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Longitudinal Effects Of Adolescent Dating Violence Victimization: Social, Psychological, And Physical Health Consequences In Adulthood

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LONGITUDINAL EFFECTS OF ADOLESCENT DATING VIOLENCE VICTIMIZATION: SOCIAL, PSYCHOLOGICAL, AND PHYSICAL HEALTH CONSEQUENCES IN ADULTHOOD

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DEDICATION

This dissertation is dedicated to my wonderful family. Thank you, Mom and Dad, for your love and support throughout the years. You are wonderful parents – I wouldn't be who I am and where I am today without you both. Joe and Hannah, I have loved you both since you were born. You have both grown into amazing people and have wonderfully bright futures ahead. I hope you relish every moment and find fulfillment in what you do. Sarah and Eugene, you are both tremendous sources of support, love and laughter. I am grateful for your friendship and support. And, to Steve, Quinn and Nora – you all light up my life and provide a sense of purpose. Steve, thank you for your love and daily support and laughter. Thank you for listening to my troubles and joys. You are an incredible partner and I am lucky to have you in my life. And, especially, for Quinn and Nora – you are both the coolest kids I have ever met. Your smiles melt my heart. Please remember to make time for fun and laughter, work hard for the right things, cherish those who give you love and support, expect respect and give it where it is deserved, and keep your eyes on the future but your heart and mind in the present. You are both smart, beautiful and important. Love God, others, and yourselves. Time is fleeting, so spend each moment wisely. And, remember that you will always have my endless love.

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CHAPTER 1: INTRODUCTION

Romantic relationships emerge during adolescence and constitute an important developmental milestone (Roisman, Booth-LaForce, Cauffman, Spieker, The NICHD Early Child Care Research Network, 2009; Sullivan, 1953/1997). Research suggests that experiences within these relationships, including negative events like adolescent dating violence victimization (ADV), contribute to romantic relationship perceptions, behavior, and experiences later in life, as well as psychological and physical health (Crissey, 2005; Furman & Wehner, 1994; Kaczmarek & Backlund, 1991; Madsen & Collins, 2011; Meier & Allen, 2009; Seiffge-Krenke, 2003). In particular, ADV is an important public health concern because it is associated with numerous negative social, psychological, and physical consequences (Foshee, Reyes, Gottfredson, Chang, & Ennett, 2013). Yet, little is known about how these effects are transmitted across time.

The present study explores the effects of ADV on psychological and physical health in adulthood. As seen in Figure 1, this association is expected to be mediated through romantic relationship perceptions and experiences following ADV, which may be linked to decrements in physical and psychological health due to stress. The present study will entail secondary data analyses to test these hypotheses using the National Longitudinal Study of Adolescent to Adult Health (Add Health; Harris, 2013). In the following sections, defining features and prevalence of ADV are reviewed. A discussion of social and romantic relationship consequences of ADV is then presented, including a theoretical background for these hypotheses and a review of relevant previous work. The review then extends to psychological and physical health consequences. This chapter concludes with study hypotheses.

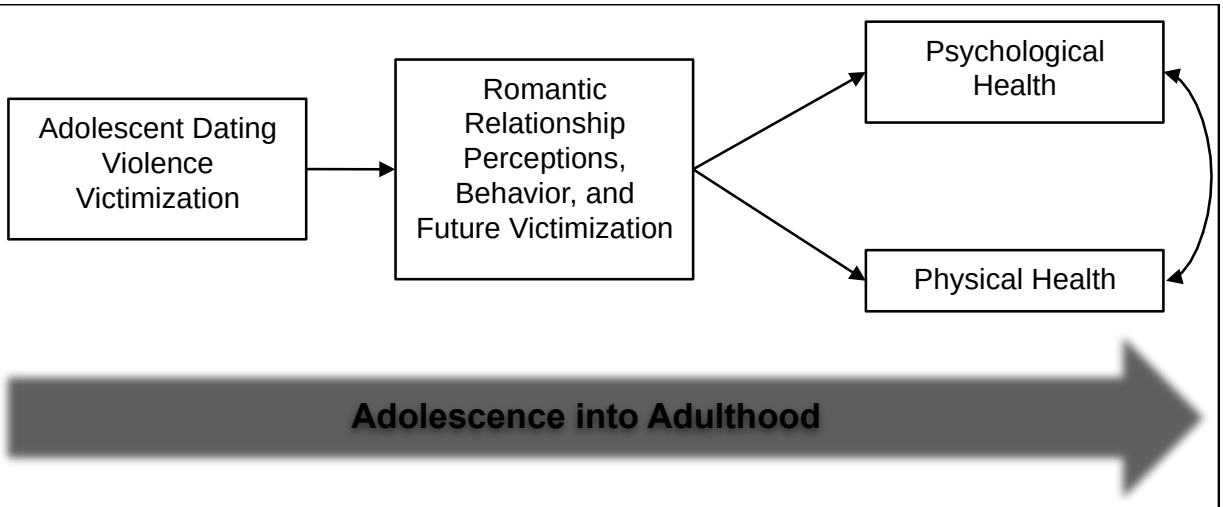

Figure 1. Conceptual model of effects of adolescent dating violence victimization across time.

Overview of Adolescent Dating Violence

Romantic relationships in adolescence are often difficult to define. During adolescence, romantic relationships can span a range of affective qualities and activities, from loose interactions within a peer group to adult-like, committed relationships (Shulman & Seiffge-Krenke, 2001). Adolescent romantic relationships are often subjectively determined, since they have different meanings and features depending on the developmental phase of adolescence (Shulman & Seiffge-Krenke, 2001). Collins (2003) defined adolescent romantic relationships as "on-going voluntary interactions that are mutually acknowledged…[they] also have a peculiar intensity and the intensity can be marked by expressions of affection – including physical ones and, perhaps, the expectation of sexual relations, eventually if not now" (p. 2). Giordano, Manning and Longmore (2006) defined romantic involvement as when the participant liked a guy/girl and he/she liked the participant back. This broad definition allows for varying personal interpretations of a romantic relationship.

Romantic relationships are new social landscapes for adolescents. Early in their development, romantic relationships are often influenced by experiences in other social relationships (Seiffge-Krenke, 2003), initiated in peer and friendship groups, and share certain qualities with friendship relationships (Furman & Wehner, 1994). Yet, they have distinct characteristics. Giordano, Manning, et al. (2006) suggested that, unlike friendships, romantic relationships may pose more difficulties with social and communication awkwardness, volatility, asymmetry (e.g., differences in status), issues of power, and issues of exclusivity and commitment. By late adolescence and early adulthood, they also fulfill needs that are initially satisfied by parental figures (e.g., attachment; Furman & Wehner, 1994). Thus, romantic relationships provide a new, interesting, and often difficult social arena for adolescents. Some youth have problems negotiating behavior and activities with the partner, handling conflict, and managing their own emotions and behavior (Giordano, Manning, et al., 2006). These difficulties can escalate to ADV, including violence perpetration and/or victimization.

Types of adolescent dating violence. ADV encompasses a range of behaviors, including psychological, physical, and sexual violence. The present study will utilize secondary data; thus, not all of the forms of violence described in the literature are available for data analysis. Psychological violence includes “aggressive acts, such as verbal intimidation or threatened or completed acts of violence, that may cause emotional trauma” (Teten, Ball, Valle, Noonan, & Rosenbluth, 2009, p. 923). These behaviors may include isolating the partner from loved ones, controlling behaviors, swearing at or insulting the partner, verbally threatening the partner, and showing aggression toward objects (Straus, 1979; Teten et al., 2009). More extensive measures of psychological

violence in adolescent romantic relationships also include behaviors aimed at damaging the partner's relationships with peers and jealousy tactics (Jouriles, Wolfe, Garrido, & McCarthy, 2006). Physical violence encompasses intentional mild or major physical force used by an individual against a romantic partner that has the potential to harm or kill (Teten et al., 2009); such behaviors include throwing something at the partner, pushing, grabbing or shoving the partner, or threatening the partner with or using a knife or gun (Straus, 1979). Sexual violence includes nonconsensual completed or attempted penetration and nonpenetrative sexual contact.

Only measures of physical and psychological ADV were included in the Add Health study, thus the present study will assess both physical and psychological ADV, without assigning one form of violence as more serious. Physical ADV is often accompanied by psychological ADV (Exner-Cortens, Eckenrode, & Rothman, 2013). Additionally, although physical ADV may initially be considered more serious due to the potential for injury, victims may instead perceive psychological ADV as more unpleasant and less attributable to benign motives compared to physical ADV (Jouriles, Garrido, Rosenfield, & McDonald, 2009). Thus, both forms of ADV are important to assess without making an assumption regarding victims' perceptions of seriousness.

Prevalence of adolescent dating violence. The prevalence of ADV is high. Nationally representative samples suggest that approximately 1 out of 3 adolescents with dating experience report recent psychological or physical ADV (Halpern, Oslak, Young, Martin, & Kupper, 2001; Haynie et al., 2013). With approximately 20% of dating adolescents reporting psychological ADV alone, psychological victimization is more common than, and often occurs in the absence of, physical ADV (Halpern et al., 2001;

Haynie et al., 2013). One in ten adolescents with dating experience report physical ADV, and this is often accompanied by psychological ADV (Halpern et al., 2001; Haynie et al., 2013; Kann et al., 2014). These national studies, which include Add Health, often evaluate recent experiences (e.g., past year) or experiences in current or recent relationships (e.g., relationships reported within the past 18 months).

Prevalence rates vary across studies due to numerous factors, such as the specific population assessed, the length of time assessed, the type and breadth of ADV definitions and measures, and the privacy and confidentiality of survey methods. Samples of high risk populations (e.g., adolescents in the child protective system) often yield higher rates of psychological and physical ADV (Collin-Vézina, Hébert, Manseau, Blais, & Fernet, 2006; Orpinas, Nahapetyan, Song, McNicholas, & Reeves, 2012). Furthermore, when lifetime victimization is assessed, or victimization is assessed longitudinally such that recent experiences are evaluated across numerous timepoints, higher rates of overall victimization are found (Collin-Vézina et al., 2006; Nahapetyan, Orpinas, Song, & Holland, 2014; Orpinas et al., 2012). Additionally, when studies include broad definitions of ADV that encompass more experiences, higher rates are found. Finally, adolescents may not feel comfortable reporting victimization if surveys are not performed in a private setting or if they sense that confidentiality will be breached.

Mutual violence. Individuals often report both ADV victimization and perpetration with the same partner (i.e., mutual violence; Alleyne-Green, Coleman-Cowger, & Henry, 2012; Chiodo et al., 2012). For example, Chiodo et al. (2012) found that approximately half of the high school female sample involved in a recent physically violent relationship were engaged in mutual violence; those involved in mutual violence fared significantly

worse on numerous indicators of adjustment (e.g., distress). The present study, therefore, does not distinguish between mutual violence and victim-only experiences. The review below includes consequences of violence experienced in both mutually violent and one-sided violent relationships.

Theoretical Framework Linking Adolescent Dating Violence and Future Relationship Functioning

The proposed model suggests that ADV experiences may impact relationship functioning later in life regardless of whether the individual remains in the same violent relationship. These hypotheses are supported by the theory of adolescent romantic relationships proposed by Furman and Wehner (1994). In explicating the developmental significance and consequences of adolescent romantic relationships, Furman and Wehner noted the usefulness of attachment theory (Ainsworth, 1969; Ainsworth & Bowlby, 1991; Bowlby, 1958; Schneider, 1991) and romantic attachment theories in particular (Hazan & Shaver, 1987; Shaver & Hazan, 1988). Despite their value, however, Furman and Wehner recognized numerous shortcomings of these theories in understanding romantic relationships in adolescence. First, romantic attachment is not synonymous with infant attachment. For example, theoretical approaches to romantic attachment propose distinct personality profiles that do not necessarily coincide with infant attachment styles. Second, the attachment system cannot necessarily account for romantic bonding; attachment behavior can be exhibited without the presence of pair bonding (Furman & Wehner, 1994). Third, romantic relationships stem from peer group interactions and are typically egalitarian in nature (Roisman et al., 2009). These attachment approaches have neglected the range of relationships in which individuals are

embedded, including parent, peer and romantic relationships. Finally, “adult love relationships are the endpoint of a developmental process” (Furman & Wehner, 1994, p. 173). However, existing attachment-oriented theories connect infant attachment to adult romantic attachment without considering the depth and complexity of experiences in between.

Furman and Wehner (1994) proposed a framework for understanding adolescent romantic relationships by extending attachment-oriented theories and incorporating neo-Sullivan perspectives (Sullivan, 1953/1997), which take into account a range of social relationships. According to neo-Sullivan perspectives, individuals express five basic social needs across early life (i.e., tenderness, companionship, acceptance, intimacy and sexuality). Development progresses from infancy through adolescence across distinct phases, with a new need emerging at each stage and being added to the previously existing ones. These needs are fulfilled first by caregivers exclusively. Across age, peers begin to fulfill certain emerging needs. By late adolescence, romantic partners also become integral sources of support and need fulfillment.

By incorporating these two distinct and influential perspectives, Furman and Wehner (1994) developed a theory with two main components. The first component suggests that individuals possess four behavioral systems: attachment, caregiving, affiliative, and sexual/reproductive. Each system is associated with specific goals, as well as appraisal of whether that goal is met, emotions elicited when the goal is met or not, and behaviors that “correct the system when the set goal is not met” (Furman & Wehner, 1994, p. 177). Parents and peers fulfill attachment, caregiving and affiliative needs during childhood and early adolescence. Romantic partners then become a primary source of

need fulfillment for these systems, as well as the sexual/reproductive system when it develops in adolescence.

The second component to Furman and Wehner's (1994) theory is that of romantic views. According to Furman and Wehner, views refer to "conscious and unconscious perceptions of a particular relationship, the self in that type of relationship, and the partner in that relationship" (p. 178). Views are shaped by three factors: 1) experiences in that specific relationship; 2) past experiences in relationships that are of the same type (i.e., peer or romantic); and 3) past experiences in other types of relationships. Thus, individuals bring preconceived expectations and ideals to each relationship. Although related, parent, peer and romantic relationship views are distinct. Furman and Wehner contend that these views are not entirely stable; each relationship has the potential to alter pre-existing views of that type of relationship. However, the views that develop from previous experiences, particularly within the same type of relationship, may lead individuals to perceive new experiences in a similar way or to behave in a manner that will fulfill one's expectations.

This theory has critical import in examining the impact of adolescent romantic relationships on future relationship functioning. Individuals possess romantic views that may be only modestly correlated with views of parent and peer relationships. These romantic views are influenced by experiences in previous relationships, with emphasis on previous romantic relationships. Although these views can be altered over time when they are not confirmed, individuals may behave in a manner that will confirm these views or perceive partner behavior in a way that is consistent with these views. According to

Furman and Wehner (1994), some degree of consistency is expected in romantic views across time and these views impact behavior.

It is also important to note what distinguishing features of these relationships may impact romantic views. Collins (2003) reiterates the importance of romantic relationships on future functioning independent of other social relationships, and indicates five features of close relationships that may direct investigations of their long-term effects: involvement; partner selection; content; quality; and cognitive and emotional processes. Quality and content are particularly relevant to the current investigation. Quality refers to "the degree to which the relationship provides generally beneficient experiences" (Collins, 2003, p. 10). Low quality relationships may exhibit high conflict and, in extreme situations, violence. The quality of the relationship may impact romantic views. Content refers to the partners' shared activities. More shared activities may indicate greater interdependence (Collins, 2003); negative experiences within a relationship that is highly interdependent or enmeshed may have more detrimental long-term effects as the partner is more intertwined in other aspects of the adolescent's identity. This consideration is elaborated below when considering possible moderators of the ADV-future relationship functioning relationship.

Adolescent relationships and later romantic experiences. A critical question is whether adolescent relationships have any long-term effects on social functioning and adult romantic relationships in particular. Studies investigating this question have focused primarily on the influence of non-violent romantic experiences in adolescence. Although this literature is not directly associated with ADV or violence in adulthood, it provides evidence that what individuals experience with romantic partners during adolescence can

carry forward to adult romantic relationships. Because of the relevance to the current question (i.e., whether ADV affects later romantic relationship functioning), a brief overview of this literature is warranted.

The first overarching conclusion from this research is that individuals who established steady relationships in adolescence are more likely to have married by young adulthood than individuals who have not done so. For example, Meier and Allen (2009) found that adolescents who exhibited patterns of progression to or stability of steady relationships throughout adolescence were more likely to have married by young adulthood. Raley, Crissey and Muller (2007) similarly found that individuals with romantic relationship experience in late adolescence were more likely to marry in young adulthood. In particular, having expressed love to one's adolescent partner was associated with marital status (Raley et al., 2007). Additionally, adolescents who experience serious relationships in adolescence are more likely to express an expectation of getting married in the future (Crissey, 2005).

The second overarching conclusion is that perceived relationship quality during adolescence is associated with perceived quality in adult relationships. Previous research suggests that perceptions of social support from romantic partners are moderately consistent across time from adolescence into early adulthood, despite the length of individual romantic relationships being relatively short-lived (Seiffge-Krenke, 2003). Additionally, perceived support from romantic partners during adolescence is positively associated with experiencing closeness and trust in an adult relationship (Seiffge-Krenke, 2003). Madsen and Collins (2011) found that positive romantic relationship qualities expressed during an interview in adolescence were associated with

more positive interactions and less negative affect expressed with a romantic partner in early adulthood. Previous research also suggests that men who recalled relationship problems in adolescence reported lower trust and enjoyment in adult romantic relationships (Shulman and Kipnis, 2001). Collectively, these findings suggest that adolescent romantic relationships are important predictors of relationship functioning and quality in young adulthood.

Adolescent dating violence and later romantic relationships. The present study aims to specifically explore how ADV impacts perceptions of relationship quality (i.e., satisfaction and mutual love); submissive behavior in romantic relationships (i.e., being compliant with and vigilant of the partner's needs and desires); and intimate partner violence in adulthood. Relationship-oriented effects of ADV have not been extensively studied. As reviewed below, however, previous research supports these hypotheses and suggests that ADV may impact how individuals perceive themselves and their current and future partner, behave in their current and future relationships, as well as the likelihood of being victimized by future partners.

Adolescent dating violence and negative self-perceptions. ADV is associated with negative self-perceptions, including lower self-esteem, more problems with guilt, and negative self-concept (Collin-Vézina et al., 2006; Ely, Nugent, & Flaherty, 2009). In a qualitative study with 19 young adult women who had experienced an unhealthy relationship, all of the participants expressed feeling negatively about themselves as though they were damaged (Chronister, Marsiglio, Linville, & Lantrip, 2014). In a cross-sectional survey of high school students, Schwartz (2003) found that lifetime frequency of psychological and physical ADV was associated with lower perceived ability to protect

oneself from dating violence among girls. Additionally, ADV has been linked to increased concurrent and future internalizing symptoms and suicidal intentions and behavior (Ackard, Eisenberg, & Neumark-Sztainer, 2007; Exner-Cortens et al., 2013; Foshee et al., 2013; Roberts, Klein & Fisher, 2003), which may reflect negative self-perceptions. These effects may impact interpersonal functioning. For example, adolescents who experience ADV may disregard their own needs in future relationships or diminish their expectation of having them fulfilled and have difficulty asserting themselves.

Adolescent dating violence and concurrent and future partner perceptions. Psychological and physical victimization are expected to affect perceptions of the relationship in which the violence occurs as well as future relationships. For example, Jouriles et al. (2009) found that psychological ADV assessed across 8 weeks in a sample of adolescents was associated with higher relationship anxiety at the final assessment (e.g., worrying about what the partner might do to them or wanting to avoid the partner).

Perceptions may also shift across development. High emotionality, whether positive or negative, may be associated with perceptions of love during adolescence. Yet, these associations may not hold in adulthood; the likelihood of attributing relationship violence to negative relationship quality may increase with age. Indeed, previous research with adults suggest that dating violence is associated with more negative concurrent relationship perceptions. Studies that utilized both nationally representative samples (i.e., Add Health) and samples of college students have found that adults who had experienced both psychological and physical victimization reported more negative expectations about their current romantic relationship in which violence occurred (e.g., higher relationship frustration, less proximity seeking; Linder, Crick, & Collins, 2002);

more negative perceptions about the quality of their current relationship in which violence occurred (e.g., lower commitment, lower love, and more emotional distance; Marcus, 2012); and lower relationship satisfaction in their current violent relationship (Katz, Kuffel, & Coblentz, 2002; Marcus, 2012). Additionally, an increase in victimization across two timepoints measured approximately six years apart was associated with lower relationship satisfaction, although it was unclear whether this was related to the same violent relationship or a different relationship (Ulloa & Hammett, 2015).

Adolescent dating violence and concurrent and future romantic relationship behavior. In addition to impacting perceptions of relationships, ADV may also affect how individuals behave in the current violent relationship as well as future relationships. Research investigating this proposition is surprisingly limited. Chronister et al. (2014) found that young women who experienced an abusive relationship became hesitant to trust new relationship partners. They also expressed fear of depending on others. One young participant expressed: “I just thought every guy was going to hurt me after that. I didn’t trust anybody. I had guy friends…but when guys tried to build a relationship with me I’d just stop talking to them” (Chronister et al., 2014, p. 389). Adolescent victimization may also be associated with one’s own use of psychological and physical aggression in adult romantic relationships (Cui, Ueno, Gordon, & Fincham, 2013; Edwards, Desai, Gidycz, & VanWynsberghe, 2009). These findings suggest that ADV victims may become submissive as a form of self-preservation, or become sensitive and hypervigilant to potential attacks, thereby taking on the perpetrator role. Thus, as anticipated, early ADV experiences impacted young adults’ cognitions and behaviors toward new romantic partners.

Adolescent dating violence and future victimization. Studies suggest that many ADV victims experience more than one violent dating relationship during adolescence (Bonomi et al., 2012; Fritz & Slep, 2009; Martsolf, Draucker, Stephenson, Cook, & Heckman, 2012; Williams, Connolly, Pepler, Craig, & Laporte, 2008). A handful of studies, many of which utilized a longitudinal study design, have also found that ADV victimization is associated with adult intimate partner victimization for males and females (Ackard et al., 2007; Exner-Cortens et al., 2013; Cui et al., 2013; Gómez, 2011; Halpern, Spriggs, Martin, & Kupper, 2009; Smith, White, & Holland, 2003; Spriggs, Halpern, & Martin, 2009; Tietelman, Ratcliffe, Dichter, & Sullivan, 2008; van Dulmen et al., 2012). Many of these studies utilized Add Health data (Cui et al., 2013; Exner-Cortens et al., 2013; Gómez, 2011; Halpern et al., 2009; Spriggs et al., 2009; van Dulmen et al., 2012). Thus, ADV may be associated with later intimate partner victimization, in addition to the aforementioned perceptions and behaviors.

Moderation by age. The impact of experiences in adolescent romantic relationships may partially depend on an individual's age at the time. According to Furman and Wehner (1994), the function of romantic relationships changes across the span of adolescence. In early adolescence, romantic partners fulfill a need for affiliation and sexual exploration. These needs continue as individuals enter late adolescence; however, romantic partners also begin to provide desired attachment and a source of trust. Thus, in late adolescence, romantic partners often become the main source of need fulfillment. Some research suggests that perceived social support from romantic partners increases across age, further demonstrating that romantic partners may become more important and integral companions in late adolescence (Seiffge-Krenke, 2003). Thus,

negative experiences in late adolescent romantic relationships may have a stronger impact on attachment-related cognitions and behaviors compared to experiences in early adolescence.

In addition to the changing meaning of romantic relationships across adolescence, characteristics of relationships marked by ADV and ADV experiences themselves may change as well. Studies suggest that ADV begins early (i.e., before age 15; Bonomi et al., 2012; Orpinas et al., 2012). Yet, as indicated above, ADV may be more strongly associated with perceived relationship quality among older adolescents compared to younger adolescents (e.g., Marcus, 2012). Additionally, Muñoz-Rivas, Graña, O'Leary, and González (2007) found that participants' age was associated with several characteristics of the ADV experience among high school students. Physical ADV was less prevalent among older participants compared to younger participants, yet severe physical consequences of ADV were significantly higher among older adolescents (e.g., severe cuts and bruises; Muñoz-Rivas et al., 2007). Furthermore, younger adolescents were more likely to endorse less serious motives for the aggression, such as playing or joking around (Muñoz-Rivas et al., 2007). Thus, ADV experiences may become more intense and damaging and be situated within relationships with higher expectations of love, support and commitment.

Moderation by relationship enmeshment. While previous research supports moderation of the association between relationship experiences and outcomes by individual-level factors (e.g., personality; Yalch, Lannert, Hopwood, & Levendosky, 2013; Yu, Branje, Keijsers, & Meeus, 2014), exploration of moderation by relationship characteristics is scant. As previously indicated, the content of romantic relationships

may impact the salience and weight of negative experiences within these relationships. When partners share numerous activities or social identities (i.e., same friendship group), negative experiences with this partner may have farther-reaching effects (Collins, 2003). These relationships, which are highly interdependent, may be more integral to adolescents' identities. For example, Adams, Laursen, and Wilder (2001) found that the amount of time spent alone with partners and the number of different activities shared with partners were associated with higher perceptions of partner influence over adolescents' thoughts, feelings and behaviors. It may then be harder to compartmentalize ADV experiences and attribute them to a single relationship and event. ADV that occurs in relationships that are highly enmeshed may more strongly affect future relationship perceptions and behavior.

Moderation by gender. Gender may also moderate the relationship between ADV and relationship perceptions and behavior. Previous research suggests that both boys and girls can become strongly attached to romantic partners, and adolescent romantic experiences impact adult relationship perceptions for both men and women (Furman & Shomaker, 2008; Giordano, Longmore, & Manning, 2006; Raley et al., 2007). Yet, social norms dictate that girls place a higher emphasis on social relationships compared to boys (Hill & Lynch, 1983). Studies also suggest that girls report stronger commitment to their partners and endorse monogamy more often than boys (Branje, Laninga-Wijnen, Yu, & Meeus, 2014; Towner, Dolcini, & Harper, 2015). Gender differences extend into adulthood, with women reporting more attempts to learn about their partner in depth and less relationship reconsideration (e.g., believing a new partner is desirable) compared to men (Yu et al., 2014). Thus, although adolescent boys may become attached to their

partners, adolescent girls may be more likely to define their current and possible selves through their partners.

Findings regarding gender differences in characteristics of ADV experiences and consequences are complex and somewhat contradictory. Overall, similar numbers of boys and girls report physical and psychological ADV experiences, although findings are mixed with some studies finding boys reporting higher rates of victimization than girls and others finding girls reporting higher rates of victimization than boys (Bonomi et al., 2012; Halpern et al., 2001, 2009; Muñoz-Rivas et al., 2007; Nahapetyan et al., 2014). Many researchers have argued that girls may feel more threatened and experience more negative and intense concurrent and consequent emotions compared to boys. Research suggests that girls often report feeling anger and fear as a result of physical ADV, while boys report not being bothered by it (Jackson, Cram, & Seymour, 2000). Additionally, girls are more likely to fight back or cry compared to boys, whereas, boys are more likely to do nothing compared to girls (Watson, Cascardi, Avery-Leaf, & O'Leary, 2001). Girls often experience more severe physical injuries, including broken bones, cuts and bruises (Jackson et al., 2000; Muñoz-Rivas et al., 2007). Furthermore, similar gender differences have been found regarding the consequences of adult intimate partner victimization. For example, adult intimate partner victimization impacts women's relationship satisfaction more strongly compared to men's (Katz et al., 2002; Ulloa & Hammett, 2015). Studies also suggest that ADV is associated with more psychological symptoms and risk-taking behaviors in early adulthood among women compared to men (Bonomi, Anderson, Nemeth, Rivara, & Buettner, 2013). In sum, although the findings are mixed, there is

evidence that adolescent girls and adult women experience more negative relationship and health consequences from partner violence than do adolescent boys and adult men.

Theoretical Framework Linking Relationship Functioning and Future Psychological and Physical Health

ADV may be linked to adult psychological and physical health through intimate partner violence, poor relationship perceptions and problems negotiating behavior with romantic partners. The allostatic load model explains the effects of adult intimate partner violence and negative relationship perceptions and behavior on health (McEwen, 2004a; Sterling, 2004). According to the allostatic load model, chronic stress has the potential to lead to maladaptation of multiple body systems. The primary mediators of the acute stress response, including stress hormones (e.g., cortisol, epinephrine) and pro- and anti-inflammatory cytokines, impact both the brain and systemic tissues (Juster, McEwen, & Lupien, 2010; McEwen, 2003a). The process by which these systems fluctuate to maintain normal functioning is known as allostasis. These effects are adaptive during acute stress (McEwen, 2003a), yet maladaptive when overactivated. When these systems are taxed, the result may be an inability to cease activity once the stressor is no longer a threat or an inability to respond to stressors when they first appear, leading to the over-activation of other systems (McEwen, 2004a). This dysregulation of the adaptive body systems resulting from chronic activation has been termed allostatic state (McEwen, 2004a). When an allostatic state leads to cumulative damage, the system is at increased risk for disease and exhibits allostatic load (McEwen, 2004a). According to Juster et al. (2010), this overcompensation by other systems to maintain and regulate the body leads to secondary outcomes, in which metabolic, cardiovascular, and immune parameters

reach subclinical levels. The final stage is “allostatic overload, whereby the culmination of physiological dysregulations leads to disordered, diseased, and deceased endpoints referred to as tertiary outcomes” (Juster et al., 2010, p. 3). Thus, allostatic load is proposed as a primary source of poor psychological and physical health.

Experiences in romantic relationships can be potent sources of stress (Choi & Marks, 2008; McGonagle, Kessler, & Schilling 1992). Adult intimate partner victimization, low perceived relationship quality, and difficulties negotiating behavior in romantic relationships (i.e., submissive behavior) may be perceived as chronically stressful. These romantic relationship experiences may lead to dysregulation of the mediators of the stress response and, thereby, outcomes associated with allostatic load. Indeed, research suggests that stressful social experiences negatively influence psychological and physical health (Choi & Marks, 2008; Karelina & DeVries, 2011; Kiecolt-Glaser, McGuire, Robles, & Glaser, 2002). Because the proposed study will utilize secondary data, it is not possible to fully examine the allostatic load model. Three variables were identified that might correspond to outcomes of stressful life experiences: depressive symptoms, levels of c-reactive protein (CRP) and perceived physical health. The relevant research for each of these outcomes is briefly summarized below.

Depressive symptoms. According to McEwen (2003b), mood disorders are closely linked with chronic stress and allostatic load. Chronic depressive symptoms are associated with structural and functional brain changes (e.g., lower hippocampal and amygdala volume); these changes may reflect dysregulated stress response systems and further impair cognitive and emotional functioning (McEwen, 2003b, 2004b). McEwen (2004b) contends that stress may be a “predisposing and precipitating factor in psychiatric

illness…[and] imbalances of hormonal and other mediators generated by chronic psychiatric disorders affect the metabolic, immune, and cardiovascular systems" (p. 6). Thus, the present study considers depressive symptoms as one potential endpoint of physiological dysregulation and, therefore, a consequence of relationship stress.

Relationship violence and depressive symptoms. ADV has been linked to depressive symptoms and internalizing symptoms during adolescence utilizing both cross-sectional and longitudinal designs (Ackard et al., 2007; Banyard & Cross, 2008; Bonomi et al., 2013; Chiodo et al., 2012; Chronister et al., 2014; Ely et al., 2009; Foshee et al., 2013; Haynie et al., 2013; Howard & Wang, 2003; Howard, Wang & Yan, 2007; Jouriles et al., 2009; Levesque, Lafontaine, Bureau, Cloutier, & Dandurand, 2010; Nahapetyan et al., 2014; Ranney et al., 2013; Roberts et al., 2003). One goal of the present study is to extend these associations into adulthood by assessing mediation through subsequent relationship perceptions and behavior.

Adult intimate partner violence and depressive symptoms. Previous research suggests that adult intimate partner victimization is linked to depressive symptoms (Bonomi et al., 2006; Houry, Kemball, Rhodes, & Kaslow, 2006; Kelly, 2010; Pico-Alfonso et al., 2006; Porcerelli, West, Binienda, & Cogan, 2006; Zlotnick, Johnson, & Kohn, 2006). Women who experienced psychological and physical intimate partner victimization reported concurrently higher depression scores compared to those who had not been victimized (Pico-Alfonso et al., 2006), as well as higher depressive symptoms several years later (Zlotnick et al., 2006). Furthermore, depressive symptoms are not necessarily associated with relationship status over time, which suggests that the link between intimate partner victimization and later depressive symptoms is not dependent upon

staying or leaving the abusive partner (Zlotnick et al., 2006). Research also suggests that ADV is associated with depressive symptoms in adulthood. Exner-Cortens et al. (2013) found that physical ADV (often co-occurring with psychological ADV) was associated with increased depressive symptoms in adulthood for both men and women, although psychological ADV alone was not. Because ADV is associated with adult intimate partner victimization (e.g., Exner-Cortens et al., 2013), it provides a potential mediating link between ADV and adult depression.

Romantic relationship perceptions and behavior and depressive symptoms. Depressive symptoms have also been linked to relationship perceptions and functioning in adulthood. Higher marital satisfaction and functioning are associated with lower depressive symptoms. For example, marital satisfaction has been linked to lower depression in a national sample of adult men and women (Grames, Miller, Robinson, Higgins, & Hinton, 2008). In contrast, marital conflict and submissive behavior, such as self-silencing, are associated with higher depressive symptoms (Choi & Marks, 2008; Hollist, Miller, Falceto, & Fernandes, 2007; Kouros, Papp, & Cummings, 2008; Peterson-Post, Rhoades, Stanley, & Markman, 2014; Scholz, Crabb, & Wittert, 2013; Whiffen, Foot & Thompson, 2007). For example, Choi and Marks (2008) found that self-reported marital conflict (i.e., frequency of disagreements regarding household tasks, money, spending time together and sex) predicted depressive symptoms 10 years later. Similarly, Whiffen et al. (2007) found that intimate partner violence perpetration, which was used as a proxy for the level of conflict experienced in participants' romantic relationship, was associated with higher depressive symptoms in a community sample of adult couples. This association was mediated by indicators of self-silencing behaviors, including acting

compliant with the partner's wishes while concealing feelings of resentment and judging oneself by external standards (Whiffen et al., 2007). Whiffen et al.'s indicators of self-silencing are similar to submissive behavior in the current study, which entails acting compliant and hypervigilant of partners' wishes.

C-reactive protein. In addition to understanding how ADV and subsequent relationship perceptions and behavior may impact psychological health, the present study seeks to understand its association with markers of physical health. One objective indicator of compromised health is CRP. CRP is a marker of inflammation secreted in response to acute stress. It is a pentraxin protein produced by hepatocytes; hepatic CRP regulation is principally regulated by the inflammatory cytokine interleukin-6 (IL-6; Black, Kushner, & Samois, 2004). This effect may be augmented by interleukin-1β (IL-1β). Extrahepatic creation of CRP has also been found in neurons, atherosclerotic plaques and agranulocytes (Black et al., 2004). CRP binds to numerous ligands (e.g., phosphocholine) to influence biological processes. For example, bound CRP can elicit cell lysis in damaged or apoptotic cells, suggesting a crucial role in the immune response. CRP has also been found to have other pro-inflammatory characteristics, such as stimulating the release of pro-inflammatory cytokines in vitro (Black et al., 2004). Chronic, low-level elevation of circulating CRP (between 3-10 μg/ml), which would not be indicative of an acute illness or injury, has been linked to the risk of developing cardiovascular disease, highlighting the importance of understanding potential predictors of chronic elevation (Black et al., 2004; Casas, Shah, Hingorani, Danesh, & Pepys, 2008; Ridker, 2003; Ridker, Hennekens, Buring, & Rifai, 2000). According to Juster et al. (2010), CRP represents a secondary immune outcome of chronic stress. Additionally, Karelina and

DeVries (2011) suggest that chronic inflammation mediates the association between social stress and subsequent disease processes. Thus, CRP is an important outcome to assess.

Adult intimate partner violence and c-reactive protein. Previous theory and research suggest a link between relationship abuse and CRP. Kendall-Tacket (2007) suggested that intimate partner victimization may result in chronic inflammation and metabolic syndrome for female survivors given the link between victimization and increased depression, hostility and sleep disturbance. Indeed, Woods et al. (2005) found that women who had experienced adult intimate partner victimization (including psychological, physical and sexual violence) had higher counts on numerous immune markers (e.g., T cells) compared to women who had not experienced victimization. These findings also extend to CRP (Keeshin, Cronholm, & Strawn, 2012; Kendall-Tackett, 2007). Previous research suggests that post-menopausal divorced or separated women with a history of physical or sexual intimate partner violence victimization have higher CRP levels compared to those without a history of abuse (Fernandez-Botran, Miller, Burns, & Newton, 2011). In a more extensive evaluation of the same sample, Newton et al. (2011) found that victimization characterized by stalking was associated with increased CRP, although neither physical nor psychological victimization predicted CRP levels. Given the limited amount of research investigating the link between CRP and victimization, further examination in the current study is warranted.

Romantic relationship perceptions and behavior and c-reactive protein. Chronic psychosocial stress, such as low relationship quality or difficulties experienced within romantic relationships, may also be associated with low-level CRP elevation

(Kiecolt-Glaser, Gouin, & Hantsoo, 2010; Kiecolt-Glaser et al., 2002; Steptoe, Hamer, & Chida, 2007). Previous research supports a relationship between higher social integration and lower levels of circulating CRP, particularly among older men (Ford, Loucks, & Berkman, 2006). This extends to close romantic relationships in particular. Donoho, Crimmins, and Seeman (2013) examined the relationship between marital quality and IL-6 and CRP measured approximately two years later in a sample of adults. They found that marital support was associated with lower IL-6 and CRP for women, while marital strain was associated with higher IL-6 for both men and women. Thus, positive and negative characteristics of romantic relationships may contribute to chronic inflammation.

Perceived physical health. Chronic stress may also affect subjective perceptions of physical health. Numerous studies have investigated self-rated health as an outcome of allostatic load markers; higher allostatic load is generally associated with lower self-rated health (for a review, see Juster et al., 2010). Thus, an association may be found between ADV, subsequent intimate partner victimization and relationship perceptions and behavior, and perceived physical health.

Relationship violence and perceived physical health. ADV has been linked to lower perceived physical health and more self-reported somatic symptoms during adolescence using cross-sectional designs (Halpern et al., 2013; Haynie et al., 2013). Because the current study aimed to explore the impact of ADV on perceived physical health in adulthood as mediated through later relationship experiences, perceptions and behavior, links between adult intimate partner violence and relationship perceptions and behavior with perceived physical health are reviewed below.

Adult intimate partner violence and perceived physical health. Intimate partner victimization is associated with perceived health, physical symptoms and functional impairment (Bonomi et al., 2006; Campbell et al., 2002; Coker et al., 2002; Coker, Smith, Bethea, King, & McKeown, 2000; Porcerelli et al., 2006; Woods, Hall, Campbell, & Angott, 2008; Zlotnick et al., 2006). For example, Campbell et al. (2002) found that more adult women who had experienced physical or sexual intimate partner victimization reported physical health symptoms including headaches, pain, gynecological problems, and digestive problems compared to those who had never experienced abuse. Coker et al. (2002) found that lifetime experience of physical intimate partner victimization and psychological victimization characterized by power and control were associated with poor perceived health in a nationally representative sample of men and women. Additionally, physical intimate partner victimization was associated with more reported chronic diseases for men and women (Coker et al., 2002). Similarly, Coker et al. (2000) found lifetime physical and psychological intimate partner victimization were associated with reporting poor perceived health and increased odds of reporting numerous physical symptoms (e.g., chronic pain) in a sample of adult women recruited from family medical clinics. Psychological victimization alone (i.e., among individuals reporting no physical victimization) has also been associated with physical symptoms (Porcerelli et al., 2006). Furthermore, previous research suggests that the association between physical intimate partner victimization and physical health (e.g., functional impairment) is not associated with staying or leaving the abusive partner (Zlotnick et al., 2006). Therefore, both psychological and physical intimate partner victimization have

been linked to physical health over time and regardless of whether the victim remains with the perpetrator.

