pacific Islander		Hispanic or Latino		Biracial		Multiracial	
Sample	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Age W4																
26	229	16.5%	142	10.2%	46	3.3%	0	0%	7	0.5%	2	0.1%	30	2.2%	0	0%
27	308	22.2%	207	14.9%	52	3.8%	2	0.1%	7	0.5%	0	0%	38	2.7%	1	0.1%
28	384	27.7%	249	18.0%	68	4.9%	3	0.2%	7	0.5%	4	0.3%	51	3.7%	0	0%
29	355	25.6%	232	16.7%	59	4.3%	3	0.2%	12	0.9%	2	0.1%	44	3.2%	3	0.2%
30	37	2.7%	24	1.7%	5	0.4%	0	0%	0	0%	0	0%	6	0.4%	0	0%
Intimate Relationship Status W2																
Dating	1129	81.5%	755	54.5%	180	13.0%	4	0.3%	32	2.3%	8	0.6%	141	10.2%	8	0.6%
Sexual	140	10.1%	76	35.5%	37	42.7%	3	0.2%	2	0.1%	0	0%	22	1.6%	0	0%
Both	117	8.4%	70	5.1%	29	2.1%	1	0.1%	1	0.1%	1	0.1%	14	1.0%	0	0%
Intimate Relationship Status W3																
No	176	12.7%	96	6.9%	50	3.6%	1	0.1%	5	0.4%	0	0%	22	1.6%	2	0.1%
Yes	1,208	87.3%	805	58.2%	196	14.2%	7	0.5%	30	2.2%	9	0.7%	155	11.2%	6	0.4%

Note. W2 = wave II, W3 = wave III, W4 = wave IV, and two participants (0.1%) did not report their racial/ethnic background. For intimate relationship status at wave III, No = never had an intimate relationship; Yes = have had/has at least once intimate relationship.

Table 3

*Description of Study Constructs and Measures*

Construct	Wave	Items	Author
Dating/Romantic Relationship	II	“In the last 18 months have you had a romantic relationship with any one?” “Have you had a special romantic relationship in the last 18 months with any other person?”	ADD Health original items (Harris, et al., 2009)
Sexual Relationship	II	“Not counting the people you have described as romantic relationships, have you had a sexual relationship with anyone?” “And have you had a sexual relationship with any other person?”	ADD Health original item
IPV Victimization	II	“Did your partner call you names, insult you, or treat you disrespectfully in front of others?” “Did your partner swear at you?” “Did your partner threaten you with violence?” “Did your partner push or shove you?” “Did your partner throw something at you that could hurt you?”	revised <i>Conflict Tactics Scales</i> (CTS2; Straus, Hamby, Boney-McCoy, & Sugarman, 1996)
Intimate Relationship	III	“The next part of the interview is concerned with any romantic relationships and sexual relationships you have had at any time since the summer of 1995. Include relationships that began more than six years ago if they continued at least until June 1995.”	ADD Health original items
IPV Victimization	III	“How often has your partner threatened you with violence, pushed or shoved you or thrown something at you that could hurt?” “How often has your partner slapped, hit, or kicked you?” “How often has your partner insisted on or made you have sexual relations with him/her when you didn’t want to?” “How often have you had an injury, such as a sprain, bruise or cut because of a fight with your partner?”	revised <i>Conflict Tactics Scales</i>

(Table 3 continued).

Construct	Wave	Items	Author
IPV Perpetration	III	<p>“How often have you threatened your partner with violence, pushed or shoved him/her or thrown something at him/her that could hurt?”</p> <p>“How often have you slapped, hit, or kicked your partner?”</p> <p>“How often have you insisted on or made your partner have sexual relations with you when he/she didn’t want to?”</p> <p>“How often has your partner had an injury, such as a sprain, bruise, or cut because of a fight with you</p>	revised <i>Conflict Tactics Scales</i>
Depression	III	<p>Example items include:</p> <p>“You were bothered by things that usually don’t bother you.”</p> <p>“You could not shake off the blues, even with help from your family and your friends, during the past seven days.”</p>	<i>Center for Epidemiologic Studies Depression Scale (CES-D; Radloff, 1977)</i>
Substance Use Problems	III	<p>Examples items include:</p> <p>“Over the past 12 months, how many times were you drunk at school or work?”</p> <p>“During the past 12 months, how often did you have problems with someone you were dating because you had been using drugs?”</p>	ADD Health original items
Educational Attainment	IV	<p>“What is the highest level of education that you have achieved to date?”</p>	ADD Health original item
Employment Status	IV	<p>“Are you currently working for pay at least 10 hours a week?”</p> <p>“How many total hours a week do you usually spend at these jobs?”</p> <p>“How many hours a week (do/did) you usually work at this job?”</p>	ADD Health original items

If they answered “no,” they were directed to the next section. For participants who had a second partner, they were asked, “Have you had a special romantic relationship in the last 18 months with any other person?” If they answered “yes,” they completed items that assessed relationship information and activity with partner #3. If they answered “no,” they were instructed to proceed to the next section. Participants could report up to three dating/romantic relationships within the past 18 months before the interview. Response options included “yes” and “no.”

*Sexual relationship activity at wave II.* Participants responded to the original item, “Not counting the people you have described as romantic relationships, have you had a sexual relationship with anyone?” Similar to the process described above for assessing dating/romantic relationship activity, participants could report up to three sexual relationships within the past 18 months. Response options included “yes” and “no.” At wave II, participants could report a minimum of one and maximum of three dating/romantic relationships, and a minimum of one and maximum of three sexual relationships. Thus, participants could report information for up to six intimate relationships total at wave II.

*Dating relationship and sexual activity at wave III.* Participants were asked to create a list of intimate partners by indicating each partner’s initials. The following instructions were given to participants: “The next part of the interview is concerned with any romantic relationships and sexual relationships you have had at any time since the summer of 1995. Include relationships that began more than six years ago if they continued at least until June 1995.” If participants were involved with the same partner more than once, they were asked to only list the initials of that partner once. Participants

completed information at wave III about IPV for relationships that were current or had occurred within the past year. Thus IPV information reported for intimate relationships at wave III was new information and did not overlap with IPV information reported at wave II.

**Intimate partner violence victimization at wave II.** Five modified items from the revised *Conflict Tactics Scales* (CTS2; Straus, Hamby, Boney-McCoy, & Sugarman, 1996) were used to assess IPV. The CTS2 items were administered during an in-person interview. Participants answered CTS2 items for up to six intimate relationships (e.g., dating and/or sexual) that occurred in the previous 18 months. Each participant answered five questions for each intimate relationship: (1) “Did your partner call you names, insult you, or treat you disrespectfully in front of others?”, (2) “Did your partner swear at you?”, (3) “Did your partner threaten you with violence?”, (4) “Did your partner push or shove you?”, and (5) “Did your partner throw something at you that could hurt you?” Items 1, 2, and 3 are from the Psychological Aggression subscale and items 4 and 5 are from the Physical Assault subscale. Response options for each item were 0 = no and 1 = yes; severity or frequency of IPV was not measured, thus only binary response options were available. Researchers have used this measure with emerging adult samples. Internal consistency estimates were calculated with college students and ranged from  $\alpha = .79$  to  $\alpha = .86$  (Straus et al., 1996). An internal consistency estimate of  $\alpha = .67$  was calculated with the present study sample.

A composite binary, categorical variable was created using the five items from the wave II IPV victimization measure. If participants answered at least one “yes” to any of the five IPV victimization items they were categorized into the *victimization group*

indicating that they experienced at least one IPV victimization incident across any of the reported intimate relationships. If participants answered “no” to all five questions, they were categorized into the *no victimization group*, indicating that they had no experiences of victimization across any of the reported intimate relationships.

**Intimate partner violence experiences at wave III.** IPV experiences measured during the wave III in-home interview included eight modified items from the revised *Conflict Tactics Scales* (CTS2; Straus et al., 1996). Four items assessed IPV victimization and four items assessed IPV perpetration experiences. Participants answered the following four questions to assess IPV victimization in each intimate relationship: (1) “How often has your partner threatened you with violence, pushed or shoved you or thrown something at you that could hurt?”, (2) “How often has your partner slapped, hit, or kicked you?”, (3) “How often has your partner insisted on or made you have sexual relations with him/her when you didn’t want to?”, (4) “How often have you had an injury, such as a sprain, bruise or cut because of a fight with your partner?” Participants answered four questions to assess IPV perpetration in each intimate relationship: (1) “How often have you threatened your partner with violence, pushed or shoved him/her or thrown something at him/her that could hurt?”, (2) “How often have you slapped, hit, or kicked your partner?”, (3) “How often have you insisted on or made your partner have sexual relations with you when he/she didn’t want to?”, (4) “How often has your partner had an injury, such as a sprain, bruise, or cut because of a fight with you?” Answers ranged along a 7-point Likert-type scale: 0 = *never*, 1 = *once*, 2 = *twice*, 3 = *3–5 times*, 4 = *6–10 times*, 5 = *11–20 times*, 6 = *more than 20 times*, and 7 = *did not happen in the past year but happened prior to that*. The eight items are from the Physical



Aggression, Physical Assault, Sexual Coercion and Injury subscales. Internal consistency estimates were calculated with a sample of college students and ranged from  $\alpha = .79$  to  $\alpha = .95$  (Straus et al., 1996). An internal consistency estimate of  $\alpha = .82$  was calculated with the present study sample.

