

The Age-Graded Consequences of Victimization

by

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## ABSTRACT

A large body of research links victimization to various harms. Yet it remains unclear how the effects of victimization vary over the life course, or why some victims are more likely to experience negative outcomes than others. Accordingly, this study seeks to advance the literature and inform victim service interventions by examining the effects of violent victimization and social ties on multiple behavioral, psychological, and health-related outcomes across three distinct stages of the life course: adolescence, early adulthood, and adulthood. Specifically, I ask two primary questions: 1) are the consequences of victimization age-graded? And 2) are the effects of social ties in mitigating the consequences of victimization age-graded?

Existing data from Waves I (1994-1995), III (2001-2002), and IV (2008-2009) of the National Longitudinal Study of Adolescent Health (Add Health) are used. The Add Health is a nationally-representative sample of over 20,000 American adolescents enrolled in middle and high school during the 1994-1995 school year. On average, respondents are 15 years of age at Wave I (11-18 years), 22 years of age at Wave III (ranging from 18 to 26 years), and 29 years of age at Wave IV (ranging from 24 to 32 years). Multivariate regression models (e.g., ordinary least-squares, logistic, and negative binomial models) are used to assess the effects of violent victimization on the various behavioral, social, psychological, and health-related outcomes at each wave of data. Two-stage sample selection models are estimated to examine whether social ties explain variation in these outcomes among a subsample of victims at each stage of the life course.

The results indicate that the negative consequences of victimization vary considerably across different stages of the life course, and that the spectrum of negative outcomes linked to victimization narrows into adulthood. The effects of social ties appear to be age-graded as well, where ties are more protective for victims of violence in adolescence and adulthood than they are in early adulthood. These patterns of findings are discussed in light of their implications for continued theoretical development, future empirical research, and the creation of public policy concerning victimization.

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## CHAPTER 1

### INTRODUCTION

Criminologists have never been shy about producing new ways of thinking about the nature of crime. Indeed, since the early 1900s, some theories have been developed to explain the behavior of individuals (Davenport, 1915; Ferri, 1917; Glueck & Glueck, 1950), while others have focused on group-based or collective social processes (Shaw & McKay, 1942; Short & Strodtbeck, 1965; Sutherland, 1939). Some theories highlight the importance of how criminal attitudes and behaviors are learned and reinforced (Burgess & Akers, 1966; Akers, 1973), while others emphasize the need for criminal impulses to be restrained (Gottfredson & Hirschi, 1990; Hirschi, 1969; Reiss, 1951). And while some theories invoke the language of strain (Merton, 1938; Cloward & Ohlin, 1960), culture (Cohen, 1955; Wolfgang & Ferracuti, 1967), or inequality (Blau & Blau, 1982; Sampson & Wilson, 1995), other theories argue for some version of control as being most important (Hagan, Simpson, & Gillis, 1987; Hirschi, 2004; Kornhauser, 1978; Sykes & Matza, 1957). In short, the discipline has never been at a loss for ideas.

Although it is easy to focus on how these various perspectives may be at odds with one another with respect to their core propositions, focusing too closely on their differences masks an underlying similarity shared by each of them: they all view the criminal event primarily through the lens of the offender. This is understandable since the question of why people break the law has served as a criminological cornerstone for nearly a century. Yet, with few exceptions (von Hentig, 1948; Mendelsohn, 1956; Wolfgang, 1958), thinking about crime from the vantage point of the *victim* was not really taken seriously until the 1970s.

By the early 1970s, the United States was in a period of sustained turmoil. The previous decade had seen civil rights marches, riots in the streets and on college campuses, protests over the Vietnam War, the Watergate scandal, the Attica prison riots, and dramatic increases in violent crime. Rates of aggravated assault, robbery, and rape more than tripled, striking fear into many law-abiding Americans (Gurr, 1981; Pratt, Gau, & Franklin, 2011). Power differentials were shifting between and within groups in society (Adler, Adler, & Levins, 1975; Freeman, 1973), and concerns were growing over problems such as child abuse, sexual assault, and domestic violence (Curtis, 1963; Gelles, 1972; Kempe et al., 1962; Strauss, 1979). The women's liberation movement was in full swing, increasing awareness of victims' rights and pushing for the establishment of rape crisis centers (Belknap, 2015).