Romantic relationship perceptions and behavior and perceived physical health. Associations between ADV and physical health may also be mediated by the perceived quality of and behavior in romantic relationships. Previous research has established a link between romantic relationship quality and physical health. For example, Choi and Marks (2008) found that higher marital conflict was associated with greater self-reported functional impairment five years later in a national sample of adults in long-term marriages. Similarly, Grames et al. (2008) found marital satisfaction to be associated with lower self-reported health problems in a national sample of adult men and women.

Bidirectional associations between psychological and physical health outcomes. Psychological and physical health (both CRP and perceived physical health) are expected to be intercorrelated. Howren, Lamkin, and Suls (2009) conducted a meta-analysis of studies published between 1967 and 2008 that explored relationships between inflammatory markers and depression. They found that CRP was positively associated with depression. This relationship was supported for three proposed directions: depression to inflammation, inflammation to depression and bidirectional relationships. Depression is also associated with physical disability; evidence suggests both positive concurrent associations and bidirectional effects over time (Aneshensel, Frerichs, & Huba, 1984; Choi & Marks, 2008; Ormel, Rijsdijk, Sullivan, van Sonderen, & Kempen, 2002). Thus, the present study will account for correlations among outcomes.

Contributions and Hypotheses of the Present Study

The present study aims to fill gaps in the burgeoning field of ADV research. Few studies have explored the consequences of ADV in a longitudinal framework, the impact of ADV on future relationship functioning, and, ultimately, mediational models of ADV consequences. The use of Add Health data in the current study provides an opportunity to address these gaps. Although numerous studies have evaluated ADV using this data, most were cross-sectional; focused solely on patterns of perpetration and victimization; evaluated different types of outcomes, such as suicidality; or focused on potential outcomes without exploring mediation (Cui et al., 2013; Exner-Cortens et al., 2013; Gómez, 2011; Halpern et al., 2009, 2013; Roberts et al., 2003; Spriggs et al., 2009; Teitelman et al., 2008; van Dulmen et al., 2012).

This study has the potential to elucidate long-term social, psychological, and physical consequences of romantic relationship violence victimization experienced during the critical developmental stage of adolescence. It will also explore a potential path through which these effects are transmitted and, furthermore, determine whether some effects depend on gender, age at the time of ADV, and relationship enmeshment with the perpetrating partner. Thus, the overarching goal of this study is to determine if ADV impacts psychological (i.e., depressive symptoms) and physical health (i.e., CRP and perceived physical health) in adulthood, and if this relationship is mediated through relationship perceptions and behavior in early adulthood, as well as experiences including adult intimate partner victimization. The primary hypotheses of this study are based on the literature reviewed in previous sections and are described in detail below.

Bivariate associations hypotheses (A1-21). Bivariate correlations will be assessed. ADV is expected to be significantly associated with (A1) higher Time 2 (T2)

intimate partner victimization, (A2) lower T2 perceived quality of a committed romantic relationship, (A3) higher T2 submissive behavior in a committed relationship, (A4) higher Time 3 (T3) depressive symptoms, (A5) higher T3 CRP (worse health indicator), and (A6) lower T3 perceived physical health. Higher T2 intimate partner victimization is expected to be associated with (A7) lower T2 perceived relationship quality; (A8) higher T2 submissive behavior; (A9) higher T3 depressive symptoms; (A10) higher T3 CRP; and (A11) lower T3 perceived physical health. Higher T2 perceived relationship quality is expected to be associated with (A12) lower T3 depressive symptoms; (A13) lower T3 CRP; and (A14) higher T3 perceived physical health. Higher T2 submissive behavior is expected to be associated with (A15) higher T3 depressive symptoms; (A16) higher T3 CRP; and (A17) lower perceived physical health. Higher T2 perceived relationship quality is expected to be associated with (A18) lower T2 submissive behavior. Higher T3 depressive symptoms are expected to be associated with (A19) higher T3 CRP and (A20) lower T3 perceived physical health. Finally, higher T3 CRP is expected to be associated with (A21) lower T3 perceived physical health.

Structural model hypotheses. Following assessment of the bivariate associations, structural equation modeling (SEM) will be conducted.

***Hypotheses B1-7*.** It is hypothesized that ADV will affect later relationship perceptions (i.e., perceived relationship quality) and behavior (i.e., submissive behavior; Chronister et al., 2014; Collin-Vézina et al., 2006; Cui et al., 2013; Edwards et al., 2009; Ely et al., 2009; Furman & Wehner, 1994; Jouriles et al., 2009; Katz et al., 2002; Linder et al., 2002; Marcus, 2012; Ulloa & Hammett, 2015). This will be partially mediated by later intimate partner victimization based on the well-established link between ADV and

subsequent adult intimate partner violence (Ackard et al., 2007; Exner-Cortens et al., 2013; Cui et al., 2013; Gómez, 2011; Halpern et al., 2009; Smith et al., 2003; Spriggs et al., 2009; Tietelman et al., 2008; van Dulmen et al., 2012). As seen in Figure 2, it is expected that ADV will be directly associated with (B1) higher intimate partner victimization at T2. It also hypothesized that ADV will be directly associated with (B2) lower T2 perceived relationship quality and (B3) higher T2 submissive behavior. Intimate partner victimization at T2 will be directly associated with (B4) lower T2 perceived relationship quality and (B5) higher T2 submissive behavior. It is also expected that a significant indirect relationship will be found between ADV and (B6) T2 perceived relationship quality and (B7) T2 submissive behavior mediated through T2 intimate partner victimization.

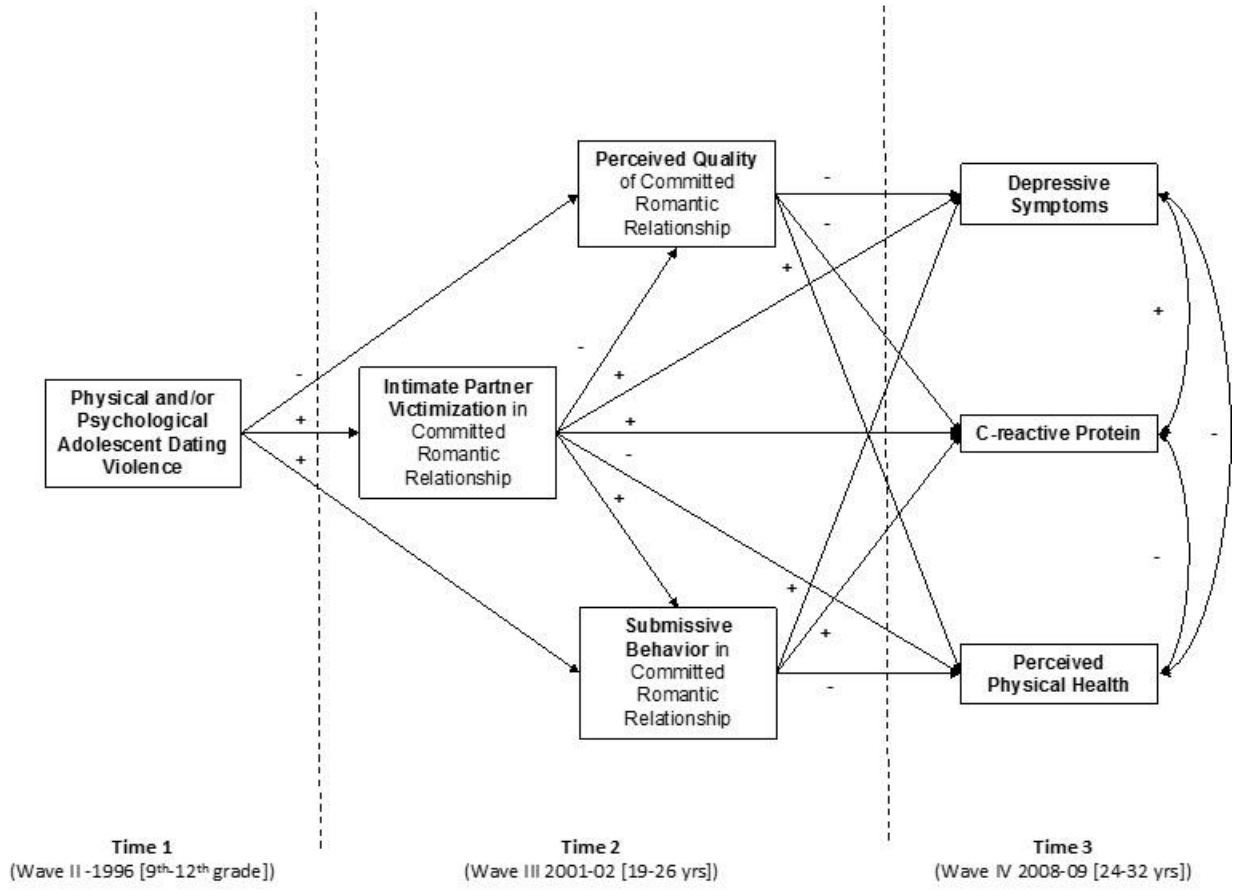

Figure 2. Hypothesized model of the effect of adolescent dating violence on adult psychological and physical health mediated through young adult relationship functioning (i.e., intimate partner victimization, relationship quality, and relationship submission).

Hypotheses C1-30. Perceived relationship quality and submissive behavior at T2, as well as more recent T2 intimate partner victimization, are expected to be associated with T3 psychological (e.g., depressive symptoms; Bonomi et al., 2006; Choi & Marks, 2008; Hollist et al., 2007; Houry et al., 2006; Kelly, 2010; Kouros et al., 2008; Peterson-Post et al., 2014; Pico-Alfonso et al., 2006; Porcerelli et al., 2006; Scholz et al., 2013; Whiffen et al., 2007; Zlotnick et al., 2006) and physical health (e.g., CRP and perceived physical health; Bonomi et al., 2006; Campbell et al., 2002; Choi & Marks, 2008; Coker et al., 2000, 2002; Donoho et al., 2013; Fernandez-Botran et al., 2011; Grames et al., 2008; Keeshin et al., 2012; Kendall-Tacket, 2007; Kiecolt-Glaser et al., 2002, 2010; Porcerelli et al., 2006; Woods et al., 2005, 2008; Zlotnick et al., 2006). Because the association between T2 intimate partner victimization and T3 psychological and physical health may be tied to the chronic interpersonal stress that results from abuse, it is expected that T2 perceptions and behavior (i.e., perceived relationship quality and submissive behavior) will partially mediate its association with T3 outcomes. Therefore, a direct association is hypothesized between T2 perceived relationship quality and (C1) lower T3 depressive symptoms, (C2) lower T3 CRP, and (C3) higher T3 perceived physical health. A direct association is also hypothesized between T2 submissive behavior and (C4) higher T3 depressive symptoms, (C5) higher T3 CRP, and (C6) lower T3 perceived physical health. A direct association is also expected between T2 intimate partner victimization and (C7) higher T3 depressive symptoms, (C8) higher T3 CRP, and (C9) lower T3 perceived physical health.

Numerous indirect associations are also expected. An indirect relationship is expected between T2 intimate partner victimization and T3 depressive symptoms through (C10) T2 perceived relationship quality and (C11) T2 submissive behavior. An indirect relationship is expected between T2 intimate partner victimization and T3 CRP through (C12) T2 perceived relationship quality and (C13) T2 submissive behavior. An indirect relationship is also expected between T2 intimate partner victimization and T3 perceived physical health through (C14) T2 perceived relationship quality and (C15) T2 submissive behavior. An indirect relationship is also expected between ADV and T3 depressive symptoms through (C16) T2 intimate partner victimization; (C17) T2 perceived relationship quality; (C18) T2 submissive behavior; (C19) T2 intimate partner victimization and perceived relationship quality; and (C20) T2 intimate partner victimization and submissive behavior. Similar indirect associations are expected between ADV and (C21-25) T3 CRP and (C26-30) T3 perceived physical health.

Moderation hypotheses. Moderation will then be explored. Hypotheses will first be explored with path analyses; significant interactions with continuous moderators will be probed using multiple regression analyses. Specific hypotheses are listed below.

Hypotheses D1-6. The effect of ADV on constructs related to relationship views will be moderated by three factors: age at the time of the ADV incident; gender; and relationship enmeshment (Adams et al., 2001; Bonomi et al., 2013; Branje et al., 2014; Collins, 2003; Furman & Wehner, 1994; Jackson et al., 2000; Katz et al., 2002; Marcus, 2012; Muñoz-Rivas et al., 2007; Sieffge-Krenke, 2003; Towner et al., 2015; Ulloa & Hammett, 2015; Watson et al., 2001; Yu et al., 2014). Relationship views are expected to encompass romantic relationship perceptions and behaviors, which do not necessarily

correspond to victimization, although they may correlate with victimization. Therefore, moderation effects will be explored for the outcomes of T2 relationship quality and T2 relationship submission. As seen in Figure 3, continuous moderators (i.e., age and relationship enmeshment) will be modeled as interaction terms. As seen in Figure 4, gender will be modeled using multigroup analyses. It is hypothesized that the relationship between ADV and (D1) T2 perceived relationship quality and (D2) T2 submissive behavior will be stronger among those who are older when ADV occurs. It is also expected that the relationship between ADV and (D3) T2 perceived relationship quality and (D4) T2 submissive behavior will be stronger among those who report greater relationship enmeshment with the perpetrating partner during adolescence. Additionally, it is hypothesized that women will exhibit stronger associations between ADV and (D5) T2 perceived relationship quality and (D6) T2 submissive behavior than will men.

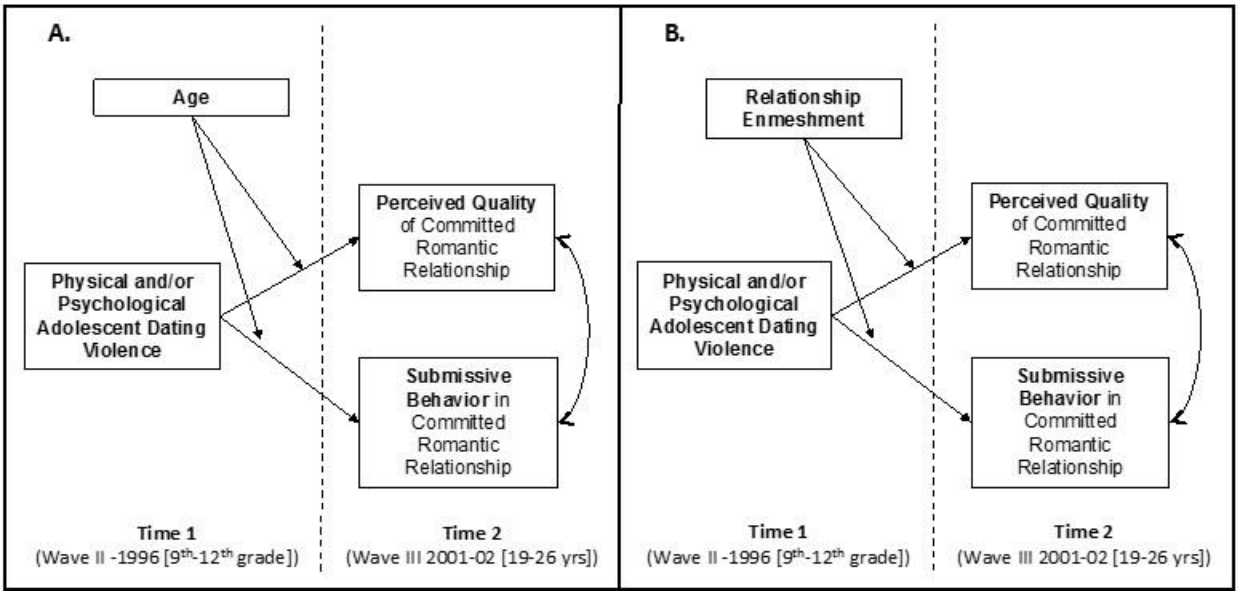

Figure 3. Hypothesized interactions between ADV and age (Panel A) and ADV and relationship enmeshment (Panel B) on perceived relationship quality and submissive behavior.

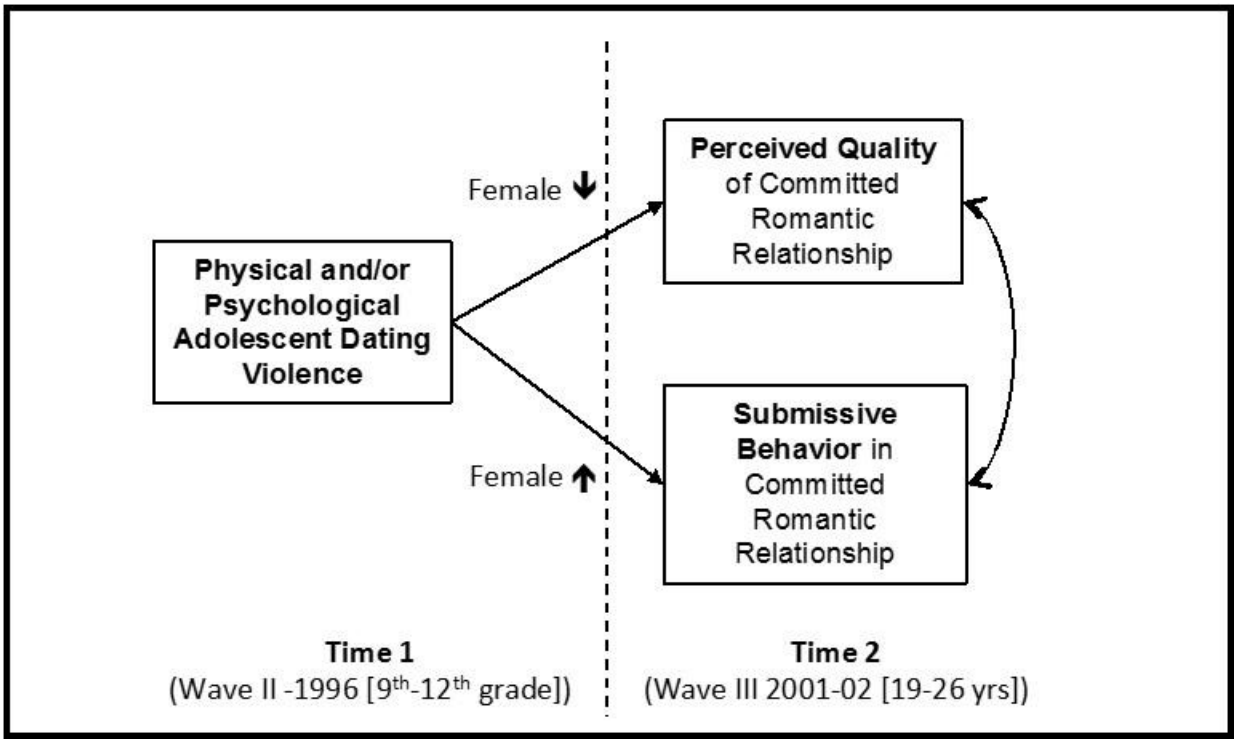

Figure 4. Hypothesized interaction between ADV and gender on perceived relationship quality and submissive behavior.

Follow-up moderation hypotheses (E1-18). Multiple regression analyses will be conducted to aid in interpretation of significant moderation effects related to age and relationship enmeshment after path analyses. It is expected that two two-way interactions will be found (i.e., ADV x Age and ADV x Relationship Enmeshment). See Figure 5 for an illustration of the expected two-way interactions. Regardless of age and enmeshment, individuals who experienced ADV are expected to report lower T2 perceived relationship quality (E1-6) and higher T2 submissive behavior (E7-12) compared to individuals who did not experience ADV (i.e., significant slope). Numerous differences, however, are expected among individuals who experienced ADV according to the moderator in question.

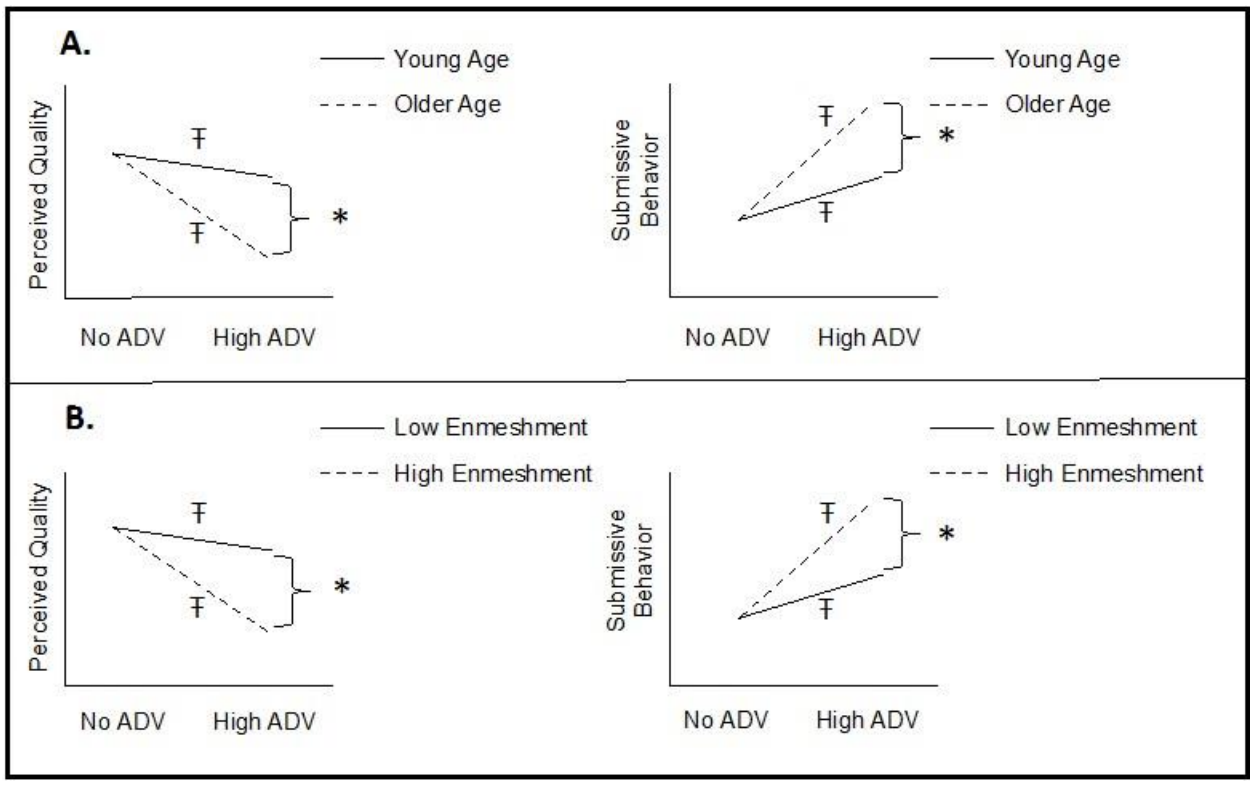

Figure 5. Follow-up multiple regression analyses exploring interactions between ADV and age (Panel A) and relationship enmeshment (Panel B). ∓ indicates that, for each interaction, the slope of both lines is expected to be significant. * indicates significant differences between individuals who experienced ADV based on moderator.

No significant differences in perceived quality or submissive behavior are expected based on age at the time of the adolescent romantic relationship or level of enmeshment of the adolescent relationship among participants who did not experience ADV. Significant differences are expected among individuals who experienced higher levels of ADV. Thus, although the slope will be significant for both groups, some individuals will exhibit a steeper decline in quality and a sharper incline in submissive behavior based on the level of the moderator. A two-way interaction between ADV x age is expected, such that individuals who experienced ADV and were older at the time of ADV will report (E13) lower T2 perceived relationship quality compared to individuals who experienced ADV

but were younger at the time of victimization. Additionally, those who were older at the time of ADV are expected to exhibit (E14) higher T2 submissive behavior compared to those who were younger at the time of ADV. A two-way interaction between ADV and relationship enmeshment is also expected, such that individuals who experienced ADV and were more enmeshed with the relationship partner will exhibit (E15) lower T2 perceived relationship quality and (E16) higher T2 submissive behavior compared to individuals who experienced ADV but were less enmeshed with the relationship partner.

Exploratory gender moderation analyses. Gender moderation effects will be explored in the context of the full model. No specific hypotheses are made. Although previous research suggests that girls and women experience more negative emotional responses to relationship violence and are more likely to sustain physical injuries (Jackson et al., 2000; Muñoz-Rivas et al., 2007; Watson et al., 2001), conflicting evidence regarding gender differences suggests that long-term effects are important to investigate. Previous research using Add Health data suggests that ADV is associated with intimate partner violence in adulthood for both men and women (Exner-Cortens et al., 2012). Yet, ADV may differentially impact subsequent psychological health and risk behavior (Exner-Cortens et al., 2012; Roberts et al., 2003). Additionally, some researchers have found no gender differences in relationship perceptions and associations between adolescent romantic relationships and adult outcomes (Furman & Shomaker, 2008; Giordano, Longmore et al., 2006; Raley et al., 2007). Giordano, Longmore et al. (2006) found strong attachment to relationship partners in the narratives of adolescent boys and expressions of loss when these relationships were dissolved. Thus, negative experiences within romantic relationships may strongly affect boys as well as girls. Research also suggests

that there are no significant gender differences associated with appraising ADV as unpleasant (Jouriles et al., 2009). Additionally, Schultz and Jaycox, (2008) found that both boys and girls experienced fear in dating relationships and, overall, the percentage of boys and girls who experienced different types of fear did not differ (e.g., feeling unsafe or feeling owned and controlled by a date). Thus, although the present study includes hypotheses for gender moderation effects on constructs related to relationship views (i.e., perceived relationship quality and submissive behavior), gender moderation within the context of the full model will be explored without a priori expectations of effects.

CHAPTER 2: METHOD

Add Health is a longitudinal study of a nationally representative sample of 7th through 12th grade students in the United States. The study was initiated in 1994-95. Participants have been followed across two decades with four in-home interviews. Add Health was originally developed by a nationwide, multidisciplinary team in response to a mandate from the United States Congress calling for studies of adolescent health (Harris, 2013). Add Health was originally designed by J. Richard Udry, Peter S. Bearman and Kathleen Mullan Harris at the University of North Carolina at Chapel Hill. It is currently directed by Kathleen Mullan Harris at the University of North Carolina at Chapel Hill. It is funded by grant P01-HD31921 from the Eunice Kennedy Shriver National Institute of Child Health and Human Development, with cooperative funding from 23 other federal agencies and foundations.

Participants

The wave 1 data collection occurred in 1994 and 1995. As shown in Figure 6, a school-based clustered sampling design was utilized. A stratified sample of 80 high schools was selected with probability proportional to size (Harris, 2013). Schools were stratified based on region of the country, urbanicity, size, school type (public, private, parochial), and ethnic mix. High schools were eligible for inclusion if they included an 11th grade and enrolled more than 30 students. Feeder schools associated with each participating high school were identified and recruited with probability proportional to its student contribution to the high school; these schools were required to include a 7th grade and send at least five graduates to the participating high school. For communities in

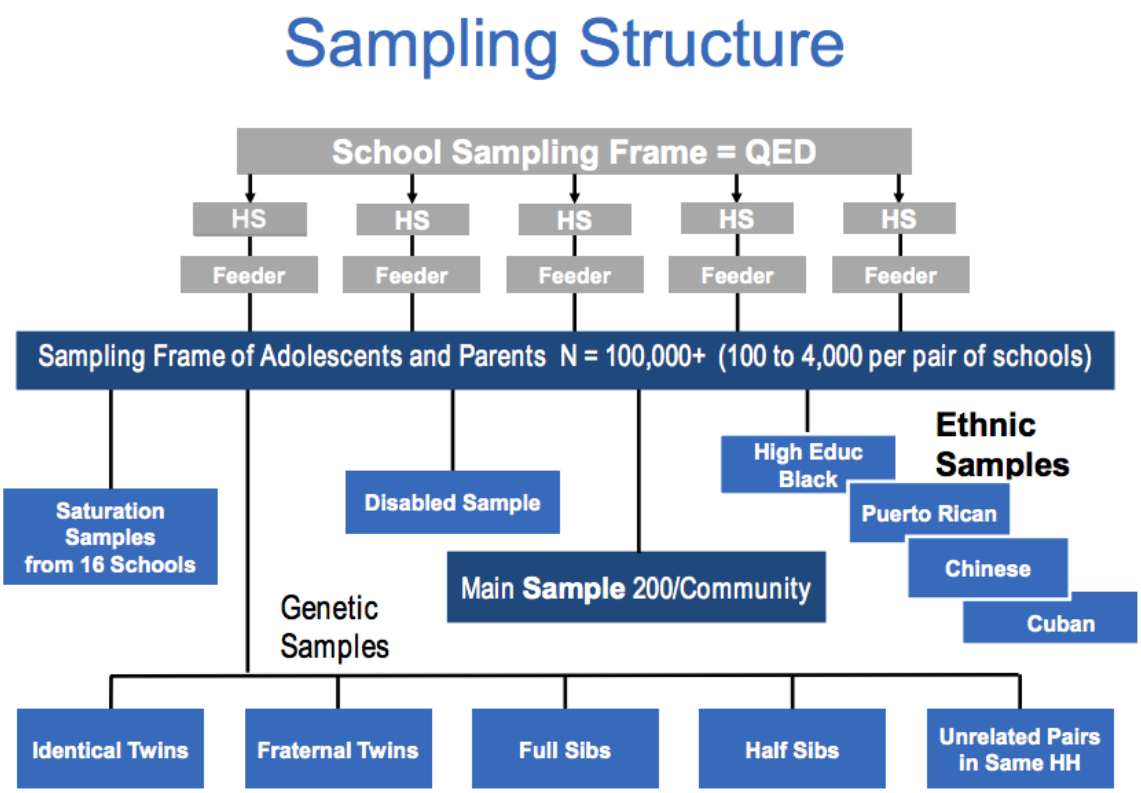

Figure 6. Sampling structure of Add Health. Reprinted from Add Health Research Design Waves I-V Slideshow, The National Longitudinal Study of Adolescent to Adult Health, n.d., Retrieved February 14, 2016, from http://www.cpc.unc.edu/projects/addhealth/design/slideshow/view

which the high school included 7th grade, a separate feeder school was not identified. Seventy-nine percent of the schools that were contacted agreed to participate; replacement schools in the same stratum were used if the original school declined to participate. This recruitment method resulted in 132 schools that were representative of 80 communities.

Full sample sizes across the four waves of data are presented in Figure 7. At the first wave of data, a core sample of 12,105 adolescents completed the in-home interview. Researchers stratified students in each school by grade and sex and randomly chose about 17 students from each strata to develop the core sample (Harris, 2013). This

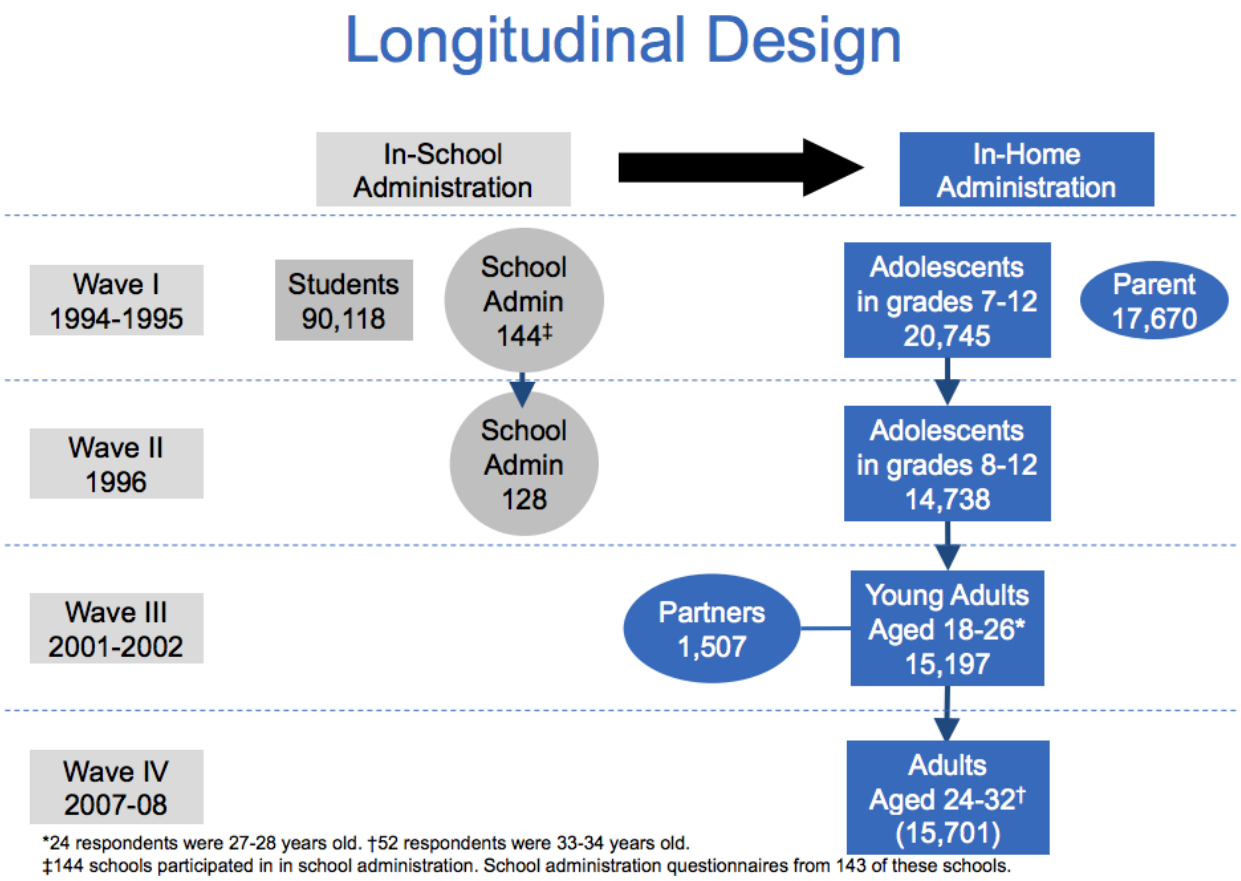

Figure 7. Longitudinal design and sample size across waves of Add Health timepoints. Reprinted from Add Health Research Design Waves I-V Slideshow, The National Longitudinal Study of Adolescent to Adult Health, n.d., Retrieved February 14, 2016, from http://www.cpc.unc.edu/projects/addhealth/design/slideshow/view

yielded approximately 200 students from each pair of schools. Additional oversamples included: 1) ethnic oversamples of Black adolescents with well-educated families (with a parent with a college degree), Chinese adolescents, Cuban adolescents, and Puerto Rican adolescents; 2) full school samples; 3) adolescents who self-reported a physical disability; and 4) sibling pairs living in the same household. The core sample and additional oversamples produced a final sample size of 20,745 adolescents who completed the in-home interview at wave 1. The wave 1 in-home interview sample was the basis for all subsequent interviews. Sample size across subsequent waves of data

are shown. The present study will utilize the publicly available data from the Inter-university Consortium for Political and Social Research (ICPSR). To protect participants from deductive disclosure, the publicly available data includes only a subset of the original sample.

The present study focused on a subsample of the data known as the Couples Sample. At wave 3 (T2 in the present study), half of the sample of original respondents were randomly selected and flagged to be considered for a Couples Sample. The Couples Sample was designed to collect information on 1,500 partners of the original Add Health respondents (one-third married, one-third cohabiting and one-third dating partners). When a respondent who was flagged to be considered for the Couples Sample was interviewed, their romantic and sexual relationships were evaluated for four factors: 1) opposite sex relationship; 2) current relationship; 3) duration of 3 months or more; and 4) the partner was 18 or older. Specific questions and screening criteria are listed in Appendix A. If one relationship met this criteria, this relationship was designated as a Couples Sample relationship. If more than one relationship qualified, numerous criteria were used to determine a single relationship to be identified as the Couples Sample relationship. Only respondents who were part of the Couples Sample were administered the relationship-oriented items of interest in the present study (i.e., T2 intimate partner victimization, T2 relationship satisfaction, and T2 relationship submission; see Appendix B). Respondents who were flagged and qualified for the Couples Sample answered the relevant items, regardless of whether their partner also participated.

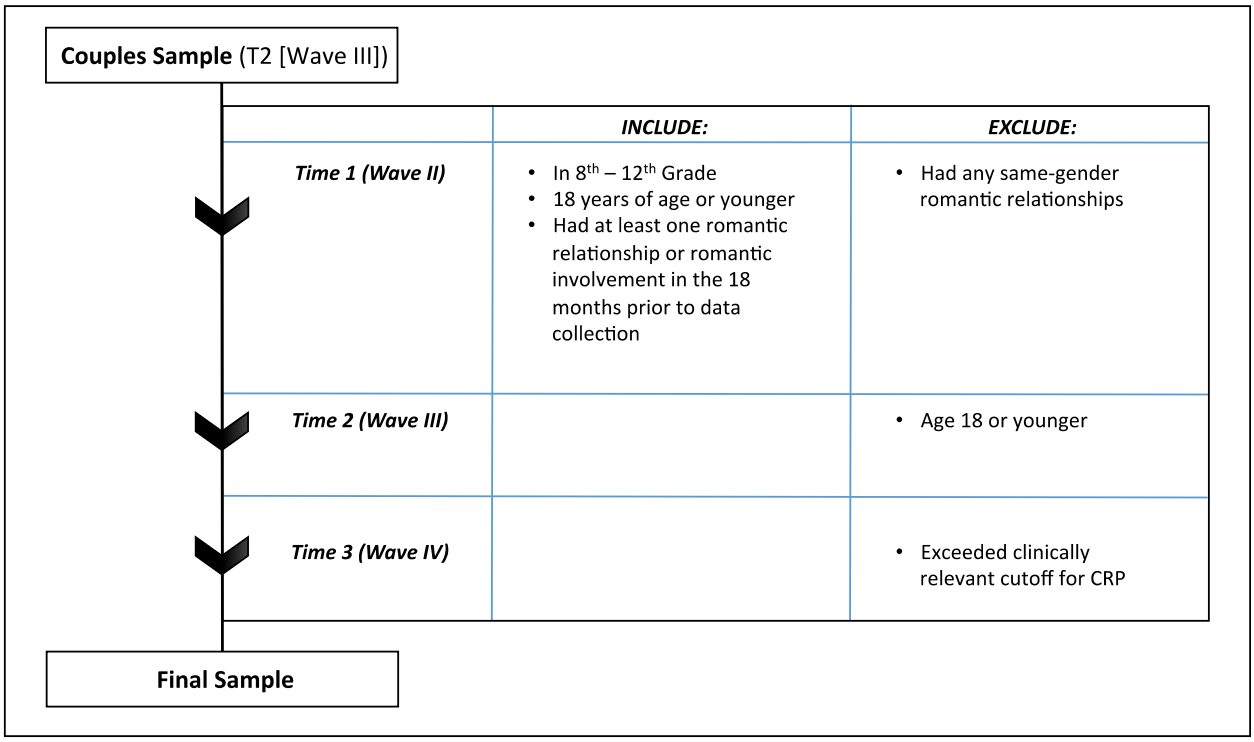

Figure 8. Inclusion and exclusion criteria for study sample.

Additional inclusion and exclusion criteria were used for the current study. See Figure 8 for study-specific inclusion and exclusion criteria across timepoints. Participants were included if they: 1) were in 8th through 12th grades and age 18 or younger at T1; and 2) had at least one romantic relationship or romantic involvement in the 18 months prior to T1 data collection. Participants were excluded from the analyses if: 1) they indicated any same gender romantic relationships at T1; 2) were 18 years of age or younger at T2; or 3) they exceeded the clinically relevant cutoff of 10 for CRP, which might indicate an acute illness or injury. Same-sex relationships were not included in order to match the committed relationships reported at T2, which were exclusively heterosexual. Additionally, previous research suggests that victimization experiences may differ for

individuals reporting opposite-sex relationships compared to same-sex relationships (see Halpern et al., 2009).