The IPV variable at wave III was summed to create total scores for IPV Victimization and IPV Perpetration. There was multicollinearity between these two continuous variables,  $r_s > .80$  and it violated statistical assumptions. The wave II IPV victimization variable is a categorical variable, therefore, to be consistent across waves and to address the issue of multicollinearity, a categorical variable was created using the eight items from wave III IPV experiences measure responses. If participants selected “0 = never” for all eight items, they were categorized into the *no IPV experiences group*. If participants selected response options 2 through 7 for any of the four victimization items and “0 = never” for all four perpetration items, they were categorized into the *victimization group*. If participants selected response options 2 through 7 for any of the four perpetration items and “0 = never” for all four victimization items, they were categorized into the *perpetration group*. If participants selected response options 2 through 7 for at least one victimization item and at least one perpetration item, they were categorized into the *reciprocal group*. This categorical variable is a nominal mediator variable and was dummy-coded to be tested in the model. The four groups were represented with three dummy coded variables using the *no IPV experiences group* as the control group.

**Depression.** Depression was measured during the wave III in-person interview using nine items modified from the 20-item *Center for Epidemiologic Studies Depression*

*Scale* (CES-D; Radloff, 1977). The nine items assessed depressive feelings and behaviors within the past week. Participants were asked, “How often was each of the following things true during the past seven days?” Sample items included, “You were bothered by things that usually don’t bother you.”, “You could not shake off the blues, even with help from your family and your friends, during the past seven days.”, and “You were sad, during the past seven days.” Response options range along a 4-point Likert-type scale from 0 = *rarely or rarely* to 3 = *most of the time or all of the time*. Two items were reverse-scored and all items were averaged to yield a mean depression score. Total scores could range from 0 to 27. Higher scores indicated more depressive symptoms. In the original study that examined the use of the 20-item CES-D, internal consistency estimates were calculated with community ( $\alpha = .85$ ) and psychiatric ( $\alpha = .90$ ) adult samples (Radloff, 1977). Shorter forms of the CES-D (e.g., 10 items) have been shown to assess the same symptom dimensions as the original 20-items scale. A good internal consistency estimate was calculated with an older adults sample ( $\alpha = .80$ ) using a 10-item version of the CES-D (Kohout, Berkman, Evans, & Comoni-Huntley, 1993). An internal consistency estimate of  $\alpha = .81$  was calculated with the present study sample. This depression variable was positively skewed as a majority of participants reported experiencing little to no depression symptoms. To address this issue, log+1 transformation were conducted to normalize the variable.

**Substance use problems.** Substance use problems were measured during the wave III in-person interview with 14 items that assessed alcohol and drug use problems. These 14 items were various alcohol and drug use items included in different sections of the ADD Health in-home interviews and assessed how many times a school, work, or

relationship problem occurred during the past year when participants drank alcohol or used drugs. Sample items included, “During the past 12 months, how many times has each of the following things happened? You had problems at school or work because you had been drinking.” “Over the past 12 months, how many times were you drunk at school or work?”, “During the past 12 months, how often did you have problems with someone you were dating because you had been using drugs?”, and “During the past 12 months, how often did you get into a physical fight because you had been using drugs?” Response options range along a 5-point Likert-type scale: 0 = *never*, 1 = *once*, 2 = *twice*, 3 = *3–4 times*, 4 = *5 or more times* with higher scores indicating more substance use problems. All items were averaged to yield a mean substance use problem score. An internal consistency estimate of  $\alpha = .79$  was calculated with the present study sample.

This substance use variable was positively skewed as a majority of participants reported experiencing little to no substance use problems. To address this issue, an ordinal three-level categorical variable was created using the 14 substance use problem items from wave III because the extreme skew of the variable scores could not be normalized by the log+1 transformation. Specifically, there was such a high proportion of participants with scores of 0 (67.6%), indicating they did not experience any problems related to their alcohol or drug use. Based on this heavily skewed distribution, an ordinal categorical variable was created. All items were added to create a total score, with possible scores ranging from 0 to 56. At wave III, if participants had a sum of “0 or 1” they were categorized into the *0 to 1 group*. If participants had a sum of 2 through 4 they were categorized into the *2 to 4 group*. If participants had a sum of 5 or higher they were categorized into the *5 and higher group*. Participants were categorized into these three

groups because (a) half of the participants had scores of zeroes or ones, (b) a quarter had scores that fell into the 2 to 4 range, and (c) a quarter had scores that fell into the 5 or higher range.

**Educational attainment.** Educational attainment was measured at wave IV using one original item that was administered during the in-person interview. Participants were asked, “What is the highest level of education that you have achieved to date?” Response options were: 1 = *8th grade or less*, 2 = *some high school*, 3 = *high school graduate*, 4 = *some vocational/technical training (after high school)*, 5 = *completed vocational/technical training (after high school)*, 6 = *some college*, 7 = *completed college (bachelor's degree)*, 8 = *some graduate school*, 9 = *completed a master's degree*, 10 = *some graduate training beyond a master's degree*, 11 = *completed a doctoral degree*, 12 = *some post baccalaureate professional education (e.g., law school, med school, nurse)*, and 13 = *completed post baccalaureate professional education (e.g., law school, med school, nurse)*. Based on the response options, community college associate’s degrees were not assessed during the original ADD Health data collection. The response option of “*some college*” could possibly include community college and/or four-year college or university, however, this was not clarified in the original ADD Health questionnaires. Participants’ responses were re-coded into six categories of educational attainment: (a) *No high school degree*, (b) *High school degree*, (c) *Vocational training*, (d) *Some college*, (e) *Bachelor’s degree*, and (f) *Graduate degree*.

**Employment status.** Employment status was measured at wave IV using three original items administered during the in-person interview. Participants were asked, (1)

“Are you currently working for pay at least 10 hours a week?” (2) “How many total hours a week do you usually spend at these jobs?”, and (3) “How many hours a week (do/did) you usually work at this job?” Response options for item 1 were 0 = *no* and 1 = *yes* and response options for items 2 and 3 were any numerical response. Item 1 was used to determine unemployment status. Participants who answered “no” to item 1 were re-coded into the *unemployed group* because they were not currently working. Items 2 and 3 were used to determine if participants were employed part-time or full-time. Participants who indicated that they worked fewer than 34.9 hours per week were re-coded into the *part-time employment group* and participants who worked 35 or more hours per week were re-coded into the *full-time employment group*. A categorical variable was created for employment status: (a) unemployed, (b) employed part-time, and (c) employed full-time. See Table 4 for a description of study variables, construct type and categories information.

## **Procedures**

For the four waves of data collection, participants completed in-home interviews administered by trained interviewers using the Computer-Assisted Personal Interview (CAPI) technology on laptop computers. Interviewers read questions to participants and recorded participants’ responses on the laptop. Participants used the Audio Computer-Assisted Self Interview (ACASI) technology to complete questions asking about sensitive health status and health-risk behavior information (e.g., dating violence). Interviewers were not present in the room during the sensitive questionnaire content. The response rates were 79% and 88.6% for waves I and II, respectively. Of the 20,745 participants from wave I, 14,738 also participated in wave II data collection (except for high school

seniors because at wave II they were now 18 years and older). Participants from wave I who were able to be located were re-interviewed for waves III and IV. Of the original total sample, 15,170 participants were located and re-interviewed for wave III and 15,701 participants were located and re-interviewed for wave IV. Participant response rates were 77.4% and 80.3% for waves III and IV, respectively. The 1,386 participants in this study participated in all four waves of data collection, however, only data for waves II, III and IV were used.

### **Data Analyses**

Preliminary data analyses were conducted using IBM SPSS Version 20 (IBM SPSS, 2011). Data were screened for outliers, and missing data, skewness, and kurtosis to test statistical assumptions. Descriptive statistics were examined for all study variables.