It was also at this time that trepidations over the validity of official-report data and the "dark figure" of unreported crime were at an all-time high (Biderman & Reiss, 1967; Skogan, 1977). Scholars criticized police-generated crime statistics for reflecting levels of social control rather than "actual" deviance (Black, 1970; Kitsue & Cicourel, 1963), and for unduly skewing crime in the direction of minorities and the poor (Quinney, 1970). Growing distrust in law enforcement spurred the need for data to be collected that was independent from, and not influenced by, police policies and practices (Cantor & Lynch, 2000).

In light of these sociopolitical shifts and the recommendations of two Presidential Commissions charged with addressing the nation's crime problem (President's Commission on Law Enforcement and Administration of Justice, 1967), in 1972, the National Crime Survey (NCS) on victimization was created. Equipped with a

sophisticated sampling design, the NCS was a nationally-representative survey of U.S. households that captured a wealth of information on criminal incidents directly from victims (Addington & Rennison, 2014). Not only did the NCS confirm that self-report data could provide reliable estimates of crime (Hindelang, 1978, 1979; Hindelang, Hirschi, & Weis, 1981), but it also helped instill legitimacy and scientific merit in the study of victimization. Today, the NCS continues (as the National Crime Victimization Survey, or the NCVS) to be the primary source of information on aggregate trends in victimization and on the number and types of crimes not reported to U.S. law enforcement agencies (Addington, 2011; Addington & Rennison, 2014; Lynch & Addington, 2007).

Armed with data from the NCS, scholars had the opportunity to develop and test new explanations of criminal events from the side of victims (Gottfredson, 1986). In particular, the NCS helped spark the real explosion in contemporary victimization research, which was the introduction of Hindelang, Gottfredson, and Garofalo's (1978) lifestyle and Cohen and Felson's (1979) routine activity theories.<sup>1</sup> Since their inception, these ideas have dominated the study of victimization. Their presence in the literature is so widespread that these theories are often linked together in a wedded lifestyle-routine activity framework (e.g., Sampson & Lauritsen, 1990; Stafford & Galle, 1984). Although key differences exist between the two perspectives (Pratt & Turanovic, 2015), they share the same core propositions—most notably, the importance of thinking about

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<sup>1</sup> Other perspectives—such as power-control theory (Hagan et al., 1987) and symbolic interactionist frameworks (Luckenbill, 1977)—also emerged around this time. Although these perspectives did not have the same impact on contemporary victimization research as lifestyle and routine activity theories, they are important in that they explicitly recognize gender and power imbalances and the social exchanges that contribute to victimization.



victimization in terms of the convergence in time and space of a motivated offender, an attractive target/victim, and the absence of capable guardianship.

More specifically, lifestyles and routine activities can include both vocational activities (e.g., working and going to school) and leisure activities (e.g., going out at night, shopping, drinking with friends) that may bring individuals into contact with crime or enhance their likelihood of victimization. Although lifestyle and routine activity perspectives can be accurately interpreted as implying that “time spent in public settings increases victimization risk” (Meier & Miethe, 1993, p. 466), there is more to the story than that. Importantly, these models recognize that victimization is not distributed randomly across space and time—there are high-risk locations and high-risk time periods in which victimization is most likely to occur (Hindelang et al., 1978). There are also high-risk persons who are more likely to victimize others if the opportunity arises (Garofalo, 1987; Gottfredson, 1981). As such, lifestyle patterns influence how exposed one is to these risky settings that can increase the likelihood of victimization.

The widespread impact of lifestyle and routine activity theories on research and practice cannot be understated. Ideas gleaned from these perspectives have informed policing policies and situational crime prevention efforts (Braga & Bond, 2008; Clarke, 1997; Weisburd, Telep, & Lawton, 2014), where the lifestyle-routine activity model has been recast to emphasize the importance of structural constraints that impose limits on would-be offenders (Kennedy & Caplan, 2012; Sherman & Weisburd, 1995). These principles have given rise to a host of crime control policies that range all the way from using video surveillance in public places (Welsh & Farrington, 2009), to reducing graffiti in New York subway cars (Sloan-Howitt & Kelling, 1990), to reinforcing order and

civility at Disney World (Shearing & Stenning, 1984), and to curbing public drunkenness in Swedish resort towns (Björ, Knutsson, & Kühlnhorn, 1992; Norström & Skog, 2004).