Procedure

At wave 1, students in all participating schools completed an in-school questionnaire, which was administered during a 45- to 60-minute class period. There was no "make-up" day for absent students. Parents were informed of the date of the questionnaire and could opt-out of the study. All students who completed the questionnaire, as well as students who were listed on the school roster but did not complete the in-school questionnaire, were eligible to be selected into the in-home sample. The in-home interview took one to two hours and was conducted between April and December 1995. All data were collected on laptop computers. Less sensitive measures were read and recorded by interviewers (computer assisted personal interview [CAPI]). Items related to sensitive topics were completed using audio computer assisted self-interviewing (ACASI) techniques, in which participants hear the questions read through earphones and enter their responses directly into the computer.

The wave 2 (T1 in the present study) data collection occurred approximately one year later. Students who were previously in grades 7-11 and who previously completed an in-home interview were re-interviewed. There were some exceptions to this general rule, including: 1) participants who were in the genetic sample were re-interviewed even if they were previously in 12th grade; 2) participants in the disabled oversampled population were not re-interviewed; and 3) an additional 65 participants in the genetic oversampled population who had not been interviewed at T1 were recruited at T2.

The wave 2 data collection was performed between April and August 1996. Interviews were one to two hours and typically occurred in participants' homes. The interview was similar to that in wave 1, including the use of laptop computers and CAPI and ACASI techniques.

The wave 3 (T2 in the present study) data collection was performed in 2001 and 2002. This sample included participants from T1 who could be located and re-interviewed. Participants were between the ages of 18 and 26 years (with few exceptions). Interviews were typically completed in participants' homes and took, on average, 134 minutes. The full interview included the laptop interview and biological specimen collection. The laptop interview used the methods previously described (i.e., CAPI/ACASI) and took approximately 90 minutes.

The wave 4 (T3 in the present study) data collection was performed in 2008 and 2009 with original participants from the first wave of data. The laptop interviews took approximately 90 minutes and utilized the same CAPI/ACASI method. After the laptop interview, biological specimens were collected; this portion took about 30 minutes. Biological specimen collection included capillary whole blood collection via finger prick for the assessment of CRP.

Capillary whole blood collection during the fourth wave of data followed the interview, collection of cardiovascular and anthropometric measures, and collection of saliva (Whitsel et al., 2012). Trained and certified field interviewers performed the blood spot collection. Participants were free to decline participation in blood collection. Special cases (e.g., unique circumstances at correctional facilities) precluded collection of capillary whole blood and were coded as legitimate skips. Women who had had a

mastectomy were consulted as to any contraindications to capillary whole blood collection on the left or right side. If there were contraindications on both hands, blood was not collected. Blood was typically collected from the middle or ring finger. Interviewers followed standard procedures, including first wiping the finger with alcohol, wiping away the first drop of blood, applying pressure to the base of the finger to facilitate blood flow, and allowing blood to accumulate before applying it to the capillary whole blood collection card. Interviewers attempted to collect seven blood spots onto the collection card. Collection was repeated if an insufficient sample was collected. Collection cards were air dried for three hours and shipped overnight to the University of Washington Department of Laboratory Medicine for assay. Cards were then stored at -70°C until processing.

Measures

The current study primarily utilized measures from waves 2, 3 and 4. However, demographic information assessed during wave 1 was also used. The timepoint for collection is reported below for each measure. Full items are provided in Appendix A.

Demographics. In the first wave in-school survey, participants indicated their gender (1=male; 2=female). Interviewers were required to confirm participants' gender during the in-home interview. The interviewers' codes were used to determine participant gender. In the wave 1 in-home interview, participants indicated their birth month and birth year. Age was calculated with this information and preloaded into the wave 2 (T1) survey. The preloaded age variable was used in the present study. For the purposes of sample descriptives, ethnicity was also assessed (White, Black or African American, Asian or Pacific Islander, American Indian or Native American, and other).

Adolescent Dating Violence (ADV). In the T1 in-home interview, participants were asked: *In the last 18 months—since [Month, Year]—have you had a romantic relationship with any one?* Participants could list up to three individuals. If participants answered *no* or *don't know* to whether they had a romantic relationship, they were asked behavior-specific questions to determine if the participant had a romantic relationship (see Appendix A). If there was more than one romantic partner with whom they engaged in these behaviors, the participant indicated the partner with whom they currently feel closest. For the current study, an affirmative response to having a romantic relationship with someone in the past 18 months or an affirmative response to engaging in all romantic behaviors with the same individual in the past 18 months was considered as having romantic relationship experience.

The measure of ADV was unique to Add Health (J. Tabor, personal communication, March 17, 2016). However, the items reflect those used in the revised Conflict Tactics Scale (CTS2; Straus, Hamby, Boney-McCoy, & Sugarman, 1996). The CTS2 is widely used. It has demonstrated adequate construct and discriminant validity in a sample of college students in dating relationships (Straus et al., 1996), as well as strong test-retest reliability in a sample of men court-mandated to a batterer intervention program (Vega & O'Leary, 2007). Participants were asked: *During your relationship with [partner], did [partner] do any of the following to you?* Sample items include: *Did [partner] call you names, insult you, or treat you disrespectfully in front of others?"* (psychological ADV) and *Did [partner] push or shove you?* (physical ADV). Response options included 0 (*no*) and 1 (*yes*). The number of ADV experiences was summed, with a potential range of 0 (no ADV) to 5 (5 ADV experiences). Because participants could provide information

regarding more than one relationship, numerous criteria were used to determine which relationship to use in the analyses (e.g., presence of ADV). Thus, ADV represents experiences in only one romantic relationship during adolescence.

Age at time of relationship. Participants indicated the date that the reference relationship ended. If the relationship was current, this date was recoded as the date of the interview. The age at the time of the relationship was calculated by subtracting the participant's birthdate from the date the reference relationship ended. If the date the reference relationship ended was missing, age at the time of the interview was used.

Relationship enmeshment. For each romantic partner, participants were asked a series of questions to determine how they knew the partner when their relationship began. Participants were asked: *In what ways did you know [partner] before your romantic relationship began? (If you knew [partner] in more than one way, choose more than one answer.)* Sample items include: *You went to the same school* and *You went to the same church, synagogue, or place of worship.* Items were summed to obtain a measure of relationship enmeshment. Marked items counted as 1, and unmarked items counted as 0. The following item was also included: *When your romantic relationship with [partner] began, how many of your close friends knew [partner]?* Response options included 1 (all of them) to 5 (none of them). Responses were dichotomized, such that 1 included response options of *all of them* and *most of them*, whereas a score of 0 was given for the responses of *a few of them*, *one of them*, and *none of them*. Other responses (i.e., don't know) were treated as missing. These items were not derived from a previous source and are unique to Add Health (J. Tabor, personal communication, March 17, 2016).

Current Romantic Relationship at Wave 3 (T2). Participants who were preselected for the Couples Sample and were in a current, heterosexual relationship for over three months with an individual over the age of 18 answered the following measures related to the selected Couples Sample relationship (see Appendices A and B). Scale construction for perceived relationship quality, submissive behavior, and depressive symptoms is described in the Results.

Intimate partner victimization. The measure of intimate partner violence in adulthood was developed by Add Health staff (J. Tabor, personal communication, March 17, 2016). Like the measure of ADV, however, the items are similar to those in the CTS2, although original CTS2 items were combined and there were slight wording changes (Straus et al., 1996). Participants were asked to indicate how often each victimization incident occurred during their relationship with their partner. For relationships lasting over one year, participants were asked to consider the past year. The present study will include two items assessing physical intimate partner victimization to correspond with the ADV measure: *How often has [partner] threatened you with violence, pushed or shoved you, or thrown something at you that could hurt?* and *How often has [partner] slapped, hit or kicked you?* Response options included: 0 (never) to 6 (more than 20 times). Participants were also permitted to indicate that the victimization has not occurred in the past year, but did happen previously; however, only past year experiences were included in the current study. The two items were strongly correlated (r = .67, p < .001). An average score was obtained.

Perceived relationship quality. Three items were considered to assess relationship quality. One item measured satisfaction: *In general, how satisfied are you*

with your relationship with [partner]? Response options included 1 (very satisfied) to 5 (very dissatisfied). Two items measured love: *How much do you love [partner]?* and *How much do you think [partner] loves you?* Response options included 0 (a lot) to 3 (not at all). These items were reverse-scored so that higher scores indicated higher perceived relationship quality. Because the scales for the three items differed, the scores were first standardized prior to scale construction. Two of these items were derived from the Relationship Assessment Scale (Hendrick, 1988). The third item ("How much do you think [partner] loves you?") was developed specifically for Add Health (J. Tabor, personal communication, March 17, 2016).

Submissive behavior. Three items were considered to assess relationship submission with a current romantic partner at T2. These items were chosen to reflect potential differences in power and influence in the relationship (Bentley, Galliher, & Ferguson, 2007). The items included: *You decide what to do or where to go when you go out* (reversed-scored)*; You are the first to apologize after a disagreement or argument;* and *You try to notice and respond to [partner's] mood changes.* Response options ranged from 0 (never/hardly ever) to 4 (most of the time/every time). These items were not derived from a previous source and are unique to Add Health (J. Tabor, personal communication, March 17, 2016).

Depressive Symptoms. Items from the Center for Epidemiologic Studies Depression Scale (CES-D; Radloff, 1977) were used to assess depressive symptoms at T2 and T3. Depressive symptoms at T3 are of substantive interest as a potential psychological health outcome; T2 depressive symptoms were initially considered as a control to assess change from T2 to T3. At T2, a modified 9-item version of the CES-D

was included. Participants were asked to consider how they felt in the seven days prior to the interview. Sample items include: *You were depressed, during the past seven days* and *You could not shake off the blues, even with help from your family and your friends, during the past seven days.* Response options ranged from 0 (never or rarely) to 3 (most of the time or all of the time). At T3, the same 9 items were assessed with slight wording modifications. One additional item was included (*[During the past seven days] You felt happy*); however, this item was excluded to maintain consistency with T2. The CES-D has been used extensively in general populations and has shown high internal consistency and moderate test-retest reliability in adults (Radloff, 1977).

High Sensitivity C-Reactive Protein (CRP). Capillary whole blood collection was performed according to the previously described procedure at the fourth wave of data collection (T3 in the present study). A single punch was taken from each dried blood spot (DBS) calibrator, control sample, and participant collection card. These punches were placed into a deep-well microtiter plate well (Greiner Bio-One, Monroe, NC). A sandwich ELISA was used to measure CRP. DBS punches were eluted in a buffer solution (hsCRP Sample Diluent; Percipio, Inc., Manhattan Beach, CA). The eluent was transferred to ELISA microtiter plate wells (Percipio) precoated with a CRP-recognizing monoclonal antibody (mAb). A conjugate solution was then added to each well to bind the CRP molecules. After incubation, the wells were washed to remove unbound material. A tetramethylbenzidine (TMB) and hydrogen peroxide (H2O2) solution was added to develop color. The plates were then placed on a microtiter plate reader (Synergy HT, BioTek, Winooski, VT). The absorbance (optical density) of the calibrators was determined and plotted against the known CRP concentrations. The optical densities of

the quality control and participant samples were then determined using the calibration curve, yielding a measure of CRP concentration (Gen 5 Software, BioTek).

Samples were run in duplicate. The sensitivity of the CRP assay was 0.035 mg/L (plasma equivalent of 0.082), the within-assay coefficient of variation was 8.1%, and between-assay coefficient of variation was 11.0%. Full documentation of measurement procedures are outlined by Whitsel et al. (2012).

Perceived health. At T3, a single item was included to assess perceived physical health from the 36-Item Short Form Health Survey (SF-36; RAND Corporation, 2009). This item stated: *In general, how is your health?* Response options included 1 (excellent) to 5 (poor). This item was reverse-scored, such that higher scores indicated better perceived health. The same item was assessed at T2; this item was initially considered as a control to assess change from T2 to T3.

Model Covariates

Systematic Sampling Group Covariates. Eleven systematic sampling (SS) group covariates were considered for inclusion as controls. These group variables reflect adolescents' attributes related to being selected to participate. As previously mentioned, some attributes were over-selected from the in-school sample to develop the in-home sample. Controlling for systematic sampling groups reduces sampling bias related to over-represented sub-populations which could potentially drive results. The sampling groups included: 1) the core sample (SS01); 2) participants self-reporting a disability (SS02); 3) high education Black participants (SS03); 4) Cuban participants (SS04); 5) Puerto Rican participants (SS05); 6) Chinese participants (SS06); 7) twin participants (SS07); 8) full siblings (SS08); 9) half siblings (SS09); 10) non-related participants

(SS10); and the 11) PAIR school sample (SS11). Each group variable was coded as 1 (*included in special sample*) or 0 (*not included in special sample*).

Childhood experiences covariates. Previous research suggests that childhood abuse and the quality of parent-child relationships are associated with adult intimate partner violence, romantic relationship quality, and psychological and physical health (for a review, see Costa et al., 2015; Crockett & Randall, 2006; Danese et al., 2008; Seiffge-Krenke, Overbeek, & Vermulst, 2010; Spitzer et al., 2010). Thus, the present study will include childhood abuse and parent communication/warmth as covariates.

Childhood abuse. At T3 (wave 4), three items were used to assess childhood abuse. The three items captured emotional, sexual and physical abuse before the age of 18. Items included: *Before your 18th birthday, how often did a parent or other adult caregiver say things that really hurt your feelings or made you feel like you were not wanted or loved?*, *Before your 18th birthday, how often did a parent or adult caregiver hit you with a fist, kick you, or throw you down on the floor, into a wall or down stairs?* and *How often did a parent or other adult caregiver touch you in a sexual way, force you to touch him or her in a sexual way, or force you to have sexual relations?* Response options included 1 (*one time*) to 5 (*more than ten times*). Participants could also indicate if this never happened; these responses were recoded as 0 (*never*). An average score was obtained for analyses.

Parent communication/warmth. At T1 (wave 2), six items were used to assess parent communication/warmth. Participants were asked: *Most of the time, [mom name/dad name] is warm and loving toward you*; *You are satisfied with the way [mom name/dad name] and you communicate with each other*; and *Overall, you are satisfied*

with your relationship with [mom name/dad name]. Response options included 1 (*strongly agree*) to 5 (*strongly disagree*). An average score was obtained for analyses. Average scores were reverse-scored, such that higher scores indicate greater parental communication/warmth.

Covariates for T3 CRP. Body mass index (BMI) and smoking status were also considered covariates for CRP (Brummett et al., 2013).

BMI and smoking status. BMI and smoking status were included as control variables for CRP (Brummett et al., 2013). BMI was calculated using height and weight collected at T3 during the biological specimen collection. Smoking status was assessed with the following question: *During the past 30 days, on how many days did you smoke cigarettes?* Response options ranged from 0 (0 days) to 30 (30 days).

CHAPTER 3: ANALYSIS PLAN

Data Screening and Preparation

Data were first screened according to the inclusion and exclusion criteria previously described. Data were then checked for non-normality; outliers; missing data; and collinearity according to standard procedures (Kline, 2016; Tabachnick & Fidell, 2007).

Scale Exploration

Scales were created according to the criteria listed in the Measures section. For scales that were developed for the current research (i.e., submissive behavior), standard scale development procedures were followed (Hinkin, 1998). This includes assessing bivariate relationships among scale items and proceeding with principal components analysis (PCA). Varimax rotation was utilized for ease of interpretation. An eigenvalue greater than 1 and scree plots were used simultaneously to provide information on the ideal number of factors to retain (Osborne & Costello, 2005). Because the scales were either established measures (i.e., depressive symptoms) or only had three items (i.e., perceived relationship quality), standard criteria were loosened. Scale reliability was then assessed and average scores were obtained.

Bivariate Relationships (Hypotheses A1-A21)

The first set of hypotheses was assessed using bivariate correlations among the single-item indicators and scales. These analyses were also used to verify that the expected relationships were present and to determine potential unidimensionality of measures.

Primary Analyses (Hypotheses B1-B7 and C1-C30)

Structural equation modeling (SEM) was conducted using Mplus version 7.4. Full Information Maximum Likelihood (FIML) was used to account for missing data. Latent variables were modeled for most measures (exceptions include systematic sampling group variables) to account for error in measurement. Lambda was fixed at 1.0 and error of the indicator was fixed at one minus a reliability coefficient multiplied by the variance ($[1 - r_{xx}]\ s^2_{x1}$; Kline, 2016). Single indicators also accounted for some presumed error (e.g., ADV). Error was set such that reliability was expected to be high but imperfect. Thus, presuming reliability of .90 for each single indicator measure, single indicators had a set error variance of $.10s^2_{x1}$ (Kline, 2016). Outcomes were first analyzed separately to capitalize on sample size. A final, complete model was also assessed.

Overall model fit was evaluated using the $\chi 2$ Goodness of Fit test. Three additional goodness of fit indices were used. One additional absolute index was used: the Root Mean Square Error of Approximation (RMSEA). An RMSEA less than .08 suggests adequate fit; RMSEA less than .05 suggests good fit (Raykov & Marcoulides, 2006). Two incremental indices were also used. These include the Non-Normed Fit Index (NNFI) and the Comparative Fit Index (CFI). For both of these indices, a value between .90 and .95 suggests adequate fit; a value over .95 suggests good fit (Raykov & Marcoulides, 2006).

Parameter estimates were assessed. Direct effects were assessed using unstandardized coefficients and associated *p* values, with significance determined at $p < .05$. Indirect effects (total and specific) were assessed with bias-corrected bootstrap 95% confidence intervals (95% CI) with 500 bootstrap samples. If the unstandardized 95% CI did not include zero, the estimate was considered significant. Model modification was also considered.

Nested models were compared using chi-square difference tests (Anderson & Gerbing, 1988). A chi-square difference test was performed between the two models to determine whether the more parsimonious model decreased model fit (Anderson & Gerbing, 1988; Hoyle & Panter, 1995). Alternatively, non-nested models were compared using the Akaike Information Criteria (AIC); the model with the lowest value is considered the one most likely to replicate (Kline, 2016).

Model identification. Model identification for SEM is dependent upon the number of parameters being estimated and the resulting degrees of freedom (df). The df is determined with the formula: p (p + 1) / 2 (Raykov & Marcoulides, 2006), where p is the number of observed variables in the model. The number of parameters is then subtracted from this value to determine the number of available df. The df must be greater than zero; this indicates an overidentified model. All models were overidentified.

Sample size. There are numerous heuristic guidelines to determine appropriate sample size when utilizing SEM. According to Boomsma and Hoogland (2001), a minimum sample size of 200 is necessary to avoid modeling and interpretation errors when using maximum likelihood procedures. The current sample exceeded this minimum criteria.

Moderation Analyses (Hypotheses D1-D6 and E1-E18)

Moderation effects were first explored using path analyses. To simplify the analyses, the variables were treated as single indicators and not represented as latent variables accounting for measurement error (Kline, 2016).

Continuous moderators: Age and relationship enmeshment. ADV, age and relationship enmeshment were mean-centered prior to creating interaction variables. The

interaction terms were first modeled using path analysis. Particular attention was paid to the effect of the interaction term on perceived relationship quality and submissive behavior.

Follow-up multiple regression analyses. Parameter estimates that were determined to be different according to relationship enmeshment or age were probed using hierarchical linear regression. Centered variables were entered on Step 1, and the interaction term was entered on Step 2. The regression coefficients were used to graph interaction effects and to test simple slopes (Cohen, Cohen, West, & Aiken, 2003).

Categorical moderator: Gender. Because gender is categorical, multigroup analyses were conducted. A fully constrained model was estimated followed by freeing specific paths and evaluating change in model fit. Model comparison (described above) was conducted to determine if this resulted in a significant improvement in model fit. Model fit and parameter estimates were evaluated in the same way as for the full model.

CHAPTER 4: RESULTS

Data Screening

Data was screened according to inclusion and exclusion criteria. First, relationships identified as “couples sample relationships” were extracted from the data. Eight participants were repeated in the dataset and listed as having two couples sample relationships. The data associated with these relationships were explored. For each repeated participant, only one relationship was current or lasted for at least 3 months. These criteria were used to choose a single couples sample relationship for these participants. This left a sample of 1,333 participants.

Couples sample criteria were then explored within the subset of 1,333 participants (i.e., current; at least 3 months duration; partner 18 years of age or older; opposite sex relationship). As seen in Table 1, numerous relationships labeled as couples sample relationships did not meet the criteria.

Relationships that did not meet the criteria for the couples sample relationships were removed in an iterative manner. First, 36 relationships were removed because they were not current. Next, two were removed because they had not lasted for 3 months or longer. One relationship was then removed because the partner was not 18 years of age or older. Finally, one relationship was removed because it was a same-gender relationship. This left a final sample of 1,293.

This subsample of 1,293 participants was further reduced according to additional inclusion and exclusion criteria. See Table 2 and Figure 9. Participants who did not

Table 1

Couples Sample Respondents Criteria (*n* = 1333)

Criteria	% (n)
Opposite Sex Relationship	
Yes, partner was of the opposite sex	99.8 (1,331)
No, partner was not of the opposite sex	.2 (2)
Current relationship	
Yes, relationship was current	97.1 (1,294)
No, relationship was not current	2.7 (36)
Don't know (missing)	.1 (1)
Not applicable (missing)	.2 (2)
Duration of 3 months or more	
Yes, relationship lasted 3 months or more	98.3 (1,311)
No, relationship did not last 3 months	1.3 (17)
Don't know (missing)	.2 (2)
Not applicable (missing)	.2 (3)
Partner 18 or older	
Yes, partner was 18 or older	99.5 (1,327)
No, partner was not 18 or older	.2 (3)
Missing	.2 (3)

report a romantic relationship at T1 were removed. This included individuals who were missing at T1. Participants were retained if they reported a romantic relationship but did not provide responses to the ADV items (*n* = 2). Participants were then removed according to grade in school at T1. Eighty-four participants were not currently in school and were listed as legitimate skips. They were retained. Participants were also removed

Table 2

Inclusion and Exclusion Criteria in Reduced Couples Sample (*n* = 1293)

Criteria	% (n)	*Missing in Wave*	*Legitimate Skip*
Inclusion Criteria			
Time 1: 8th through 12th grade	68.7 (888)	23.0 (298)	6.5 (84)
Time 1: 18 years old or younger	72.9 (943)	23.0 (298)	
Time 1: At least one romantic relationship in past 18 months	57.2 (740)	23.0 (298)	
Exclusion Criteria			
Time 1: Any same-sex relationships	.8 (10)	23.0 (298)	
Time 2: Age 18 or younger	.5 (6)	--	
Time 3: Exceed clinical cutoff for CRP (>10)	11.8 (153)	12.1 (157)	

Note. Percentages represent the total number of participants from the original sample that qualify for the inclusion and exclusion criteria. Removal of these participants was not cumulative.

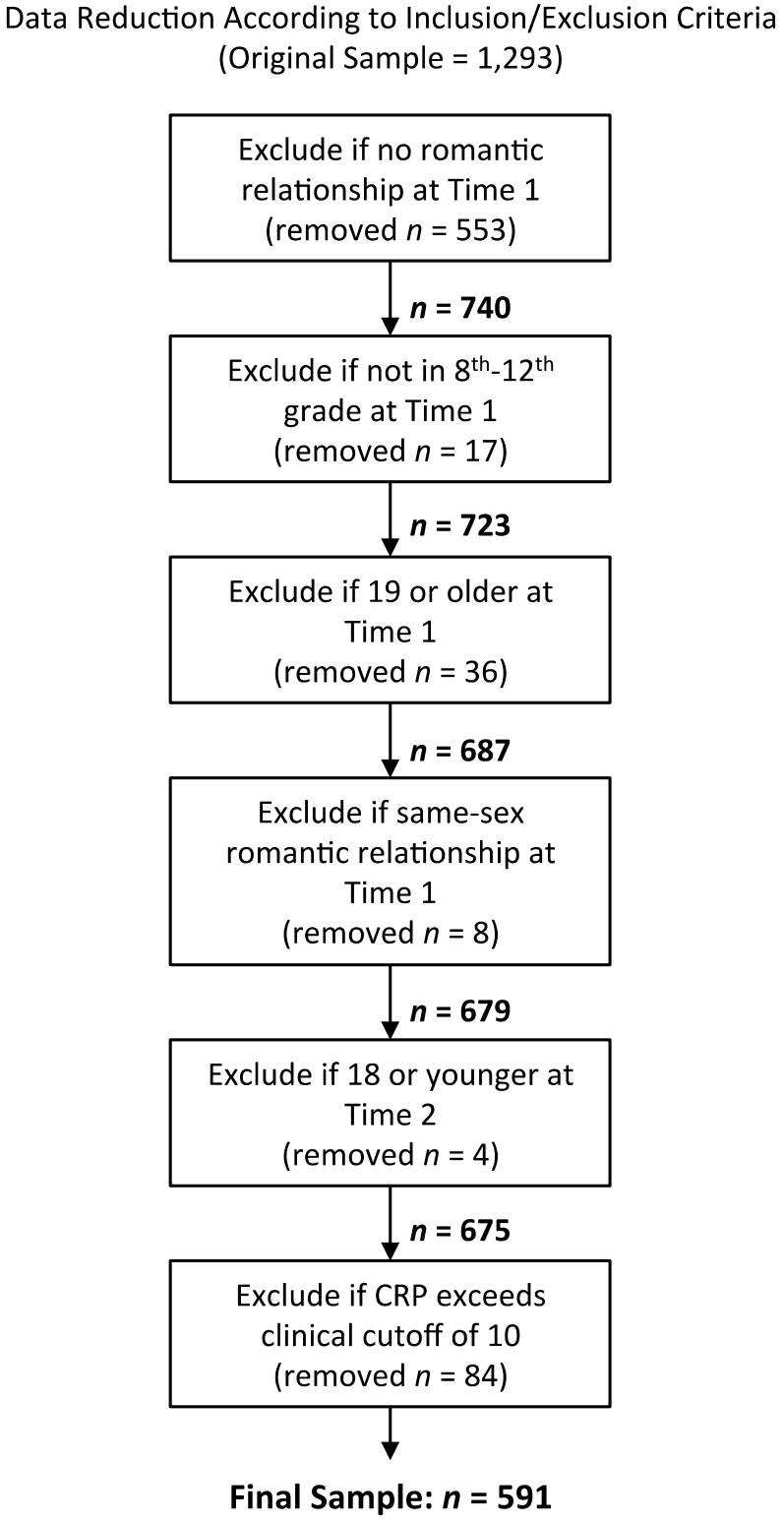

Figure 9. Data reduction according to inclusion and exclusion criteria.

according to age at T1 (including only those 18 years of age and younger); same-sex relationships at T1; age at T2 (excluding individuals 18 years of age and younger to avoid overlap in ages between T1 and T2); and exceeding CRP criteria at T3. This left a final sample size of 591 participants.

The reference relationship to use at T2 was then determined. First, the number of ADV experiences in each relationship was calculated. Additionally, the time since the relationship ended from the interview date was calculated. If the relationship was current, the time since the relationship ended was listed as zero days. The aforementioned criteria was followed as closely as possible; however, missing data required certain modifications. If the participant indicated only one relationship, this relationship was used as the reference relationship (*n* = 413). If there were two or three relationships listed (*n* =178), the number of ADV experiences was the primary source of information to determine which was to be the reference relationship. The relationship in which more ADV experiences occurred was the reference relationship. If this information was the same across more than one relationship (*n* = 98), or if this information was missing (*n* = 8), then the date since the relationship ended was used. Thus, if the number of ADV experiences was the same for two or more relationships, the more recent relationship was chosen as the reference relationship. If the number of ADV experiences was the same, and only partial date information was provided (*n* = 25), the more recent relationship was chosen or the relationship for which more information was provided (i.e., only one relationship had date information) was chosen. If ADV experiences and date information were the same (e.g., no ADV experiences in two current relationships), the first relationship listed was chosen as the reference relationship (*n* = 10).

Data Preparation

The covariates childhood abuse, parent communication/warmth, and depressive symptoms were first transformed into scale scores prior to proceeding with data cleaning.

Scale construction for covariates. Bivariate correlations were explored between items within scales. Principal components analyses with varimax rotation was also performed. Although the number of factors extracted was noted, this information was not considered imperative to scale construction. Scales were constructed as planned and internal reliability was assessed. Results for factor and reliability analyses for potential covariates are provided in Table 3.

Table 3

Descriptive information for covariates

Covariate	Number of items	Number of factors extracted[a]	Cronbach's alpha
Systematic Sampling Group Variables			
Core sample (SS01)	1	--	--
Participants self-reporting a disability (SS02)	1	--	--
High education Black participants (SS03)	1	--	--
Cuban participants (SS04)	1	--	--
Puerto Rican participants (SS05)	1	--	--
Chinese participants (SS06)	1	--	--
Twin participants (SS07)	1	--	--
Full siblings (SS08)	1	--	--
Half siblings (SS09)	1	--	--
Non-related participants (SS10)	1	--	--
PAIR school sample (SS11)	1	--	--
Time 1 (Wave 2)			
Parental communication/warmth	6	2	.840
Time 2 (Wave 3)			
Perceived health	1	--	--
Depressive symptoms	9	2	.805
Time 3 (Wave 4)			
Childhood abuse prior to age 18	3	1	.514
BMI	1	--	--
Days smoked cigarettes last 30 days	1	--	--

[a]Number of factors extracted was based on eigenvalues over 1.

Descriptive information. Descriptive information was obtained for all potential covariates and variables of interest. See Table 4. The information was used to evaluate plausibility of ranges, means, and standard deviations, as well as to investigate the percentage of missing data for variables. All variable ranges, means and standard deviations were plausible. The majority of missing data occurred at T3 (wave 4) due to nonresponse.

Non-normality. Table 4 also presents information regarding skew and kurtosis. Absolute values of skew exceeding 3.0 and absolute values of kurtosis exceeding 10.0 were considered severe departures from normality (Kline, 2016). The mean score of intimate partner violence exceeded the predetermined level of skew and kurtosis. Thus, this score was winsorized and recoded to the next most extreme score in the distribution and reassessed in an iterative manner until skew and kurtosis were amended within the predetermined limits. Data were winsorized such that the uppermost possible score was 3.0; thus, 2.4% of the data were trimmed (n = 15). Information for the original variables as well as the newly formed variable are provided in Table 4. Because all variables were reasonably normal, ML estimation was utilized for the primary analyses.

Outliers. Univariate outliers were then assessed by inspecting the frequency distributions of z scores. The number of cases with an absolute value greater than 3.29 is provided in Table 4 (Tabachnick & Fidell, 2007). This information was evaluated under the assumption that outliers are common with large samples (Tabachnick & Fidell, 2007). Outliers were evaluated under the criteria of exceeding this absolute value in combination with whether the value was plausible and within range, and whether the value was

Table 4

Descriptive information for covariates and model variables (n = 591)

Covariate	% (n) missing	Possible Range	Min/Max Range	M (SD)	Variance	% (n)	Skew (*SE*)	Kurtosis (*SE*)	Number of Univariate Outlier Cases z > 3.29
Systematic Sampling Group Variables									
Core sample (SS01)	0.0 (0)	0-1	0-1	--	--	94.8 (560)	--	--	--
Participants self-reporting disabilities (SS02)	0.0 (0)	0-1	0-1	--	--	4.2 (25)	--	--	--
High education Black participants (SS03)	0.0 (0)	0-1	0-1	--	--	8.6 (51)	--	--	--
Cuban participants (SS04)	0.0 (0)	0-1	0-1	--	--	.3 (2)	--	--	--
Puerto Rican participants (SS05)	0.0 (0)	0-1	0-1	--	--	1.7 (10)	--	--	--
Chinese participants (SS06)	0.0 (0)	0-1	0-1	--	--	.7 (4)	--	--	--
Twin participants (SS07)	0.0 (0)	0-1	0-1	--	--	.8 (5)	--	--	--
Full siblings (SS08)	0.0 (0)	0-1	0-1	--	--	10.5 (62)	--	--	--
Half siblings (SS09)	0.0 (0)	0-1	0-1	--	--	1.4 (8)	--	--	--
Non-related participants (SS10)	0.0 (0)	0-1	0-1	--	--	3.6 (21)	--	--	--
PAIR school sample (SS11)	0.0 (0)	0-1	0-1	--	--	1.4 (8)	--	--	--
Time 1 (Wave 2)									
Female gender	0.0 (0)	0-1	0-1	--	--	61.1 (361)	--	--	--
Number of ADV experiences	.3 (2)	0-5	0-5	.53 (.99)	.974	--	2.179 (.101)	4.606 (.201)	14
Relationship enmeshment	.8 (5)	0-6	0-6	2.35 (1.37)	1.869	--	.483 (.101)	-.308 (.202)	0
Age at time of relationship (in months)	0.0 (0)	--	155-228	197.41 (17.58)	308.991	--	-.272 (.101)	-.913 (.201)	0
Parental communication/warmth	2.9 (17)	1-5	1-5	4.05 (.78)	.603	--	-.905 (.102)	.923 (.204)	5
Time 2 (Wave 3)									
Intimate partner violence									
How often has partner threatened you with violence, pushed or shoved [him/her], or thrown something at [him/her] that could hurt?	3.2 (19)	0-6	0-6	.38 (1.06)	1.116	--	**3.162 (.102)**	**10.090 (.204)**	18
How often has partner slapped, hit or kicked you?	3.2 (19)	0-6	0-6	.23 (.78)	.602	--	**4.007 (.102)**	**16.895 (.204)**	25
Mean of IPV experiences	3.2 (19)	0-6	0-5	.31 (.84)	.703	--	**3.278 (.102)**	**10.821 (.204)**	15
Mean of IPV experiences: WINSORIZED	3.2 (19)	0-3	0-3	.28 (.73)	.528	--	2.819 (.102)	6.978 (.204)	24
Relationship quality									
In general, how satisfied are you with your relationship with partner?	2.4 (14)	1-5	1-5	4.54 (.89)	.797	--	-2.281 (.102)	4.901 (.203)	11
How much do you love partner?	2.5 (15)	0-3	0-3	2.75 (.68)	.457	--	-2.838 (.102)	7.338 (.203)	17
How much do you think partner loves you?	3.4 (20)	0-3	0-3	2.79 (.56)	.311	--	-2.950 (.102)	8.916 (.204)	7
Relationship submissive behavior									
You decide what to do or where to go when you go out. (reversed)	4.2 (25)	0-4	0-4	1.90 (.88)	.783	--	.164 (.103)	.949 (.205)	0
You are the first to apologize after a disagreement or argument.	3.6 (21)	0-4	0-4	2.01 (1.06)	1.119	--	-.016 (.102)	-.293 (.204)	0
You try to notice and respond to partner's mood changes.	3.4 (20)	0-4	0-4	2.97 (1.17)	1.362	--	-1.071 (.102)	.341 (.204)	0
Depressive symptoms (past 7 days)	0.0 (0)	0-3	0-2.56	.49 (.44)	.195	--	1.367 (.101)	2.272 (.201)	7
Perceived health	0.0 (0)	1-5	2-5	4.03 (.82)	.670	--	-.453 (.101)	-.479 (.201)	0

Table 4, cont.

Descriptive information for covariates and model variables (n = 591)

Covariate	% (n) missing	Possible Range	Min/Max Range	M (SD)	Variance	% (n)	Skew (*SE*)	Kurtosis (*SE*)	Number of Univariate Outlier Cases z > 3.29
Time 3 (Wave 4)									
Depressive symptoms (past 7 days)									
You were bothered by things that don't usually bother you.	13.0 (77)	0-3	0-3	.58 (.77)	.587	--	1.316 (.108)	1.387 (.215)	0
You could not shake off the blues, even with help from your family and your friends.	13.0 (77)	0-3	0-3	.33 (.69)	.478	--	2.334 (.108)	5.157 (.215)	15
You felt that you were just as good as other people (reverse-scored).	13.0 (77)	0-3	0-3	.68 (.84)	.700	--	1.012 (.108)	.157 (.215)	0
You had trouble keeping your mind on what you were doing.	13.0 (77)	0-3	0-3	.83 (.79)	.618	--	.832 (.108)	.492 (.215)	0
You were depressed.	13.0 (77)	0-3	0-3	.36 (.64)	.410	--	1.932 (.108)	3.747 (.215)	8
You were too tired to do things.	13.0 (77)	0-3	0-3	.87 (.83)	.684	--	.790 (.108)	.167 (.215)	0
You enjoyed life (reverse-scored).	13.0 (77)	0-3	0-3	.63 (.78)	.604	--	.929 (.108)	-.157 (.215)	0
You were sad.	13.0 (77)	0-3	0-3	.55 (.69)	.482	--	1.257 (.108)	1.645 (.215)	11
You felt that people disliked you.	13.0 (77)	0-3	0-3	.27 (.53)	.282	--	2.196 (.108)	5.585 (.215)	4
CRP	23.4 (138)	0-9.99	.08-9.78	2.76 (2.56)	6.529	--	1.060 (.115)	.096 (.229)	0
Perceived health	13.0 (77)	1-5	1-5	3.68 (.91)	.823	--	-.245 (.108)	-.360 (.215)	0
Childhood abuse prior to age 18	13.2 (78)	0-5	0-5	.67 (.92)	.850	--	1.641 (.108)	2.802 (.215)	5
Childhood abuse prior to age 18: WINSORIZED	13.2 (78)	0-5	0-4	.67 (.90)	.816	--	1.494 (.108)	1.813 (.215)	6
BMI	13.4 (79)	--	16.5-66.3	28.17 (6.74)	45.439	--	1.097 (.108)	2.168 (.215)	2
BMI: WINSORIZED	13.4 (79)	--	16.5-51.9	28.15 (6.61)	43.695	--	.890 (.108)	.742 (.215)	2
Days smoked cigarettes last 30 days	13.5 (80)	0-30	0-30	9.57 (13.31)	177.207	--	.794 (.108)	-1.297 (.216)	0

Note. Boldfaced values indicate skew/kurtosis exceeding predetermined levels.

detached from the rest of the distribution according to visual inspection of the histograms (Tabachnick & Fidell, 2007). All of the outliers were plausible and, therefore, considered part of the target population. Based on z scores exceeding 3.29 and detachment from the rest of the distribution, values were winsorized for childhood abuse prior to age 18 and BMI. As such, scores were recoded to the next most extreme score in the distribution. Although z scores still exhibited outliers according to the 3.29 criteria, the number of problematic cases was small for each of the aforementioned variables.

Multivariate outliers were examined using Mahalanobis distance. All potential covariates and independent variables were entered into a regression predicting participant ID (the dependent variable can be any variable that is not relevant to the final analyses; Tabachnick & Fidell, 2007). This produced a regression with 28 predictors; with a conservative probability ($\chi 2$ $p < .001$), the limit for a case being considered an outlier was set at $\chi 2$ (df = 28) = 56.89, $p < .001$. Thirty-nine cases exceeded this critical $\chi 2$. Including all predictors except for the systematic sampling group variables, the limit for a case being considered an outlier was set at $\chi 2$ (df = 17) = 40.79, $p < .001$. Thirteen cases then exceeded this critical $\chi 2$. These cases were examined individually. They appeared to be part of the target sample. Therefore, no cases were removed due to being multivariate outliers.