**Bivariate correlations.** Inter-item correlations among all variables were computed in IBM SPSS Version 20 (IBM SPSS, 2011) to confirm the hypothesized relationships that were specified with the path models. The correlation between IPV Victimization (a binary variable) at wave II and Depression at wave III (a continuous variable) was examined using a point-biserial correlation. All other correlations were either between two ordinal variables or an ordinal and a continuous variable, so non-parametric Spearman rank-order correlations were used. Bivariate correlations could not be examined between IPV experiences at wave III and other study variables, as it was a nominal variable with multiple categories (i.e., No IPV, IPV Victimization, IPV Perpetration, and Reciprocal IPV).

**Path analyses.** Path analyses were performed using a Structural Equation Modeling (SEM) framework in *Mplus* version 7.2 (Muthén & Muthén, 2012). A

combination of continuous, categorical, and ordinal endogenous (i.e., dependent) variables was included in the models, so linear and logistic regression analyses were performed for each accordingly.

**Model estimation.** The specified model contained a combination of continuous, unordered and ordered categorical mediator and outcome variables. Given the complexity of this model, it could only be estimated using the Weighted Least Squares Means and Variance (WLSMV) estimation. WLSMV is a robust estimator that provides indices of overall model fit, tests of indirect model effects, and does not assume normally distributed variables.

However, WLSMV estimation uses probit regression analyses, and does not give the estimation of standardized effect sizes. Nevertheless, the focus of this dissertation was on the indirect (i.e., mediation) effects, for which standardized effect sizes are not yet well developed. In addition, WLSMV uses pairwise deletion for missing data within the model, rather than Full Information Maximum Likelihood (FIML) estimation, often regarded as the most accurate estimation method for models with missing data. However, when the prevalence of missing data is minimal and data are Missing Completely at Random (MCAR), pairwise deletion yields unbiased estimates (Enders, 2010). Thus the model was estimated using the WLSMV estimation.

**Model fit.** In addition to the  $\chi^2$  statistic, which is overly sensitive to model misspecification, *Mplus* provides several alternate indicators of overall model fit for models that include both binary and continuous outcome variables, including:

Table 4

*Description of Study Variables*

Construct	Wave	Construct Type	Variable Categories	Cronbach's Alpha
IPV Exogenous variable	II	Categorical: Binary	No Victimization Yes Victimization	.67
IPV Endogenous mediator variable	III	Categorical: Nominal	No IPV experiences Victimization Perpetration Reciprocal	.82
Depression Endogenous mediator variable	III	Continuous	No categories	.81
Substance Use Problems Endogenous mediator variable	III	Categorical: Ordinal	None 2 to 4 5 to 10	.79
Educational Attainment Endogenous variable	IV	Categorical: Ordinal	No high school degree High school degree Vocational training Some college Bachelor's degree Graduate degree	
Employment Status Endogenous variable	IV	Categorical: Ordinal	Unemployed Employed Part- Time Employed Full- Time	

*Note.* Educational Attainment was measured using one item and Employment Status was measured with three items and had a mix of binary and continuous response options, therefore, Cronbach's alphas were not calculated for these two variables.



(1) the Comparative Fit Index (CFI; Bentler, 1990); (2) the Root Mean Square Error of Approximation, and (3) the Weighted Root Mean Residuals (Muthén & Muthén, 2012). Based on current recommendations (Hu & Bentler, 1999; Yu, 2002), CFI values *greater* than .95 and .90 indicated excellent and acceptable model fit; RMSEA values *less* than .05 and .08 indicated excellent and acceptable model fit; and WRMR values less than .95 indicated acceptable model fit. The fit of individual paths was determined based on their statistical significance.

**Mediation.** Initial mediation paths were identified using the joint significance test, as MacKinnon, Lockwood, Hoffman, West and Sheets (2002) concluded that it provides the best balance of power and conservatism. The joint significance test requires that (a) the association between the predictor and the proposed mediator and (b) the association between the proposed mediator and the outcome variable significantly differ from 0. Variables that passed this initial test were included in the overall path model and indirect effects were estimated based on the product of the two paths (a and b above). Thus, Substance Use Problems at wave III was not included in the model because it was not associated with Educational Attainment or Employment Status. As recommended by Preacher and Hayes (2008), bias-corrected bootstrapped confidence intervals were estimated for these indirect effects using 1000 bootstrapped draws and the delta method was used for determining their statistical significance (Sobel, 1982).

**Moderated mediation.** To test whether or not the mediation effects differed by gender and race/ethnicity, tests of model invariance were conducted. First the statistical fit of nested models, which assumed that all model parameters were invariant for males and females and across African Americans and Caucasians, was compared to a model in

which all model parameters were allowed to differ between groups using the  $\chi^2$  difference test. The  $\chi^2$  used for WLSMV estimation is not distributed as a typical  $\chi^2$ , so *Mplus* uses the DIFFTEST procedure to accurately compare the  $\chi^2$  statistics produced by each of these models. In the event that more restrictive invariant models provide significantly poorer fit to the data, model modification indices are consulted to determine which parameters could be freed to improve model fit. Parameters were sequentially freed one-by-one until the fit of the two models no longer significantly differed.

## CHAPTER IV

### RESULTS

#### Missing Data

Between 0% and 1.5% of participants were missing some data across all study variables. See Table 5 for the percentage of missing data per variable. Little's (1988) MCAR (missing completely at random) test was not statistically significant,  $\chi^2(4) = .94$ ,  $p = .92$ , indicating that data were MCAR. Given the relatively low prevalence of missing data and that the MCAR assumption was met, pairwise deletion was chosen to handle the missing data. Frequencies for categorical variables by race are listed in Table 6 and frequencies for all study variables by race groups are listed in Table 7.

Table 5

*Percentage of Missing Data per Variable*

Variable	<i>n</i>	Missing data <i>n</i> (%)
IPV Victimization wave 2	1375	11 (0.8%)
IPV Group wave 3	1365	21 (1.5%)
Depression wave 3	1386	0 (0%)
Substance Use Problems wave 3	1374	12 (0.9%)
Educational Attainment wave 4	1386	0 (0%)
Employment Status wave 4	1386	0 (0%)

Table 6

*Frequencies for Categorical Variables by Race*

Variable	Total		White		Black or African American		American Indian or Native American		Asian or Pacific Islander		Hispanic or Latino		Biracial		Multiracial	
	<i>N</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>N</i>	%	<i>n</i>	%
Sample	1386	100%	901	65.0%	246	17.7%	8	0.6%	35	2.5%	9	0.6%	177	12.8%	8	0.6%
IPV Group W2																
No Vic	925	67.3%	626	45.5%	154	11.2%	0	0%	19	1.4%	6	0.4%	112	8.1%	6	0.1%
Yes Vic	450	32.7%	269	19.6%	89	6.5%	8	6.5%	16	1.2%	3	0.2%	63	4.6%	2	0.1%
IPV Group W3																
None	675	56.8%	472	39.7%	96	8.1%	1	0.1%	15	1.3%	4	0.3%	81	6.8%	4	0.3%
Vic only	121	10.2%	82	6.9%	18	1.5%	2	0.2%	5	0.4%	1	0.1%	13	1.1%	0	0%
Perp only	63	5.3%	37	3.1%	16	1.3%	1	0.1%	3	0.3%	0	0%	6	0.5%	0	0%
Reciprocal	330	27.8%	200	16.8%	3	5.3%	3	0.3%	7	0.6%	4	0.3%	51	4.3%	2	0%
Substance Use Problems W3																
0 to 1	676	48.8%	396	28.6%	163	11.8%	8	0.6%	17	1.2%	4	0.3%	85	6.1%	3	0.2%
2 to 4	313	22.6%	215	15.5%	45	3.3%	0	0%	9	0.7%	0	0%	40	2.9%	4	0.3%
5 to higher	383	27.7%	278	20.1%	38	2.7%	0	0%	9	0.7%	5	0.4%	52	3.8%	1	0.1%

Table 6 continued).

Variable	Total		White		Black or African American		American Indian or Native American		Asian or Pacific Islander		Hispanic or Latino		Biracial		Multiracial	
	<i>N</i>	%	<i>n</i>	%	<i>N</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>N</i>	%	<i>n</i>	%
Sample	1386	100%	901	65.0%	246	17.7%	8	0.6%	35	2.5%	9	0.6%	177	12.8%	8	0.6%
Educational Attainment W4																
No high school degree	108	7.8%	64	4.6%	25	1.8%	0	0%	2	0.1%	0	0%	16	1.2%	1	0.1%
High school degree	238	17.2%	142	10.3%	37	2.7%	6	0.4%	6	0.4%	2	0.1%	45	3.3%	0	0%
Vocational training	94	6.8%	61	4.4%	22	1.6%	0	0%	1	0.1%	1	0.1%	8	0.6%	1	0.1%
Some college	454	32.8%	286	20.7%	82	5.9%	2	0.1%	7	0.5%	4	0.3%	72	5.2%	1	0.1%
Bachelor's degree	387	28.0%	278	20.1%	60	4.3%	0	0%	19	1.4%	2	0.1%	24	1.7%	4	0.3%
Graduate degree	103	7.4%	70	5.1%	20	1.4%	0	0%	0	0%	0	0%	12	0.9%	1	0.1%
Employment Status W4																
Unemployed	65	4.7%	38	1.7%	13	0.9%	0	0%	0	0%	2	0.1%	11	0.8%	1	0.1%
Employed Part-Time	155	11.2%	98	7.1%	30	2.2%	0	0%	4	0.3%	1	0.1%	22	1.6%	0	0%
Employed Full-Time	1164	84.1%	765	55.3%	203	14.7%	8	0.6%	31	2.2%	5	0.4%	144	10.4%	7	0.5%

Note. Two participants (0.1%) did not report their racial/ethnic background.