Moreover, extensions of Hindelang et al. (1978) and Cohen and Felson (1979) have also led to revised theoretical perspectives on victimization. These various perspectives focus on social differentiation and “structural-choice” (Cohen et al., 1981; Miethe & Meier, 1990; Miethe, Stafford, & Long, 1987), ecological dimensions of risk (Kennedy & Forde, 1990; Smith & Jarjoura, 1988; Sampson & Wooldredge, 1987), the impact of deviant behaviors (Jensen & Brownfield, 1986; Lauritsen & Laub, 2007; Sampson & Lauritsen, 1990), the role of social bonds (Schreck, Wright, & Miller, 2002), and the influence of personality traits like low self-control in enhancing one’s risk of victimization (Schreck, 1999). And along with these various ideas, a large volume of research has been produced over the past several decades. Not surprisingly, we have learned some important things about victimization in the process.

### **Things We Know about Victimization**

While many important lessons have been learned since victimization research took off in the late 1970s, not all knowledge carries equal weight. Here, I focus on what I consider to be three of the most important contributions made in the victimization literature thus far. The first of these is that we know that victimization tends to be distributed unevenly across aggregate units (e.g., social groups, neighborhoods, schools, cities, and nations) and across individuals (Miethe & McDowall, 1993; Rountree, Land, & Miethe, 1994; Sampson & Wooldredge, 1987). At the aggregate level, victimization is most common in areas characterized by severe economic disadvantage, residential segregation, and weakened networks of social control (Browning, Dietz, & Feinberg,

2004; Sampson, Raudenbush, & Earls, 1997; Vélez, 2001; Xie, 2010) where a “code of the street” culture prevails (Anderson, 1999; Berg et al., 2012; McNeeley & Wilcox, 2015; Stewart, Schreck, & Simons, 2006). Given the highly racialized patterns of poverty and segregation in U.S. cities (Peterson & Krivo, 2010; Sampson, 2012; Wilson, 2009), African Americans tend to experience the highest rates of crime and violence (Berg, 2014; Harrell et al., 2014).

At the individual level, victimization is most common among young, unmarried males (Jensen & Brownfield, 1986; Kennedy & Forde, 1990; Truman, & Langton, 2014) who have been victimized in the past (Farrell, 1995; Lauritsen & Quinet, 1995; Tseloni & Pease, 2003), and who have low self-control (Holtfreter, Reisig, & Pratt, 2008; Holtfreter et al., 2010; Pratt et al., 2014; Schreck, Stewart, & Fisher, 2006). This is so because such individuals are those most likely to engage in the types of risky lifestyles that increase their chances of victimization (Forde & Kennedy, 1997; Mustaine & Tewksbury, 1998; Turanovic & Pratt, 2014). In the context of violent victimization specifically, risky lifestyles can include things like stealing, destroying property, getting drunk in public, selling drugs, fighting, and hanging out with friends who break the law—activities that are intimately tied to “high risk times, places, and people” (Hindelang et al., 1978, p. 245)—and that are disproportionately favored by the young. As a result, victimization tends to be highly concentrated in adolescence (Truman & Langton, 2014). This also means that the age-victimization curve closely mirrors the age-crime curve, whereby victimization rates tend to peak along adolescent crime and delinquency in the late teens and then steeply decline thereafter (Menard, 2012; Wittebrood & Nieuwbeerta, 2000).