Missing data. Missing values analysis was conducted to determine patterns of missing data (Tabachnick & Fidell, 2007). As expected, the pattern of missing data was not missing completely at random, Little's MCAR $\chi 2$ (df = 1,029) = 1,180.47, p = .001. The percentage of cases with missing data across the variables of interest ranged from .0 to 4.2% for variables assessed at wave 1 to wave 3. However, 13.0 to 13.5% of data

was missing for all wave 4 survey variables, reflecting nonresponse across the longitudinal study. Furthermore, 23.4% of data was missing for CRP. Separate variance t-tests indicated a systematic relationship between all wave 4 missing variables and one item from the submission subscale ("You try to notice and respond to partner's mood changes"), as well as being a member of the systematic sample of participants self-reporting disabilities, Chinese participants, half siblings, and the PAIR school sample. Three exceptions were that CRP was not associated with participants self-reporting disabilities or being a member of the half siblings systematic sampling group, but was associated with the being a member of the systematic sampling group of high education Black participants. Gender and T2 perceived health were associated with missingness in CRP, t (*df* = 220.2) = 2.0, *p* = .045; t (*df* = 238.6) = -2.3, *p* = .025, respectively. Finally, two T3 depressive symptoms items ("You felt too tired to do things" and "You felt sad") were associated with missingness in days smoked in the past 30 days, t (*df* = 510) = -3.6, *p* < .001; t (*df* = 510) = -14.7, *p* < .001, respectively. Missingness was "predictable from variables (other than the DV) as indicated by the separate variance t tests" (Tabachnick & Fidell, 2007, p. 63); thus, a missing at random (MAR) pattern was inferred.

Removal of cases due to missingness would result in a substantial loss of data. Furthermore, some variables with high percentages of missingness were crucial to the analyses. Therefore, case or variable deletion were not performed and, instead, imputation was used. Because several variables exceeded 5% missing, model-based imputation was performed (i.e., FIML; Kline, 2016; Tabachnick & Fidell, 2007).

Multicollinearity. Each variable of interest was assessed for multicollinearity with the rest using R^2 (>.90), tolerance (<.10) and variance inflation factor (VIF; >10). These

criteria did not reveal any multicollinearity concerns. Additional criteria of “a conditioning index greater than 30 for any given dimension coupled with variance proportions greater than .50 for at least two different variables” (Tabachnick & Fidell, 2007, pp. 91) also did not reveal multicollinearity concerns.

Scale Exploration and Construction

Multi-item constructs of interest were explored using bivariate correlations, principal components analyses, and reliability analyses. Based on these findings, scale scores were calculated. These analyses included T2 (wave 3) relationship quality and submissive behavior, as well as T3 (wave 4) depressive symptoms.

As shown in Table 5, bivariate correlations among the three relationship quality items were acceptable. Although the correlation between item 1 and item 3 was less than .40 (Hinkin, 1998), this item was retained. Results from the PCA suggest that the items capture a single factor according to an eigenvalue over 1 and the scree plot, with a cumulative percentage of variance explained of 67.86%. Internal reliability was also

Table 5

Bivariate Correlations Among T2 Relationship Quality Items

Item	1	2
1. In general, how satisfied are you with your relationship with [partner]?	--	--
2. How much do you love [partner]?	.413**	--
3. How much do you think [partner] loves you?	.367**	.734**

** $p < .01$. *Note*: Cronbach's α = .756.

adequate, Cronbach’s α = .756. Therefore, this scale was constructed as initially anticipated ($M_{\text{relationship quality}}$= 0.0, *SD* = .82; variance = .671; skew = -2.35; kurtosis = 5.29; 2.2% [*n* = 13] missing).

As shown in Table 6, bivariate correlations among the three submissive behavior items were not acceptable. Unexpectedly, lower decision-making power in the relationship was inversely associated with being the first to apologize and noticing and responding to partner's mood changes. Although only one factor was extracted according to an eigenvalue over 1 and the scree plot, only 46.99% cumulative variance was explained. Furthermore, internal reliability was very low, Cronbach's α = .084, due to a negative average covariance among items. Item coding was rechecked; no problems could be found with item coding. Therefore, item 1 was removed. None of the remaining items in the survey assessing the proportion of time spent engaging in certain relationship behaviors appeared to capture submissive behavior. Thus, no replacement item could be identified. The remaining two items were averaged ($M_{\text{submissive behavior}}$ = 2.50, *SD* = .90; variance = .817; skew = -.702; kurtosis = .365; 3.2% [*n* = 19] missing).

Table 6

Bivariate Correlations Among T2 Submissive Behavior Items

Item	1	2
1. You decide what to do or where to go when you go out (reverse-scored).	--	--
2. You are the first to apologize after a disagreement or argument.	-.123**	--
3. You try to notice and respond to [partner's] mood changes.	-.156**	.309**

** $p < .01$. *Note*: Cronbach's α = .084.

As shown in Table 7, bivariate correlations among the T3 depressive symptoms were acceptable. According to an eigenvalue over 1, two factors were extracted. However, the scree plot suggests that only one factor was present. The analyses were rerun restricting the output to a single factor. The resulting factor explained 42.14% cumulative variance. Internal reliability was also adequate, Cronbach's α = .806.

Therefore, this scale was constructed as initially anticipated ($M_{\text{T3 depressive symptoms}}$ = .57, *SD* = .46; variance = .211; skew = 1.36; kurtosis = 2.08; 13.0% [*n* = 77] missing).

Table 7

Bivariate Correlations Among T3 Depressive Symptoms

Item	1	2	3	4	5	6	7	8
1. You were bothered by things that don't usually bother you.	--	--	--	--	--	--	--	--
2. You could not shake off the blues, even with help from your family and your	.50**	--	--	--	--	--	--	--
3. You felt that you were just as good as other people (reverse-scored).	.20**	.26**	--	--	--	--	--	--
4. You had trouble keeping your mind on what you were doing.	.27**	.32**	.19**	--	--	--	--	--
5. You were depressed.	.50**	.67**	.30**	.34**	--	--	--	--
6. You were too tired to do things.	.21**	.29**	.13**	.29**	.24**	--	--	--
7. You enjoyed life (reverse-scored).	.28**	.47**	.42**	.25**	.57**	.18**	--	--
8. You were sad.	.46**	.59**	.26**	.31**	.71**	.27**	.52**	--
9. You felt that people disliked you.	.23**	.25**	.22**	.06	.29**	.16**	.25**	.29**

** $p < .01$. *Note*: Cronbach's α = .806.

Descriptive Information

The current sample of 591 participants consisted of 61.1% (*n* = 361) female participants. The majority of the sample (66.5%, *n* = 393) self-identified as White. Approximately 21% (*n* = 125) self-identified as African American, 4.7% (*n* = 28) self-identified as "other," 4.4% (*n* = 26) indicated more than one racial identification and were coded as multiracial, 2.7% (*n* = 16) self-identified as Asian, and .5% (*n* = 3) self-identified as American Indian. At T1, participants were 16 years old on average ($M_{\text{T1 age}}$ = 16.06, *SD* = 1.46). Participant ages, however, ranged from 13 to 18 years of age. Approximately 4% (*n* = 25) were 13 years old at T1, 14% (*n* = 83) were 14 years old, 16.4% (*n* = 97)

were 15 years old, 21.7% (*n* = 128) were 16 years old, 24% (*n* = 142) were 17 years old, and 19.6% (*n* = 116) were 18 years old.

The racial distribution of the present study sample was compared to the unselected sample from the full public use dataset available at wave 1. The present study did not deviate from the full unselected sample based on what would be expected from marginal frequencies, χ (df=5) = 6.401, p = .269. Age and gender of the present study sample were compared to the unselected sample from the full public use dataset available at T1 (wave 2). The sample for the present study ($M_{\text{study sample age}}$ = 16.06, SD = 1.46) did not significantly differ in age compared to the unselected full sample ($M_{\text{unselected sample age}}$ = 16.01, SD = 1.64), t (812.20) = -.744, p = .457. However, the present study sample did differ from the unselected sample from the full public use dataset at T1 on gender, χ (1) = 21.72, p < .001. Specifically, the present study sample had more female participants, z = 3.0, and fewer male participants, z = -3.2, than would be expected based on standardized residuals comparing observed and expected counts.

Of the 589 participants who provided information on ADV experiences, 70.1% (*n* = 413) reported experiencing none; 16.8% reported one type of ADV experience (*n* = 99), 6.5% reported two types of ADV experiences (*n* = 38); 4.2% reported three types of ADV experiences (*n* = 25); 1.7% reported four types of ADV experiences (*n* = 10); and .7% reported five types of ADV experiences (*n* = 4). Of the 572 participants who provided information on intimate partner violence, 82.2% (*n* = 470) reported no victimization. Independent samples t-tests revealed no significant gender differences in how many different types of ADV experiences were reported, t(587) = -.99, p = .324 (M_{Men} = .48, SD = .93; M_{Women} = .56, SD = 1.02). There were also no significant gender differences in

intimate partner violence victimization, t(374.17) = 1.55, p = .121 (M_{Men} = .34, SD = .84; M_{Women} = .24, SD = .64).

Bivariate Relationships (Hypotheses A1-A21)

Table 8 presents the bivariate correlations among study variables. As hypothesized, ADV was significantly associated with (A1) higher T2 intimate partner victimization, (A4) higher T3 depressive symptoms, and (A6) lower T3 perceived physical health. However, ADV was not associated with (A2) T2 perceived quality of a committed romantic relationship, (A3) T2 submissive behavior in a committed relationship, or (A5) T3 CRP. As hypothesized, higher T2 intimate partner victimization was significantly associated with (A7) lower T2 perceived relationship quality, (A9) higher T3 depressive symptoms, and (A11) lower T3 perceived physical health. However, it was not associated with (A8) T2 submissive behavior or (A10) T3 CRP. As expected, higher T2 perceived relationship quality was associated with (A12) lower T3 depressive symptoms. Relationship quality was not, however, associated with (A14) T3 perceived physical health. Unexpectedly, relationship quality was associated with (A13) *higher* T3 CRP (indicating worse health status). T2 submissive behavior was not associated with (A15) T3 depressive symptoms; (A16) T3 CRP; or (A17) perceived physical health. Also unexpectedly, higher T2 perceived relationship quality was associated with (A18) *higher* T2 submissive behavior. As hypothesized, higher T3 depressive symptoms were associated (A20) lower T3 perceived physical health. Yet, T3 depressive symptoms were not associated with (A19) T3 CRP. Finally, as hypothesized, higher T3 CRP was associated with (A21) lower T3 perceived physical health.

Table 8

Bivariate Correlations Among Study Variables

Item	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Number of ADV experiences	--	--	--	--	--	--	--	--	--	--	--	--	--
2. Number of IPV experiences	**.11****	--	--	--	--	--	--	--	--	--	--	--	--
3. Relationship quality	-.06	**-.11****	--	--	--	--	--	--	--	--	--	--	--
4. Submissive behavior	-.07	-.003	**.20****	--	--	--	--	--	--	--	--	--	--
5. T3 depressive symptoms	**.17****	**.09***	**-.14****	-.08	--	--	--	--	--	--	--	--	--
6. CRP	.05	.01	**.10***	-.09	.004	--	--	--	--	--	--	--	--
7. T3 perceived health	**-.10***	**-.12****	.03	.05	**-.25****	**-.20****	--	--	--	--	--	--	--
8. Participant gender (Female reference)	.04	-.07	**.11****	-.02	.06	**.15****	-.08	--	--	--	--	--	--
9. Relationship enmeshment	.04	**-.10***	-.02	-.01	**-.14****	.01	.04	**.16****	--	--	--	--	--
10. Age at time of relationship (in months)	.02	-.05	.05	-.03	.03	-.001	.01	-.08	**-.12****	--	--	--	--
11. Core sample (SS01)	.01	.03	.04	.05	.02	-.05	-.004	-.02	.07	.02	--	--	--
12. Participants self-reporting disabilities (SS02)	.06	-.01	-.02	.02	.004	.06	.07	-.01	.01	.02	.05	--	--
13. High education Black participants (SS03)	-.02	-.001	-.07	-.02	-.04	-.02	.04	-.03	-.05	-.02	**-.63****	-.07	--
14. Cuban participants (SS04)	-.03	-.02	.03	.02	-.04	-.01	.06	-.01	-.04	**.09***	.01	-.01	-.02
15. Puerto Rican participants (SS05)	**.09***	-.01	-.01	-.03	.03	.04	**-.11***	-.003	-.02	-.004	**-.15****	.04	.01
16. Chinese participants (SS06)	.02	-.003	.02	.01	.02	.08	-.02	.07	-.05	-.01	.02	-.02	-.03
17. Twin participants (SS07)	.01	-.04	-.04	-.04	-.02	-.04	.03	-.08	-.05	.04	-.06	-.02	.04
18. Full siblings (SS08)	.03	.02	.02	.03	-.06	-.08	.03	**-.10***	.01	-.002	.01	.01	.01
19. Half siblings (SS09)	.01	-.04	.002	-.01	.07	.07	**-.09***	.06	.03	-.07	-.04	-.03	.02
20. Non-related participants (SS10)	.03	.06	-.05	**-.14****	.02	**.10***	-.07	-.02	-.02	-.03	**-.12****	-.04	.01
21. PAIR school sample (SS11)	.01	.03	.06	-.05	.02	**.10***	-.04	.03	-.05	.08	.03	.05	-.04
22. T2 depressive symptoms	**.13****	**.20****	**-.20****	-.001	**.41****	-.01	**-.17****	**.14****	-.05	-.04	-.02	.000	-.03
23. T2 perceived health	-.06	**-.11***	.07	-.04	**-.09***	**-.14****	**.38****	**-.11****	**.10***	-.02	.000	-.01	.05
24. Parent communication/warmth	**-.13****	**-.12****	.08	.06	**-.20****	.02	**.13****	**-.09***	-.003	-.04	**-.11****	-.06	.08
25. Childhood abuse	**.11***	.04	**-.10***	-.03	**.23****	-.01	**-.12****	**.13****	.03	-.03	-.02	.003	.01
26. BMI	.02	.02	.03	-.02	.07	**.38****	**-.30****	-.04	-.03	.02	-.02	-.07	.04
27. Number days smoked cigarettes	**.11***	**.10***	-.02	-.01	**.14****	.02	**-.18****	-.06	-.03	-.05	.02	.03	-.08

* $p < .05$. ** $p < .01$. *Note.* Boldfaced values are significant at $p < .05$.

Table 8, cont.

Bivariate Correlations Among Study Variables

Item	14	15	16	17	18	19	20	21	22	23	24	25	26
1. Number of ADV experiences	--	--	--	--	--	--	--	--	--	--	--	--	--
2. Number of IPV experiences	--	--	--	--	--	--	--	--	--	--	--	--	--
3. Relationship quality	--	--	--	--	--	--	--	--	--	--	--	--	--
4. Submissive behavior	--	--	--	--	--	--	--	--	--	--	--	--	--
5. T3 depressive symptoms	--	--	--	--	--	--	--	--	--	--	--	--	--
6. CRP	--	--	--	--	--	--	--	--	--	--	--	--	--
7. T3 perceived health	--	--	--	--	--	--	--	--	--	--	--	--	--
8. Participant gender (Female reference)	--	--	--	--	--	--	--	--	--	--	--	--	--
9. Relationship enmeshment	--	--	--	--	--	--	--	--	--	--	--	--	--
10. Age at time of relationship (in months)	--	--	--	--	--	--	--	--	--	--	--	--	--
11. Core sample (SS01)	--	--	--	--	--	--	--	--	--	--	--	--	--
12. Participants self-reporting disabilities (SS02)	--	--	--	--	--	--	--	--	--	--	--	--	--
13. High education Black participants (SS03)	--	--	--	--	--	--	--	--	--	--	--	--	--
14. Cuban participants (SS04)	--	--	--	--	--	--	--	--	--	--	--	--	--
15. Puerto Rican participants (SS05)	-.01	--	--	--	--	--	--	--	--	--	--	--	--
16. Chinese participants (SS06)	-.01	-.01	--	--	--	--	--	--	--	--	--	--	--
17. Twin participants (SS07)	-.01	-.01	-.01	--	--	--	--	--	--	--	--	--	--
18. Full siblings (SS08)	-.02	-.002	-.03	-.03	--	--	--	--	--	--	--	--	--
19. Half siblings (SS09)	-.01	-.02	-.01	-.01	-.04	--	--	--	--	--	--	--	--
20. Non-related participants (SS10)	-.01	-.03	-.02	-.02	-.07	-.02	--	--	--	--	--	--	--
21. PAIR school sample (SS11)	-.01	-.02	**.17****	-.01	.06	-.01	-.02	--	--	--	--	--	--
22. T2 depressive symptoms	-.03	-.04	.05	.01	-.02	.04	.04	.003	--	--	--	--	--
23. T2 perceived health	-.002	-.05	-.05	-.03	.03	-.06	-.06	**-.11****	**-.28****	--	--	--	--
24. Parent communication/warmth	-.02	.06	**-.13****	.04	.002	-.08	.03	**-.11****	**-.27****	**.10***	--	--	--
25. Childhood abuse	-.03	.01	-.02	-.07	-.03	.05	-.02	.07	**.16****	**-.10***	**-.15****		
26. BMI	-.03	.01	.01	.07	-.08	**.11****	.03	.03	.04	**-.14****	.05	-.01	
27. Number days smoked cigarettes	-.03	.05	-.06	-.01	.05	.03	.05	-.002	.06	**-.15****	.01	**.12****	**-.11***

* $p < .05$. ** $p < .01$. *Note.* Boldfaced values are significant at $p < .05$.

Primary Analyses (Hypotheses B1-B7 and C1-C30)

SEM models were first run for each outcome individually, then a full theoretical model was explored. Multiple models were run for each set of analyses. Continuous covariates were permitted to correlate. Additional models were explored to determine if covariates specific to certain outcomes should be treated as mediators and regressed on T2 relationship variables.

Determination of covariates to include in models. A series of univariate ANOVAs were performed to determine which Systematic Sampling Group Covariates should be included in the models. Systematic Sampling Group Covariates were included if they violated the homogeneity of variances assumption related to the variables of interest or displayed mean level differences (both at $p < .05$). Based on violation of the assumption of homogeneity of variances assumption, relationships were modeled between SS02 (participants self-reporting a disability) and T3 perceived health; SS05 (Puerto Rican participants) and ADV; SS08 (full siblings) and CRP; SS09 (half siblings) and intimate partner violence and CRP; SS10 (non-related participants) and intimate partner violence; and SS11 (PAIR school sample) and perceived relationship quality. Based on mean level differences, relationships were modeled between SS05 (Puerto Rican participants) and T3 perceived health; SS09 (half siblings) and T3 perceived health; SS10 (non-related participants) and submissive behavior and CRP; and SS11 (PAIR school sample) and CRP.

Bivariate correlations between continuous covariates and variables of interest were examined. Relationships significant at $p < .10$ were considered for addition to the model. Relationships that did not make logical sense (e.g. T3 smoking or BMI on T2

relationship variables) were not considered for inclusion. Additionally, certain covariates that were included to measure change over time (T2 depressive symptoms and T2 perceived health) were considered as potential mediators in alternative, modified models.

Models predicting T3 depressive symptoms. Model 1 predicting T3 depressive symptoms revealed poor fit, $\chi 2$ (1) = 9.03, p = .003; RMSEA = .117 (90% CI [.056, .191]); CFI = .862; TLI = -.382; SRMR = .028. As seen in Table 9 and Figure 10, ADV was associated with more intimate partner violence at T2, as well as lower submissive behavior. Higher intimate partner violence was associated with lower relationship quality. Additionally, relationship quality and submissive behavior were positively associated. None of the predictors, however, were significantly associated with T3 depressive symptoms. As indicated in Table 10, no indirect effects were significant. Covariates were then added through an iterative process. Model 5 maintained the original theoretical relationships with all covariates. As seen in Figure 11, no relationships between the variables of interest were significant. It was evident that hypotheses of direct effects to T3 depressive symptoms were not supported. Therefore, the model was reconceptualized to consider T2 depressive symptoms as a mediator, such that negative relationship experiences impact depressive symptoms at the same timepoint, and depressive symptoms then persist over time. This model (Model 6) revealed good fit, $\chi 2$ (32) = 32.21, p = .456; RMSEA = .003 (90% CI [.000, .031]); CFI = .999; TLI = .999; SRMR = .027. As seen in Figure 12, ADV was associated with more intimate partner violence and marginally less submissive behavior. Intimate partner violence was associated with lower relationship quality and more T2 depressive symptoms. Relationship quality was associated with lower T2 depressive symptoms. Intimate partner

Table 9

Unstandardized Coefficients of Direct Effects for Models Predicting T3 Depressive Symptoms

	Model 1		**Model 2**		**Model 3**		**Model 4**		**Model 5**		**Model 6**	
	B	SE	B	SE	B	SE	B	SE	B	SE	B	SE
Path coefficients of primary study variables												
ADV → IPV	**.10****	.03	**.10****	.03	**.09****	.03	**.07***	.03	*.06†*	.03	**.08***	.04
ADV → Relationship Quality	-.04	.04	-.04	.04	-.04	.04	-.02	.04	-.01	.04	-.02	.04
ADV → Submissive Behavior	**-.10***	.05	**-.09***	.05	*-.09†*	.04	**-.09***	.04	*-.08†*	.04	*-.08†*	.04
IPV → Relationship Quality	**-.18***	.07	**-.18***	.07	**-.18****	.07	-.11	.07	-.12	.07	**-.17***	.07
IPV → Submissive Behavior	.02	.08	.03	.08	.03	.08	.03	.08	.02	.08	.02	.08
IPV → T3 Depressive Symptoms	*.09†*	.05	*.08†*	.05	.02	.04	.00	.04	-.01	.04	.00	.04
Relationship Quality → T3 Depressive Symptoms	-.04	.05	-.05	.05	.00	.04	.02	.04	.03	.04	.03	.04
Submissive Behavior → T3 Depressive Symptoms	-.17	.11	-.15	.09	*-.14†*	.08	*-.15†*	.08	*-.13†*	.08	*-.13†*	.08
Correlations of primary study variables												
Relationship Quality ↔ Submissive Behavior	**.15*****	.03	**.15*****	.03	**.15*****	.03	**.15*****	.03	**.15*****	.03	**.15*****	.03
Path coefficients of covariates												
SS05 → ADV			**.69***	.31	**.69***	.31	**.69***	.31	**.73***	.31	**.73***	.31
SS09 → IPV			-.25	.27	-.28	.27	-.31	.27	-.34	.27	-.29	.27
SS10 → IPV			.22	.16	.22	.16	.19	.16	.20	.16	.25	.16
SS10 → Submissive Behavior			**-.63****	.20	**-.62****	.20	**-.61****	.20	**-.63****	.20	**-.61****	.20
SS11 → Relationship Quality			*.54†*	.28	*.54†*	.28	*.54†*	.28	**.56***	.28	**.62***	.28

Table 9, cont.

Unstandardized Coefficients of Direct Effects for Models Predicting T3 Depressive Symptoms

	Model 1		**Model 2**		**Model 3**		**Model 4**		**Model 5**		**Model 6**	
	B	SE	B	SE	B	SE	B	SE	B	SE	B	SE
Primary study covariates												
T2 Depressive Symptoms → T3 Depressive Symptoms					**.50*** **	.05	**.52*** **	.06	**.45*** **	.06	**.45*** **	.06
Childhood experiences covariates												
Child Abuse → ADV									**.22***	.10	**.21***	.10
Child Abuse → Relationship Quality									-.12	.08	**-.16***	.08
Child Abuse → T3 Depressive Symptoms									**.16*** **	.04	**.16*** **	.04
Child Abuse → T2 Depressive Symptoms											**.09***	.04
Parent Communication → ADV									**-.17***	.07	**-.17***	.07
Parent Communication → IPV									-.06	.05	**-.12****	.05
Parent Communication → Relationship Quality									-.01	.06	.04	.06
Parent Communication → T3 Depressive Symptoms									-.02	.03	-.02	.03
Parent Communication → T2 Depressive Symptoms											**-.14*** **	.03
Same Timepoint Covariates												
T2 Depressive Symptoms → IPV							**.39*** **	.09	**.36*** **	.09		
T2 Depressive Symptoms → Relationship Quality							**-.41*** **	.10	**-.37*** **	.11		
Covariates as T2 mediators												
IPV → T2 Depressive Symptoms											**.13*** **	.04
Relationship Quality → T2 Depressive Symptoms											**-.11****	.04
Submissive Behavior → T2 Depressive Symptoms											.05	.07
Covariate correlations												
T2 Depressive Symptoms ↔ Child Abuse									**.06*** **	.02		
T2 Depressive Symptoms ↔ Parent Communication									**-.09*** **	.02		
Child Abuse ↔ Parent Communication									**-.10*** **	.03	**-.10*** **	.03

Ip ≤ .10. *p ≤ .05. **p ≤ .01. ***p ≤ .001. *Note.* Boldfaced values are significant at $p \leq .05$. Italicized values are marginally significant at $p \leq .10$. Model 1 included only main variables. Model 2 added Systematic Sampling Group Covariates. Model 3 added Systematic Sampling Group Covariates and T2 Depressive Symptoms as a control on T3 Depressive Symptoms. Model 4 added Systematic Sampling Group Covariates and T2 Depressive Symptoms as a control on T3 Depressive Symptoms and T2 variables. Model 5 added Systematic Sampling Group Covariates, T2 Depressive Symptoms, Child Abuse and Parent Communication/Warmth. Model 6 treated T2 Depressive Symptoms as a mediator.

Table 10

Unstandardized Estimates and Bias-corrected Bootstrapped Confidence Intervals of Indirect Effects for Models Predicting T3 Depressive Symptoms

	Model 1				Model 2				Model 3			
			BC 95% CI				BC 95% CI				BC 95% CI	
Path	B	SE	LL	UL	B	SE	LL	UL	B	SE	LL	UL
Total Indirect Effect												
ADV → T3 Depressive Symptoms	.03	.03	.000	.111	**.02**	**.03**	**.001**	**.086**	.01	.02	-.005	.065
Specific Indirect Effects												
via IPV	.01	.01	.000	.041	.01	.01	.000	.037	.00	.01	-.008	.017
via Relationship Quality	.00	.01	-.007	.017	.00	.01	-.003	.017	.00	.00	-.009	.005
via Submissive Behavior	.02	.04	-.003	.122	.01	.03	-.004	.105	.01	.02	-.002	.071
via IPV → Relationship Quality	.00	.00	-.003	.005	.00	.00	-.002	.007	.00	.00	-.003	.002
via IPV → Submissive Behavior	.00	.01	-.015	.002	.00	.00	-.017	.001	.00	.00	-.008	.001
via IPV → T2 Depressive Symptoms												
via Relationship Quality → T2 Depressive Symptoms												
via Submissive Behavior → T2 Depressive Symptoms												
via IPV → Relationship Quality → T2 Depressive Symptoms												
via IPV → Submissive Behavior → T2 Depressive Symptoms												
Total Indirect Effect												
ADV → Relationship Quality	-.02	.01	-.043	-.003	-.02	.01	-.044	-.003	-.02	.01	-.043	-.003
Total Indirect Effect												
ADV → Submissive Behavior	.00	.01	-.014	.026	.00	.01	-.010	.028	.00	.01	-.010	.025
Total Indirect Effect												
IPV → T3 Depressive Symptoms	.00	.06	-.162	.053	.00	.04	-.138	.039	-.01	.02	-.075	.023
Specific Indirect Effects												
via Relationship Quality	.01	.04	-.050	.036	.01	.02	-.023	.040	.00	.01	-.028	.017
via Submissive Behavior	.00	.05	-.108	.047	-.01	.03	-.107	.020	.00	.02	-.065	.016
via T2 Depressive Symptoms												
via Relationship Quality → T2 Depressive Symptoms												
via Submissive Behavior → T2 Depressive Symptoms												
Total Indirect Effect												
Relationship Quality → T3 Depressive Symptoms												
Total Indirect Effect												
Submissive Behavior → T3 Depressive Symptoms												

Note. BC 95% CI indicates Bias-Corrected Bootstrap 95% Confidence Interval. BC 95% CI's that do not contain 0 were considered statistically significant and are boldfaced. Model 1 included only main variables. Model 2 added Systematic Sampling Group Covariates. Model 3 added Systematic Sampling Group Covariates and T2 Depressive Symptoms as a control on T3 Depressive Symptoms. Model 4 added Systematic Sampling Group Covariates and T2 Depressive Symptoms as a control on T3 Depressive Symptoms and T2 variables. Model 5 added Systematic Sampling Group Covariates, T2 Depressive Symptoms, Child Abuse and Parent Communication/Warmth. Model 6 treated T2 Depressive Symptoms as a mediator.

Table 10, cont.

Unstandardized Estimates and Bias-corrected Bootstrapped Confidence Intervals of Indirect Effects for

	Model 4				Model 5				Model 6			
			BC 95% CI				BC 95% CI				BC 95% CI	
Path	B	SE	LL	UL	B	SE	LL	UL	B	SE	LL	UL
Total Indirect Effect												
ADV → T3 Depressive Symptoms	.01	.02	-.004	.070	.01	.02	-.005	.057	.01	.02	-.002	.060
Specific Indirect Effects												
via IPV	.00	.01	-.010	.011	.00	.00	-.010	.007	.00	.01	-.011	.011
via Relationship Quality	.00	.00	-.012	.003	.00	.00	-.007	.003	.00	.00	-.008	.002
via Submissive Behavior	.01	.02	-.002	.076	.01	.02	-.002	.058	.01	.02	-.002	.061
via IPV → Relationship Quality	.00	.00	-.003	.000	.00	.00	-.002	.000	.00	.00	-.004	.001
via IPV → Submissive Behavior	.00	.00	-.007	.001	.00	.00	-.005	.001	.00	.00	-.006	.001
via IPV → T2 Depressive Symptoms									.01	.00	.000	.017
via Relationship Quality → T2 Depressive Symptoms									.00	.00	-.003	.006
via Submissive Behavior → T2 Depressive Symptoms									.00	.01	-.015	.004
via IPV → Relationship Quality → T2 Depressive Symptoms									.00	.00	.000	.003
via IPV → Submissive Behavior → T2 Depressive Symptoms									.00	.00	.000	.001
Total Indirect Effect												
ADV → Relationship Quality	-.01	.01	-.031	.000	-.01	.01	-.030	.001	**-.01**	**.01**	**-.040**	**-.001**
Total Indirect Effect												
ADV → Submissive Behavior	.00	.01	-.007	.022	.00	.01	-.007	.021	.00	.01	-.009	.025
Total Indirect Effect												
IPV → T3 Depressive Symptoms	-.01	.02	-.083	.017	-.01	.02	-.064	.015	**.06**	**.03**	**.012**	**.130**
Specific Indirect Effects												
via Relationship Quality	.00	.01	-.028	.009	.00	.01	-.027	.007	.00	.01	-.027	.010
via Submissive Behavior	-.01	.02	-.067	.017	.00	.02	-.049	.016	.00	.02	-.046	.015
via T2 Depressive Symptoms									**.06**	**.02**	**.025**	**.114**
via Relationship Quality → T2 Depressive Symptoms									**.01**	**.01**	**.001**	**.022**
via Submissive Behavior → T2 Depressive Symptoms									.00	.01	-.005	.013
Total Indirect Effect												
Relationship Quality → T3 Depressive Symptoms									**-.05**	**.03**	**-.100**	**-.004**
Total Indirect Effect												
Submissive Behavior → T3 Depressive Symptoms									.02	.06	-.067	.112

Note. BC 95% CI indicates Bias-Corrected Bootstrap 95% Confidence Interval. BC 95% CI's that do not contain 0 were considered statistically significant and are boldfaced. Model 1 included only main variables. Model 2 added Systematic Sampling Group Covariates. Model 3 added Systematic Sampling Group Covariates and T2 Depressive Symptoms as a control on T3 Depressive Symptoms. Model 4 added Systematic Sampling Group Covariates and T2 Depressive Symptoms as a control on T3 Depressive Symptoms and T2 variables. Model 5 added Systematic Sampling Group Covariates, T2 Depressive Symptoms, Child Abuse and Parent Communication/Warmth. Model 6 treated T2 Depressive Symptoms as a mediator.

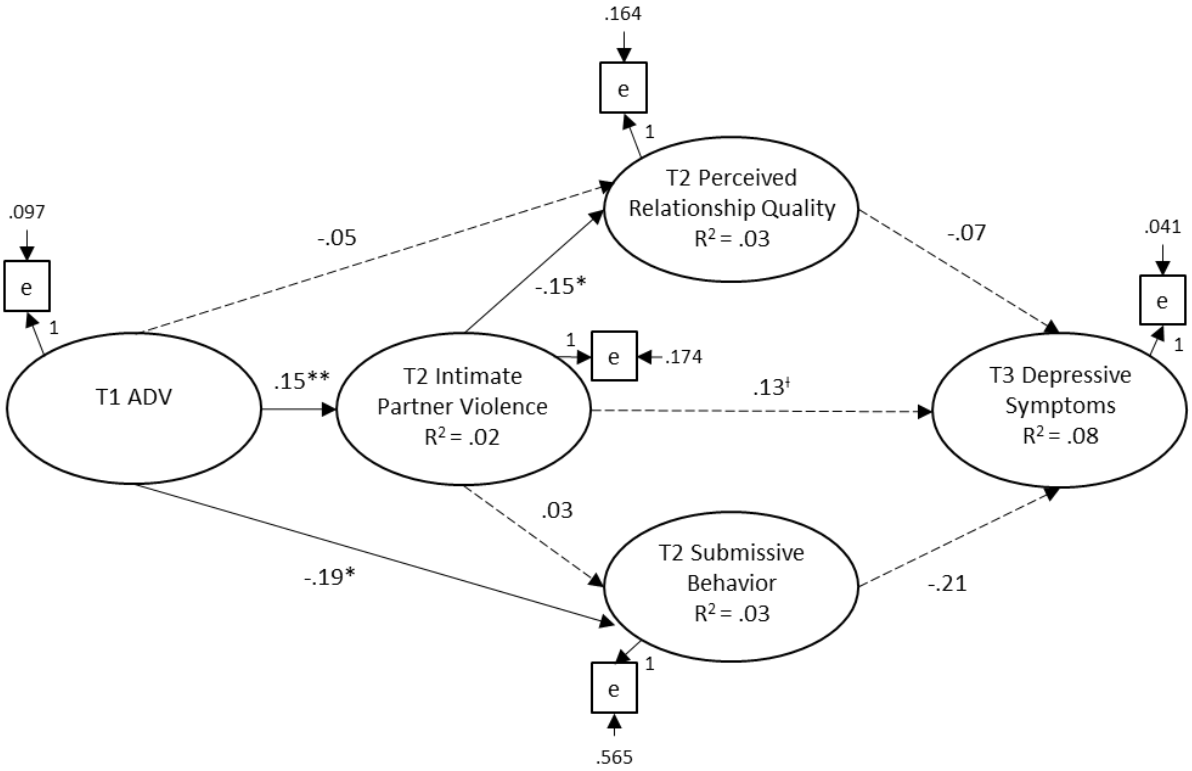

Figure 10. Model 1: Theoretical model predicting T3 Depressive Symptoms. Path coefficients are standardized. ML estimation used. Dashed lines indicate nonsignificant effects. Significant effects are based on unstandardized results. Model fit: $\chi 2$ (1) = 9.03, p = .003; RMSEA = .117 (90% CI [.056, .191]); CFI = .862; TLI = -.382; SRMR = .028. ǂ$p \leq .10$. *$p \leq .05$. **$p \leq .01$. ***$p \leq .001$.

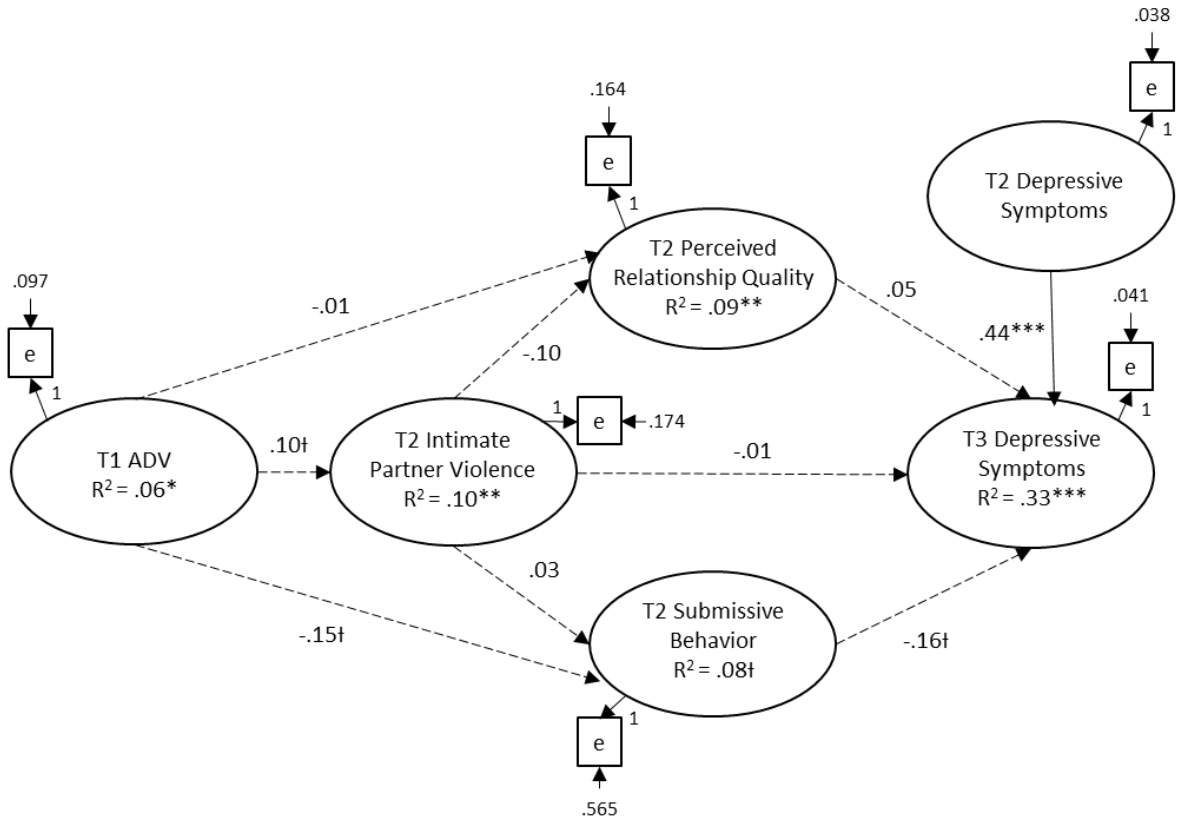

Figure 11. Model 5: Theoretical model predicting T3 Depressive Symptoms with Systematic Sampling Group Covariates, T2 Depressive Symptoms, and Childhood Experiences Covariates. Paths showing Sampling Group Covariates and Childhood Experiences Covariates are not shown. Path coefficients are standardized. ML estimation used. Dashed lines indicate nonsignificant effects. Significant effects are based on unstandardized results. Model fit: $\chi 2$ (33) = 33.31, p = .452; RMSEA = .004 (90% CI [.000, .030]); CFI = .999; TLI = .998; SRMR = .027. ł$p \leq .10$. *$p \leq .05$. **$p \leq .01$. ***$p \leq .001$.