Table 7

*Frequencies for Study Variables by Race Groups*

Variable	<i>M(SD)</i>	Total		White		Black or African American		“Other”	
		<i>N</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Sample		1386	100%	901	65.1%	246	17.8%	237	17.1%
IPV Group W2		1373	99.1%	895	65.2	243	17.7	235	17.1
No Vic		923	67.2%	626	45.6%	154	10.4%	143	10.4%
Yes Vic		450	32.8%	269	19.6%	89	6.5%	92	6.7%
IPV Group W3		1363	98.3%	887	65.1	243	17.8	233	17.1
None		849	62.3%	568	41.7%	146	10.7%	135	9.9%
Vic only		121	8.9%	82	6.0%	18	1.3%	21	1.5%
Perp only		63	4.6	37	2.7%	16	1.2%	10	0.7%
Reciprocal		330	24.2%	200	14.7%	63	4.6%	67	4.9%
Depression	.16(.12)	1384	99.9%	901	65.1%	246	17.8%	237	17.1%
Substance Use Problems W3		1384	99.9%	901	65.1%	246	17.8%	237	17.1%
0 to 1		676	48.8%	396	28.6%	163	11.8%	117	8.5%
2 to 4		313	22.6%	215	15.5%	45	3.3%	53	3.8%
5 to higher		383	27.7%	278	20.1%	38	2.7%	67	4.8%

(Table 7 continued).

Variable	<i>M(SD)</i>	Total		White		Black or African American		“Other”	
		<i>N</i>	%	<i>n</i>	%	<i>N</i>	%	<i>n</i>	%
Sample		1386	100%	901	65.0%	246	17.7%	8	0.6%
Educational Attainment W4		1384	99.9%	901	65.1%	246	17.8%	237	17.1%
No high school degree		108	7.8%	64	4.6%	25	1.8%	19	1.4%
High school degree		238	17.2%	143	10.3%	37	2.7%	59	4.3%
Vocational training		94	6.8%	31	4.4%	22	1.6%	11	0.8%
Some college		454	32.8%	286	20.7%	82	5.9%	86	6.2%
Bachelor’s degree		387	28.0%	278	20.1%	60	4.3%	49	3.5%
Graduate degree		103	7.4%	70	5.1%	20	1.4%	13	0.9%
Employment Status W4		1384	99.9%	901	65.1%	246	17.8%	237	17.1%
Unemployed		65	4.7%	38	2.7%	13	0.9%	65	4.7%
Employed Part-Time		155	11.2%	98	7.1%	30	2.2%	27	1.0%
Employed Full-Time		1164	84.1%	765	55.3%	203	14.7%	196	14.2%

*Note.* Two participants (0.1%) did not report their racial/ethnic background. Only the mean and standard deviation of Depression is reported as it was the only continuous variable. “Other” race group comprised of participants who identified as American Indian/Native American, Asian or Pacific Islander, Latino, Biracial or Multiracial.

## Correlations

Bivariate correlations among study variables are presented in Table 8. IPV Victimization at wave II was positively correlated with Depression and Substance Use Problems at wave III and negatively correlated with Educational Attainment. IPV Victimization at wave II was not significantly correlated with Employment Status. Depression at wave II was positively correlated with Substance Use Problems at wave III and negatively correlated with Educational Attainment and Employment Status at wave IV. Substance Use Problems at wave II was not significantly correlated with Educational Attainment or Employment Status at wave IV. Finally, Educational Attainment was positively correlated with Employment Status. Although these Point-Biserial correlations are low, they indicate that Substance Use Problems and Depression at wave III are more strongly correlated with Educational Attainment and Employment Status at wave IV than Educational Attainment and Employment Status are correlated with each other.

## Path Models

Based on the pattern of correlations among study variables, the hypothesized model was modified and tested using SEM (see Figure 3). The model fit the data well,  $\chi^2(3) = 15.47, p = .002, CFI = .91, RMSEA = .06, WRMR = .84$ . IPV Victimization at wave II significantly predicted IPV Victimization at wave III, coefficient = .20,  $p = .03$ , Reciprocal IPV at wave III, coefficient = .33,  $p < .001$ ; Depression at wave III, coefficient = .03,  $p < .001$ ; and Educational Attainment at wave IV, coefficient = -.16,  $p = .009$ . Depression at wave III, in turn, predicted Educational Attainment at wave IV, coefficient = -.8,  $p = .003$ , and Employment Status at wave IV, coefficient = -1.04,  $p = .003$ . Reciprocal IPV at wave III predicted Educational Attainment at wave IV, coefficient = -.14,  $p = .002$ .



Table 8

*Bivariate Correlations among Study Variables*

	<i>M(SD)</i>	1	2	3	4	5
1. IPV Victimization wave II		1				
2. Depression wave III	.16(.12)	<b>.11***</b>	1			
3. Substance Use Problems wave III		<b>.06*</b>	<b>.08**</b>	1		
4. Educational Attainment wave IV		-	-	.05	1	
5. Employment Status wave IV		-.05	<b>-.10***</b>	.03	<b>.06*</b>	1

*Note.* Point-Biserial correlation is reported for the relationship between IPV Victimization at wave II (a binary variable) and Depression at wave III (a continuous variable). All other correlations presented are Spearman correlations. \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ . Bivariate correlations could not be examined between IPV at wave III and other study variables, as IPV is a nominal variable.

**Mediation**

Based on the Joint Significance Test (MacKinnon et al., 2002), Depression at wave III mediated the relationship between IPV Victimization at wave II and Educational Attainment and Employment Status at wave IV, and Reciprocal IPV at wave III mediated the relationship between IPV Victimization at wave II and Educational Attainment at wave IV. Tests of the statistical significance of the indirect effects confirmed the following significant indirect effects: IPV Victimization at wave II on Educational Attainment at wave IV, indirect effect =  $-.02$ ,  $p = .01$ , 95% CI  $[-.05, -.01]$ , and Employment Status at wave IV, indirect effect =  $-.03$ ,  $p = .03$ , 95% CI  $[-.07, -.01]$  via Depression at wave III. Also, the indirect effect of IPV Victimization at wave II on

Educational Attainment at wave IV, indirect effect =  $-.05$ ,  $p = .01$ , 95% CI  $[-.09, -.02]$ , via Reciprocal IPV at wave III was statistically significant. See Figure 3 for the final model.