Second, and relatedly, we know that victims and offenders share many characteristics (Jennings, Piquero, & Reingle, 2012; Lauritsen & Laub, 2007; Schreck, Stewart, & Osgood, 2008). Research has consistently found that one of the strongest correlates of victimization is involvement in criminal or deviant behavior (Ousey, Wilcox, & Fisher, 2011; Piquero et al., 2005; Stewart, Elifson, & Sterk, 2006), and, alternatively, that victimization is one of the strongest correlates of offending (Agnew, 2001; Maxfield, 1987; Sampson & Lauritsen, 1990; Widom, 1989). Some have even argued that because victimization and offending are so intimately connected, it is perhaps not possible to understand them fully apart from one another (see, e.g., Berg et al., 2012, p. 360; Lauritsen, Sampson, & Laub, 1991, p. 267). Indeed, the strong association between victimization and offending is so entrenched in the literature that scholars have given it a name: the “victim-offender overlap.”

In light of the research produced on the victim-offender overlap, several theories of crime have been revised and extended in order to account for victimization, including Agnew’s (1992) general strain theory (e.g., Agnew, 2002), Anderson’s (1999) code of the street thesis (e.g., Stewart et al., 2006), Tittle’s (1995) control balance theory (e.g., Piquero & Hickman, 2003), and Gottfredson and Hirschi’s (1990) theory of low self-control (e.g., Schreck, 1999). Regardless of these theoretical developments, it is important to note that victimization and offending are still considered to be qualitatively distinct phenomena. As Pratt et al. (2014, p. 105) recently stated, “On a most fundamental level, offending is voluntary; victimization is not.” And while victimization and offending share some key attributes, it is generally understood that, like offending, the precursors and processes that result in victimization are inherently multivariate.

Third, and perhaps most importantly for the current study, we have learned that victimization carries additional consequences (Finkelhor, 2008; Lurigio, 1987; Macmillan, 2001; Turanovic & Pratt, 2015). Indeed, there is a large body of literature linking violent victimization to numerous consequences, including behavioral problems (e.g., aggression, crime, and substance abuse), social problems (e.g., school failure, job loss, financial hardship, and relationship dissolution), psychological problems (e.g., depression, low self-esteem, and suicidality), and health problems (e.g., somatic complaints, obesity, and cardiovascular issues)—serious issues that tend to persist over time (Exner-Cortens, Eckenrode, & Rothman, 2013; Kendall-Tackett, 2003; Menard, 2002; Veltman & Browne, 2001). Recent U.S. national estimates suggest that 68% of victims of serious violent crime experience socio-emotional problems as a result of their victimization, including feeling moderately to severely distressed, having significant problems at work or school, and having problems with family and friends (Langton & Truman, 2014).

There have been several explanations put forth as to why victimization is associated with such a lengthy roster of negative life outcomes. Within the stress-coping literature, it is understood that victimization—particularly violent victimization—is a traumatic and stressful life condition (e.g., Agnew, 2006; Compas, 1998; Selye, 1956). It brings about high levels of negative emotionality (e.g., anxiety, depression, anger, and frustration) and creates pressures for individuals to engage in coping strategies for “corrective action” (Agnew, 2006, p. 13). Due to the intensity of negative emotions that victims feel, they tend to engage in coping strategies that are maladaptive (Agnew, 2002; Baum, 1990; Finkelhor, 1995; Taylor & Stanton, 2007). Such strategies often carry short-

term benefits but long-term costs, and manifest in more severe negative consequences in the future (Agnew, 2006; Hay & Evans, 2006; Turanovic & Pratt, 2013). Some examples of maladaptive coping strategies include engaging in crime and violence, seeking revenge, binge eating, using excessive amounts of drugs and alcohol, skipping school or work, and having risky sexual encounters (Macmillan, 2001; Thornberry, Ireland, & Smith, 2001; Turanovic & Pratt, 2015).

Recent developments in the trauma literature have enriched our understanding of these issues by highlighting the physiological impact of victimization on the brain, especially during childhood (Finkelhor, 2008; Twardosz & Lutzker, 2010). Specifically, victimization can set off a chain reaction in the central nervous system that influences levels of hormones and neurotransmitters, influencing the development of a “traumatized brain” (Hart & Rubia, 2012; Teicher et al., 2003). Victims with traumatized brains often have dysregulated neural systems, and tend to experience generalized states of fear, anxiety, and hyperarousal (Caffo, Forresi, & Lievers, 2005; Kendall-Tackett, 2003)—problems that carry many additional behavioral and health-related consequences of their own (Taft et al., 2007). As children’s brains become increasingly plastic between the ages of 3 and 16, they become more susceptible to the harms of external stressors, like violence (Dahl, 2004; Romeo & McEwen, 2006). Being victimized during these years can violate one’s sense of safety, control, and expectations for survival (Johnson & Mollborn, 2009; Kuhl, Warner, & Wilczak, 2012; Macmillan, 2001), and can lead to distressing flashbacks, problems with insecure attachment, avoidance in social relationships, and difficulties with affective and emotional regulation that persist

throughout the teen years (Briere & Elliott, 2003; Cicchetti & Toth, 2005; Heim et al., 2010).