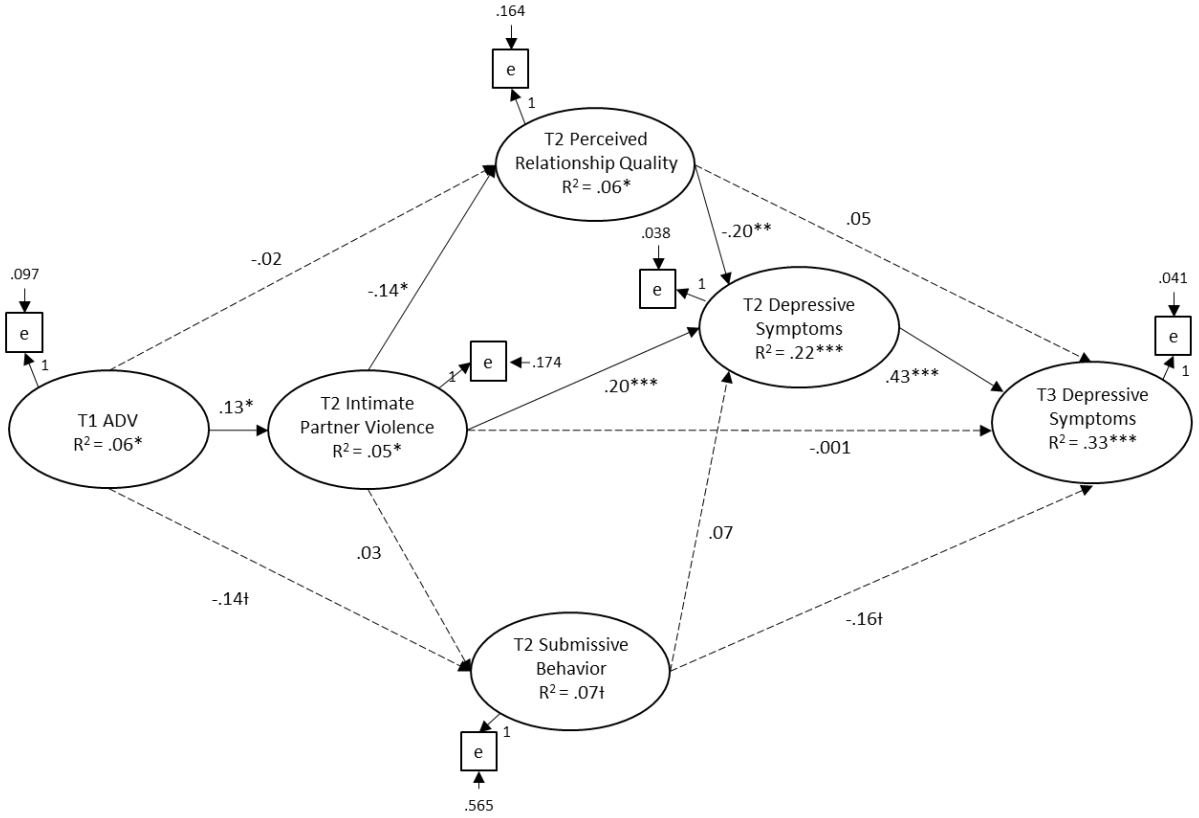

Figure 12. Model 6: Modified model predicting T3 Depressive Symptoms with Systematic Sampling Group Covariates and Childhood Experiences Covariates and T2 Depressive Symptoms as a mediator. Paths showing Sampling Group Covariates and Childhood Experiences Covariates are not shown. Path coefficients are standardized. ML estimation used. Dashed lines indicate nonsignificant effects. Significant effects are based on unstandardized results. Model fit: $\chi 2$ (32) = 32.21, p = .456; RMSEA = .003 (90% CI [.000, .031]); CFI = .999; TLI = .999; SRMR = .027. ł$p \leq .10$. *$p \leq .05$. **$p \leq .01$. ***$p \leq .001$.

violence exhibited significant indirect effects on T3 depressive symptoms, primarily through T2 depressive symptoms, as well as through perceived relationship quality and T2 depressive symptoms (see p. 81).

Models predicting T3 CRP. Model 1 predicting T3 CRP fit the data well, $\chi 2$ (1) = .42, p = .52; RMSEA = .00 (90% CI [.000, .094]); CFI = 1.00; TLI = 1.134; SRMR = .006. As seen in Table 11 and Figure 13, ADV was significantly associated with more intimate partner violence and marginally less submissive behavior. Intimate partner violence continued to exhibit an inverse association with perceived relationship quality. Furthermore, and unexpectedly, perceived relationship quality was positively associated with CRP (higher CRP indicates worse health status). In contrast, submissive behavior was negatively associated with CRP. The addition of covariates reduced the association between submissive behavior and CRP to marginal significance. The model fit remained good in the final model (Model 4), $\chi 2$ (50) = 50.62, p = .449; RMSEA = .01 (90% CI [.000, .027]); CFI = .996; TLI = .994; SRMR = .029. See Figure 14. As seen in Table 12, indirect effects suggest that intimate partner violence was indirectly associated with CRP through relationship quality.

Table 11

Unstandardized Coefficients of Direct Effects for Models Predicting T3 CRP

Path	Model 1		Model 2		Model 3		Model 4	
	B	SE	B	SE	B	SE	B	SE
Path coefficients of primary study variables								
ADV → IPV	**.09****	.03	**.09****	.03	**.09****	.03	**.08***	.04
ADV → Relationship Quality	-.04	.04	-.04	.04	-.04	.04	-.01	.04
ADV → Submissive Behavior	*-.08†*	.04	*-.07†*	.04	-.07	.04	*-.07†*	.04
IPV → Relationship Quality	**-.18***	.07	**-.18****	.07	**-.18****	.07	**-.17***	.07
IPV → Submissive Behavior	.01	.08	.03	.08	.03	.08	.02	.08
IPV → T3 CRP	.21	.29	.17	.28	.09	.26	.09	.26
Relationship Quality → T3 CRP	**.83****	.28	**.77****	.28	**.67****	.26	**.67****	.25
Submissive Behavior → T3 CRP	**-1.36***	.58	*-1.18†*	.61	*-.93†*	.55	*-.94†*	.55
Correlations of primary study variables								
Relationship Quality ↔ Submissive Behavior	**.15*****	.03	**.15*****	.03	**.15*****	.03	**.15*****	.03
Path coefficients of covariates								
SS05 → ADV			**.69***	.31	**.69***	.31	**.73***	.31
SS08 → CRP			-.58	.38	-.43	.35	-.43	.35
SS09 → IPV			-.28	.27	-.28	.27	-.34	.27
SS09 → CRP			1.42	.95	.33	.90	.35	.89
SS10 → IPV			.22	.16	.22	.16	.23	.16
SS10 → Submissive Behavior			**-.65*****	.20	**-.65*****	.20	**-.65*****	.20
SS10 → CRP			.58	.77	.46	.70	.45	.70
SS11 → Relationship Quality			*.53†*	.28	*.53†*	.28	.61	.28
SS11 → CRP			*1.53†*	.92	1.36	.85	1.36	.85

Table 11, cont.

Unstandardized Coefficients of Direct Effects for Models Predicting T3 CRP

Path	Model 1		Model 2		Model 3		Model 4	
	B	SE	B	SE	B	SE	B	SE
Primary study covariates								
BMI → T3 CRP					**.16*** **	.02	**.16*** **	.02
Past 30 Day Smoking → T3 CRP					.02	.01	.02	.01
Childhood experiences covariates								
Child Abuse → ADV							**.21***	.10
Child Abuse → Relationship Quality							**-.16***	.08
Parent Communication → ADV							**-.16***	.07
Parent Communication → IPV							**-.12****	.05
Parent Communication → Relationship Quality							.04	.06
Covariate correlations								
BMI ↔ Past 30 Day Smoking					**-9.26***	3.91	**-9.24***	3.92
BMI ↔ Child Abuse							-.07	.26
BMI ↔ Parent Communication							.27	.23
Past 30 Day Smoking ↔ Child Abuse							**1.48****	.53
Past 30 Day Smoking ↔ Parent Communication							.01	.47
Child Abuse ↔ Parent Communication							**-.10*****	.03

†$p \leq .10$. *$p \leq .05$. **$p \leq .01$. ***$p \leq .001$. *Note*. Boldfaced values are significant at $p \leq .05$. Italicized values are marginally significant at $p \leq .10$. Model 1 included only main variables. Model 2 added Systematic Sampling Group Covariates. Model 3 added Systematic Sampling Group Covariates, BMI and Past 30 Day Smoking. Model 4 added Systematic Sampling Group Covariates, BMI, Past 30 Day Smoking, Child Abuse and Parent Communication/Warmth.

Table 12

Unstandardized Estimates and Bias-corrected Bootstrapped Confidence Intervals of Indirect Effects for Models Predicting T3 CRP

	Model 1				Model 2				Model 3				Model 4			
			BC 95% CI				BC 95% CI				BC 95% CI				BC 95% CI	
Path	B	SE	LL	UL	B	SE	LL	UL	B	SE	LL	UL	B	SE	LL	UL
Total Indirect Effect																
ADV → T3 CRP	.08	.08	-.038	.290	.06	.08	-.049	.254	.04	.06	-.063	.184	.06	.07	-.040	.229
Specific Indirect Effects																
via IPV	.02	.03	-.017	.103	.02	.03	-.026	.087	.01	.03	-.026	.073	.01	.02	-.021	.070
via Relationship Quality	-.03	.04	-.131	.029	-.03	.04	-.126	.027	-.02	.03	-.115	.022	-.01	.03	-.082	.043
via Submissive Behavior	.10	.09	-.006	.349	.09	.09	-.010	.324	.07	.07	-.013	.279	.07	.07	-.016	.259
via IPV → Relationship Quality	**-.01**	**.01**	**-.054**	**-.002**	**-.01**	**.01**	**-.055**	**-.002**	**-.01**	**.01**	**-.042**	**-.002**	-.01	.01	-.037	.000
via IPV → Submissive Behavior	.00	.01	-.034	.023	.00	.01	-.049	.013	.00	.01	-.042	.009	.00	.01	-.040	.009
Total Indirect Effect																
ADV → Relationship Quality	**-.02**	**.01**	**-.042**	**-.003**	**-.02**	**.01**	**-.043**	**-.003**	-.02	.01	-.043	-.003	-.01	.01	-.036	.000
Total Indirect Effect																
ADV → Submissive Behavior	.00	.01	-.014	.020	.00	.01	-.010	.023	.00	.01	-.010	.023	.00	.01	-.010	.021
Total Indirect Effect																
IPV → T3 CRP	-.17	.16	-.536	.069	-.17	.16	-.540	.039	-.15	.13	-.429	.035	-.13	.14	-.420	.043
Specific Indirect Effects																
via Relationship Quality	**-.15**	**.09**	**-.377**	**-.033**	**-.14**	**.10**	**-.358**	**-.022**	**-.12**	**.08**	**-.288**	**-.022**	**-.11**	**.08**	**-.288**	**-.020**
via Submissive Behavior	-.02	.14	-.291	.279	-.03	.13	-.359	.168	-.02	.10	-.331	.129	-.02	.11	-.274	.155

Note. BC 95% CI indicates Bias-Corrected Bootstrap 95% Confidence Interval. BC 95% CI's that do not contain 0 were considered statistically significant and are boldfaced. Model 1 included only main variables. Model 2 added Systematic Sampling Group Covariates. Model 3 added Systematic Sampling Group Covariates, BMI and Past 30 Day Smoking. Model 4 added Systematic Sampling Group Covariates, BMI, Past 30 Day Smoking, Child Abuse and Parent Communication/Warmth.

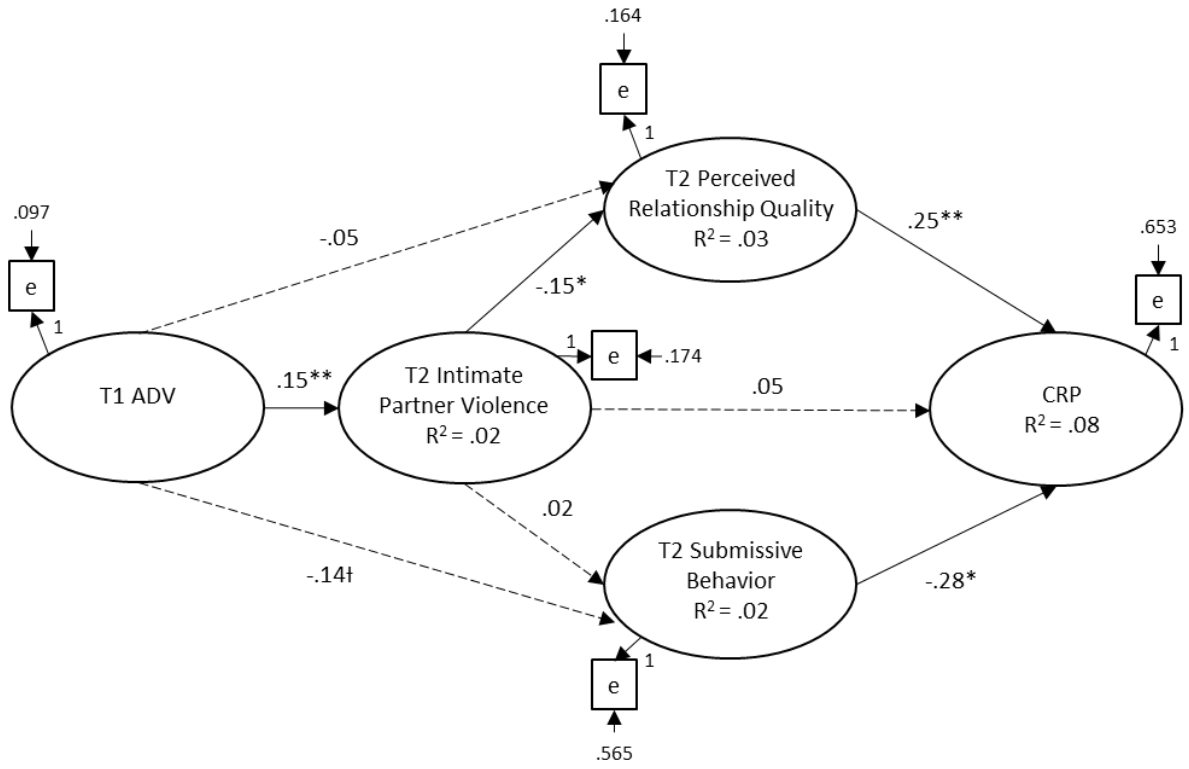

Figure 13. Model 1: Theoretical model predicting T3 CRP. Path coefficients are standardized. ML estimation used. Dashed lines indicate nonsignificant effects. Significant effects are based on unstandardized results. Model fit: $\chi 2$ (1) = .42 p = .52; RMSEA = .00 (90% CI [.000, .094]); CFI = 1.00; TLI = 1.134; SRMR = .006. †$p \leq .10$. *$p \leq .05$. **$p \leq .01$. ***$p \leq .001$.

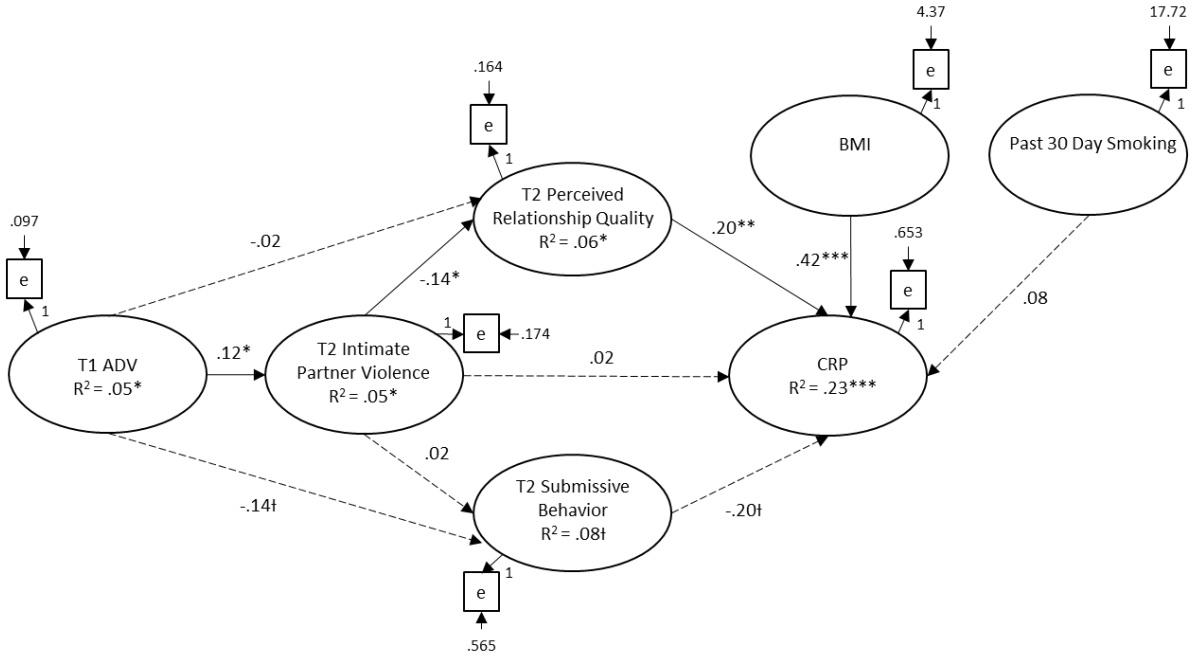

Figure 14. Model 4: Theoretical model predicting T3 CRP with Systematic Sampling Group Covariates, BMI, Past 30 Day Smoking, and Childhood Experiences Covariates. Systematic Sampling Group Covariates and Childhood Experiences Covariates are not shown. Path coefficients are standardized. ML estimation used. Dashed lines indicate nonsignificant effects. Significant effects are based on unstandardized results. Model fit: $\chi 2$ (50) = 50.62 p = .449; RMSEA = .01 (90% CI [.000, .027]); CFI = .996; TLI = .994; SRMR = .029. ł$p \leq .10$. *$p \leq .05$. **$p \leq .01$. ***$p \leq .001$.

Models predicting T3 perceived health. Model 1 predicting T3 perceived health fit the data well, $\chi 2$ (1) = 2.30, p = .13; RMSEA = .05 (90% CI [.000, .130]); CFI = .971; TLI = .705; SRMR = .014. As seen in Table 13 and Figure 15, in addition to the previously found associations between the predictors, intimate partner violence was associated with poorer T3 perceived health. As seen in Table 13 and Figure 16, this relationship dropped to marginal significance with the addition of covariates to the model. The model maintained a good fit to the data, $\chi 2$ (39) = 42.92, p = .307; RMSEA = .013 (90% CI [.000, .032]); CFI = .980; TLI = .965; SRMR = .028. Again, there was little evidence that negative relationship experiences impact health several years later when partialling out the effect of previous health. As previously done for the model predicting depressive symptoms, T2 perceived health was, therefore, considered a mediator such that negative relationship experiences impact concurrent perceived health and this persists over time. This modified model (Model 6) fit the data well, $\chi 2$ (37) = 42.23, p = .255; RMSEA = .015 (90% CI [.000, .034]); CFI = .974; TLI = .951; SRMR = .028. See Figure 17 for the modified model. In the modified model, intimate partner violence was associated with lower T2 perceived health, which was significantly associated with T3 perceived health. The marginal association between intimate partner violence and T3 perceived health did not change from Model 5. As seen in Table 14, ADV exhibited an indirect effect on T3 perceived health in the final, modified model (Model 6, see p. 95). Additionally, intimate partner violence exhibited a significant indirect effect on T3 perceived health through T2 perceived health.

Table 13

Unstandardized Coefficients of Direct Effects for Models Predicting T3 Perceived Health

Path	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6	
	B	SE	B	SE	B	SE	B	SE	B	SE	B	SE
Path coefficients of primary study variables												
ADV → IPV	**.10****	.03	**.10****	.03	**.09****	.03	**.09****	.03	**.08***	.04	**.08***	.04
ADV → Relationship Quality	-.04	.04	-.04	.04	-.04	.04	-.03	.04	-.01	.04	-.02	.04
ADV → Submissive Behavior	*-.08†*	.04	*-.08†*	.04	*-.08†*	.04	*-.08†*	.04	*-.07†*	.04	*-.07†*	.04
IPV → Relationship Quality	**-.18***	.07	**-.18****	.07	**-.18****	.07	**-.19****	.07	**-.17***	.07	**-.17***	.07
IPV → Submissive Behavior	.02	.08	.03	.08	.03	.08	.03	.08	.02	.08	.02	.08
IPV → T3 Perceived Health	**-.25****	.09	**-.26****	.09	**-.18***	.08	**-.18***	.08	*-.16†*	.08	*-.16†*	.08
Relationship Quality → T3 Perceived Health	-.07	.09	-.09	.09	-.11	.08	-.11	.08	-.13	.08	-.13	.08
Submissive Behavior → T3 Perceived Health	.27	.19	*.29†*	.17	**.31***	.16	**.32***	.16	*.29†*	.15	*.29†*	.15
Correlations of primary study variables												
Relationship Quality ↔ Submissive Behavior	**.15*****	.03	**.15*****	.03	**.15*****	.03	**.15*****	.03	**.15*****	.03	**.15*****	.03
Path coefficients of covariates												
SS02 → T3 Perceived Health			*.31†*	.19	*.31†*	.17	*.31†*	.17	**.34***	.17	**.34***	.17
SS05 → ADV			**.68***	.31	**.68***	.31	**.68***	.31	**.72***	.31	**.73***	.31
SS05 → T3 Perceived Health			**-.84***	.34	**-.72***	.32	**-.72***	.32	**-.75***	.31	**-.75***	.31
SS09 → IPV			-.28	.27	-.28	.27	-.31	.27	-.36	.27	-.31	.27
SS09 → T3 Perceived Health			**-.75***	.32	*-.57†*	.30	*-.57†*	.30	*-.50†*	.30	*-.50†*	.30
SS10 → IPV			.23	.16	.22	.16	.20	.16	.21	.16	.25	.16
SS10 → Submissive Behavior			**-.67*****	.20	**-.66*****	.20	**-.66*****	.19	**-.67*****	.20	**-.66*****	.20
SS11 → Relationship Quality			*.55†*	.28	*.53†*	.28	*.54†*	.28	**.61***	.28	**.59***	.28

Table 13, cont.

Unstandardized Coefficients of Direct Effects for Models Predicting T3 Perceived Health

Path	Model 1 B	Model 1 SE	Model 2 B	Model 2 SE	Model 3 B	Model 3 SE	Model 4 B	Model 4 SE	Model 5 B	Model 5 SE	Model 6 B	Model 6 SE
Primary study covariates												
T2 Perceived Health → T3 Perceived Health					**.44*** **	.05	**.43*** **	.05	**.41*** **	.05	**.42*** **	.05
Childhood experiences covariates												
Child Abuse → ADV									*.19ŧ*	.10	*.19ŧ*	.10
Child Abuse → Relationship Quality									**-.17***	.08	**-.17***	.08
Child Abuse → T3 Perceived Health									-.13	.09	-.13	.09
Parent Communication → ADV									**-.16***	.07	**-.17***	.07
Parent Communication → IPV									**-.11***	.05	**-.12****	.05
Parent Communication → Relationship Quality									.04	.06	.04	.06
Parent Communication → T3 Perceived Health									.09	.06	.09	.06
Same Timepoint Covariates												
T2 Perceived Health → IPV							**-.11****	.04	**-.09***	.04		
Covariates as T2 mediators												
IPV → T2 Perceived Health											**-.16***	.07
Relationship Quality → T2 Perceived Health											.04	.07
Submissive Behavior → T2 Perceived Health											-.03	.14
Child Abuse → T2 Perceived Health											*-.15ŧ*	.08
Parent Communication → T2 Perceived Health											.07	.06
Covariate correlations												
T2 Perceived Health ↔ Child Abuse									**-.08***	.03		
T2 Perceived Health ↔ Parent Communication									**.06***	.03		
Child Abuse ↔ Parent Communication									**-.10*****	.03	**-.10*****	.03

ŧ$p \leq .10$. *$p \leq .05$. **$p \leq .01$. ***$p \leq .001$. Note. Boldfaced values are significant at $p \leq .05$. Italicized values are marginally significant at $p \leq .10$. Model 1 included only main variables. Model 2 added Systematic Sampling Group Covariates. Model 3 added Systematic Sampling Group Covariates and T2 Perceived Health as a control on T3 Perceived Health. Model 4 added Systematic Sampling Group Covariates and T2 Perceived Health as a control on T3 Perceived Health and T2 variables. Model 5 added Systematic Sampling Group Covariates, T2 Perceived Health, Child Abuse and Parent Communication/Warmth. Model 6 treated T2 Perceived Health as a mediator.

Table 14

Unstandardized Estimates and Bias-corrected Bootstrapped Confidence Intervals of Indirect Effects for Models Predicting T3 Perceived Health

	Model 1				Model 2				Model 3			
			BC 95% CI				BC 95% CI				BC 95% CI	
Path	B	SE	LL	UL	B	SE	LL	UL	B	SE	LL	UL
Total Indirect Effect												
ADV→ T3 Perceived Health	**-.04**	**.03**	**-.117**	**-.005**	**-.04**	**.03**	**-.110**	**-.005**	-.03	.03	-.095	.000
Specific Indirect Effects												
via IPV	**-.02**	**.02**	**-.068**	**-.004**	**-.02**	**.02**	**-.067**	**-.005**	**-.02**	**.01**	**-.057**	**-.002**
via Relationship Quality	.00	.01	-.004	.032	.00	.01	-.004	.025	.00	.01	-.003	.032
via Submissive Behavior	-.02	.03	-.110	.004	-.02	.03	-.101	.004	-.02	.02	-.087	.003
via IPV→ Relationship Quality	.00	.00	-.001	.009	.00	.00	-.001	.008	.00	.00	.000	.009
via IPV→ Submissive Behavior	.00	.00	-.005	.011	.00	.00	-.003	.014	.00	.00	-.003	.013
via IPV→ T2 Perceived Health												
via Relationship Quality → T2 Perceived Health												
via Submissive Behavior → T2 Perceived Health												
via IPV→ Relationship Quality → T2 Perceived Health												
via IPV→ Submissive Behavior → T2 Perceived Health												
Total Indirect Effect												
ADV→ Relationship Quality	**-.02**	**.01**	**-.042**	**-.003**	**-.02**	**.01**	**-.044**	**-.004**	**-.02**	**.01**	**-.043**	**-.003**
Total Indirect Effect												
ADV→ Submissive Behavior	.00	.01	-.014	.023	.00	.01	-.010	.025	.00	.01	-.010	.024
Total Indirect Effect												
IPV→ T3 Perceived Health	.02	.04	-.045	.131	.02	.04	-.035	.142	.03	.04	-.029	.127
Specific Indirect Effects												
via Relationship Quality	.01	.02	-.017	.072	.02	.02	-.015	.075	.02	.02	-.007	.073
via Submissive Behavior	.00	.03	-.061	.077	.01	.03	-.032	.098	.01	.03	-.040	.082
via T2 Perceived Health												
via Relationship Quality → T2 Perceived Health												
via Submissive Behavior → T2 Perceived Health												
Total Indirect Effect												
Relationship Quality → T3 Perceived Health												
Total Indirect Effect												
Submissive Behavior → T3 Perceived Health												

Note. BC 95% CI indicates Bias-Corrected Bootstrap 95% Confidence Interval. BC 95% CI's that do not contain 0 were considered statistically significant and are boldfaced. Model 1 included only main variables. Model 2 added Systematic Sampling Group Covariates. Model 3 added Systematic Sampling Group Covariates and T2 Perceived Health as a control on T3 Perceived Health. Model 4 added Systematic Sampling Group Covariates and T2 Perceived Health as a control on T3 Perceived Health and T2 variables. Model 5 added Systematic Sampling Group Covariates, T2 Perceived Health, Child Abuse and Parent Communication/Warmth. Model 6 treated T2 Perceived Health as a mediator.

Table 14, cont.

Unstandardized Estimates and Bias-corrected Bootstrapped Confidence Intervals of Indirect Effects for Models Predicting T3 Perceived Health

	Model 4				Model 5				Model 6			
			BC 95% CI				BC 95% CI				BC 95% CI	
Path	B	SE	LL	UL	B	SE	LL	UL	B	SE	LL	UL
Total Indirect Effect												
ADV → T3 Perceived Health	-.03	.03	-.093	.000	-.03	.02	-.082	.002	**-.03**	**.02**	**-.097**	**-.002**
Specific Indirect Effects												
via IPV	**-.02**	**.01**	**-.057**	**-.001**	-.01	.01	-.044	.001	-.01	.01	-.045	.001
via Relationship Quality	.00	.01	-.003	.032	.00	.01	-.008	.022	.00	.01	-.008	.023
via Submissive Behavior	-.02	.02	-.095	.003	-.02	.02	-.075	.004	-.02	.02	-.075	.004
via IPV → Relationship Quality	.00	.00	.000	.010	.00	.00	.000	.008	.00	.00	.000	.009
via IPV → Submissive Behavior	.00	.00	-.003	.013	.00	.00	-.002	.010	.00	.00	-.002	.010
via IPV → T2 Perceived Health									-.01	.00	-.017	.000
via Relationship Quality → T2 Perceived Health									.00	.00	-.009	.002
via Submissive Behavior → T2 Perceived Health									.00	.01	-.011	.019
via IPV → Relationship Quality → T2 Perceived Health									.00	.00	-.003	.001
via IPV → Submissive Behavior → T2 Perceived Health									.00	.00	-.002	.001
Total Indirect Effect												
ADV → Relationship Quality	**-.02**	**.01**	**-.044**	**-.003**	-.01	.01	-.037	.000	**-.01**	**.01**	**-.038**	**-.001**
Total Indirect Effect												
ADV → Submissive Behavior	.00	.01	-.009	.025	.00	.01	-.008	.022	.00	.01	-.009	.022
Total Indirect Effect												
IPV → T3 Perceived Health	.03	.04	-.029	.137	.03	.04	-.026	.121	-.04	.05	-.155	.063
Specific Indirect Effects												
via Relationship Quality	.02	.02	-.009	.076	.02	.02	-.004	.076	.02	.02	-.008	.077
via Submissive Behavior	.01	.03	-.038	.092	.01	.03	-.041	.079	.01	.03	-.038	.081
via T2 Perceived Health									**-.07**	**.04**	**-.152**	**-.003**
via Relationship Quality → T2 Perceived Health									.00	.01	-.025	.014
via Submissive Behavior → T2 Perceived Health									.00	.01	-.020	.010
Total Indirect Effect												
Relationship Quality → T3 Perceived Health									.02	.07	-.105	.092
Total Indirect Effect												
Submissive Behavior → T3 Perceived Health									-.01	.16	-.179	.194

Note. BC 95% CI indicates Bias-Corrected Bootstrap 95% Confidence Interval. BC 95% CI's that do not contain 0 were considered statistically significant and are boldfaced. Model 1 included only main variables. Model 2 added Systematic Sampling Group Covariates. Model 3 added Systematic Sampling Group Covariates and T2 Perceived Health as a control on T3 Perceived Health. Model 4 added Systematic Sampling Group Covariates and T2 Perceived Health as a control on T3 Perceived Health and T2 variables. Model 5 added Systematic Sampling Group Covariates, T2 Perceived Health, Child Abuse and Parent Communication/Warmth. Model 6 treated T2 Perceived Health as a mediator.

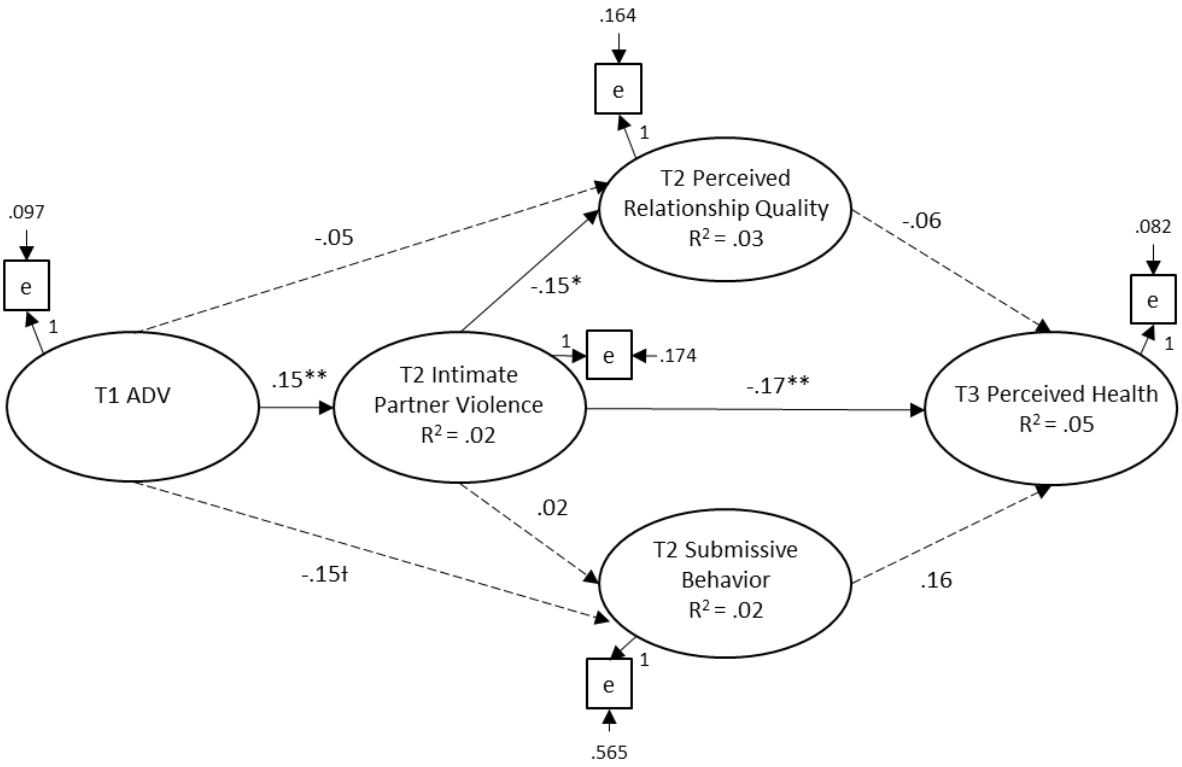

Figure 15. Model 1: Theoretical model predicting T3 Perceived Health. Path coefficients are standardized. ML estimation used. Dashed lines indicate nonsignificant effects. Significant effects are based on unstandardized results. Model fit: $\chi 2$ (1) = 2.30, p = .13; RMSEA = .05 (90% CI [.000, .130]); CFI = .971; TLI = .705; SRMR = .014. ł$p \leq .10$. *$p \leq .05$. **$p \leq .01$. ***$p \leq .001$.

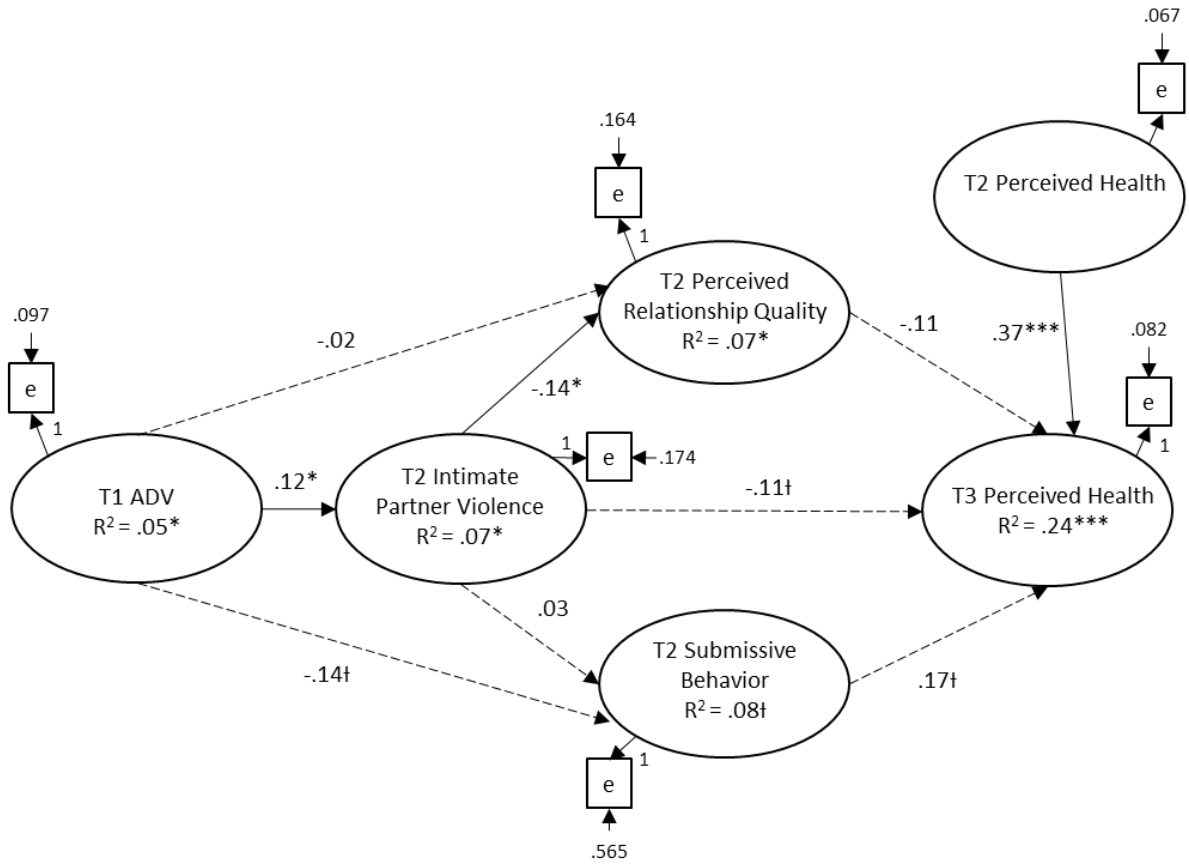

Figure 16. Model 5: Theoretical model predicting T3 Perceived Health with Systematic Sampling Group Covariates, T2 Perceived Health and Childhood Experiences Covariates. Systematic Sampling Group Covariates and Childhood Experiences Covariates are not shown. Path coefficients are standardized. ML estimation used. Dashed lines indicate nonsignificant effects. Significant effects are based on unstandardized results. Model fit: $\chi 2$ (39) = 42.92, p = .307; RMSEA = .013 (90% CI [.000, .032]); CFI = .980; TLI = .965; SRMR = .028. ł$p \leq .10$. *$p \leq .05$. **$p \leq .01$. ***$p \leq .001$.

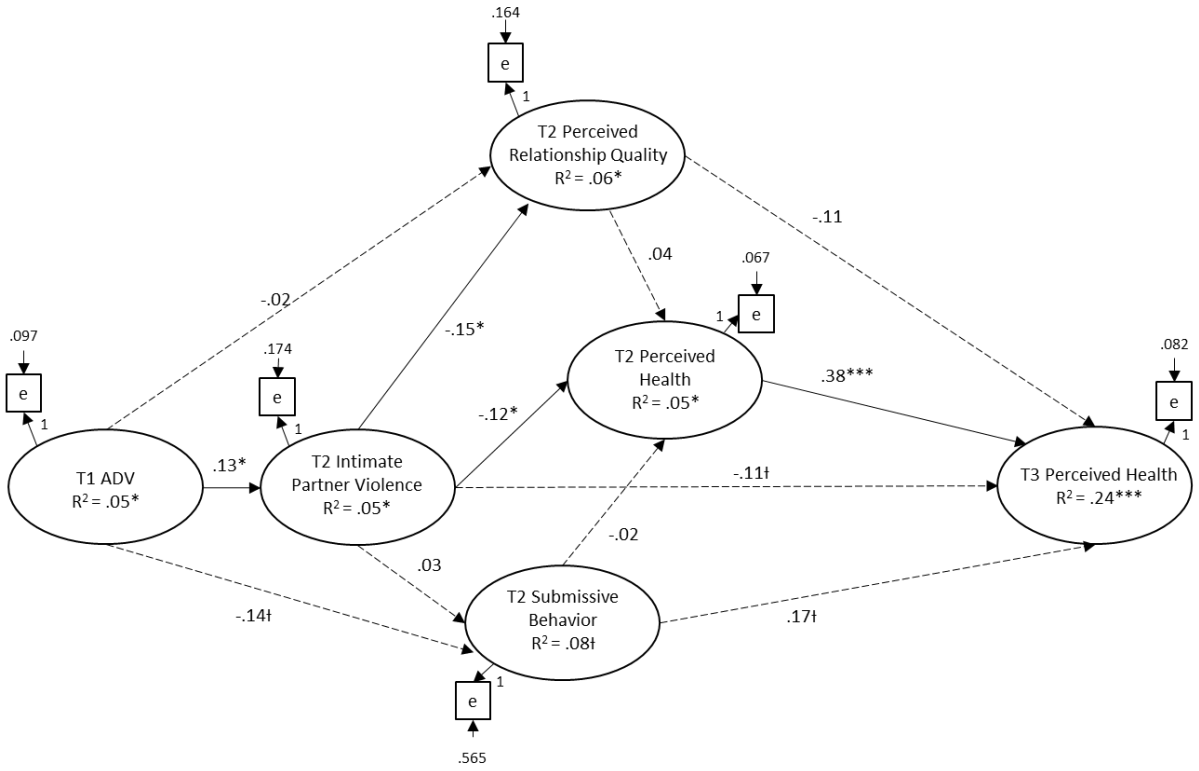

Figure 17. Model 6: Theoretical model predicting T3 Perceived Health with Systematic Sampling Group Covariates and Childhood Experiences Covariates and T2 Perceived Health as a mediator. Systematic Sampling Group Covariates and Childhood Experiences Covariates are not shown. Path coefficients are standardized. ML estimation used. Dashed lines indicate nonsignificant effects. Significant effects are based on unstandardized results. Model fit: $\chi 2$ (37) = 42.23, p = .255; RMSEA = .015 (90% CI [.000, .034]); CFI = .974; TLI = .951; SRMR = .028. †$p \leq .10$. *$p \leq .05$. **$p \leq .01$. ***$p \leq .001$.