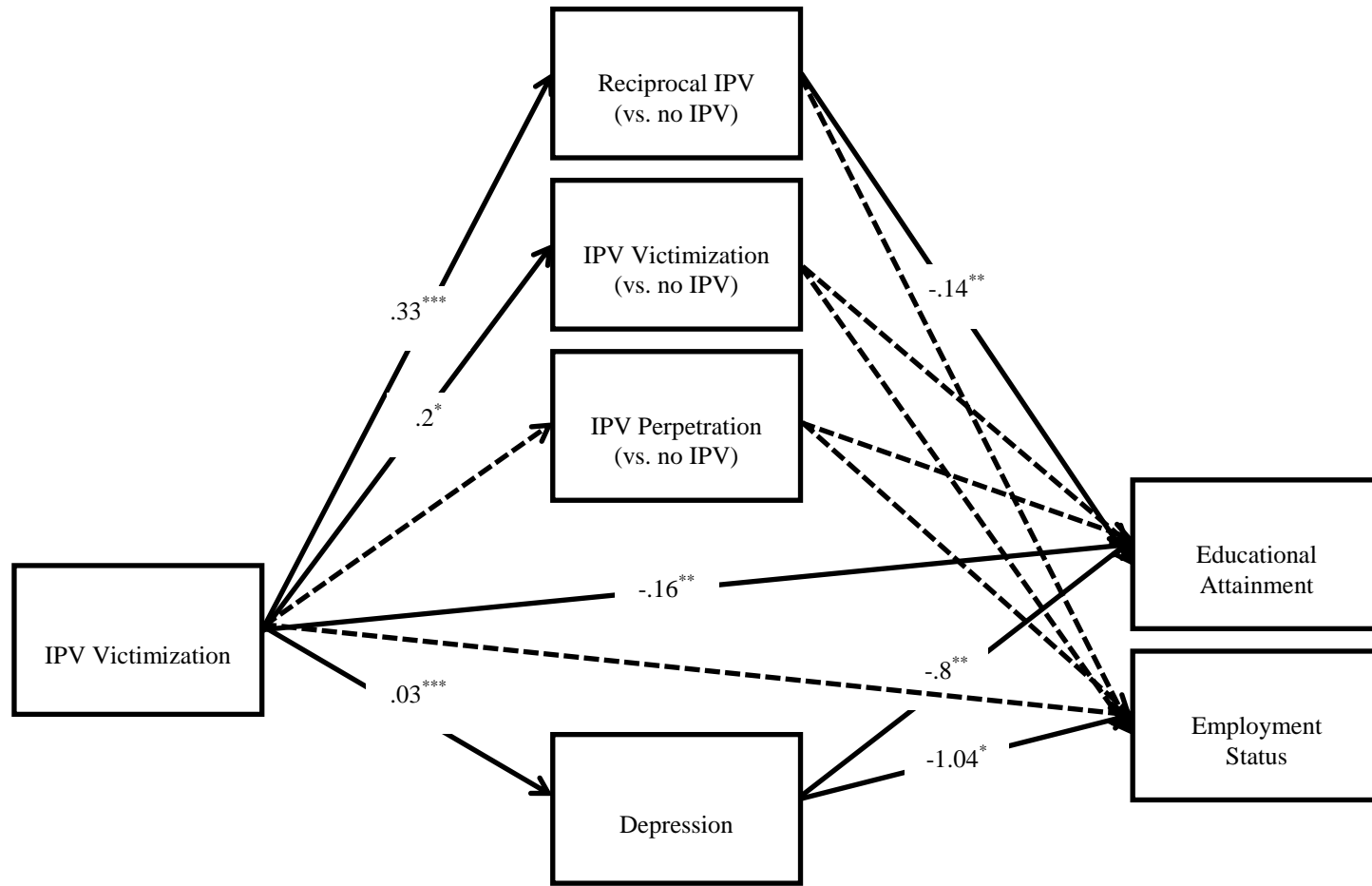
### **Moderated Mediation**

#### **Gender**

Model fit was estimated for a gender differences model between males and females,  $\chi^2(6) = 25.63$ ,  $p < .001$ , and the model did not fit the data significantly better than a model that estimated equivalent parameters for both males and females,  $\chi^2(23) = 44.09$ ,  $p = .005$ ,  $\Delta\chi^2(17) = 10.49$ ,  $p > .05$ . Thus, the path model and mediation results were not significantly moderated by gender.

#### **Race/Ethnicity**

A model was estimated for White, Black, and “other” racial groups. Groups were divided this way because of the sample size of each racial group: White,  $n = 901$ ; Black,  $n = 246$ ; and “other”,  $n = 228$ . The model fit for a model based on racial groups was estimated for White, Black, and “other” participants,  $\chi^2(30) = 40.56$ ,  $p > .05$ ; this model fit the data significantly better than a model that estimated equivalent parameters for White, Black, and “other” participants,  $\chi^2(64) = 87.4$ ,  $p = .005$ ,  $\Delta\chi^2(34) = 50.03$ ,  $p = .04$ . The model modification indices indicated that allowing the correlation between IPV Perpetration and Depression at wave III to be freely estimated for White participants would result in the largest improvement in model fit. After modifying the model, the model fit for a model based on racial groups was estimated for White, Black, and “other” participants did not fit the data significantly better than the modified model for White, Black, and “other” participants,  $\Delta\chi^2(33) = 47.33$ ,  $p = .05$ . Thus, all other path model parameters and mediation results were not significantly moderated by race.



**Figure 3.** Final Model.

Note. Path coefficients are Probit Regression coefficients. Signs and significance can be interpreted conventionally, but magnitude cannot.  $^* p < .05$ ;  $^{**} p < .01$ ;  $^{***} p < .001$ . Non-significant paths are represented with dashed lines.

## CHAPTER V

### DISCUSSION

The purpose of this dissertation study was to use extant national data collected prospectively and longitudinally to examine the relationship between adolescent IPV victimization and young adult vocational outcomes, with emerging adult IPV experiences, depression and substance use problems examined as mediators of this relationship. Of the six study hypotheses, four hypotheses were fully supported and one hypothesis was partially supported. Adolescent experiences of IPV victimization predicted emerging adult reciprocal IPV, which in turn predicted young adult educational attainment. Adolescent experiences of IPV victimization predicted emerging adult depression, which in turn predicted both young adult educational attainment and employment status. Adolescent experiences of IPV victimization also directly predicted emerging adult IPV Victimization and young adult educational attainment. Gender and race of participants did not moderate the significant mediations.

#### **Adolescent and Emerging Adult IPV Experiences**

A majority of adolescent participants (87.3%) who were involved in an intimate relationship between 13 to 17 years old were also involved in an intimate relationship during emerging adulthood (18 to 23 years old). Of the 1,386 participants, about 33% of adolescents reported experiencing at least one incident of IPV victimization during an 18-month period. IPV experiences were also high (about 43%) during emerging adulthood, with emerging adults experiencing IPV victimization (8.9%), perpetration (4.6%), and reciprocal violence (24.2%) within a 12-month period. These IPV rates are consistent with existing IPV literature documenting high IPV prevalence rates among adolescent

and emerging adult relationships (Black et al., 2011), ranging from 10% to 60% across several studies (CDC, 2006; Gover et al., 2008; Roberts & Klein, 2003, 2009; Haynie et al., 2013; Henton et al., 1983; Jezl et al., 1996; Malik et al., 1997; NCHA, 2014; Renner & Whitney, 2012; Rhoades et al., 2010; Stets & Henderson, 1991; White & Koss, 1991). In terms of IPV experiences, present study participants' experiences of victimization, perpetration and reciprocal violence correspond to IPV rates measured with other national adolescent and young adult samples.

Present study results are consistent with extant findings that IPV victimization during adolescence is associated with revictimization during emerging adulthood (Black et al., 2011; Kerig, 2010; Smith et al., 2003; Smith, Ireland, Park, Elwyn & Thornberry, 2011), and provide preliminary evidence that IPV victimization during adolescence predicts IPV victimization during emerging adulthood for both men and women across diverse racial/ethnic backgrounds. IPV victimization, therefore, is a risk factor and a negative outcome across development. Interestingly, IPV victimization during adolescence did not predict IPV perpetration during emerging adulthood. This finding is contrary to other research findings indicating predictive relationships between IPV victimization during adolescence and perpetration later in life (Malik et al., 1997; Stith et al., 2004).

One reason for this non-significant relationship could be the low number of participants in the IPV perpetration group ( $n = 63$ ), which may have limited the power to detect differences. Another reason for this finding may include measurement limitations. At wave II, five modified items from the 39-item CTS2 (Straus et al., 1996) were used to measure IPV victimization; three from the psychological aggression subscale and two

from the physical assault subscale. The alpha levels for the five items from the CTS2 physical assault and psychological aggression subscales were low, ranging from .42 to .66. The 5-item measure used to assess IPV victimization also had a low internal consistency as calculated with present study participants ( $\alpha = .67$ ). Thus, the five items taken from the CTS2 to assess wave II IPV victimization may not have reliably measured IPV victimization and captured the full range of participants' IPV experiences as the original 39-item CTS2. At wave III, four modified items from four CTS2 subscales were used to measure IPV perpetration (i.e. subscales were Psychological Aggression, Physical Assault, Sexual Coercion and Injury). IPV victimization during adolescence did not predict IPV perpetration in emerging adulthood; it is possible that these two IPV measures were capturing different types of IPV experiences. IPV Victimization at wave II was assessing for psychological and physical victimization whereas IPV Perpetration at wave III was assessing for psychological, physical, sexual and injury-related perpetration behaviors. This suggests that answering yes to one IPV item is not related to answering yes on other IPV items. Many IPV survivors may experience 1 or 2 of the indicators but not the same ones.

IPV victimization during adolescence predicted reciprocal IPV during emerging adulthood. Study findings underscore existing research showing that IPV victimization and perpetration experiences are highly correlated with reciprocal violence later in life (Caetano, Vaeth & Ramisetty-Mikler, 2008; Melander et al. 2010; Whitaker et al., 2007). Reciprocal violence is common among emerging adult relationships, with both male and female partners experiencing victimization and perpetrating. A unique aspect of this study was examination of how IPV victimization during adolescence predicted different

types of IPV experiences during emerging adulthood: victimization, perpetration and reciprocal violence. Given that adolescent IPV victimization predicted two different types of IPV (i.e., victimization and reciprocal IPV) and with varying strength, further research is warranted to understand IPV victimization experiences and relationship contexts that may influence individuals' and couples' engagement in reciprocal violence versus only experiencing victimization.