Because victimization research focuses heavily on children and adolescents, we know that young people tend to be especially vulnerable to the long-term consequences of violence. Given the harms that victimization is known to carry throughout youth, it is not surprising that early experiences with victimization are also linked to problems in adulthood. These include financial hardship, involvement in prostitution, drug abuse, criminal offending, mood and anxiety disorders, homelessness, and subsequent victimization (Currie & Widom 2010; Daly, 1994; Gilfus, 1992; Herman et al., 1997; Whitbeck & Hoyt, 1999; Wilson & Widom, 2010). Indeed, violent victimization is a salient and powerful experience that shapes developmental pathways, particularly when it occurs during childhood and adolescence.

### **Remaining Questions in the Victimization Literature**

Against this backdrop, the age-structure of violent victimization seems to have important implications for the life course (Macmillan, 2001). And yet, our knowledge of victimization and its consequences over different stages of the life span—that is, beyond childhood and adolescence—is quite limited. While we certainly have accumulated a wealth of knowledge from four decades of victimization research, there is still a lot left to learn. Accordingly, I discuss here three important issues with respect to victimization that remain unaddressed in the literature: 1) the scope and severity of the consequences of victimization over the life course, 2) variability in the consequences of victimization over different stages of the life span, and 3) the influence of social ties on the lives of victims.

## **Victimization over the Life Course**

The absence of life course theory and research in the victimization literature has hindered our ability to understand the full range of consequences of victimization across multiple stages of the human life span (Macmillan, 2001). In particular, the life-course perspective is a broad intellectual paradigm that encompasses ideas and observations from a variety of disciplines (Benson, 2013; Sampson & Laub, 1993). The life course refers to a sequence of age-graded stages and roles that are socially constructed and different from one another. Tied to dynamic concerns and the unfolding of biological, psychological, and social processes through time, issues of age and aging occupy a prominent position in this perspective (Elder, 1975). As individuals age and grow older, they cultivate different ties to social institutions (e.g., marriage and employment) and experience changes in cognitive capabilities (e.g., future-oriented thinking) that affect how they process and respond to life events (Agnew, 2006; Aspinwall, 2005; Sampson & Laub, 1993).

Applied to the study of crime, the life-course perspective has helped us describe variation in individual criminal behavior over time, explain why this variation takes place, and understand ways to intervene and lead individuals away from crime (Blokland & Nieuwbeerta, 2010; Farrington & Welsh, 2007; LeBlanc & Loeber, 1998). Although some recent scholarship has examined how the *predictors* of victimization vary during different stages of the life span (e.g., the impact of risky lifestyles; Wittebrood & Nieuwbeerta, 2000; Tillyer, 2014), few empirical strides have been made toward exploring the *consequences* of victimization across the life course (Macmillan, 2001).



This is surprising, particularly given that life course research has dominated discussions of crime for nearly two decades (Benson, 2013).

To better understand the consequences of victimization over the life span, it is important that multiple developmental outcomes be considered. The problem, however, is that contemporary research is organized in such a way that distinct academic disciplines focus narrowly on separate sets of issues stemming from victimization (Macmillan, 2001). To be sure, criminologists tend to focus on offending, those in public health focus more on things like sexual behavior and chemical abuse, psychologists tend to examine outcomes like anxiety and depression, and medical researchers are more apt to assess things like somatic complaints, sexually-transmitted infections, and obesity (see the discussion in Turanovic & Pratt, 2015). That scholars would focus on outcomes most closely related to their disciplines makes sense, yet doing so is holding us back from reaching a more comprehensive understanding of the full range of consequences associated with victimization. In many ways, the fragmented state of the literature has restricted our ability to better understand broader patterns in the effects of victimization across the life course.