Full theoretical model. The final set of models included all outcomes. The theoretical model was reconceptualized based on findings related to individual outcomes. In the final, modified models, T2 depressive symptoms and T2 perceived health were treated as mediators. Univariate ANOVAs suggested mean level differences for T2 perceived health based on SS11 (PAIR school sample); thus, this was added into the model as a covariate. Continuous covariates were determined as previously described, and included parent communication on T2 depressive symptoms and T2 perceived health, as well as child abuse on T2 depressive symptoms (See later section for alternative models that include these constructs in the model).

Model 1 showed a good fit to the data, $\chi 2$ (14) = 32.52, p = .003; RMSEA = .047 (90% CI [.026, .069]); CFI = .948; TLI = .867; SRMR = .036. As seen in Table 15 and Figure 18, ADV was associated with more intimate partner violence. Intimate partner violence was associated with lower T2 relationship quality, higher T2 depressive symptoms, and lower T2 perceived health. T2 relationship quality was associated with lower T2 depressive symptoms. T2 depressive symptoms were associated with higher T3 depressive symptoms. T2 perceived health was associated with lower T3 CRP and higher T3 perceived health. Additionally, T3 depressive symptoms and T3 perceived health were inversely associated, as were T3 CRP and T3 perceived health (see p. 101).

Covariates were then added in an iterative manner. The final model fit the data well, $\chi 2$ (97) = 119.72, p = .059; RMSEA = .020 (90% CI [.000, .031]); CFI = .963; TLI = .940; SRMR = .036. As seen in Figure 19, significant direct effects between variables of interest were maintained despite the addition of covariates. One exception is that the association between T2 perceived health and T3 CRP dropped to marginal significance

(see p. 101). As seen in Table 16, in the final modified model (Model 4), intimate partner violence exhibited a significant total indirect effect on T3 depressive symptoms (see p. 105). This effect was transmitted primarily through T2 depressive symptoms, as well as through relationship quality and T2 depressive symptoms. A significant specific indirect effect was found between intimate partner violence and T3 perceived health through T2 perceived health (see p. 106). Relationship quality also exhibited a significant total indirect effect on T3 depressive symptoms (see p. 106). ADV was also indirectly associated with lower relationship quality through intimate partner violence (see p. 105).

Table 15

Unstandardized Coefficients of Direct Effects for Full Theoretical Model

Path	Model 1		Model 2		Model 3		Model 4	
	B	SE	B	SE	B	SE	B	SE
Path coefficients of primary study variables								
ADV → IPV	**.10****	.03	**.10****	.03	**.10****	.03	**.08***	.04
ADV → Relationship Quality	-.04	.04	-.04	.04	-.04	.04	-.02	.04
ADV → Submissive Behavior	-.06	.05	-.06	.05	-.06	.05	-.06	.04
IPV → Relationship Quality	**-.17***	.07	**-.18****	.07	**-.18****	.07	**-.17***	.07
IPV → Submissive Behavior	.01	.08	.03	.08	.03	.08	.02	.08
IPV → T2 Depressive Symptoms	**.17*****	.04	**.17*****	.04	**.17*****	.04	**.13*****	.04
IPV → T2 Perceived Health	**-.18***	.07	**-.18***	.07	**-.18***	.07	**-.15***	.07
Relationship Quality → T2 Depressive Symptoms	**-.14*****	.04	**-.13*****	.04	**-.13*****	.04	**-.11****	.04
Relationship Quality → T2 Perceived Health	.11	.08	.09	.07	.09	.07	.07	.07
Submissive Behavior → T2 Depressive Symptoms	.06	.08	.03	.07	.03	.07	.05	.07
Submissive Behavior → T2 Perceived Health	-.14	.15	-.07	.14	-.07	.14	-.09	.14
T2 Depressive Symptoms → T3 Depressive Symptoms	**.55*****	.06	**.55*****	.06	**.54*****	.06	**.47*****	.06
T2 Depressive Symptoms → T3 CRP	-.43	.35	-.47	.35	-.36	.33	-.36	.33
T2 Depressive Symptoms → T3 Perceived Health	-.15	.11	-.16	.11	-.16	.11	-.04	.12
T2 Perceived Health → T3 Depressive Symptoms	.04	.03	.04	.03	.05	.03	**.06***	.03
T2 Perceived Health → T3 CRP	**-.57*****	.17	**-.52****	.17	*-.29†*	.17	*-.28†*	.17
T2 Perceived Health → T3 Perceived Health	**.43*****	.05	**.42*****	.05	**.36*****	.05	**.35*****	.05
Correlations of primary study variables								
Relationship Quality ↔ Submissive Behavior	**.15*****	.03	**.15*****	.03	**.15*****	.03	**.15*****	.03
T2 Depressive Symptoms ↔ T2 Perceived Health	**-.08*****	.02	**-.08*****	.02	**-.08*****	.02	**-.07*****	.01
T3 Depressive Symptoms ↔ T3 CRP	.02	.05	.01	.05	-.02	.05	-.02	.05
T3 Depressive Symptoms ↔ T3 Perceived Health	**-.08*****	.02	**-.07*****	.02	**-.06*****	.02	**-.05*****	.02
T3 CRP ↔ T3 Perceived Health	**-.33*****	.10	**-.30****	.10	-.08	.09	-.08	.09

Table 15, cont.

Unstandardized Coefficients of Direct Effects for Full Theoretical Model

Path	Model 1		Model 2		Model 3		Model 4	
	B	SE	B	SE	B	SE	B	SE
Path coefficients of covariates								
SS02 → T3 Perceived Health			**.35***	.17	*.28†*	.16	*.31†*	.16
SS05 → ADV			**.68***	.31	**.68***	.31	**.72***	.31
SS05 → T3 Perceived Health			**-.66***	.31	**-.62***	.30	**-.65***	.30
SS08 → CRP			-.57	.37	-.45	.35	-.45	.35
SS09 → IPV			-.19	.27	-.19	.27	-.27	.27
SS09 → CRP			1.31	.95	.36	.90	.36	.90
SS09 → T3 Perceived Health			-.43	.29	-.23	.28	-.17	.28
SS10 → IPV			.24	.16	.24	.16	.26	.16
SS10 → Submissive Behavior			**-.64****	.21	**-.64****	.21	**-.62****	.21
SS10 → CRP			*1.13†*	.61	*.98†*	.58	*.98†*	.58
SS11 → Relationship Quality			*.53†*	.28	*.53†*	.28	**.62***	.28
SS11 → T2 Perceived Health			**-.78****	.28	**-.78****	.28	**-.75****	.28
SS11 → CRP			*1.64†*	.89	*1.59†*	.89	*1.61†*	.84
Primary study covariates								
BMI → T3 CRP					**.16*****	.02	**.16*****	.02
Past 30 Day Smoking → T3 CRP					.01	.01	.01	.01
Additional covariate relationships								
BMI → T3 Perceived Health					**-.04*****	.01	**-.04*****	.01
Past 30 Day Smoking → T3 Depressive Symptoms					**.004****	.00	*.003†*	.00
Past 30 Day Smoking → T3 Perceived Health					**-.01*****	.00	**-.01*****	.00

Table 15, cont.

Unstandardized Coefficients of Direct Effects for Full Theoretical Model

Path	Model 1		Model 2		Model 3		Model 4	
	B	SE	B	SE	B	SE	B	SE
Childhood experiences covariates								
Child Abuse → ADV							**.25***	.10
Child Abuse → Relationship Quality							*-.16ŧ*	.08
Child Abuse → T2 Depressive Symptoms							**.10***	.04
Child Abuse → T2 Perceived Health							**-.18***	.08
Child Abuse → T3 Depressive Symptoms							**.16*****	.05
Child Abuse → T3 Perceived Health							-.09	.09
Parent Communication → ADV							**-.16***	.07
Parent Communication → IPV							**-.12****	.05
Parent Communication → Relationship Satisfaction							.04	.06
Parent Communication → T2 Depressive Symptoms							**-.13*****	.03
Parent Communication → T2 Perceived Health							.04	.06
Parent Communication → T3 Depressive Symptoms							-.03	.03
Parent Communication → T3 Perceived Health							**.14***	.06
Covariate correlations								
BMI ↔ Past 30 Day Smoking							**-9.14***	3.91
BMI ↔ Child Abuse							.12	.26
BMI ↔ Parent Communication							.25	.23
Past 30 Day Smoking ↔ Child Abuse							**1.61****	.53
Past 30 Day Smoking ↔ Parent Communication							.02	.47
Child Abuse ↔ Parent Communication							**-.10*****	.03

ŧ$p \leq .10$. *$p \leq .05$. **$p \leq .01$. ***$p \leq .001$. *Note*. Boldfaced values are significant at $p \leq .05$. Italicized values are marginal at $p \leq .10$. Model 1 included only main variables. Model 2 added Systematic Sampling Group Covariates. Model 3 added Systematic Sampling Group Covariates, BMI and Past 30 Day Smoking. Model 4 added Systematic Sampling Group Covariates, BMI, Past 30 Day Smoking, Child Abuse and Parent Communication/Warmth.

Table 16

Unstandardized Estimates and Bias-corrected Bootstrapped Confidence Intervals of Indirect Effects for the Full Theoretical Model

	Model 1				**Model 2**				**Model 3**				**Model 4**			
			BC 95% CI				**BC 95% CI**				**BC 95% CI**				**BC 95% CI**	
Path	B	SE	LL	UL	B	SE	LL	UL	B	SE	LL	UL	B	SE	LL	UL
Total Indirect Effect																
ADV → T3 Depressive Symptoms	**.01**	**.01**	**.001**	**.027**	**.01**	**.01**	**.002**	**.027**	**.01**	**.01**	**.002**	**.027**	.01	.01	-.004	.015
Specific Indirect Effects																
via IPV → T2 Depressive Symptoms	**.01**	**.01**	**.002**	**.025**	**.01**	**.01**	**.002**	**.024**	**.01**	**.01**	**.002**	**.024**	.01	.00	.000	.017
via IPV → T2 Perceived Health	.00	.00	-.005	.000	.00	.00	-.004	.000	.00	.00	-.005	.000	.00	.00	-.004	.000
via Relationship Quality → T2 Depressive Symptoms	.00	.00	-.002	.014	.00	.00	-.001	.013	.00	.00	-.002	.013	.00	.00	-.003	.007
via Relationship Quality → T2 Perceived Health	.00	.00	-.003	.000	.00	.00	-.002	.000	.00	.00	-.002	.000	.00	.00	-.002	.000
via Submissive Behavior → T2 Depressive Symptoms	.00	.01	-.020	.004	.00	.01	-.013	.007	.00	.01	-.013	.007	.00	.01	-.011	.003
via Submissive Behavior → T2 Perceived Health	.00	.00	.000	.003	.00	.00	.000	.003	.00	.00	-.001	.004	.00	.00	-.001	.004
via IPV → Relationship Quality → T2 Depressive Symptoms	.00	.00	.000	.005	.00	.00	.000	.005	.00	.00	.000	.005	.00	.00	.000	.003
via IPV → Relationship Quality → T2 Perceived Health	.00	.00	.000	.000	.00	.00	-.001	.000	.00	.00	-.001	.000	.00	.00	-.001	.000
via IPV → Submissive Behavior → T2 Depressive Symptoms	.00	.00	-.001	.003	.00	.00	-.001	.002	.00	.00	-.001	.002	.00	.00	.000	.002
via IPV → Submissive Behavior → T2 Perceived Health	.00	.00	.000	.000	.00	.00	.000	.000	.00	.00	.000	.000	.00	.00	-.001	.000
Total Indirect Effect																
ADV → T3 CRP	.00	.02	-.028	.035	.00	.02	-.031	.029	.00	.01	-.031	.022	.00	.01	-.020	.014
Specific Indirect Effects																
via IPV → T2 Depressive Symptoms	-.01	.01	-.039	.003	-.01	.01	-.036	.002	-.01	.01	-.031	.005	.00	.01	-.026	.002
via IPV → T2 Perceived Health	**.01**	**.01**	**.002**	**.035**	**.01**	**.01**	**.002**	**.030**	.01	.01	.000	.021	.00	.00	.000	.017
via Relationship Quality → T2 Depressive Symptoms	.00	.01	-.026	.002	.00	.01	-.024	.001	.00	.01	-.023	.001	.00	.00	-.015	.002
via Relationship Quality → T2 Perceived Health	.00	.00	-.002	.018	.00	.00	-.001	.017	.00	.00	.000	.010	.00	.00	-.001	.007
via Submissive Behavior → T2 Depressive Symptoms	.00	.01	-.002	.020	.00	.01	-.003	.021	.00	.01	-.003	.017	.00	.01	-.001	.023
via Submissive Behavior → T2 Perceived Health	-.01	.01	-.032	.005	.00	.01	-.028	.009	.00	.01	-.019	.003	.00	.01	-.019	.003
via IPV → Relationship Quality → T2 Depressive Symptoms	.00	.00	-.008	.000	.00	.00	-.009	.000	.00	.00	-.007	.000	.00	.00	-.005	.000
via IPV → Relationship Quality → T2 Perceived Health	.00	.00	.000	.007	.00	.00	.000	.007	.00	.00	.000	.004	.00	.00	.000	.003
via IPV → Submissive Behavior → T2 Depressive Symptoms	.00	.00	-.003	.001	.00	.00	-.003	.000	.00	.00	-.003	.000	.00	.00	-.003	.000
via IPV → Submissive Behavior → T2 Perceived Health	.00	.00	-.002	.003	.00	.00	-.001	.003	.00	.00	.000	.002	.00	.00	.000	.002

Table 16, cont.

Unstandardized Estimates and Bias-corrected Bootstrapped Confidence Intervals of Indirect Effects for the Full Theoretical Model

	Model 1				Model 2				Model 3				Model 4			
			BC 95% CI				BC 95% CI				BC 95% CI				BC 95% CI	
Path	B	SE	LL	UL	B	SE	LL	UL	B	SE	LL	UL	B	SE	LL	UL
Total Indirect Effect																
ADV→ T3 Perceived Health	-.01	.01	-.031	.005	-.01	.01	-.033	.002	-.01	.01	-.031	.002	.00	.01	-.018	.011
Specific Indirect Effects																
via IPV → T2 Depressive Symptoms	.00	.00	-.012	.001	.00	.00	-.013	.000	.00	.00	-.012	.000	.00	.00	-.006	.003
via IPV → T2 Perceived Health	**-.01**	**.01**	**-.021**	**-.002**	**-.01**	**.01**	**-.021**	**-.001**	**-.01**	**.00**	**-.017**	**-.001**	.00	.00	-.015	.000
via Relationship Quality → T2 Depressive Symptoms	.00	.00	-.007	.000	.00	.00	-.006	.000	.00	.00	-.007	.000	.00	.00	-.002	.001
via Relationship Quality → T2 Perceived Health	.00	.00	-.013	.001	.00	.00	-.011	.001	.00	.00	-.011	.001	.00	.00	-.007	.002
via Submissive Behavior → T2 Depressive Symptoms	.00	.00	-.001	.005	.00	.00	-.001	.005	.00	.00	-.001	.005	.00	.00	-.001	.005
via Submissive Behavior → T2 Perceived Health	.00	.01	-.004	.021	.00	.01	-.008	.017	.00	.01	-.007	.014	.00	.01	-.005	.017
via IPV → Relationship Quality → T2 Depressive Symptoms	.00	.00	-.002	.000	.00	.00	-.002	.000	.00	.00	-.002	.000	.00	.00	-.001	.000
via IPV → Relationship Quality → T2 Perceived Health	.00	.00	-.004	.000	.00	.00	-.005	.000	.00	.00	-.004	.000	.00	.00	-.003	.000
via IPV → Submissive Behavior → T2 Depressive Symptoms	.00	.00	-.001	.000	.00	.00	-.002	.000	.00	.00	-.001	.000	.00	.00	-.001	.000
via IPV → Submissive Behavior → T2 Perceived Health	.00	.00	-.003	.001	.00	.00	-.003	.001	.00	.00	-.002	.001	.00	.00	-.002	.000
Total Indirect Effect																
ADV→ Relationship Quality	**-.02**	**.01**	**-.043**	**-.004**	**-.02**	**.01**	**-.046**	**-.005**	**-.02**	**.01**	**-.046**	**-.005**	**-.02**	**.01**	**-.039**	**-.001**
Total Indirect Effect																
ADV→ Submissive Behavior	.00	.01	-.016	.022	.00	.01	-.012	.028	.00	.01	-.012	.028	.00	.02	-.010	.023
Total Indirect Effect																
IPV→ T3 Depressive Symptoms	**.10**	**.03**	**.052**	**.161**	**.10**	**.03**	**.053**	**.162**	**.09**	**.03**	**.052**	**.160**	**.06**	**.02**	**.026**	**.111**
Specific Indirect Effects																
via T2 Depressive Symptoms	**.09**	**.03**	**.037**	**.165**	**.09**	**.03**	**.042**	**.157**	**.09**	**.03**	**.042**	**.158**	**.06**	**.02**	**.026**	**.113**
via T2 Perceived Health	-.01	.01	-.033	.000	-.01	.01	-.027	.000	-.01	.01	-.030	.000	-.01	.01	-.032	.000
via Relationship Quality → T2 Depressive Symptoms	**.01**	**.01**	**.001**	**.035**	**.01**	**.01**	**.002**	**.035**	**.01**	**.01**	**.002**	**.035**	**.01**	**.01**	**.001**	**.023**
via Relationship Quality → T2 Perceived Health	.00	.00	-.005	.000	.00	.00	-.005	.000	.00	.00	-.005	.000	.00	.00	-.004	.001
via Submissive Behavior → T2 Depressive Symptoms	.00	.01	-.010	.021	.00	.01	-.007	.014	.00	.01	-.008	.014	.00	.01	-.006	.012
via Submissive Behavior → T2 Perceived Health	.00	.00	-.002	.001	.00	.00	-.003	.000	.00	.00	-.004	.001	.00	.00	-.006	.001
Total Indirect Effect																
IPV→ T3 CRP	.03	.08	-.130	.212	.01	.09	-.157	.183	-.01	.08	-.183	.127	-.01	.07	-.144	.113
Specific Indirect Effects																
via T2 Depressive Symptoms	-.07	.08	-.259	.049	-.08	.08	-.254	.047	-.06	.07	-.207	.069	-.05	.06	-.178	.040
via T2 Perceived Health	**.10**	**.06**	**.018**	**.274**	**.09**	**.06**	**.006**	**.251**	.05	.04	.000	.181	.04	.04	-.001	.162
via Relationship Quality → T2 Depressive Symptoms	-.01	.02	-.052	.007	-.01	.01	-.052	.005	-.01	.01	-.042	.008	-.01	.01	-.034	.007
via Relationship Quality → T2 Perceived Health	.01	.01	-.004	.048	.01	.01	-.006	.040	.01	.01	-.002	.029	.00	.01	-.003	.023
via Submissive Behavior → T2 Depressive Symptoms	.00	.01	-.032	.007	.00	.01	-.021	.005	.00	.01	-.020	.005	.00	.01	-.023	.004
via Submissive Behavior → T2 Perceived Health	.00	.01	-.018	.029	.00	.01	-.008	.027	.00	.01	-.004	.018	.00	.01	-.005	.018

Table 16, cont.

Unstandardized Estimates and Bias-corrected Bootstrapped Confidence Intervals of Indirect Effects for the Full Theoretical Model

	Model 1				Model 2				Model 3				Model 4			
			BC 95% CI				BC 95% CI				BC 95% CI				BC 95% CI	
Path	B	SE	LL	UL	B	SE	LL	UL	B	SE	LL	UL	B	SE	LL	UL
Total Indirect Effect																
IPV → T3 Perceived Health	**-.12**	**.04**	**-.198**	**-.031**	**-.11**	**.04**	**-.203**	**-.026**	**-.10**	**.04**	**-.183**	**-.024**	-.07	.04	-.131	.002
Specific Indirect Effects																
via T2 Depressive Symptoms	-.03	.02	-.074	.009	-.03	.02	-.079	.007	-.03	.02	-.077	.009	-.01	.02	-.040	.028
via T2 Perceived Health	**-.08**	**.04**	**-.164**	**-.012**	**-.08**	**.04**	**-.164**	**-.009**	**-.06**	**.03**	**-.143**	**-.007**	**-.05**	**.03**	**-.133**	**-.001**
via Relationship Quality → T2 Depressive Symptoms	.00	.00	-.015	.002	.00	.00	-.015	.001	.00	.00	-.014	.001	.00	.00	-.007	.005
via Relationship Quality → T2 Perceived Health	-.01	.01	-.033	.005	-.01	.01	-.030	.006	-.01	.01	-.028	.004	.00	.01	-.025	.006
via Submissive Behavior → T2 Depressive Symptoms	.00	.00	-.007	.003	.00	.00	-.008	.002	.00	.00	-.008	.002	.00	.00	-.005	.001
via Submissive Behavior → T2 Perceived Health	.00	.01	-.021	.013	.00	.01	-.023	.007	.00	.01	-.019	.006	.00	.01	-.017	.007
Total Indirect Effect																
Relationship Quality → T3 Depressive Symptoms	**-.07**	**.06**	**-.154**	**-.012**	**-.07**	**.04**	**-.145**	**-.005**	**-.07**	**.04**	**-.146**	**-.008**	**-.05**	**.03**	**-.102**	**-.006**
Specific Indirect Effects																
via T2 Depressive Symptoms	**-.08**	**.06**	**-.164**	**-.020**	**-.07**	**.04**	**-.148**	**-.008**	**-.07**	**.04**	**-.147**	**-.008**	-.05	.03	-.101	.000
via T2 Perceived Health	.00	.01	-.002	.018	.00	.01	-.002	.017	.00	.01	-.002	.020	.00	.01	-.005	.020
Total Indirect Effect																
Relationship Quality → T3 CRP	.00	.09	-.143	.178	.01	.08	-.117	.178	.02	.06	-.084	.153	.02	.06	-.073	.148
Specific Indirect Effects																
via T2 Depressive Symptoms	.06	.09	-.050	.226	.06	.07	-.031	.218	.05	.06	-.045	.191	.04	.05	-.038	.161
via T2 Perceived Health	-.06	.06	-.202	.042	-.05	.06	-.177	.037	-.03	.04	-.125	.016	-.02	.04	-.116	.023
Total Indirect Effect																
Relationship Quality → T3 Perceived Health	.07	.06	-.033	.154	.06	.06	-.049	.147	.05	.05	-.045	.127	.03	.05	-.056	.103
Specific Indirect Effects																
via T2 Depressive Symptoms	.02	.03	-.012	.068	.02	.02	-.009	.065	.02	.02	-.009	.067	.01	.02	-.026	.037
via T2 Perceived Health	.05	.05	-.036	.135	.04	.05	-.043	.122	.03	.04	-.035	.105	.03	.04	-.043	.097

Table 16, cont.

Unstandardized Estimates and Bias-corrected Bootstrapped Confidence Intervals of Indirect Effects for the Full Theoretical Model

	Model 1				Model 2				Model 3				Model 4			
			BC 95% CI				BC 95% CI				BC 95% CI				BC 95% CI	
Path	B	SE	LL	UL	B	SE	LL	UL	B	SE	LL	UL	B	SE	LL	UL
Total Indirect Effect																
Submissive Behavior → T3 Depressive Symptoms	.03	.17	-.148	.177	.01	.09	-.141	.128	.01	.09	-.144	.124	.02	.06	-.080	.105
Specific Indirect Effects																
via T2 Depressive Symptoms	.03	.18	-.154	.178	.02	.10	-.164	.131	.02	.10	-.163	.129	.02	.06	-.104	.110
via T2 Perceived Health	-.01	.02	-.036	.004	.00	.01	-.034	.008	.00	.02	-.037	.010	-.01	.02	-.040	.011
Total Indirect Effect																
Submissive Behavior → T3 CRP	.05	.18	-.153	.286	.02	.13	-.183	.236	.01	.11	-.137	.163	.01	.10	-.162	.127
Specific Indirect Effects																
via T2 Depressive Symptoms	-.02	.21	-.375	.070	-.01	.11	-.244	.072	-.01	.11	-.188	.054	-.02	.06	-.221	.047
via T2 Perceived Health	.08	.14	-.131	.313	.03	.12	-.192	.256	.02	.07	-.076	.180	.02	.09	-.074	.166
Total Indirect Effect																
Submissive Behavior → T3 Perceived Health	-.07	.15	-.265	.137	-.03	.14	-.204	.195	-.03	.12	-.177	.156	-.03	.10	-.172	.120
Specific Indirect Effects																
via T2 Depressive Symptoms	-.01	.06	-.102	.029	-.01	.04	-.064	.034	.00	.04	-.065	.032	.00	.02	-.045	.017
via T2 Perceived Health	-.06	.11	-.216	.117	-.03	.11	-.190	.135	-.02	.09	-.166	.124	-.03	.09	-.173	.103

Note. BC 95% CI indicates Bias-Corrected Bootstrap 95% Confidence Interval. BC 95% CI's that do not contain 0 were considered statistically significant and are boldfaced. Model 1 included only main variables. Model 2 added Systematic Sampling Group Covariates. Model 3 added Systematic Sampling Group Covariates, BMI and Past 30 Day Smoking. Model 4 added Systematic Sampling Group Covariates, BMI, Past 30 Day Smoking, Child Abuse and Parent Communication/Warmth.

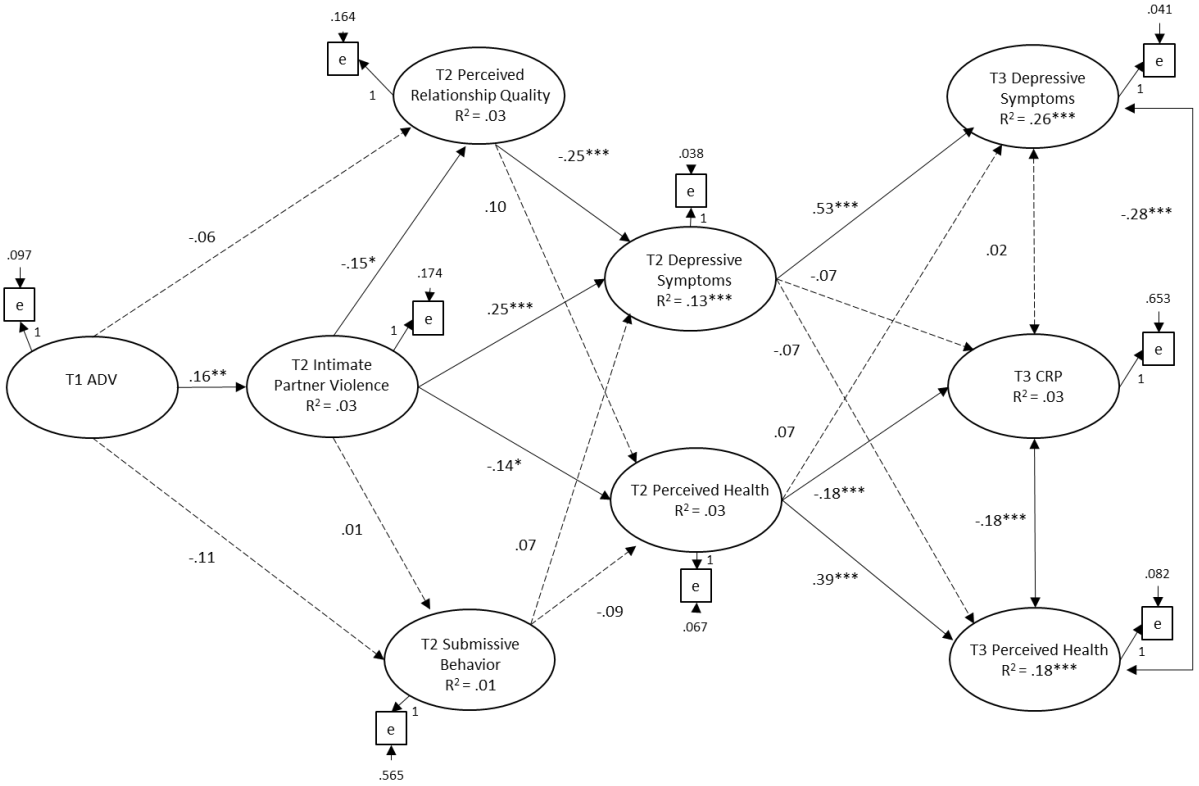

Figure 18. Model 1: Full theoretical model predicting T3 Depressive Symptoms, T3 CRP, and T3 Perceived Health. Path coefficients are standardized. ML estimation used. Dashed lines indicate nonsignificant effects. Significant effects are based on unstandardized results. Model fit: $\chi 2$ (14) = 32.52, p = .003; RMSEA = .047 (90% CI [.026, .069]); CFI = .948; TLI = .867; SRMR = .036. Ł$p \leq .10$. *$p \leq .05$. **$p \leq .01$. ***$p \leq .001$.

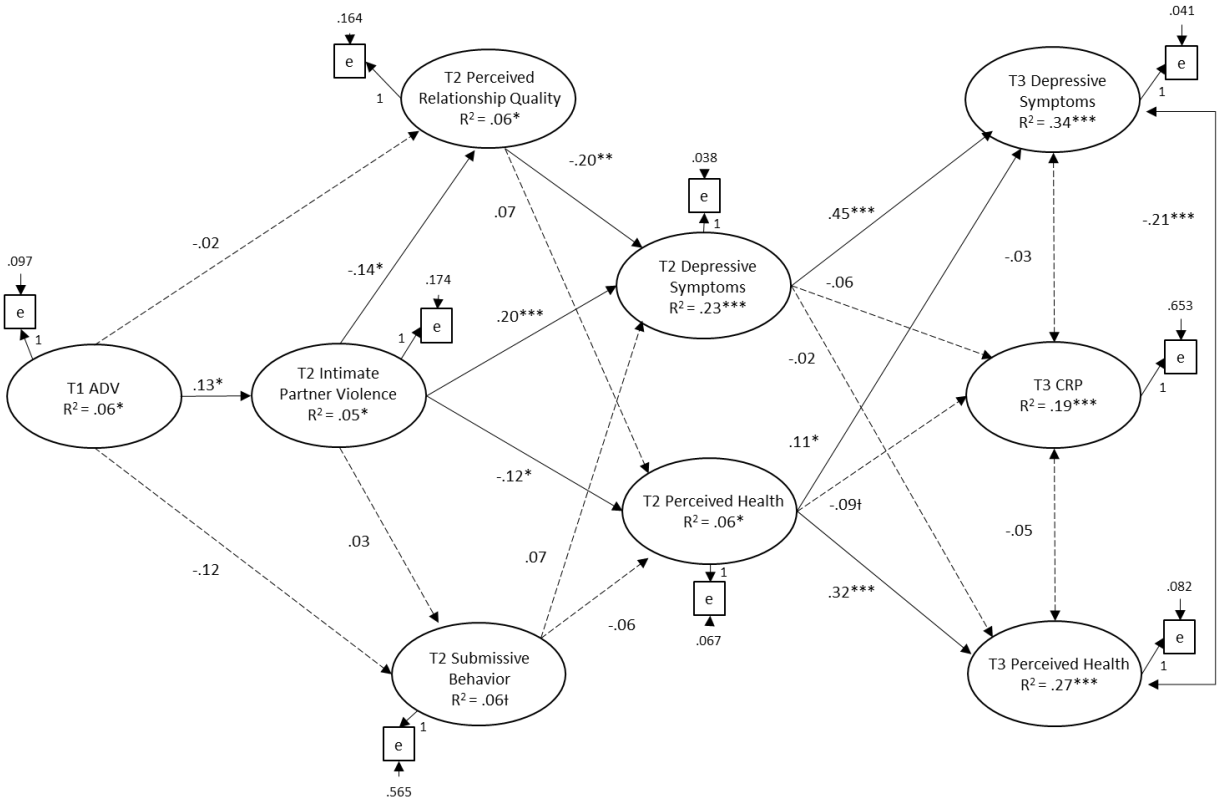

Figure 19. Model 4: Full theoretical model predicting T3 Depressive Symptoms, T3 CRP, and T3 Perceived Health with Systematic Sampling Covariates, BMI, Smoking, and Childhood Experiences Covariates. Covariates are not shown. Path coefficients are standardized. ML estimation used. Dashed lines indicate nonsignificant effects. Significant effects are based on unstandardized results. Model fit: $\chi 2$ (97) = 119.721, p = .059; RMSEA = .020 (90% CI [.000, .031]); CFI = .963; TLI = .940; SRMR = .036. ł$p \leq .10$. *$p \leq .05$. **$p \leq .01$. ***$p \leq .001$.

Alternative Model with Childhood Experiences as Distal Predictors

An alternative model was assessed in which childhood abuse and parent communication were treated as substantive variables. As such, their direct association with variables at T2 and T3 were removed, and only ADV was regressed on them. All other relationships from Model 4 of the Full Theoretical Model were retained. Though RMSEA revealed good fit, other fit indices suggested that the fit was inadequate: $\chi 2$ (112) = 213.03, $p < .001$; RMSEA = .039 (90% CI [.031, .047]); CFI = .833; TLI = .768; SRMR = .053. As seen in Table 17 and Figure 20, direct relationships were similar to Model 4 of the Full Theoretical Model. Parent communication was significantly associated with lower ADV; childhood abuse was only marginally associated higher ADV. There were no significant indirect effects from childhood abuse or parent communication on T3 depressive symptoms, T3 CRP, or T3 perceived health through ADV via any pathway. This model revealed a significant decrease in model fit compared to Model 4 of the Full Theoretical Model, $\Delta\chi 2$ (15) = 93.31, $p < .001$, suggesting that childhood experiences impact romantic relationships and health in adulthood through pathways aside from ADV.

Alternative Model with Reversed Associations at T2

Because intimate partner violence, perceived relationship quality, submissive behavior, T2 depressive symptoms and T2 perceived health were all measured at the same timepoint, it is possible that associations are in the opposite direction. The hypothesized model suggests that T2 intimate partner violence, T2 relationship quality and T2 submissive behavior predict T2 depressive symptoms and T2 perceived health. Alternatively, it is possible that T2 depressive symptoms and T2 perceived health predict T2 intimate partner violence, T2 relationship quality and T2 submissive behavior.

Table 17

Unstandardized Coefficients of Direct Effects for the Full Model with Childhood Experiences as Distal Predictors

Path	B	SE
Path coefficients of primary study variables		
Child Abuse → ADV	*.18†*	.10
Parent Communication → ADV	**-.17***	.07
ADV → IPV	**.10****	.03
ADV → Relationship Quality	-.05	.04
ADV → Submissive Behavior	-.07	.05
IPV → Relationship Quality	**-.18***	.07
IPV → Submissive Behavior	.03	.08
IPV → T2 Depressive Symptoms	**.17*****	.04
IPV → T2 Perceived Health	**-.18***	.07
Relationship Quality → T2 Depressive Symptoms	**-.13*****	.04
Relationship Quality → T2 Perceived Health	.09	.07
Submissive Behavior → T2 Depressive Symptoms	.03	.08
Submissive Behavior → T2 Perceived Health	-.07	.14
T2 Depressive Symptoms → T3 Depressive Symptoms	**.55*****	.06
T2 Depressive Symptoms → T3 CRP	-.36	.33
T2 Depressive Symptoms → T3 Perceived Health	-.16	.11
T2 Perceived Health → T3 Depressive Symptoms	*.05†*	.03
T2 Perceived Health → T3 CRP	*-.29†*	.17
T2 Perceived Health → T3 Perceived Health	**.36*****	.05
Correlations of primary study variables		
Child Abuse ↔ Parent Communication	**-.10*****	.03
Relationship Quality ↔ Submissive Behavior	**.15*****	.03
T2 Depressive Symptoms ↔ T2 Perceived Health	**-.08*****	.01
T3 Depressive Symptoms ↔ T3 CRP	-.02	.05
T3 Depressive Symptoms ↔ T3 Perceived Health	**-.06*****	.02
T3 CRP ↔ T3 Perceived Health	-.08	.09
Path coefficients of covariates		
SS02 → T3 Perceived Health	*.28†*	.16
SS05 → ADV	**.73***	.31
SS05 → T3 Perceived Health	**-.62***	.30
SS08 → CRP	-.45	.35
SS09 → IPV	-.19	.27
SS09 → CRP	.36	.90
SS09 → T3 Perceived Health	-.23	.28
SS10 → IPV	.24	.16
SS10 → Submissive Behavior	**-.64****	.21
SS10 → CRP	*.98†*	.58
SS11 → Relationship Quality	*.53†*	.28
SS11 → T2 Perceived Health	**-.78****	.28
SS11 → CRP	*1.59†*	.84

Table 17, cont.

Unstandardized Coefficients of Direct Effects for the Full Model with Childhood Experiences as Distal Predictors

Path	B	SE
Primary study covariates		
BMI → T3 CRP	**.16*** **	.02
Past 30 Day Smoking → T3 CRP	.01	.01
Additional covariate relationships		
BMI → T3 Perceived Health	**-.04*** **	.01
Past 30 Day Smoking → T3 Depressive Symptoms	**.004** **	.00
Past 30 Day Smoking → T3 Perceived Health	**-.01*** **	.00
BMI ↔ Past 30 Day Smoking	**-9.13***	3.91

Ip ≤ .10. *$p \leq .05$. **$p \leq .01$. ***$p \leq .001$. *Note*. Boldfaced values are significant at $p \leq .05$. Italicized values are marginal at $p \leq .10$.