### **Adolescent IPV Victimization and Emerging Adult Mental Health Outcomes**

Depression and substance use problems during emerging adulthood were significantly associated; participants who reported experiencing depression also reported higher substance use problems. Researchers have established associations between depression and substance use disorders (Grant & Harford, 1995; Miller, Klamen, Hoffman, & Flaherty, 1996; Merikangas & Gelernter, 1990; Merikangas & Swendsen, 1997; Mezzich, Ahn, Fabrega, & Pilkonis, 1990). Researchers using the ADD Health data have examined problems related to alcohol use and depression at waves I, II, and III and found positive associations between alcohol-use problems and depression from early adolescence through early adulthood (Marmorstein, 2009, 2010). Alcohol or drug use has been examined but problems related to the alcohol and substance use has not been examined. Thus, this dissertation study is the first to document with ADD Health participants' positive associations between depression and substance use problems (alcohol and drugs), specifically.

Surprisingly, substance use problems during emerging adulthood were not associated with vocational outcomes, and therefore not included in the path model that was tested. One reason for the lack of significant finding may be that so few participants

reported substance use, and our measurement was of substance use that was resulting in problems across contexts (e.g., problems at school or work). Approximately 49% reported experiencing no substance use problems, endorsing a score of 0 or 1, about 23% endorsed having 2 through 4 problems as a result of their substance use and about 29% endorsed having 5 or more problems as a result of their substance use. This is relatively low as possible scores could range from 0 to 56 and almost half of the participants' reported having no substance use problems. Adolescents who experienced IPV victimization reported experiencing more substance use problems during emerging adulthood. This association is consistent with the literature as researchers have found positive associations between alcohol and drug use and IPV perpetration and victimization (Baker & Stith, 2008, Durant et al., 2007; Fossos et al., 2007; Nabors, 2010; Roudsari et al., 2009); Shorey et al., 2012; Stets and Henderson; 1991; Tontodonato & Crew, 1992). There is no study, to date, that has examined problems related to drug or alcohol use and its relationships with different types of IPV experiences as was done with this study. Awareness of the amount of drug and/or alcohol use and the impact the substance use has on IPV victimization and perpetration experiences might not be related to individuals' awareness about problems at school, work, or in relationships because of the substance use.

Participants endorsed very low levels of depression ( $M = .16$ ;  $SD = .12$ ); depression scores ranged from 0 to .58. Despite these relatively low depression scores, depression was significantly associated with adolescent IPV victimization and young adult educational attainment and employment status and IPV victimization during adolescence predicted depression during emerging adulthood. These present study



results are consistent with extant research findings showing that adolescent IPV victimization experiences are, in fact, associated with depression during emerging adulthood (Fletcher, 2010) for men and women (Johnson et al., 2014). IPV victimization early in life increases the risk for depression later in life (Al-Modallal, Peden & Anderson, 2008; Ellsberg et al., 2008; Exner-Cortens et al., 2013; García-Moreno, 2008; Golding, 1999; Halpern et al., 2009; Lindhorst & Oxford, 2008; Shorey et al., 2008). Depression is a prevalent mental health outcome for both men and women survivors and perpetrators (Cascardi & O’Leary, 1992; Cascardi et al., 1992; Cerulli et al., 2012; Dienemann et al., 2000; Graham et al., 2012; Mauro et al., 1988; Próspero, 2007; Sugarman et al., 1996; Swan, Gambone, Fields, Sullivan & Snow, 2005).

### **Adolescent IPV Victimization and Young Adult Vocational Outcomes**

Presents study findings showed that male and female adolescents who experienced IPV victimization reported lower educational attainments in young adulthood (about 25% of the sample obtained a high school degree or lower). Existing research shows a similar relationship, with evidence showing negative associations between girls’ and college women’s adolescent IPV victimization and short- and long-term academic performance and career development (Albaugh & Nauta, 2005; Chronister et al., 2014). This dissertation study is the first, to date, to examine males’ IPV victimization and later educational outcomes.

There was no link between IPV victimization during adolescence and employment status (i.e., employment and hours worked) in young adulthood, which is contrary to other research findings. Researchers have found that IPV survivors were more likely to experience employment instability immediately after the abuse (Adams et

al., 2012) and several years later (Crowne et al., 2011), and that IPV interferes with survivors' ability to be economically independent (Chronister et al., 2004). Extant research, to date, has focused on IPV victimization and educational/employment outcomes for girls and/or women; existing research has not included men. Although the current study did not find any links between adolescent IPV victimization and young adult employment status, this study is the first to examine how emerging adult reciprocal IPV and depression impact this relationship among men and women.

It is interesting that adolescent IPV victimization predicted participants' educational attainment, but not whether they were employed or unemployed in early adulthood. It may be that IPV victimization during late middle school and early high school has serious, negative cascading effects on individuals' ability to progress educationally, and less on their ability to attain employment. I did not measure, however, the full context of participants' employment and their income. That is, three items were used to assess unemployment vs. employment and the number of hours worked. These three items only assessed whether participants were currently employed or unemployed and how many hours participants worked for all the jobs they had, during the data collection period. These items did not capture stability of employment, length of employment, how many jobs the person was working, income, or access to insurance. The employment status variable only captured the number of hours participants worked. If I had captured a broader employment picture, I may have found, like a few other researchers, that adolescent IPV negatively impacts young adult employment.

### **Mediators of Adolescent IPV Victimization and Young Adult Vocational Outcomes**

The present study is the first to examine reciprocal IPV as a mediator of adolescent IPV and young adult vocational outcomes. Study participants who

experienced IPV victimization as adolescents were more likely to engage in reciprocal IPV during emerging adulthood resulting in lower educational attainment during young adulthood. Employment status, however, was not affected. Emerging adult reciprocal IPV and depression also mediated the relationship between adolescent IPV victimization and young adult educational attainment, whereas IPV victimization and perpetration did not mediate this relationship. This study is the first to show links between emerging adult reciprocal violence and young adult educational attainment, and that reciprocal violence does not impact whether individuals are employed or not.

Depression significantly mediated the relationships between adolescent IPV victimization and young adult educational attainment and employment status. The present study provides preliminary evidence on the negative impact of adolescent IPV victimization on young adult males' and females' educational attainment and employment status via their depression. Depression may be the primary path via which IPV affects employment; employment status may be affected by whether or not an individual is able to work due to depression. The connection between men and women's IPV experiences and depression are well documented, but there is significantly less empirical evidence showing the link between IPV, depression, and vocational outcomes over time for men and women at these key developmental periods of risk. The present dissertation study is the first to establish a longitudinal link between IPV and young adult vocational outcomes via depression for both males and females.

### **Moderated Mediators: Gender and Race**

Posthoc analyses were undertaken to examine if the mediation effects differ by group membership: gender and race/ethnicity. During data analysis we wanted to explore

if participants' gender (i.e., male vs. female) and race/ethnicity (i.e., White vs. Black vs. "other") affected their experiences. There were no significant differences in direct effects or by gender or race/ethnicity differences. Researchers have documented high incidence rates of reciprocal IPV among emerging adult couples (Capaldi & Owen, 2001; Jain, Buka, Subramanian, & Molnar, 2010; Whitaker et al., 2007), and the impact IPV has on depression (Capaldi et al., 2003; Cleveland, et al., 2003; Kim & Capaldi, 2004; (Kim et al., 2008). The impact of reciprocal IPV and depression on vocational outcomes for men and women may be more similar than what is documented with older adult couples; relationship contexts in which more severe IPV victimization is more often documented.

It is surprising, however, that vocational outcomes are not different based on race/ethnicity provided the greater risks that ethnic minority groups face in terms of IPV and vocational risk (Chronister et al., 2013; McWhirter, 2007). In one of the first studies to examine perceived educational attainment and career barriers among a sample of Mexican-American and Caucasian adolescents, McWhirter (1997) found that Mexican-Americans and females anticipated more ethnic and sex discrimination in future employment and postsecondary pursuits. Racism and sexism may be perceived as barriers to educational and vocational attainment and success. Researchers have documented the role of perceived educational and vocational barriers and the negative impact (e.g., influences on career decision-making process) it has on ethnic minority students (Constantine, Wallace & Kindaichi, 2005; Flores & O'Brien, 2002; Kenny et al., 2007; Kenny, Blustein, Chaves, Grossman, & Gallagher, 2003). Thus it was expected that IPV would negatively impact educational or employment outcomes for ethnic minority individuals; however, study findings did support this notion.