### **Aging and the Consequences of Victimization**

Between individuals and across different stages of the life span, we do not really know *why* victimization leads to particular consequences. Victimization does not always initiate a cascade of hardships for everyone, and little is known about why some victims of violence experience negative consequences while others prove to be more resilient (Reijntjes et al., 2010). There are surprisingly few studies examining variability in the effects of victimization, both across people and over time (Macmillan, 2009; Turanovic

& Pratt, 2013; Zimmer-Gembeck & Duffy, 2014). In addition, many studies on the consequences of victimization suffer from certain problems, most notably, the failure to control for certain key variables in the criminology literature, like low self-control, social attachments, and economic disadvantage. Identifying the sources of variability in victims' experiences is a critical step to take toward developing effective support interventions for victims of violence.

Most likely, the consequences of victimization depend on how well victims are able to cope with their experiences (Agnew, 2006; Baum, 1990; Taylor & Stanton, 2007). Specifically, coping can be understood as the process of how “people regulate their behavior, emotion, and orientation under conditions of psychological stress” (Skinner & Wellborn, 1994, p. 112). Such efforts can be action-oriented or internal, and they seek to reduce or minimize the various demands of a stressful situation (Skinner et al., 2003). Coping strategies can vary widely in response to victimization, where adaptive or “healthy” techniques (e.g., participating in therapy and seeking comfort from friends or family) tend to be more successful at reducing long-term distress. Alternatively, maladaptive or “unhealthy” coping strategies include responses like binge drinking, seeking revenge against someone who wronged you, using drugs, and quitting school or work—all of which can result in more problems in the long run (Compas, 1998; Ong et al., 2006; Turanovic & Pratt, 2013). Importantly, these strategies differ in that the more healthy forms coping require a greater deal of energy and commitment on the part of victims, as well as by others (e.g., family members and peers) who may be called upon for support (Schwarzer & Knoll, 2007; Thoits, 1995).

As such, the ways in which victims cope are influenced heavily by their access to coping resources in the form of supportive social ties (Taylor & Stanton, 2007; Thoits, 1986, 2011; Vaux, 1988). Such ties may be formed in the workplace, at school, with friends or family, or through marriage or religion. These ties often foster the perception or experience of being loved and cared for by others, esteemed and valued, and part of a social network of mutual assistance and obligation (Chernomas, 2014; Cullen, 1994; Wills, 1991). Supportive social ties thus facilitate healthy coping via access to emotional, social, and instrumental support, and can increase feelings of self-esteem and a sense of control over one's environment (Coyne & Downey, 1991; Fazio & Nguyen, 2014; Lin & Ensel, 1989). It is important to emphasize, however, that it is not simply the presence or absence of having access to social ties (e.g., being employed or attending school), but the *quality* or *strength* of the attachments to these institutions that can influence the ways in which individuals cope with victimization. It is likely that supportive social ties will buffer the harms of victimization on people's lives, where victims who have quality ties will be less likely to experience negative outcomes.

### **Victims' Lives and Social Ties**

It remains unclear whether people who are victimized cope in similar ways across different stages of the life span. Consistent with the life course perspective, coping resources (e.g., supportive social ties) tend to change over time along with age-graded social roles, and develop through a process of cumulative continuity (Elder, 1975; LeBlanc & Loeber, 1998; Sampson & Laub, 1997). In childhood and adolescence, for instance, social ties likely involve the family, school, and peer groups; in the phase of emerging adulthood they may involve higher education, work, and romantic partnerships;

and later on in adulthood, social ties may involve work, marriage, parenthood, or investment in the community (Sampson & Laub, 1993; Umberson, Crosnoe, & Reczek, 2010).

But yet, not everyone has access to supportive social ties over the life course. Social support—rather than being a static personal characteristic or environmental condition—involves a dynamic process of transaction between individuals and their support networks (Lin, 1999, 2002). As people age, they become increasingly more responsible for cultivating and maintaining social ties themselves (Laub & Sampson, 2003; Vaux, 1988). A person must engage others, develop relationships, and accrue good will (Roberts & Caspi, 2003). Since the nature of social ties changes over time, it remains an open question whether their effects on the consequences of victimization change as well.