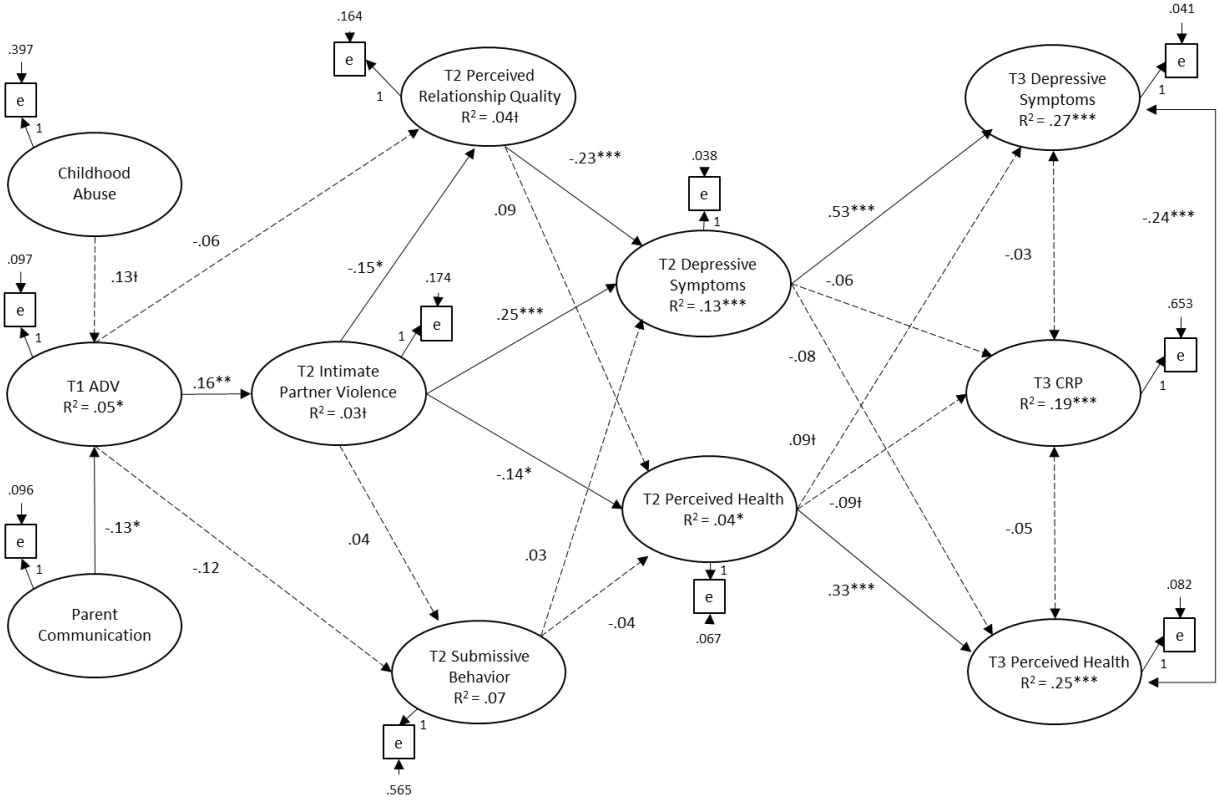

Figure 20. Alternative model predicting T3 Depressive Symptoms, T3 CRP, and T3 Perceived Health with Systematic Sampling Covariates, BMI and Smoking Covariates and Childhood Experiences as Distal Predictors. Covariates are not shown. Path coefficients are standardized. ML estimation used. Dashed lines indicate nonsignificant effects. Significant effects are based on unstandardized results. Model fit: $\chi 2$ (112) = 213.03, $p < .001$; RMSEA = .039 (90% CI [.031, .047]); CFI = .833; TLI = .768; SRMR = .053. Ł$p \leq .10$. *$p \leq .05$. **$p \leq .01$. ***$p \leq .001$.

This possibility was evaluated by running both models and comparing AIC. T3 outcomes were removed from these analyses in order to maximize AIC (i.e., removing the direct association between T2 depressive symptoms and T2 perceived health and their associated T3 outcomes would inevitably increase AIC). The hypothesized model had a lower AIC (AIC = 10,507.29) compared to the alternative model (AIC = 10,508.39). However, the difference in AIC (ΔAIC = 1.105) was very small, suggesting that there is weak support for the proposed model and the alternative model is plausible. The theoretical support for the current hypothesized directions, however, is considered sufficient to maintain the current model.

Moderation Analyses

Continuous moderators. Continuous moderators were modeled using interaction terms in path analysis. The hypothesized interactions were nonsignificant for ADV and age, as well as ADV and relationship enmeshment, for both outcomes (relationship quality and submissive behavior). Because these interactions were nonsignificant, they were not probed using multiple regression analyses. See Table 18.

Table 18

Unstandardized Estimates of Interactions on Relationship Quality and Submissive Behavior

	Outcome Variable			
	Relationship Quality		Submissive Behavior	
Interaction	B	SE	B	SE
ADV x Age (n = 577)	.001	.002	-.002	.002
ADV x Relationship Enmeshment (n = 574)	.028	.024	-.008	.026

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

Categorical moderator: Gender. Prior to evaluating moderation by gender, descriptives and bivariate correlations by gender were assessed. See Tables 19 and 20.

Table 19

Variable Descriptives by Gender

	Men (n = 230)				Women (n = 361)			
Item	M (SD)	Skew	Kurtosis	Min/Max Range	M (SD)	Skew	Kurtosis	Min/Max Range
1. Number of ADV experiences	.48 (.93)	2.301	5.311	0-5	.56 (1.02)	2.108	4.242	0-5
2. Number of IPV experiences	.34 (.84)	2.460	4.674	0-3	.24 (.64)	3.074	9.006	0-3
3. Relationship quality	-.11 (.92)	-2.036	3.543	-3.60-.42	.07 (.74)	-2.582	6.882	-3.60-.51
4. Submissive behavior	2.51 (.97)	-.788	.270	0-4	2.48 (.86)	-.632	.416	0-4
5. T2 depressive symptoms	.41 (.39)	1.688	4.741	0-2.56	.54 (.47)	1.195	1.400	0-2.33
6. T2 perceived health	4.15 (.82)	-.660	-.251	2-5	3.96 (.81)	-.341	-.517	2-5
7. T3 depressive symptoms	.53 (.43)	1.740	4.219	0-2.56	.59 (.47)	1.174	1.223	0-2.44
8. CRP	2.26 (2.23)	1.393	1.231	.10-9.68	3.06 (2.68)	.888	-.326	.08-9.78
9. T3 perceived health	3.77 (.92)	-.353	-.337	1-5	3.62 (.89)	-.190	-.325	1-5

* $p < .05$. ** $p < .01$. $p < .001$. *Note.* Boldfaced values are significant at $p < .05$.

Table 20

Bivariate Correlations Among Study Variables by Gender

	Men								Women							
Item	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
1. Number of ADV experiences	–	--	–	--	–	--	--	--	--	--	–	--	--	–	--	--
2. Number of IPV experiences	**.24*** **	--	–	--	–	--	--	--	.03	--	–	--	--	–	--	--
3. Relationship quality	-.11	-.04	–	--	–	--	--	--	-.03	**-.17** **	–	--	--	–	--	--
4. Submissive behavior	-.02	-.004	**.26*** **	--	–	--	--	--	-.09	-.003	**.16** **	--	--	–	--	--
5. T2 depressive symptoms	**.17***	**.16***	**-.13***	.02	–	--	--	--	.10	**.25*** **	**-.28*** **	-.01	--	–	--	--
6. T2 perceived health	-.03	-.12	.07	-.003	**-.24*** **	--	--	--	-.06	**-.12***	.09	-.06	**-.29*** **	–	--	--
7. T3 depressive symptoms	**.26*** **	**.21** **	-.10	.01	**.41*** **	-.08	--	--	**.12***	.01	**-.18*** **	**-.14***	**.40*** **	-.09	--	--
8. CRP	.04	.12	-.07	-.15	-.13	-.05	-.05	--	.04	-.04	**.17** **	-.06	.000	**-.17** **	.01	--
9. T3 perceived health	-.10	**-.17***	.03	.12	**-.17***	**.35*** **	**-.19** **	**-.19***	-.10	-.09	.04	.01	**-.16** **	**.39*** **	**-.28*** **	**-.18** **

* $p < .05$. ** $p < .01$. $p < .001$. *Note.* Boldfaced values are significant at $p < .05$.

Although most paths exhibited the same direction for men and women, numerous differences in the strength of relationships were observed. One notable difference in directions was the association between relationship quality and CRP. For women, higher relationship quality was significantly associated with higher CRP (higher CRP indicates worse health status). This association was negative for men, although it was nonsignificant.

Hypothesized gender moderation analyses. Moderation by gender was evaluated using multigroup path analyses. All variables were treated as observed. Individual pathways were freed while holding the other pathways constrained to be equal between genders. Change in $\chi 2$ was evaluated between the fully constrained model and the partially constrained model. The results suggest that ADV was marginally associated with lower relationship quality for men, but not for women. Women displayed a marginally significant inverse association between ADV and submissive behavior; this association was nonsignificant for men. Despite these differences, model comparisons suggest that allowing these paths to be free did not substantively improve model fit. However, allowing the correlation between relationship satisfaction and submissive behavior to be free did improve model fit. This correlation was stronger for men compared to women. See Table 21.

Table 21

Unstandardized Estimates of Gender Moderation on Relationship Quality and Submissive Behavior (n = 577)

Interaction	Gender				
	Male (n = 221)		**Female (n = 356)**		
	B	SE	B	SE	Δχ2
ADV → Relationship Quality	*-.115ŧ*	*.067*	-.021	.039	1.50
ADV → Submissive Behavior	-.012	.070	*-.083ŧ*	*.045*	.71
Relationship Quality ↔ Submissive Behavior	**.244*** **	**.064**	**.100** **	**.034**	**4.15**

ŧp < .10. *p < .05. **p < .01. ***p < .001. Boldfaced values are significant at p < .05. Italicized values are marginally significant at p < .10. Each pathway was freed while holding all others constrained. All partially constrained models were compared to the fully constrained model (χ2 [3] = 6.203). Significant change in χ2 is considered p < .05 at 1 degree of freedom (χ2 = 3.84).

Exploratory gender moderation analyses. Multigroup analyses to explore gender effects on associations within the full model were then performed. Multigroup analyses only explored differences related to associations between the main variables of interest; covariates were not included in the model. First, to determine whether there was an overall gender effect, a fully unconstrained model was estimated, in which all paths were allowed to differ between men and women, χ2 (28) = 57.97, p < .001; RMSEA = .060 (90% CI [.038, .082]); CFI = .919; TLI = .793; SRMR = .049. Then, a fully constrained model was estimated, in which all paths were forced to be equal between men and women, χ2 (50) = 93.02, p < .001; RMSEA = .054 (90% CI [.037, .071]); CFI = .884; TLI = .833; SRMR = .063. Comparing these two models using a χ2 difference test (Anderson & Gerbing, 1988) suggests that constraining the path model to be equal by gender significantly reduced model fit, Δχ2 (22) = 35.05, p < .05. This suggests that gender did moderate the associations present in the model.

In order to assess the paths that were moderated by gender, specific paths were released one at a time and model fit was compared to the fully constrained model. Thus, significant differences would suggest that allowing the specific path to differ by gender

improved model fit. As seen in Table 22, freeing the path from ADV to intimate partner violence improved model fit. Path coefficients suggest that ADV is significantly, positively associated with intimate partner violence among men, (B = .23, $p < .001$); however, this relationship is nonsignificant among women (B = .02, $p = .565$). Freeing the path from relationship quality to T2 depressive symptoms also improved model fit. The association between relationship quality and T2 depressive symptoms was stronger for women compared to men (B = -.16, $p < .001$; B = -.06, $p = .027$, respectively).

A final, moderated path model was measured in which the two paths (ADV to intimate partner violence and relationship quality to T2 depressive symptoms) were allowed to differ by gender. All other paths were constrained. This model showed adequate fit, $\chi 2$ (48) = 78.21, $p = .004$; RMSEA = .046 (90% CI [.026, .064]); CFI = .919; TLI = .878; SRMR = .056. Comparing this partially constrained model to the fully unconstrained model suggests it did not significantly decrease model fit, $\Delta\chi 2$ (20) = 20.24, p = n.s. Thus, this more parsimonious model is preferred. Standardized results for the partially constrained model are presented in Figure 21.

Table 22
Chi-Square Difference Tests Between Constrained and Partially Unconstrained Models Based on Gender

Unconstrained Path	$\chi 2$	**$\Delta\chi 2$**
ADV → IPV	83.88	**9.14**
ADV → Relationship Quality	92.10	.92
ADV → Submissive Behavior	92.37	.65
IPV → Relationship Quality	90.26	2.76
IPV → Submissive Behavior	92.98	.04
IPV → T2 Depressive Symptoms	89.37	3.65
IPV → T2 Perceived Health	92.92	.10
Relationship Quality → T2 Depressive Symptoms	87.36	**5.66**
Relationship Quality → T2 Perceived Health	92.91	.11
Submissive Behavior → T2 Depressive Symptoms	92.12	.90
Submissive Behavior → T2 Perceived Health	92.26	.76
T2 Depressive Symptoms → T3 Depressive Symptoms	92.72	.30
T2 Depressive Symptoms → T3 CRP	90.51	2.51
T2 Depressive Symptoms → T3 Perceived Health	92.67	.35
T2 Perceived Health → T3 Depressive Symptoms	92.86	.16
T2 Perceived Health → T3 CRP	90.69	2.33
T2 Perceived Health → T3 Perceived Health	92.99	.03

Constrained Model for comparison: $\chi 2$ (50) = 93.02. All unconstrained $\chi 2$ had 49 degrees of freedom. Boldfaced values are significant at $p < .05$ ($\chi 2 = 3.84$).

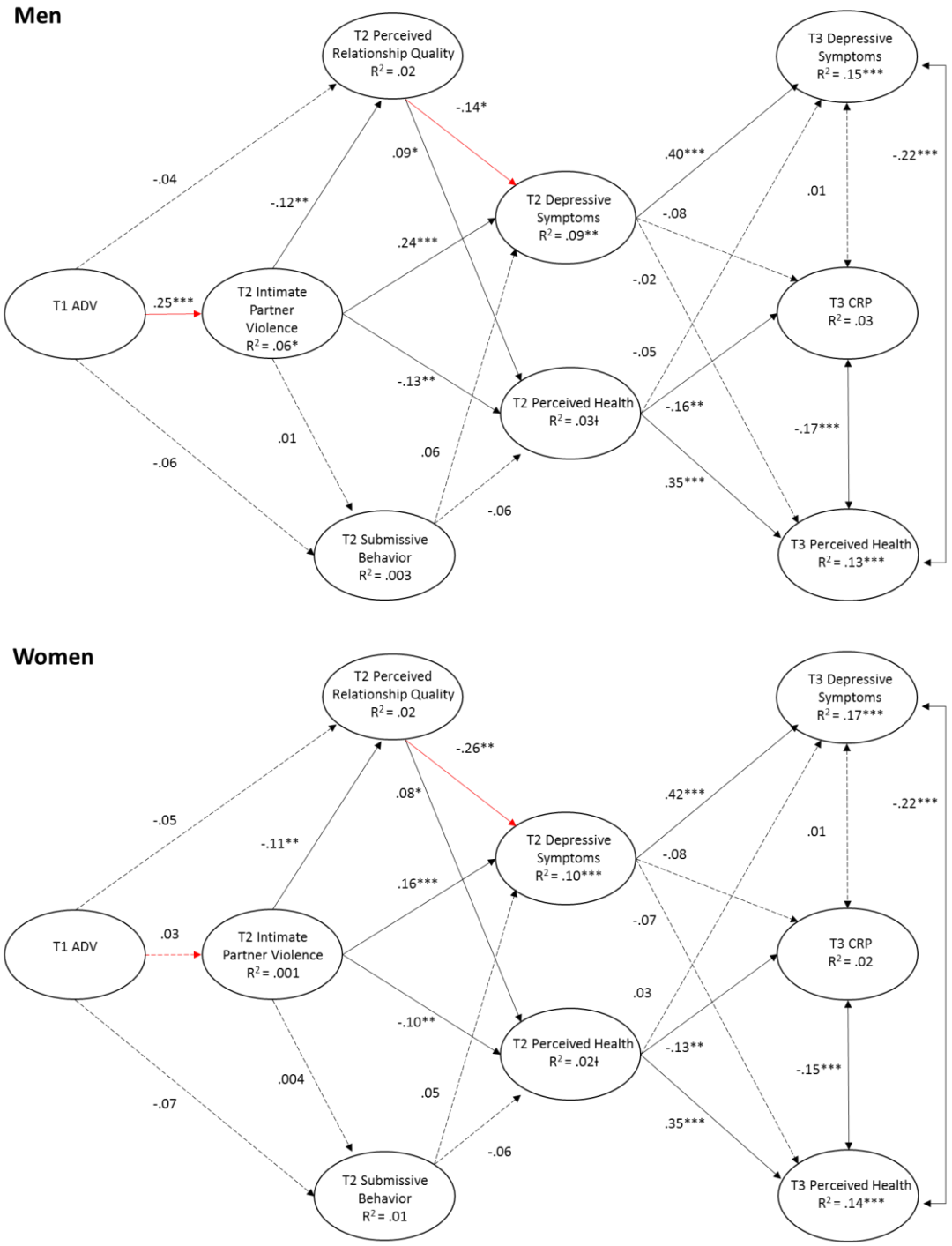

Figure 21. Exploratory multigroup path analyses for men and women. Path coefficients are standardized. Covariates were not included in estimation. ML estimation used. Dashed lines indicate nonsignificant effects. Paths in red were allowed to differ by gender. Significant effects are based on unstandardized results. Model fit: $\chi 2$ (48) = 78.21, p = .004; RMSEA = .046 (90% CI [.026, .064]); CFI = .919; TLI = .878; SRMR = .056. ł$p \leq .10$. *$p \leq .05$. **$p \leq .01$. ***$p \leq .001$.

CHAPTER 5: DISCUSSION

The present study sought to explore a potential path whereby dating violence victimization during adolescence contributes to the experience of intimate partner victimization, relationship quality and submissive behavior in adulthood; these relationship experiences, in turn, are associated with depressive symptoms, systemic inflammation (CRP) and perceived health. The findings suggest that one out of three participants experienced ADV in the preceding 18 months during adolescence and one out of five experienced physical intimate partner violence victimization in the previous year in adulthood. Hypotheses associated with longitudinal effects on health were only partially supported. The following sections will discuss noteworthy significant and nonsignificant findings. Strengths, limitations and directions for future research will then be discussed.

Summary of Major Findings

Relationship violence in adolescence and adulthood is prevalent. ADV and intimate partner victimization were prevalent in this sample of participants reporting a current romantic relationship in adulthood at T2. Approximately 30% of the sample experienced some form of psychological or physical ADV over the previous 18 months at T1. Prevalence rates reported in previous studies vary widely due to a number of factors, such as the type of violence and length of time assessed. A meta-analytic review of studies reporting ADV prevalence rates suggests that 21% of boys and girls experienced physical ADV (Wincentak, Connolly, & Card, 2017). The higher prevalence in the current study may reflect the higher prevalence of psychological violence. For example, previous

research suggests 40.9% of adolescents aged 14 to 21 experienced psychological ADV across their lifetime (Ybarra, Espelage, Langhinrichsen-Rohling, Korchmaros, & Boyd, 2016). Research utilizing Add Health data (not limited to the Couples Sample participants) suggests an overall ADV prevalence rate of 32%, with 23% of boys and girls reporting psychological ADV and 12% of boys and girls reporting physical ADV (Halpern et al., 2001). These findings coincide with the prevalence rates found in the current study. Furthermore, the current study suggests no gender differences in the prevalence of ADV, which corresponds with previous research (Exner-Cortens et al., 2013; Wincentak et al., 2017).

In young adulthood, approximately 18% of the sample reported that their partner threatened them with violence, pushed or shoved them, or threw something at them that could hurt or that their partner slapped, hit or kicked them in the past year. In a national sample of men and women over the age of 18 in the United States, only 1.3% of women and .9% of men reported past year physical assault by an intimate partner (Tjaden & Thoennes, 2000). However, some studies exploring victimization among young adults, like the present study, have yielded higher rates. Indeed, Thompson et al., (2006) found that younger women reported higher rates of intimate partner victimization than older women. They found that 18.8% of women aged 18 to 24 years experienced physical intimate partner victimization over the previous 5 years. Additionally, Whitaker, Haileyesus, Swahn, and Saltzman (2007) explored the prevalence of violence in romantic relationships among Add Health respondents (not limited to the Couples Sample participants). Overall, 24.8% of men and 28.8% of women reported ever having been a victim of intimate partner violence over 5 years (Whitaker et al., 2007). Thus, the present

findings are similar to previous research exploring physical intimate partner violence victimization among young adults. Similar to the findings associated with ADV, the average amount of physical intimate partner violence victimization did not differ by gender.

ADV is associated with later physical intimate partner victimization among men. Unexpectedly, ADV was significantly associated with physical intimate partner victimization for men only in the present study. It was originally hypothesized that ADV would be associated with more intimate partner violence victimization in adulthood without expectation of moderation effects. According to Furman and Wehner (1994), romantic views, or perceptions of a relationship, as well as the self and partner in that relationship, are influenced by past experiences in similar relationships. ADV may alter individuals' expectations for appropriate behavior within romantic partnerships (Collins, 2003; Furman & Wehner, 1994). It may also lead to more conflict and negative relationship perceptions and behavior, including anxiety with romantic partners, more relationship frustration and less closeness (Jouriles et al., 2009; Linder et al., 2002; Marcus, 2012). Previous research has shown that conflict predicts violence (Collibee & Furman, 2016). Indeed, previous research has found that ADV is associated with adult intimate partner victimization for men and women (Ackard et al., 2007; Exner-Cortens et al., 2013; Cui et al., 2013; Gómez, 2011; Halpern et al., 2009; Smith et al., 2003; Spriggs et al., 2009; Tietelman et al., 2008; van Dulmen et al., 2012).

The finding that ADV is only associated with adult physical intimate partner violence victimization among men was surprising. It is possible that men are more likely to develop relationship views associated with relationship violence that carry over into

adulthood, including negative relationship perceptions that foster conflict. These relationship views may also lead to greater acceptance of victimization from a partner and a lower likelihood of relationship dissolution as a result.

These findings, however, may coincide with a lower likelihood of injury and negative emotional reactions to the ADV among boys. Previous research suggests that, although boys experience violence victimization, the violence is less severe and their reactions are typically milder than girls' reactions (e.g., laughing or doing nothing; Jackson et al., 2000; Molidor & Tolman, 1998; Watson et al., 2001). On the other hand, if individuals experience severe ADV, they may be more likely to avoid relationships in the future and would not, therefore, have been included in the current sample of individuals who were in a current, committed romantic relationship (Chronister et al., 2014). Using the Add Health dataset, Exner-Cortens et al. (2012) found that ADV was associated with intimate partner violence victimization for both men and women. However, they did not rely on the Couples Sample. Thus, women may also experience more intimate partner violence after ADV, but may be less likely to be in a current, committed relationship in adulthood. This would also provide support for the notion that ADV more strongly impacts women's relationship views, making them less likely to commit to romantic relationships.

Similarly, ADV and mutual perpetration may be associated with the broader spectrum of delinquency and antisocial behavior (Jessor, 1991). For example, previous research suggests that teens who report early substance use are more likely to report ADV victimization (Swahn, Bossarte, & Sullivent, 2008). Furthermore, research suggests that both delinquency and perceived victimization from a partner can influence perpetration patterns and prevent desistance from physical ADV perpetration during

adolescence (Nocentini, Menesini, & Pastorelli, 2010). The spectrum of violent behavior can continue into adulthood, with men more likely to exhibit chronic offending (Fergusson & Horwood, 2002). Additionally, the continuation of relationship violence victimization may correspond to an overarching negative relationship style which breeds conflict and mutual violence (Alleyne-Green et al., 2012; Chiodo et al., 2012). It is unclear from the measure of intimate partner victimization in the current study what constitutes situational couple violence and what constitutes intimate terrorism (Johnson, 2008). Additionally, the current study did not explore perpetration and mutual violence. Future research would benefit from exploring the association between ADV and types of domestic abuse among men and women. Furthermore, the current study included only physical intimate partner victimization; it is unclear if these same associations would be found for psychological or sexual intimate partner victimization.

ADV is not directly associated with perceived relationship quality or submissive behavior in adulthood. The findings also suggest that ADV is not directly associated with later perceived relationship quality, including overall satisfaction and love. Thus, while ADV may impact expectations and future behavior, more proximal experiences may be more important to satisfaction and love in specific relationships. Indeed, physical intimate partner victimization was associated with lower perceived relationship quality.

As noted previously, the current sample included individuals who were able and willing to maintain a romantic partnership for at least 3 months. Thus, it was not possible to assess individuals who experienced ADV and subsequently avoided romantic relationships or did not maintain long-term relationships. Those who are more likely to

perceive lower relationship quality may also avoid relationships and, hence, would not be included in the current study sample.

The impact of ADV is not modified by age or relationship enmeshment. The hypothesized moderation effects were not supported. Across models, the effect of ADV on relationship quality and submissive behavior was nonsignificant, and it was not modified by age at the time of the violent relationship or relationship enmeshment with the perpetrating partner. As previously indicated, these findings suggest that proximal experiences may be more important to perceptions of a romantic partner and behavior within that relationship.

Relationship quality is associated with depressive symptoms particularly for women. Past research has demonstrated that relationship quality has a stronger impact on depressive symptoms for women than for men. For example, in a study of male-female twin pairs, female twins' major depressive episodes were predicted by spousal social support quality (Kendler, Myers & Prescott, 2005); however, they were unrelated for male twins. Other studies have found that marital satisfaction predicts depression more strongly for wives than for husbands (Fincham, Beach, Harold, & Osborne, 1997). As proposed by Fincham et al. (1997), these findings may reflect gender roles in which women are expected to give more to their relationship partners and invest more in the relationship itself. When difficulties are experienced within their relationship, women may be more likely than men to attribute it to their own failures and experience decrements in psychological well-being.

Relationship quality may be associated with higher systemic inflammation among women. Interestingly and unexpectedly, in the preliminary models predicting

CRP, relationship quality was associated with higher CRP (an indicator of poor health status). Separate bivariate correlations by gender suggested that this inverse association was present only for women. Relationship satisfaction is positively associated with greater investment (Rusbult, Martz & Agnew, 1998). However, greater satisfaction and investment may lead to heightened stress and physiological arousal due to empathic processes or conflict management behaviors (Buchanan, Bagley, Stansfield, & Preston, 2012; Perrone-McGovern et al., 2014). Thus, perceptions of relationship quality may be strongly tied to how much effort partners put into the relationship. This effort can be stressful, particularly for women, as they negotiate disagreements, share burdens, and provide care and support. As previously discussed, relationship investment and the negative experiences potentially tied to it may impact women more strongly than men (Fincham et al., 1997). It may be important to note that these findings were in a relatively young sample. It is possible that the expected relationships between higher relationship quality and lower CRP would be found in an older sample. Indeed, most studies exploring the association between relationship quality and CRP are in middle- and older-aged adult samples (e.g., Donoho et al., 2013).

Physical intimate partner victimization is an important predictor of psychological and physical health. Physical intimate partner victimization was associated with higher concurrent depressive symptoms and lower concurrent perceived health. This coincides with previous theory and research suggesting negative and traumatic experiences in romantic relationships can be stressful and this stress can contribute to tertiary outcomes related to allostatic load (Choi & Marks, 2008; Juster et al., 2010; McEwen, 2004a; McGonagle et al., 1992).

While both intimate partner victimization and relationship quality were associated with psychological health, only violence victimization impacted physical health. This is an interesting divergence, and suggests that there may be alternate processes at play transmitting the impact of physical intimate partner victimization on physical health. In addition to the potential for physical injury, physical violence victimization may be associated with fear, post-traumatic stress and chronic physiological stress arousal (Babcock, Roseman, Green & Ross, 2008; Fonzo et al., 2010; Morse, 1995). Fear, post-traumatic stress and chronic physiological arousal, in turn, are powerful predictors of poor physical health (Juster et al., 2010; Otis, Keane, & Kerns, 2003). Physical violence victimization may also be associated with a diminished sense of control, which may be transmuted to a lower sense of control over physical health and functioning.

Physical intimate partner victimization also exerted indirect effects on psychological and physical health at T3. Physical intimate partner victimization was indirectly associated with higher depressive symptoms. This effect was transmitted through concurrent depressive symptoms, as well as through relationship satisfaction and concurrent depressive symptoms. A specific indirect effect was also found between physical intimate partner victimization and T3 perceived health through concurrent perceived health. Thus, physical intimate partner victimization may have an important, long-term deleterious effect on victims' psychological and physical health by impacting relationship satisfaction, depressive symptoms and perceptions of health.

Poor psychological and physical health predicts poor health outcomes in the future. As expected, T2 physical health was associated with T3 physical health, and T2 depressive symptoms were associated with T3 depressive symptoms. This coincides

with previous research which has found that physical and psychological health persists over time (Hays, Marshall, Wang, & Sherbourne, 1994). T2 perceived health was also associated with T3 depressive symptoms. Indeed, previous research suggests that perceptions of health and actual health concerns may contribute to a lower sense of life satisfaction and increased depression (Edwards & Klemmack, 1973; Hays et al., 1994). Additionally, at both timepoints, depressive symptoms and perceived health were associated. These findings suggest that psychological and physical health are closely intertwined.

Alternative models were not strongly supported. An alternative model whereby childhood experiences were treated as distal predictors rather than covariates was also assessed. Results suggest that childhood experiences impact psychological and physical health in adulthood, but this effect is not transmitted through its effect on ADV experiences. Certainly, the lack of indirect effects of ADV on psychological and physical health in adulthood in the present study limited what could be found. Previous research strongly supports the negative impact of adverse childhood experiences, including childhood abuse, on psychological and physical health and well-being (Felitti et al., 1998). However, its impact may be more strongly transmitted through other pathways, such as increased risk behavior, as opposed to an increased likelihood of experiencing ADV victimization (Felitti et al., 1998).

Another alternative model in which the T2 relationship and health variables were reversed (i.e., psychological and physical health impacted physical intimate partner victimization, perceived relationship quality and submissive behavior) was also tested. It is plausible that when an individual experiences poor health or depression, this may

negatively affect one's relationship by causing negativity and conflict (Blaise & Renshaw, 2014; Vujeva & Furman, 2011). Although this alternative model was plausible, the hypothesized model fit the data slightly better. However, the plausibility of this model highlights the complexity of real-life experiences.

Strengths, Limitations and Directions for Future Research

Strengths of the Add Health dataset include the large sample size, the nationally representative sample of students in grades 7 through 12, the multiple follow-up interviews, and the wide range of constructs that were assessed. There were also limitations that affected the conclusions that can be drawn from the current study's findings. Limitations are discussed below in conjunction with ideas for future research to address these limitations.

The present sample represented individuals who were able to establish and maintain a romantic relationship in adulthood. The sample was limited to a specific group of individuals and may not be generalizable to other groups. Specifically, the present study utilized the Couples Sample participants, which represents a group of married, dating or cohabiting individuals who were in heterosexual relationships for at least 3 months duration. As previously stated, individuals who respond to ADV by avoiding future relationships would not be included in the present sample (Chronister et al., 2014).

Future research would benefit from following ADV victims from adolescence into adulthood. This would allow researchers to explore not only future victimization experiences, but also the impact of ADV on establishing and maintaining relationships. The Add Health data could answer certain questions regarding relationship functioning

among ADV victims; however, the questions explored in the current study were specific to the Couples Sample participants. Understanding how ADV victims perceive and interact with relationship partners, regardless of their current relationship status, may be important. For ADV victims who are reluctant to establish new romantic relationships, it may be beneficial to observe relationship initiation strategies and behaviors. Researchers should also investigate how victims respond to conflict experienced during the early stages of romantic relationships.

The present study does not explore other potentially important mediating and moderating factors. The association between victimization experiences and health and well-being is complex. Thus, inevitably, the present study captured only a small snapshot of potential mediators and moderators of this relationship. Considering individuals' responses to ADV as nested within multiple layers of influence is an important next step for understanding how the sum of individuals' experiences contributes to resilience and risk (Bronfenbrenner, 1977). Additionally, other factors like risk behaviors (i.e., alcohol consumption) and psychological processes (i.e., posttraumatic stress disorder and emotion regulation) may be important predictors and mediators that were missed in the present investigation. It may also be important to explore how other factors such as race or socioeconomic status impact the current associations. In the present study, race was confounded by the Systematic Sampling Group Covariates; thus, race was not included as a potential moderator. All of the Systematic Sampling Group Covariates, which included participants self-reporting a disability, high education Black participants, Cuban participants, Puerto Rican participants, Chinese participants, twin participants, full siblings, half siblings, non-related participants, and nested school

samples, were considered potential covariates. Controlling for these sampling characteristics precluded the ability to explore these factors as variables of interest. However, future research should consider how these variables and others omitted or simply controlled for in the present study are, instead, associated with meaningful differences.

The experiences of men and women differ; future research should focus on divergent and concordant factors. Previous research has primarily explored the impact of relationship violence on girls and women. Future research should focus on the experiences of men as well as women. This research should consider the impact of masculine gender roles on responses to ADV and intimate partner victimization. For example, previous research suggests that gender role conflict was associated with negative attitudes toward help-seeking for psychological well-being among men (Blazina & Watkins, 1996). Thus, men may not reach out for support after experiencing victimization. Furthermore, integrating research on delinquency, patterns of ADV and intimate partner violence perpetration and victimization, and types of domestic abuse to tease apart the unique experiences of men and women may be fruitful.

The present sample was young and in generally very good physical health. Physical health is likely to be good overall in younger samples. Evaluating these relationships across time into middle and older age is important. It is possible that relationships between physical intimate partner victimization and subjective and objective physical health will be stronger in older samples. Furthermore, future research would benefit from considering other objective physical health outcomes.

The lack of findings associated with CRP in the present study may be associated with the young age of the participants. In the final, modified model, CRP was not predicted by, or associated with, depressive symptoms or perceived health. CRP was, however, associated with BMI, which was included as a covariate in the model. Although ADV, physical intimate partner victimization and perceived relationship quality were not associated with BMI in this sample, it is possible that effects on CRP are transmitted through other health indicators and behaviors that were not included in the current model. Future research should consider the influence of health behaviors (e.g., disordered eating or substance use) as potential mediators of the association between victimization and health, particularly in younger samples.

The present study does not examine the impact of cumulative victimization experiences or multiple violent relationships. Another limitation was that ADV and physical intimate partner victimization were assessed within the context of a single relationship. Experiencing ADV or intimate partner victimization in numerous relationships over time likely has a more profound impact on relationship views. Additionally, it is unclear if the victim remained in the same relationship in which intimate partner victimization occurred. It is possible that some participants were in the same violent relationship at T3, whereas others dissolved the relationship. Although previous research suggests that staying and leaving behavior may not diminish the effect of intimate partner victimization on health outcomes (e.g., depressive symptoms, Zlotnick et al., 2006), it is an important study-related design to consider when evaluating the results.

The present study does not explore resilience. Experiences in other types of relationships and future romantic relationships can alter romantic views (Furman &

Wehner, 1994). If individuals have positive family relationships, healthy friendships, and experience other healthy romantic relationships, ADV in a single relationship during adolescence may not impact relationship experiences, perceptions and functioning in adulthood. Future research should explore resilience related to positive social interactions and relationships in combination with characteristics of victimization experiences to determine if these positive social interactions and relationships contribute to resilience. Other factors contributing to resilience should also be considered, such as purpose in life and future expectations. The mechanism through which resilience is conferred for each potential protective factor could provide important information for potential intervention work. For example, resilience factors can contribute to improved health and well-being through compensatory or protective processes (Fergus & Zimmerman, 2005).

Different study designs will provide a fuller picture of victims' experiences. Different study designs have different strengths. Although the present study benefited from exploring victimization experiences and social, psychological and physical health measures over time, the richness of these experiences cannot be captured. Future research would benefit from more qualitative work exploring the impact of ADV and intimate partner victimization on future relationships.

Observational studies exploring relationship behaviors among ADV and intimate partner violence victims may also be beneficial. Researchers could explore how ADV and intimate partner victimization experiences are associated with future relationship perceptions and behaviors. For example, using Gottman's marital communication paradigm, researchers could explore how victimization experiences are associated with

interactions with a current partner (Gottman, 1998). Exposing victims to social stressors and evaluating physiological stress responses may also provide important information about how individuals respond to social stress and whether victimization experiences compromise individuals' long-term physical health via acute stress responses. Utilizing paradigms like the Trier Social Stress Test (TSST; Kirschbaum, Pirke, & Hellhammer, 1993) or developing unique paradigms by utilizing confederates could aid in these investigations.

Utilizing experience sampling procedures may also be beneficial for understanding day-to-day relationship experiences of individuals who report victimization. For example, having victims complete daily diary entries assessing relationship interactions and linking these experiences with mood and biomarkers could provide support for the current hypotheses.

The present study was limited by the measures available. Because this study utilized secondary data, it was limited by the types of measures that could be included. The construct of submissive behavior in the current study is noteworthy because it did not correspond with expectations. Decision making power was inversely associated with being the first to apologize after a disagreement and trying to be responsive to a partner's mood. The latter two items were retained in the present study for conceptual reasons; however, post-hoc analyses suggest that decision making power was also not associated with ADV ($r = .05$, $p = .23$), physical intimate partner victimization ($r = -.01$, $p = .77$), relationship quality ($r = -.03$, $p = .52$), T3 depressive symptoms ($r = .04$, $p = .35$), T3 CRP ($r = .03$, $p = .51$), or T3 perceived health ($r = -.04$, $p = .35$).

Preliminary models suggest a marginally significant inverse association between ADV and submissive behavior. It appears that submissive behavior may instead capture a tendency and willingness to compromise with a romantic partner. This is particularly evident by its significant, positive association with perceived relationship quality. Previous research suggests that the ability to compromise and be attentive to a relationship partner improves relationship quality and satisfaction (Yoo & Noyes, 2016). Thus, ADV may impact victims' behavior in future relationships such that they become more rigid and less attentive to partners' needs as a defensive reaction to prior victimization. This marginal association was not found in the final, modified model. However, this finding may be important for further investigation.

Dichotomous response options to capture experiences of relationship violence, which were used for the measure of ADV, fail to consider the frequency and severity of these experiences. Furthermore, measures like the one used in the present study to assess intimate partner victimization have elicited criticism for not capturing the severity of the event and its impact on the victim (Morse, 1995). Another shortcoming of the measures of ADV and intimate partner victimization is that they only assess psychological and physical violence. Including sexual violence may be critical. Sexual relationship violence victimization is associated with dire health consequences, is more common among women, and co-occurs with other forms of abuse (Campbell & Soeken, 1999; Tjaden & Thoennes, 2000). Richer measures that evaluate the frequency, severity, and impact of multiple forms of abuse will be important to more accurately assess the impact of ADV and intimate partner victimization. This coincides with the need to improve other measures used in the current study.

Conclusion

This study examined links between psychological and physical ADV, young adult physical intimate partner violence victimization, perceived relationship quality and submissive behavior, and psychological and physical well-being across three time points among a subset of the Add Health sample that was in a heterosexual romantic relationship in young adulthood. Given the mixed findings in past studies, gender differences were examined; however, no specific hypotheses were made. The more acts of physical and psychological dating violence that men experienced during adolescence, the more acts of physical violence they experienced in a committed romantic relationship in young adulthood. In contrast, there was no relationship between physical and psychological dating violence experienced during adolescence and physical violence experienced in a committed romantic relationship in young adulthood for women. More physical intimate partner violence victimization in young adulthood was associated with lower concurrent perceived relationship quality, greater concurrent depressive symptoms, and lower concurrent perceived health. Perceived relationship quality was associated with decreased concurrent depressive symptoms for men and women; however, this association was stronger for women. Finally, perceived health and depressive symptoms assessed at the first timepoint in adulthood were associated with the same constructs assessed at the following timepoint. Future research should continue to explore the paths through which victimization in romantic relationships in adolescence and young adulthood impact long-term psychological and physical health.

APPENDIX A:
RELEVANT MEASURES FROM THE NATIONAL LONGITUDINAL STUDY OF ADOLESCENT TO ADULT HEALTH

Table of Contents

Wave 1 Section 1: General Introduction

Race
H1GI4: Are you of Hispanic or Latino origin?

What is your Hispanic or Latino background?
H1GI5A: Mexican/Mexican American
H1GI5B: Chicano/Chicana
H1GI5C: Cuban/Cuban American
H1GI5D: Puerto Rican
H1GI5E: Central/South American
H1GI5F: Other Hispanic

What is your race?
H1GI6A: White
H1GI6B: Black or African American
H1GI6C: American Indian or Native American
H1GI6D: Asian or Pacific Islander
H1GI6E: Other

What is your Asian background?
H1GI7A: Chinese
H1GI7B: Filipino
H1GI7C: Japanese
H1GI7D: Asian Indian
H1GI73: Korean
H1GI7F: Vietnamese
H1GI7G: Other

Race was used for descriptive purposes only.