One explanation could be the racial grouping used to examine if vocational outcomes differed on racial/ethnic differences. The racial groups examined were White ( $n = 901$ ) vs. Black ( $n = 246$ ) vs. “other” ( $n = 228$ ). The “other” group consisted of American Indian or Native American, Asian or Pacific Islander, Hispanic or Latino, Biracial, and Multiracial participants. The grouping of the participants in this way and the small cell size of the ethnic minority groups compared to the White group could have affected the ability to detect racial/ethnic differences. Another explanation for the lack of gender and racial/ethnic differences may be due to the mediating mechanisms of depression. That is, gender and racial differences were not found when the actual experience of IPV and the mental health or impact of the IPV is accounted for. Vocational outcomes may be different based on race/ethnicity and gender of participants, however, because depression mediated the relationships between adolescent IPV victimization and young adult vocational outcomes. Depression may have accounted for any overall differences among racial/ethnic groups, and women and men.

### **Implications**

The present study provides support for the developmental cascading risks of IPV on individuals’ development over time (Masten & Cicchetti, 2010), and in particular dimensions of their vocational development. IPV victimization during adolescence predicts revictimization experiences during emerging adulthood; engagement in reciprocal IPV during emerging adulthood negatively impacts educational attainment during young adulthood; and more depressive symptoms during emerging adulthood negatively impact educational attainment and employment status during young adulthood. It is exciting that the present dissertation study adds to the small body of

empirical research showing a relationship between early IPV experiences and vocational development for young adult men and women. The present study also underscores the importance of assessing for different types of IPV experiences and the differential impact on mental health and vocational outcomes, for both women and men, across time.

### **Practice**

The present study has several implications for practice with IPV survivors and perpetrators. The mediating factor of depression can be targeted to interrupt the accumulation of IPV risk from adolescence to young adulthood. Depression can be a screening variable, given that many individuals do not report their IPV experiences, and used as a gateway experience to talk further about IPV experiences. Practitioners may engage in conversations about depressive symptoms to examine support from partners and romantic relationship quality and satisfaction to get more information about possible IPV experiences.

Screening for IPV is important among adolescent and emerging adult populations as these individuals are most at-risk for IPV. It is important to assess for IPV in secondary (e.g., middle and high schools) and postsecondary (e.g., community college, universities) educational and social service settings that include adolescents and emerging and young adult populations. Assessments should include the impact of IPV on vocational outcomes and rehabilitation efforts that could occur across development. It is important for school personnel (e.g., administrators, teachers, school counselors) and social service providers (e.g., social workers, vocational counselors) to understand the dynamics of victimization, perpetration and reciprocal violence, and to assess for different types of IPV and the impact for men and women. Present study findings

revealed that adolescents who experience IPV victimization reported experiencing more depressive symptoms during emerging adulthood leading to lower educational attainment and employment status during young adulthood. IPV assessments should be integrated into mental health and career counseling given the interconnectivity between these issues and IPV for individuals from these key developmental periods. Clinician working with adolescents, emerging and young adults with depression or vocational struggles should also ask about intimate relationship experiences such as relationship quality and satisfaction. Early identification of individuals who experience IPV victimization is critical as early intervention can help address mental health, vocational or relationship issues to interrupt the accumulation of risk and help prevent negative adjustments across development.

Clinicians' should integrate IPV assessment into mental health and vocational counseling for both men and women, however, gender bias is very prevalent in terms of thinking women are only victims, and men are only perpetrators (Chitkara-Barry & Chronister, in press; Todahl & Walters, 2011). Screening guidelines and recommendations by various professional organizations recommended that providers routinely screen for IPV among female patients (Todahl & Walters, 2011) and almost all IPV assessments were created to primarily capture women's IPV experiences, not men (Chitkara-Barry & Chronister, in press). The perception that men do not experience IPV is evident in recommendations such as the one provided by the *National Consensus Guidelines on Identifying and Responding to Domestic Violence Victimization in Health Care Settings* that encourage medical providers to screen "all adult and adolescent female patients and to screen male patients when indicated" (Family Violence Prevention Fund,

2004 as cited in Todahl & Walters, 2011, p. 356). It is important for clinicians to consider the potential benefits and unintended negative consequences of IPV screening in their clinical practice (Todahl & Walters, 2011). A more gender-inclusive approach to IPV screening is needed because both males and females experience IPV.

Early identification of IPV survivors is critical to the prevention of negative adjustment across time and can be addressed with mental health, relationship education, and vocational interventions given the interconnectivity among all of these facets of young adults' lives. Women and men survivors can benefit from career counseling using interventions that bridge mental health and vocational rehabilitation. For example the Advancing Career Counseling and Employment Support for Survivors program can be utilized to offer career and employment services to women survivors of IPV (ACCESS; Chronister & McWhirter, 2006; Chronister, 2008). Couples may benefit from couple-centered interventions and relationship education that focuses on communication, conflict management and problem solving skills (Braithwaite, Lambert, Fincham, & Pasley, 2010) such as Behavioral Marital Therapy or Emotion Focused Marital Therapy to treat marital/relationships distress (Baucom, Shoham, Mueser, & Daiuto, 1998).

## **Research**

The study findings suggest many future directions for research on IPV, mental health outcomes and vocational outcomes. More research is needed to examine the relationships between various types of IPV, frequency, and impact on mental health and vocational outcomes. It would be important for researchers to conduct studies that include IPV survivors who experience a full range of abusive experiences during adolescence and how these IPV experiences impact a full range of objective and subjective vocational outcomes during young adulthood, and the mediators between these



variables. Researchers may want to utilize multi-method, multi-agent study designs. Including several types of measures to assess for IPV, depression, substance use problems, and vocational outcomes (e.g, self-reports, academic records) and obtaining IPV information from multiple sources (e.g., participants and their partners) would better capture IPV experiences in romantic partnerships.

Another future direction for research is to further examine how substance use problems impact IPV experiences and vocational outcomes. Study results revealed that work, school, or relationship problems associated with drug and alcohol use were not related to vocational outcomes. The lack of significant results may be that too few participants reported experiencing any substance use problems. Future research may benefit from further exploration the role of substance use problems as well as substance use on IPV experiences and vocational outcomes.

Another important research direction is to more fully capture a broader employment picture. Researchers should examine the full context of participants' employment and their income to fully understand how adolescent IPV experiences impact young adult vocational outcomes. For example, researchers may want information on number of jobs worked, length of employment, type of job, and stability of employment.

Finally, model results from this study may vary for different classes of adolescents who may be in high- moderate- or low risk groups. That is, researchers might want to examine the relationships between study variables for high-, moderate- and low-risk groups in terms of violence risk, depression risk, substance use risk or vocational risk because these study relationships may vary depending on initial risk-

levels (Connell, Dishion & Deater-Deckard, 2006). For example, substance use development may be different for adolescents who engage in high-levels of substance use (high risk group) compared to adolescents who engage in low-levels of substance use (low risk group). Initial risk-levels can affect substance use development across time differently for individuals in high-risk vs. low-risk groups.

### **Strengths and Limitations**

There are important study strengths and limitations to consider when interpreting and generalizing the present study results. The present study used data from a national representative sample of individuals across the United States; thus, generalizability of these findings is high. The present study is the first to examine the longitudinal associations between IPV victimization during adolescence and young adult educational and employment outcomes using a nationally representative, diverse community data set. This is the first study, to date, to assess for different types of IPV experiences and the differential impact on depression and vocational outcomes, for both women and men, across time. This study confirms extant findings that IPV victimization, perpetration and reciprocal violence are prevalent among adolescents and early adults and that IPV victimization during adolescence is associated with revictimization during emerging adulthood. About 43% of emerging adults in the study reported experiencing IPV, with the majority of them experiencing reciprocal IPV. This finding supports the DDS framework that experiences of IPV during adolescence can accumulate and cascade into risk and outcomes later in life (Capaldi et al., 2003). If an individual experiences IPV victimization early in life, these experiences can cascade into emerging adulthood putting

them at risk for other IPV experiences such as engaging in mutual violence in relationships.

It provides preliminary evidence that IPV victimization can predict lower educational attainment, and that reciprocal IPV and depression are significant mediators of the relationship during emerging adulthood and indirectly impacts the relationship between adolescent IPV victimization and young adult vocational outcomes. A strength of this study is that all hypothesized relationships were tested with males and females from ethnically diverse backgrounds.

There are two primary areas of limitations to consider: measurement and study design. Inconsistent measurement may have influenced results such that IPV experiences measured during wave II and III captured different abusive experiences because items were taken from different subscales from the 39-item CTS2 measure. Also wave II victimization items were measured categorically, only assessing for incident of IPV (e.g., yes or no response options) whereas wave III IPV experiences were measured on a likert scale and assessed for severity. The continuous IPV variables, IPV Victimization and IPV Perpetration at wave III, were highly correlated. To address issues of multicollinearity between the two variables, categorical variables were created to measure IPV during emerging adulthood. This limited the ability to examine severity of IPV experiences during emerging adulthood in the study sample. The original ADD health study design did not assess for perpetration or reciprocal violence during adolescence, therefore, this study was not able to examine different types of IPV experiences during adolescence and its relationships with other study variables over time.