Moreover, individuals who experience substantial hardships may deplete their social support resources over time (Hobfoll et al., 1990; Kaniasty & Norris, 1993; Norris & Kaniasty, 1996; Sampson & Laub, 1997). Before even reaching adulthood, such persons may have called upon others to help deal with repeated victimizations or other problems including breakups with romantic partners, job losses, financial struggles, and school failures. And as these problems accumulate over the life span, social ties may erode, and the likelihood of problematic coping may increase (Caspi, Bem, & Elder, 1989; Compas et al., 2001; Vaux, 1988). As a result, those without supportive social ties in adulthood may be most vulnerable to experiencing victimization and most ill-equipped to deal with its consequences.

## **Research Purpose**

In many ways, scientific knowledge on victimization has been hindered by a focus on a narrow age range (e.g., childhood and adolescence), by the examination of a limited set of outcomes, and by the lack of focus on process variables. The overall consequence of this is that major gaps appear in the existing body of victimization literature. In this dissertation, several of these knowledge gaps are confronted. I do so by merging a life-course perspective on aging, social ties, and coping with existing literature on the consequences of victimization. Doing so requires an interdisciplinary approach that draws from criminological, psychological, health, and developmental literatures (Agnew, 2006; Cohen & Wills, 1985; Finkelhor, 2008; Ong et al., 2006).

Although no victimization experience is trivial, here the focus is on violent, interpersonal victimization, and specifically those types of violence that are most likely to elicit negative emotional responses and reduce quality of life (e.g., getting stabbed or shot, beaten up, and robbed; Macmillan, 2001; Miller, Cohen, & Wiersema, 1996). Such forms of violent victimization violate justice norms, are high in magnitude, have associations with low social control, and create pressures or incentives for individuals to engage in maladaptive behaviors (Agnew 2001, 2002). For these reasons, victims of violence tend to be those most in need of support interventions (Krug et al., 2002; Sims, Yost, & Abbott, 2005).

Overall, this research seeks to determine the various behavioral, psychological, and health-related consequences of victimization during three distinct stages of the life course, and to identify whether social ties explain variation in the consequences of victimization across these different stages. Specifically, I ask two primary questions: 1)

are the consequences of victimization age-graded? And 2) are the effects of social ties in mitigating the consequences of victimization age-graded? In asking and answering these questions, the broader purpose of this dissertation is to shine a brighter light on the conditions under which victimization does—or does not—lead to a wide array of harms as people live their lives through time.

### **National Longitudinal Study of Adolescent Health**

The data for this study come from the National Longitudinal Study of Adolescent Health (Add Health), which is an ongoing, nationally-representative study of adolescent (and now adult) health and well-being. As it began, Add Health was mandated by U.S. Congress to collect data on the impact of the social environment on adolescent health. In fact, the data were originally collected to achieve two primary objectives: 1) determine the behaviors that promote health and the behaviors that are detrimental to health, and 2) determine the influence of health factors particular to the communities in which adolescents reside.

While these objectives may sound simple enough, the Add Health is an exceptionally ambitious study. In the interest of studying “health,” data were collected to explore individual and environmental influences on diet, physical activity, health-service use, morbidity, injury, violence, sexual behavior, contraception, depression, sexually transmitted infections, pregnancy, suicidal thoughts and intentions, substance use and abuse, runaway behavior, criminal justice system involvement, child maltreatment, and victimization. Information was collected on height, weight, pubertal development, mental health status, and chronic and disabling conditions. At various Waves, details on friendships, social networks, romantic partners, school, employment, financial hardship,

family and parents, siblings, cohabitation, marriage, religion, military experience, mentoring, and civic participation were also gathered. Even biological samples were collected for DNA analysis, screening for HIV and sexually transmitted infections, and genotype ascertainment for pairs of full-siblings or twins residing in the same households. With upwards of 2,000 variables present in each Wave of data, the Add Health is a massive project.