Wave 2 Section A: Preloaded and Constructed Variables

Gender
BIO_SEX: Interviewer, please confirm that R's sex is (male) female. (Ask if necessary.)
1: R is male
2: R is female

Age
CALCAGE2
11: 11 years old
12: 12 years old
13: 13 years old
14: 14 years old
15: 15 years old
16: 16 years old
17: 17 years old
18: 18 years old
19: 19 years old
20: 20 years old
21: 21 years old
22: 22 years old
23: 23 years old

Wave 2 Section 21: Romantic Relationship Roster

Identification of Adolescent Romantic Relationship in Past 18 Months

In Section 21, the respondent identified as many as three recent romantic relationships.

H2RR2A: In the last 18 months – since [MONTH, YEAR] – have you had a romantic relationship with any one?
0: no [skip to next section]
1: yes
6: refused [skip to next section]
8: don't know [skip to next section]

Please give me the first and last initials of each person with whom you have had a special romantic relationship in the last 18 months. When you have finished this part of the interview, all the initials will be erased from the computer. You can list boys and girls.

H2RR2B: Have you had a special romantic relationship in the last 18 months with any other person?
0: no [skip to H2RR4]
1: yes [enter initials of second person]
6: refused [enter initials of second person]
7: legitimate skip

H2RR2C: Have you had a special romantic relationship in the last 18 months with any other person?
0: no [skip to H2RR4]
1: yes [enter initials of third person]
6: refused [enter initials of third person]
7: legitimate skip
8: don't know [enter initials of third person]

H2RR2D: Have you had a special romantic relationship in the last 18 months with any other person?
0: no [skip to H2RR4]

1: yes
6: refused
7: legitimate skip
8: don't know

For each person whose initials have been recorded, ask H2RR4-6.

H2RR4A: Did you ever hold hands with [INITIALS]? 1st person
0: no
1: yes
6: refused
7: legitimate skip
8: don't know

H2RR5A: Did you and [INITIALS] ever kiss on the mouth? 1st person
0: no
1: yes
6: refused
7: legitimate skip
8: don't know

H2RR6A: Did you ever tell [INITIALS] you liked or loved him or her? 1st person
0: no
1: yes
6: refused
7: legitimate skip
8: don't know

H2RR4B: Did you ever hold hands with [INITIALS]? 2nd person
0: no
1: yes
6: refused
7: legitimate skip
8: don't know

H2RR5B: Did you and [INITIALS] ever kiss on the mouth? 2nd person
0: no
1: yes
6: refused
7: legitimate skip
8: don't know

H2RR6B: Did you ever tell [INITIALS] you liked or loved him or her? 2nd person
0: no
1: yes
6: refused
7: legitimate skip
8: don't know

H2RR4C: Did you ever hold hands with [INITIALS]? 3rd person
0: no
1: yes
6: refused
7: legitimate skip
8: don't know

H2RR5C: Did you and [INITIALS] ever kiss on the mouth? 3rd person
0: no
1: yes
6: refused
7: legitimate skip
8: don't know

H2RR6C: Did you ever tell [INITIALS] you liked or loved him or her? 3rd person
0: no
1: yes
6: refused
7: legitimate skip
8: don't know

Wave 2 Section 22: Liked Relationship Roster

Section 22 is administered only to respondents who have not reported any romantic relationships in Section 21. It seeks to identify, by their behavior, respondents who are presently in such relationships. A "no" answer to any of questions 1-4 skips a respondent out of this section. Administer this section if S.21. H2RR2A = "no, don't know, or refused."

H2LR1: In the last 18 months, did you ever hold hands with someone who was not a member of your family?
0: no [skip to next section]
1: yes
6: refused
7: legitimate skip
8: don't know

H2LR2: In the last 18 months, did you ever kiss someone on the mouth who was not a member of your family?
0: no {skip to next section]
1: yes
6: refused
7: legitimate skip
8: don't know

H2LR3: In the last 18 months, did you ever tell someone who was not a member of your family that you liked or loved them?
0: no [skip to next section]
1: yes
6: refused
7: legitimate skip
8: don't know

H2LR4: Did you do these three things with the same person?
0: no [skip to next section]
1: yes
6: refused
7: legitimate skip
8: don't know

Please give me the first and last initials of the person with whom you have done these three things. If there is more than one person, give me the initials of the one you feel closest to now.

An affirmative response to H2RR2A or H2LR1-H2LR4 was considered a romantic relationship

Wave 2 Section 24: Relationship Information

Adolescent Romantic Relationship Introduction

Section 24 collects information about each romantic relationship identified in Section 21 or 22. (if no relationships were identified, this section is skipped.) Information includes beginning and ending dates of the relationship, characteristics of the romantic relationship partner, and activities within the relationship. Security procedures prevent the identification of romantic relationship partners by researchers.

As the questions in this section for each person in the Romantic Relationship Roster.

Now we are going to ask you questions about the people you listed earlier as romantic relationship partners.

H2RI1M_1: In what month [and year] did your romantic relationship with [INITIALS] begin? That is, when did you first consider [initials] a special friend?

If you don't remember the month, press the [F8] key for month and enter year. If you don't remember the year, press [F8] again for year.

If you don't consider this person to be a romantic friend, enter "00" for both month and year. [This is an answer option for a partner transferred from the Liked Relationship Section or for a partner entered from the Romantic Relationship Section for whom H2RR4 or H2RR5 or H2RR6 = "no". If month = "00" and year = "00," skip to the next partner or next section.]

Relationship Enmeshment

In what ways did you know [INITIALS] before your romantic relationship began? (If you knew [INITIALS] in more than one way, choose more than one answer.)
*H2RI7A_1: You went to the same school
0: not marked
1: marked
6: refused
7: legitimate skip
8: don't know

*H2RI7B_1: You went to the same church, synagogue, or place of worship.
0: not marked
1: marked
6: refused
7: legitimate skip
8: don't know

*H2RI7C_1: You were neighbors.
0: not marked
1: marked
6: refused
7: legitimate skip
8: don't know

*H2RI7D_1: You were casual acquaintances.
0: not marked
1: marked
6: refused
7: legitimate skip

8: don't know

*H2RI7E_1: You were friends.
0: not marked
1: marked
6: refused
7: legitimate skip
8: don't know

*H2RI7F_1: [INITIALS] was a friend of another friend of yours.
0: not marked
1: marked
6: refused
7: legitimate skip
8: don't know

H2RI7G_1: Some other way.
0: not marked
1: marked
6: refused
7: legitimate skip
8: don't know

H2RI7H_1: You did not know [INITIALS] before your romantic relationship began. Your relationship began at your first meeting.
0: not marked
1: marked
6: refused
7: legitimate skip
8: don't know

*H2RI8_1: When your romantic relationship with [INITIALS] began, how many of your close friends knew [INITIALS]?
1: all of them
2: most of them
3: a few of them
4: one of them
5: none of them
6: When your romantic relationship with [INITIALS] began, you had no close friends.
96: refused
97: legitimate skip
98: don't know

*Relationship Enmeshment items marked with * were used in the present study. Those not marked with an * were omitted from the summed score measuring Relationship Enmeshment.*

Adolescent Dating Violence

During your relationship with [INITIALS], did [INITIALS] do any of the following to you?
H2RI9_1: Did [INITIALS] call you names, insult you, or treat you disrespectfully in front of others?
0: no
1: yes
6: refused
7: legitimate skip
8: don't know

H2RI11_1: Did [INITIALS] swear at you?
0: no
1: yes
6: refused
7: legitimate skip
8: don't know

HRI13_1: Did [INITIALS] threaten you with violence?
0: no
1: yes
6: refused
7: legitimate skip
8: don't know

H2RI15_1: Did [INITIALS] push or shove you?
0: no
1: yes
6: refused
7: legitimate skip
8: don't know

H2RI17_1: Did [INITIALS] throw something at you that could hurt you?
0: no
1: yes
6: refused
7: legitimate skip
8: don't know

Recency of Adolescent Dating Relationship

H2RI19_1: Is your romantic relationship with [INITIALS] still going on?
0: no
1: yes [skip to Q.22]
6: refused [skip to Q.22]
7: legitimate skip
8: don't know [skip to Q.22]

H2RI20M1: In what month [and year] did your romantic relationship with [INITIALS] end? If you don't remember the month, press the [F8] key for month and enter year. If you don't remember the year, press [F8] again for year.

H2RI20Y1: In what [month and] year did your romantic relationship with [INITIALS] end?

These questions were repeated for each of up to 3 romantic relationships. Each item number is the same, followed by _2 or _3 for additional relationships.

Wave 3 Section 17: Compiling a Table of Relationships [short list]

Adult Romantic Relationship Introduction

The table created herein represents the Relationships Data Set (RDS), with one record per "recent" (since Summer 1995) relationship. There are as many (or as few) records as are appropriate to the respondent.

Instructions: [Screen 01] 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. To keep track of things as you go through this section, please list only the first name, initials, or a nickname of your partner in each such relationship. As soon as we finish today's session, the list will be erased from the computer's memory in order to preserve your privacy. Please press Enter.

[Screen 02] If you have been involved with the same person more than once, think of this as one relationship rather than as two or three relationships, and list the person only once. Please be especially careful to list recent relationships, even those that may have been very short-term. Type the name or initials of your first partner and then press ENTER. Continue until all partners are listed. When you have no other partners to add, press ENTER without typing in any information. If you have had no romantic or sexual relationships in the last six years, press the ENTER key now without typing anything else.

Please double-check the name you just entered. Is this the name or nickname of a partner with who you have been in a relationship since June 1995.

[Enter. If R enters the same name twice, display pop-up box:] This person has already been listed. Give nickname if different person." [R must press Enter to remove pop-up box.]

[When R presses Enter twice in a row, display pop-up box:] Is this all of your partners in the past 5 years:? [Responses: no [return to Screen 02], yes [continue]].

Screening Items to Determine Current Adult Romantic Relationship for Couples Sample

RRELNO: Romantic relationship number.

H3TR1: Are you currently involved in a sexual or romantic relationship with [INITIALS]?
0: no, this is not a current relationship
1: yes, this is a current relationship
6: refused
8: don't know
9: not applicable
-: missing

H3TR2: Has your relationship with [INITIALS] lasted for at least three months in total? If a relationship began, ended, and began again, count both periods in the relationship to calculate its length. Do not count the time when the relationship seemed to have ended.
0: no, this relationship did not last three months.
1: yes, this relationship lasted three months
6: refused
8: don't know
9: not applicable
-: missing

H3TR3: Please indicate whether [INITIALS] is male or female.
1: male
2: female

H3TR4: Please indicate whether [INITIALS] is older or younger than you.
1: older
2: younger
3: same age
-: missing

H3TR5: How many years [older/younger] than you is [INITIALS]?
PAGE: Calculated partner age.

H3TR6: Please indicate the race of [INITIALS].
1: American Indian/Native American
2: Asian/Pacific Islander
3: black/African-American
4: white
5: other
6: refused
8: don't know
9: not applicable
-: missing

H3TR7: Is [INITIALS] of Hispanic or Latino origin?
0: no, this person is not Hispanic
1: yes, this person is Hispanic
6: refused
8: don't know
9: not applicable
-: missing

H3TR8: Have you had sexual relations with [INITIALS]?
0: no, we have not had sexual relations
1: yes, we have had sexual relations
6: refused
8: don't know
9: not applicable
-: missing
H3TR9: Please indicate whether your relationship with [INITIALS] included a pregnancy.
0: no, this relationship did not include a pregnancy [skip to Q.11]
1: yes, this relationship included a pregnancy
6: refused
8: don't know
9: not applicable
-: missing

H3TR10: How many pregnancies occurred with [INITIALS]?
1: 1 pregnancy
2: 2 pregnancies
3: 3 pregnancies
4: 4 pregnancies
5: 5 pregnancies
6: 6 pregnancies
7: 7 pregnancies
8: 8 pregnancies
10: 10 pregnancies
97: legitimate skip
-: missing

You have indicated ## pregnancies with [INITIALS]. Is this correct? If yes, continue to next screen. If not, return to Q.10.

H3TR11: We'd like to know if you and [INITIALS] currently live together, or lived together at some time in the past. Please select the sentence below which best describes your relationship.
0: you have never lived together
1: you live together at the present time
2: you lived together in past, but do not live together now
6: refused

8: don't know
9: not applicable
-: missing

H3TR12: We'd like to know if you and [INITIALS] are currently married, or were ever married. Please select the sentence below which best describes your relationship.
0: you have never been married
1: you are currently married
2: you were once married, but are not married now
6: refused
8: don't know
9: not applicable
-: missing

H3TR13: Did you and [INITIALS] ever adopt a child?
0: no, we did not adopt a child
1: yes, we did adopt a child
6: refused
8: don't know
9: not applicable
-: missing

Criteria for Selecting the Relationship for the Couples Sample

Relationships were selected as MM (sexual), CP (Couples sample) or JRU (two of the most important based on numerous criteria). Relationship descriptions could overlap. Only those that were set as a CP relationship completed all the measures of interest in section 19 (see Appendix B). Therefore, only the CP sample was used in the present study.

The CP sample was designed to collect information on one-third married, one-third cohabiting, and one-third dating partners of Add Health respondents, with a maximum number of 1,500 partners to be interviewed. One-half of the original Add Health respondents were randomly selected and flagged (PARTNER = 1) to be considered for this sample. In Section 17, when a respondent with PARTNER = 1 was interviewed, all relationships were evaluated for the following.

1. Opposite sex relationship.
2. Current relationship (H3TR1 = 1).
3. Duration of 3 months or more (H3TR2 = 1).
4. Partner 18 or older (PAGE 6 18).

If no relationship meets the above criteria, skip to the next section. If there is only one such record, set its value of CP to 1 and skip to the next section. If there are two or more such records, choose the CP relationship from among them as follows.

1. For each relationship that has met the CP criteria, add up the occurrence of marriage, past or present (H3TR12 = 1 or 2), co-habitation, past or present (H3TR11 = 1 or 2), sexual relations (H3TR8 = 1), adoption (H3TR13 = 1), and the number of pregnancies (H3TR10 6 1). Store the sum in CPSUM.

2. Choose the relationship with the highest value of CPSUM.

3. If two or more relationships share the highest CPSUM value, choose that in which the partner is oldest.

4. If there is a tie for oldest partner, choose—among those tied—the relationship in which the partner's race is not that of the respondent.

5. If in all tied relationships the partner and the respondent are of the same race, or in more than one they are of different races, erase the screen, list the identifiers of these partners (can't choose on the basis of CPSUM, age, or race), and display: "To which of these relationship partners do you feel {CLOSER/CLOSEST}? Indicate that partner by highlighting {HIS/HER} name and pressing "Enter."

When one relationship has been chosen (by whatever means), set its value of CP to 1 and skip to the next section.

Section 19: Relationships in Detail

Introduction to Relationships in Detail

Administer Section 19 for each relationship identified as: chosen for the Couples Sample (CP); chosen as a recent sexual relationship (MM); chosen as an important relationship (JRU); or any combination of these identifications.

RRELNO: Romantic relationship number.

[If the relationship is marked current relationship and Q.3 = 1, calculate LONG by comparing Q.6M (or perhaps Q.7) and Q.6Y to the interview date. If the relationship is marked current relationship and Q.3 = 0, calculate LONG by comparing Q.10M (or perhaps Q.11) and Q.10Y1 to the interview date. If more than a year has elapsed since the romantic or sexual relationship began, set LONG = 1. If missing values make it impossible to determine the length of the relationship, also set LONG = 1.]

Adult Intimate Partner Violence

No matter how well a couple gets along, there are times when they disagree or fight. Couples have many ways of settling their differences. Please indicate how often each of the following things has occurred [if LONG = 1, add: "during the past year"] in your relationship with [PARTNER].

*H3RD110: How often [if LONG = 1, add: "in the past year"] has [PARTNER] threatened you with violence, pushed or shoved you, or thrown something at you that could hurt?
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 [If LONG = 1, add:]
7: this hasn't happened in the past year, but did happen before then.
95: question not asked of this respondent
96: refused
98: don't know
99: not applicable
-: missing

*H3RD112: How often [if LONG = 1, add: "in the past year"] has [PARTNER] slapped, hit, or kicked you?
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 [If LONG = 1, add:]
7: this hasn't happened in the past year, but did happen before then.

95: question not asked of this respondent
96: refused
98: don't know
99: not applicable
-: missing

H3RD114: How often [if LONG = 1, add: "in the past year"] has [PARTNER] insisted on or made you have sexual relations with [HIM/HER] when you didn't want to?
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 [If LONG = 1, add:]
7: this hasn't happened in the past year, but did happen before then.
95: question not asked of this respondent
96: refused
98: don't know
99: not applicable
-: missing

H3RD115: How often [if LONG = 1, add: "in the past year"] have you had an injury, such as a sprain, bruise, or cut because of a fight with [PARTNER]?
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 [If LONG = 1, add:]
7: this hasn't happened in the past year, but did happen before then.
95: question not asked of this respondent
96: refused
98: don't know
99: not applicable
-: missing

*Intimate Partner Victimization items marked with * were used in the present study. Those not marked with an * were omitted from the score for Intimate Partner Victimization.*

Perceived Relationship Quality

H3RD119: In general, how satisfied are you with your relationship with [PARTNER]?
1: very satisfied
2: somewhat satisfied
3: neither dissatisfied or satisfied
4: somewhat dissatisfied
5: very dissatisfied
95: question not asked of this respondent
96: refused
98: don't know
99: not applicable
-: missing

H3RD120: How much do you love [PARTNER]?

0: a lot
1: somewhat
2: a little
3: not at all
5: question not asked of this respondent
6: refused
8: don't know
9: not applicable
-: missing

H3RD121: How much do you think [PARTNER] loves you?
0: a lot
1: somewhat
2: a little
3: not at all
5: question not asked of this respondent
6: refused
8: don't know
9: not applicable
-: missing

Submissive Behavior

In your relationship with [PARTNER], what proportion of the time do you do the following?

H3RD125: You decide what to do or where to go when you go out.
0: never/hardly ever
1: less than half the time
2: about half the time
3: more than half the time
4: most of the time/every time
5: question not asked of this respondent
6: refused
8: don't know
9: not applicable
-: missing

H3RD126: You are the first to apologize after a disagreement or argument.
0: never/hardly ever
1: less than half the time
2: about half the time
3: more than half the time
4: most of the time/every time
5: question not asked of this respondent
6: refused
8: don't know
9: not applicable
-: missing

H3RD129: You try to notice and respond to [PARTNER'S] mood changes.
0: never/hardly ever
1: less than half the time
2: about half the time
3: more than half the time
4: most of the time/every time
5: question not asked of this respondent

6: refused
8: don't know
9: not applicable
-: missing

E_SUBSEC: Version of Section 19 administered. (See Appendix B)
1: Couples sample/Morris sample/Udry sample
2: Couples sample/Morris sample
3: Couples sample/Udry sample
4: Morris sample/Udry sample
5: Couples sample
6: Morris sample
7: Udry sample

Wave 3 Section 12: Social Psychology and Mental Health

Depressive Symptoms at Wave 3 (Time 2)

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

H3SP5: You were bothered by things that don't usually bother you.
0: never or rarely
1: sometimes
2: a lot of the time
3: most of the time or all of the time
6: refused
8: don't know
9: not applicable

H3SP6: You could not shake off the blues, even with help from your family and your friends, during the past seven days.
0: never or rarely
1: sometimes
2: a lot of the time
3: most of the time or all of the time
6: refused
8: don't know
9: not applicable

H3SP7: You felt that you were just as good as other people, during the past seven days.
0: never or rarely
1: sometimes
2: a lot of the time
3: most of the time or all of the time
6: refused
8: don't know
9: not applicable

H3SP8: You had trouble keeping your mind on what you were doing, during the past seven days.
0: never or rarely
1: sometimes
2: a lot of the time
3: most of the time or all of the time
6: refused

8: don't know
9: not applicable

H3SP9: You were depressed, during the past seven days.
0: never or rarely
1: sometimes
2: a lot of the time
3: most of the time or all of the time
6: refused
8: don't know
9: not applicable

H3SP10: You were too tired to do things, during the past seven days.
0: never or rarely
1: sometimes
2: a lot of the time
3: most of the time or all of the time
6: refused
8: don't know
9: not applicable

H3SP11: You enjoyed life, during the past seven days.
0: never or rarely
1: sometimes
2: a lot of the time
3: most of the time or all of the time
6: refused
8: don't know
9: not applicable

H3SP12: You were sad, during the past seven days.
0: never or rarely
1: sometimes
2: a lot of the time
3: most of the time or all of the time
6: refused
8: don't know
9: not applicable

H3SP13: You felt that people disliked you, during the past seven days.
0: never or rarely
1: sometimes
2: a lot of the time
3: most of the time or all of the time
6: refused
8: don't know
9: not applicable

Perceived Physical Health at Wave 3 (Time 2):

Wave 3 Section 9: General Health and Diet

H3GH1: In general, how is your health?
1: excellent
2: very good
3: good

4: fair
5: poor

Wave 4 Section 14: Social Psychology and Mental Health

Depressive Symptoms at Wave 4 (Time 3)

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

H4MH18: You were bothered by things that usually don't bother you.
0: never or rarely
1: sometimes
2: a lot of the time
3: most of the time or all of the time
6: refused
8: don't know

H4MH19: (During the past seven days:) You could not shake off the blues, even with help from your family and your friends.
0: never or rarely
1: sometimes
2: a lot of the time
3: most of the time or all of the time
6: refused
8: don't know

H4MH20: (During the past seven days:) You felt you were just as good as other people.
0: never or rarely
1: sometimes
2: a lot of the time
3: most of the time or all of the time
6: refused
8: don't know

H4MH21: (During the past seven days:) You had trouble keeping your mind on what you were doing.
0: never or rarely
1: sometimes
2: a lot of the time
3: most of the time or all of the time
6: refused
8: don't know

H4MH22: (During the past seven days:) You felt depressed.
0: never or rarely
1: sometimes
2: a lot of the time
3: most of the time or all of the time
6: refused
8: don't know

H4MH23: (During the past seven days:) You felt that you were too tired to do things.
0: never or rarely
1: sometimes
2: a lot of the time

3: most of the time or all of the time
6: refused
8: don't know

*H4MH24: (During the past seven days:) You felt happy.
0: never or rarely
1: sometimes
2: a lot of the time
3: most of the time or all of the time
6: refused
8: don't know

H4MH25: (During the past seven days:) You enjoyed life.
0: never or rarely
1: sometimes
2: a lot of the time
3: most of the time or all of the time
6: refused
8: don't know

H4MH26: (During the past seven days:) You felt sad.
0: never or rarely
1: sometimes
2: a lot of the time
3: most of the time or all of the time
6: refused
8: don't know

H4MH27: (During the past seven days:) You felt that people disliked you, during the past seven days.
0: never or rarely
1: sometimes
2: a lot of the time
3: most of the time or all of the time
6: refused
8: don't know

*The item marked with * was added at T3 and was excluded in the present study to match the measure at T2.*

Perceived Physical Health at Wave 4 (Time 3):

Wave 4 Section 4: General Health and Diet

H4GH1: In general, how is your health?
1: excellent
2: very good
3: good
4: fair
5: poor

Covariates:

Wave 2 Section 18: Personality and Family
H2PF1: Most of the time, {MOM NAME} is warm and loving toward you.
1: Strongly agree
2: Agree

3: Neither agree nor disagree
4: Disagree
5: Strongly disagree
6: Refused
7: Legitimate skip
8: Don’t know

H2PF4: You are satisfied with the way {MOM NAME} and you communicate with each other.
1: Strongly agree
2: Agree
3: Neither agree nor disagree
4: Disagree
5: Strongly disagree
6: Refused
7: Legitimate skip
8: Don’t know

H2PF5: Overall, you are satisfied with your relationship with {MOM NAME}.
1: Strongly agree
2: Agree
3: Neither agree nor disagree
4: Disagree
5: Strongly disagree
6: Refused
7: Legitimate skip
8: Don’t know

H2PF8: Most of the time, {DAD NAME} is warm and loving toward you.
1: Strongly agree
2: Agree
3: Neither agree nor disagree
4: Disagree
5: Strongly disagree
6: Refused
7: Legitimate skip
8: Don’t know

H2PF9: You are satisfied with the way {DAD NAME} and you communicate with each other.
1: Strongly agree
2: Agree
3: Neither agree nor disagree
4: Disagree
5: Strongly disagree
6: Refused
7: Legitimate skip
8: Don’t know

H2PF10: Overall, you are satisfied with your relationship with {DAD NAME}.
1: Strongly agree
2: Agree
3: Neither agree nor disagree
4: Disagree
5: Strongly disagree
6: Refused
7: Legitimate skip
8: Don’t know

Wave 4 Section 24: Mistreatment by Adults

H4MA1: Before your 18th birthday, how often did a parent or other adult caregiver say things that really hurt your feelings or made you feel like you were not wanted or loved?
1: One time
2: Two times
3: Three to five times
4: Six to ten times
5: More than ten times
6: This has never happened
96: Refused
98: Don't know

H4MA3: Before your 18th birthday, how often did a parent or adult caregiver hit you with a fist, kick you, or throw you down on the floor, into a wall, or down stairs?
1: One time
2: Two times
3: Three to five times
4: Six to ten times
5: More than ten times
6: This has never happened
96: Refused
98: Don't know

H4MA5: How often did a parent or other adult caregiver touch you in a sexual way, force you to touch him or her in a sexual way, or force you to have sexual relations?
1: One time
2: Two times
3: Three to five times
4: Six to ten times
5: More than ten times
6: This has never happened
96: Refused
98: Don't know

Wave 4 Section 27: Biospecimen Participation

H4BMI: Body mass index
Range: 14.4-97.7
888: over limit
889: weight inconsistent with height, waist and sex
996: refused
997: legitimate skip
999: invalid data

Wave 4 Section 23: Tobacco, Alcohol, Drugs

H4TO5: During the past 30 days, on how many days did you smoke cigarettes?
Range: 0-30
96: refused
98: don't know

APPENDIX B: RELATIONSHIP IN DETAIL QUESTIONS

The following tables indicate what Relationship in Detail questions were presented according to the type of relationship participants reported. CP refers to Couples Sample, MM refers to sexual relationships, and JRU refers to an important relationship. These categories could overlap. The present study will use all categories that include CP, or Couples Sample.

Variables in the Seven Versions of Section 19 Wave III

	I CP/MM/JRU	II CP/MM	III CP/JRU	IV MM/JRU	V CP	VI MM	VII JRU
H3RD1	✔		✔	✔			✔
H3RD2	✔		✔	✔			✔
H3RD3	✔		✔	✔	✔		✔
H3RD4	✔		✔	✔	✔		✔
H3RD5	✔		✔	✔	✔		✔
H3RD6M	✔		✔	✔	✔		✔
H3RD6Y	✔		✔	✔	✔		✔
H3RD7	✔		✔	✔	✔		✔
H3RD8	✔	✔	✔	✔	✔	✔	✔
H3RD9	✔	✔	✔	✔	✔	✔	✔
H3RD10M	✔	✔	✔	✔	✔	✔	✔
H3RD10Y	✔	✔	✔	✔	✔	✔	✔
H3RD11	✔	✔	✔	✔	✔	✔	✔
H3RD12M	✔	✔	✔	✔	✔	✔	✔
H3RD12Y	✔	✔	✔	✔	✔	✔	✔
H3RD13	✔	✔	✔	✔	✔	✔	✔
H3RD14A	✔	✔	✔	✔	✔	✔	✔
H3RD14B	✔	✔	✔	✔	✔	✔	✔
H3RD15A	✔	✔		✔		✔	
H3RD15B	✔	✔		✔		✔	
H3RD16A	✔	✔		✔		✔	
H3RD16B	✔	✔		✔		✔	
H3RD16T1				✔		✔	
H3RD16T2				✔		✔	
H3RD17A	✔	✔		✔		✔	
H3RD17B	✔	✔		✔		✔	
H3RD18A	✔	✔	✔	✔	✔	✔	✔
H3RD18B	✔	✔	✔	✔	✔	✔	✔
H3RD19A				✔		✔	✔

	I CP/MM/JRU	II CP/MM	III CP/JRU	IV MM/JRU	V CP	VI MM	VII JRU
H3RD19B				✔		✔	✔
H3RD20M				✔		✔	✔
H3RD20Y				✔		✔	✔
H3RD21				✔		✔	✔
H3RD22	✔	✔	✔		✔		
H3RD23A	✔	✔	✔		✔		
H3RD23B	✔	✔	✔		✔		
H3RD23C	✔	✔	✔		✔		
H3RD23D	✔	✔	✔		✔		
H3RD23E	✔	✔	✔		✔		
H3RD24	✔	✔	✔		✔		
H3RD25A	✔	✔	✔		✔		
H3RD25B	✔	✔	✔		✔		
H3RD25C	✔	✔	✔		✔		
H3RD25D	✔	✔	✔		✔		
H3RD25E	✔	✔	✔		✔		
H3RD26	✔	✔	✔	✔	✔	✔	✔
H3RD27	✔	✔	✔	✔	✔	✔	✔
H3RD28	✔	✔	✔		✔		
H3RD29	✔	✔	✔		✔		
H3RD30	✔	✔	✔		✔		
H3RD31	✔	✔	✔		✔		
H3RD32	✔	✔	✔		✔		
H3RD33	✔	✔	✔		✔		
H3RD34	✔	✔	✔		✔		
H3RD35	✔	✔	✔		✔		
H3RD36	✔	✔	✔		✔		
H3RD37	✔	✔	✔		✔		
H3RD38	✔	✔	✔		✔		
H3RD39	✔	✔	✔	✔	✔	✔	✔
H3RD40	✔	✔	✔	✔	✔	✔	✔

	I CP/MM/JRU	II CP/MM	III CP/JRU	IV MM/JRU	V CP	VI MM	VII JRU
H3RD41	✔	✔	✔	✔	✔	✔	✔
H3RD42	✔	✔	✔	✔	✔	✔	✔
H3RD43	✔	✔		✔		✔	
H3RD44	✔	✔		✔		✔	
H3RD45A	✔	✔		✔		✔	
H3RD45B	✔	✔		✔		✔	
H3RD45C	✔	✔		✔		✔	
H3RD45D	✔	✔		✔		✔	
H3RD45E	✔	✔		✔		✔	
H3RD45F	✔	✔		✔		✔	
H3RD45G	✔	✔		✔		✔	
H3RD45H	✔	✔		✔		✔	
H3RD45I	✔	✔		✔		✔	
H3RD45J	✔	✔		✔		✔	
H3RD45K	✔	✔		✔		✔	
H3RD45L	✔	✔		✔		✔	
H3RD45M	✔	✔		✔		✔	
H3RD46	✔	✔		✔		✔	
H3RD47M	✔	✔		✔		✔	
H3RD47Y	✔	✔		✔		✔	
H3RD48A	✔	✔		✔		✔	
H3RD48B	✔	✔		✔		✔	
H3RD49	✔	✔		✔		✔	
H3RD50A	✔	✔		✔		✔	
H3RD50B	✔	✔		✔		✔	
H3RD50C	✔	✔		✔		✔	
H3RD50D	✔	✔		✔		✔	
H3RD50E	✔	✔		✔		✔	
H3RD50F	✔	✔		✔		✔	
H3RD50G	✔	✔		✔		✔	
H3RD50H	✔	✔		✔		✔	

	I CP/MM/JRU	II CP/MM	III CP/JRU	IV MM/JRU	V CP	VI MM	VII JRU
H3RD50I	✔	✔		✔		✔	
H3RD50J	✔	✔		✔		✔	
H3RD50K	✔	✔		✔		✔	
H3RD50L	✔	✔		✔		✔	
H3RD50M	✔	✔		✔		✔	
H3RD51	✔	✔		✔		✔	
H3RD52M	✔	✔		✔		✔	
H3RD52Y	✔	✔		✔		✔	
H3RD53	✔	✔		✔		✔	
H3RD54A	✔	✔		✔		✔	
H3RD54B	✔	✔		✔		✔	
H3RD54C	✔	✔		✔		✔	
H3RD54D	✔	✔		✔		✔	
H3RD54E	✔	✔		✔		✔	
H3RD54F	✔	✔		✔		✔	
H3RD54G	✔	✔		✔		✔	
H3RD54H	✔	✔		✔		✔	
H3RD54I	✔	✔		✔		✔	
H3RD54J	✔	✔		✔		✔	
H3RD54K	✔	✔		✔		✔	
H3RD54L	✔	✔		✔		✔	
H3RD54M	✔	✔		✔		✔	
H3RD55	✔	✔		✔		✔	
H3RD56	✔	✔	✔	✔	✔		✔
H3RD57	✔	✔		✔		✔	
H3RD58	✔	✔	✔	✔	✔	✔	✔
H3RD59	✔	✔	✔	✔	✔	✔	✔
H3RD60	✔	✔		✔		✔	
H3RD61	✔	✔		✔		✔	
H3RD62M	✔	✔		✔		✔	
H3RD62Y	✔	✔		✔		✔	

	I CP/MM/JRU	II CP/MM	III CP/JRU	IV MM/JRU	V CP	VI MM	VII JRU
H3RD63A	✔	✔		✔		✔	
H3RD63B	✔	✔		✔		✔	
H3RD64	✔	✔		✔		✔	
H3RD65	✔	✔		✔		✔	
H3RD66M	✔	✔		✔		✔	
H3RD66Y	✔	✔		✔		✔	
H3RD67	✔	✔		✔		✔	
H3RD68	✔	✔	✔	✔	✔		✔
H3RD69	✔	✔		✔		✔	
H3RD70	✔	✔	✔	✔	✔	✔	✔
H3RD71	✔	✔	✔	✔	✔	✔	✔
H3RD72	✔	✔		✔		✔	
H3RD73	✔	✔		✔		✔	
H3RD74M	✔	✔		✔		✔	
H3RD74Y	✔	✔		✔		✔	
H3RD75A	✔	✔		✔		✔	
H3RD75B	✔	✔		✔		✔	
H3RD76	✔	✔		✔		✔	
H3RD77	✔	✔		✔		✔	
H3RD78M	✔	✔		✔		✔	
H3RD78Y	✔	✔		✔		✔	
H3RD79	✔	✔		✔		✔	
H3RD80	✔	✔	✔	✔	✔		✔
H3RD81	✔	✔		✔		✔	
H3RD82	✔	✔	✔	✔	✔	✔	✔
H3RD83	✔	✔	✔	✔	✔	✔	✔
H3RD84	✔	✔		✔		✔	
H3RD85	✔	✔		✔		✔	
H3RD86M	✔	✔		✔		✔	
H3RD86Y	✔	✔		✔		✔	
H3RD87A	✔	✔		✔		✔	

	I CP/MM/JRU	II CP/MM	III CP/JRU	IV MM/JRU	V CP	VI MM	VII JRU
H3RD87B	✔	✔		✔		✔	
H3RD88	✔	✔		✔		✔	
H3RD89	✔	✔		✔		✔	
H3RD90M	✔	✔		✔		✔	
H3RD90Y	✔	✔		✔		✔	
H3RD91	✔	✔		✔		✔	
H3RD92	✔	✔	✔	✔	✔		✔
H3RD93	✔	✔		✔		✔	
H3RD94	✔	✔	✔	✔	✔	✔	✔
H3RD95	✔	✔	✔	✔	✔	✔	✔
H3RD96	✔	✔		✔		✔	
H3RD97	✔	✔		✔		✔	
H3RD98M	✔	✔		✔		✔	
H3RD98Y	✔	✔		✔		✔	
H3RD99A	✔	✔		✔		✔	
H3RD99B	✔	✔		✔		✔	
H3RD100	✔	✔		✔		✔	
H3RD101	✔	✔		✔		✔	
H3RD102M	✔	✔		✔		✔	
H3RD102Y	✔	✔		✔		✔	
H3RD103	✔	✔		✔		✔	
H3RD104	✔	✔	✔	✔	✔		✔
H3RD105	✔	✔		✔		✔	
H3RD106	✔	✔	✔		✔		
H3RD107	✔	✔	✔		✔		
H3RD108	✔	✔		✔		✔	
H3RD109	✔	✔	✔	✔	✔		✔
H3RD110	✔	✔	✔	✔	✔		✔
H3RD111	✔	✔	✔	✔	✔		✔
H3RD112	✔	✔	✔	✔	✔		✔
H3RD113	✔	✔	✔	✔	✔		✔

	I CP/MM/JRU	II CP/MM	III CP/JRU	IV MM/JRU	V CP	VI MM	VII JRU
H3RD114	✔	✔	✔	✔	✔		✔
H3RD115	✔	✔	✔	✔	✔		✔
H3RD116	✔	✔	✔	✔	✔		✔
H3RD117	✔	✔	✔	✔	✔		✔
H3RD118	✔	✔	✔	✔	✔		✔
H3RD119	✔	✔	✔		✔		
H3RD120	✔	✔	✔	✔	✔		✔
H3RD121	✔	✔	✔	✔	✔		✔
H3RD122	✔	✔	✔		✔		
H3RD123A	✔	✔	✔	✔	✔		✔
H3RD123B	✔	✔	✔	✔	✔		✔
H3RD124	✔	✔	✔	✔	✔		✔
H3RD125	✔	✔	✔		✔		
H3RD126	✔	✔	✔		✔		
H3RD127	✔	✔	✔		✔		
H3RD128	✔	✔	✔		✔		
H3RD129	✔	✔	✔		✔		
H3RD130	✔	✔	✔		✔		
H3RD131	✔	✔	✔		✔		
H3RD132	✔	✔	✔		✔		
H3RD133	✔	✔	✔		✔		

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ABSTRACT

LONGITUDINAL EFFECTS OF ADOLESCENT DATING VIOLENCE VICTIMIZATION: SOCIAL, PSYCHOLOGICAL, AND PHYSICAL HEALTH CONSEQUENCES IN ADULTHOOD

by

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Romantic relationships are important developmental milestones for adolescents; yet negative experiences within them, including adolescent dating violence victimization (ADV), can contribute to poor health. The present study explores the impact of ADV on psychological and physical health as mediated through physical intimate partner violence victimization, perceived relationship quality, and submissive behavior in romantic relationships in adulthood using a subsample from the National Longitudinal Study of Adolescent to Adult Health (Add Health). Participants were assessed across three timepoints (n = 591; 61.1% female). Participants were required to have reported at least one romantic relationship during adolescence, and to have been in an opposite-sex romantic relationship for at least 3 months in early adulthood. ADV was assessed at Timepoint 1 (T1); physical intimate partner violence victimization (IPV), perceived relationship quality, and submissive behavior with a romantic partner were assessed at Timepoint 2 (T2); and depressive symptoms and perceived health were assessed at T2 and Timepoint 3 (T3). Additionally, c-reactive protein was assessed at T3. Structural

equation modeling was used. ADV at T1 was significantly associated with increased IPV for men. IPV at T2 was associated with lower T2 relationship quality, lower T2 perceived health, and higher T2 depressive symptoms. Perceived relationship quality at T2 was associated with lower T2 depressive symptoms. This association was stronger for women than for men. T2 depressive symptoms and perceived health were associated with health at T3. Indirect effects were also found. Moderation analyses exploring the modifying effects of age at the time of ADV and relationship enmeshment with the ADV partner were nonsignificant. Findings suggest that ADV may deleteriously affect psychological and physical health through its impact on romantic relationships in adulthood, particularly for men. IPV is also an important predictor of psychological and physical health. The mechanism through which these effects are transmitted differs according to the health outcome. Understanding the long-term impact of ADV and IPV on health and well-being has important implications for prevention and intervention efforts. Providing services that promote healthy relationships to male victims of ADV and comprehensive care for IPV victims is critical in promoting optimal social, psychological and physical health among survivors.

AUTOBIOGRAPHICAL STATEMENT

Jennifer Pierce completed her undergraduate education at the University of Michigan-Dearborn, where she earned a Bachelor of Arts in Psychology with a minor in Anthropology. She is completing her doctoral training at Wayne State University in Cognitive, Developmental and Social Psychology, where she has primarily focused on Social and Health Psychology. Her research interests include understanding the predictors, correlates and consequences of relationship violence and other negative and traumatic interpersonal experiences. She is also interested in risk, resilience and health, and incorporating biological measurement into the study of social behavior and victimization experiences. In her spare time, she enjoys reading, spending time outdoors and spending time with her family.