Other limitations included our measurement of employment status, which measured only if participants were employed based on self-reported number of hours worked. This measurement does not capture stay-at-home young adults who choose to do so because of raising children or participants who are working and enrolled in school simultaneously. The participants were in one of six educational attainment categories: No high school degree, High school degree, Vocational training, Some college, Bachelor's degree, or Graduate degree and one of three employment status: Unemployed, Employed Part-Time, or Employed Full-Time. There was no measurement of volition or choice of being in school and/or working (e.g., some participants may choose to stay at home because they have children). Study results, however, are important because higher educational attainment is linked directly to well-being and economic stability over time (McCarty et al., 2008; Ellickson, Saner, & McGuigan, 1997; U.S. Department of Health and Human Services, 2000). Another measurement limitation to consider is the low internal consistency ( $\alpha = .67$ ) calculated for adolescent IPV victimization at wave II. Only five items were used to measure adolescent IPV victimization and the five items were from the Psychological Aggression and Physical Assault subscales. The items did not capture a full range of IPV experiences such as economic, sexual, or coercive abuse.

### **Conclusion**

Adolescence and early adulthood are periods of highest risk for IPV. IPV experiences and its consequences cascade over time to negatively impact the adjustment of young adults, their partners, and their families over time. This study uniquely contributed to the literature by providing preliminary evidence that reciprocal IPV and depression during emerging adulthood mediate the relationship between IPV victimization during adolescence and vocational outcomes during young adulthood, and

included men and women from diverse backgrounds. Findings from this study highlight the importance of examining different types of IPV experiences for both survivors and perpetrators, males and females, across key periods of developmental risk.

## APPENDIX A

### INTIMATE RELATIONSHIP STATUS ITEMS FOR WAVES II AND III

#### Wave II

Intimate Relationship Status, items from ADD Health; Harris et al., 2009

To determine if participants were in a *dating/romantic relationship* during adolescence, they were asked:

- In the last 18 months- since {MONTH, YEAR}- have you had a romantic relationship with anyone?
- Have you had a special romantic relationship in the last 18 months with any other person?

To determine if participants were in a *sexual relationship* during adolescence, they were asked:

- Not counting the people you have described as romantic relationships, since {MONTH, YEAR}, have you had a sexual relationship with anyone?
- And have you had a sexual relationship with any other person?

Participants could report up to three dating/romantic relationships and up to three sexual relationships. In sum, participants could report a minimum of one intimate relationship and a maximum of six intimate relationships during adolescence.

### Wave III

Intimate Relationship Status, items from ADD Health; Harris et al., 2009

To determine if participants were in an *intimate relationship* during emerging adulthood, they were asked to create a list of intimate partners by indicating each partner's initials. The following instructions were given to participants: The next part of the interview is concerned with any romantic relationships and sexual relationships you have had at any time since the summer of 1995. Include relationships that began more than six years ago if they continued at least until June 1995.”

They were then asked:

- Are you currently involved in a sexual or romantic relationship with {INITIALS}?

## APPENDIX B

### IPV VICTIMIZATION ITEMS FOR WAVES II AND III

#### Wave II

IPV Victimization, items from *Revised Conflict Tactics Scales* (CTS2; Straus, Hamby, Boney-McCoy, & Sugarman, 1996)

1. Did {INITIALS} call you names, insult you, or treat you disrespectfully in front of others?
2. Did {INITIALS} swear at you?
3. Did {INITIALS} threaten you with violence?
4. Did {INITIALS} push or shove you?
5. Did {INITIALS} throw something at you that could hurt you?

#### Response options

0 = *no*

1 = *yes*



### Wave III

IPV Victimization, items from *Revised Conflict Tactics Scales* (CTS2; Straus, Hamby, Boney-McCoy, & Sugarman, 1996)

1. How often has <PARTNER> threatened you with violence, pushed or shoved you, or thrown something at you that could hurt?
2. How often has <PARTNER> slapped, hit, or kicked you?
3. How often has <PARTNER> insisted on or made you have sexual relations with {HIM/HER} when you didn't want to?
4. How often have you had an injury, such as a sprain, bruise, or cut because of a fight with <PARTNER>?

Response options:

0 = *never*

1 = *once*

2 = *twice*

3 = *3 to 5 times*

4 = *6 to 10 times*

5 = *11 to 20 times*

6 = *more than 20 times*

7 = *this hasn't happened in the past year, but did happen before then.*

## APPENDIX C

### IPV PERPETRATION ITEMS FOR WAVE III

IPV Perpetration, items from *Revised Conflict Tactics Scales* (CTS2; Straus, Hamby, Boney-McCoy, & Sugarman, 1996)

1. How often have you threatened <PARTNER> with violence, pushed or shoved {HIM/HER}, or thrown something at {HIM/HER} that could hurt?
2. How often have you slapped, hit, or kicked <PARTNER>?
3. How often have you insisted on or made <PARTNER> have sexual relations with you when {HE/SHE} didn't want to?
4. How often has <PARTNER> had an injury, such as a sprain, bruise, or cut because of a fight with you?

Response options:

0 = *never*

1 = *once*

2 = *twice*

3 = *3 to 5 times*

4 = *6 to 10 times*

5 = *11 to 20 times*

6 = *more than 20 times*

7 = *this hasn't happened in the past year, but did happen before then.*

## APPENDIX D

### DEPRESSION ITEMS FOR WAVE III

Depression, items from *Centers for Epidemiologic Studies Depression Scale* (CES-D; Radloff, 1977)

Now, think about the past seven days. How often was each of the following things true during the past seven days?

1. You were bothered by things that usually don't bother you.
2. You could not shake off the blues, even with help from your family and your friends, during the past seven days.
3. You felt that you were just as good as other people, during the past seven days.
4. You had trouble keeping your mind on what you were doing, during the past seven days.
5. You felt depressed, during the past seven days.
6. You were too tired to do things, during the past seven days.
7. You enjoyed life, during the past seven days.
8. You were sad, during the past seven days.
9. You felt that people disliked you, during the past seven days.

Response options:

0 = *never or rarely*

1 = *sometimes*

2 = *a lot of times*

3 = *most of the time or all of the time*

## APPENDIX E

### SUBSTANCE USE PROBLEMS ITEMS FOR WAVE III

Substance Use Problems, items from ADD Health; Harris et al., 2009
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During the past 12 months, how many times has each of the following things happened?

1. You had problems at school or work because you had been drinking.
2. You had problems with your friends because you had been drinking.
3. You had problems with someone you were dating because you had been drinking.

Over the past 12 months, how many times:

4. were you hung over.
5. were you sick to your stomach or threw up after drinking?
6. did you get into a sexual situation that you later regretted because you had been drinking?
7. did you get into a physical fight because you had been drinking?
8. were you drunk at school or work?
9. During the past 12 months, how often did you have problems at school or work because you had been using drugs?
10. During the past 12 months, how often did you have problems with your friends because you had been using drugs?
11. During the past 12 months, how often did you have problems with someone you were dating because you had been using drugs?
12. During the past 12 months, how often did you get into a sexual situation that you later regretted because you had been using drugs?

13. During the past 12 months, how often did you get into a physical fight because you had been using drugs?

14. During the past 12 months, how often were you high on drugs at school or work?

Response options:

0 = *never*

1 = *once*

2 = *twice*

3 = *3 or 4 times*

4 = *5 or more times*

APPENDIX F

EDUCATIONAL ATTAINMENT AND EMPLOYMENT STATUS ITEMS FOR

WAVE IV

Educational Attainment, item from ADD Health; Harris et al., 2009

1. What is the highest level of education that you have achieved to date?

Response options:

1 = *8th grade or less*

2 = *some high school*

3 = *high school graduate*

4 = *some vocational/technical training (after high school)*

5 = *completed vocational/technical training (after high school)*

6 = *some college*

7 = *completed college (bachelor's degree)*

8 = *some graduate school*

9 = *completed a master's degree*

10 = *some graduate training beyond a master's degree*

11 = *completed a doctoral degree*

12 = *some post baccalaureate professional education (e.g., law school, medical school, nurse)*

13 = *completed post baccalaureate professional education (e.g., law school, medical school, nurse)*

Employment Status, items from ADD Health; Harris et al., 2009

1. Are you currently working for pay at least 10 hours a week?

Response options:

0 = *no*

1 = *yes*

2. How many total hours a week do you usually spend at these jobs?
3. How many hours a week (do/did) you usually work at this job?

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