Not surprisingly, the Add Health data have had a tremendous impact on the social, behavioral, and health sciences. Over 5,200 publications, presentations, and dissertations have used these data, spanning fields of Criminology, Sociology, Psychology, Medicine, Economics, Behavioral Genetics, Social Work, Epidemiology, and Political Science. The Add Health data dominate heritability research in the social sciences, remain the primary source of information on adolescent social networks, and contribute to a nontrivial portion of longitudinal research on youth and young adults in the social, behavioral, and health sciences more broadly. While other data sets have certainly been used for the advancement of longitudinal research across multiple disciplines (e.g., the National Youth Survey), the Add Health are unique in that they follow a contemporary cohort—an especially important fact given that findings generated from the Add Health data can inform modern day policy and practice.

Although the data are so widely used, they can be difficult to analyze due the study's complex sampling design. In particular, the data collection effort started in 1994 by identifying a sample of 80 high schools and 52 feeder middle or junior high schools through a disproportionately stratified, school-based, clustered sampling design (Harris, 2013). The sample was representative of U.S. schools with respect to region of country,

urbanicity, school size, school type, and ethnicity (Harris, 2011). From these sampled schools, a random subsample of over 20,000 adolescents enrolled in grades 7 to 12 (between the ages of 11 and 18) were selected to participate in the Wave I, in-home interview, which took place in 1995. A subset of respondents was reinterviewed a year later in 1996 (Wave II), excluding those who were in the 12th grade at Wave I. The original Wave I respondents were contacted for reinterview during 2001-2002 when they were between 18 and 26 years old (Wave III), and again during 2008-2009 when they were between the ages of 24 and 32 (Wave IV). This study draws exclusively from Waves I, III, and IV of the data, allowing for a focus on three distinct periods of the life course: adolescence, emerging adulthood, and adulthood.

The Add Health data are ideally suited to the current study for several reasons. Outside of the fact that Add Health is one of the few longitudinal studies that follows adolescents out of their twenties (allowing for the study of adulthood), Add Health also captures detailed, time-bound, and consistent information on violent victimization at each wave of data collection. This provides the opportunity to examine the impact of the same forms of victimization across multiple stages of the life course.<sup>2</sup> In addition, each wave of data contains rich information on a wide variety of psychological, behavioral, and health problems that can be linked theoretically to being victimized. The impact of victimization on a broad spectrum of life outcomes is rarely examined in a single study, and these data allow for a more comprehensive and interdisciplinary examination of victimization and its various consequences during different stages of the life course. Lastly, it is also

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<sup>2</sup> Most longitudinal data sets that follow youth out of their twenties contain limited information on victimization (if at any). For example, the Cambridge Study in Delinquent Development (1961-1981) captures information on whether respondents were injured due to “fighting or horseplay,” but only when the sample was 18-19 years old (Farrington, 1999, pg. 309).



important to note that the Add Health sample is large enough to accommodate studying a rare event like violent victimization. Other longitudinal data sets, such as the Rochester Youth Development Study (Thornberry et al., 2003), the Pathways to Desistance Study (Mulvey, Schubert, & Piquero, 2014), and the Pittsburgh Youth Study (Loeber et al., 1998), typically contain samples of under 1,500 respondents. There is a greater risk that smaller samples will not capture enough variation in the experiences of victims of violence, or that there will not be not enough statistical power to examine that variation very rigorously.

Still, no data are without their limitations, and it is important to recognize a few here with respect to Add Health. First, since waves of data were collected up to seven years apart, there are large chunks of time where no information is recorded on respondents' life experiences. Most survey questions in the Add Health are bound by one year, and thus victimization and other important life events and that happened outside of that past year are missed. Second, since respondents were only interviewed once during key stages of the life course (e.g., early adulthood and adulthood), time ordering between victimization and negative life outcomes *within* stages of the life course cannot be established. So while the data can provide a relatively detailed snapshot of victims and the problems they face during three distinct points in time, causal effects of victimization cannot be established. Third, the school-based design of Add Health misses high school dropouts in the initial in-school survey, which means that adolescents at high risk for victimization may not be included in the data (see, e.g., Staff & Kreager, 2008). Although Udry and Chantala (2003) report that the potential bias of missing high school dropouts in the data is minimal, this limitation is important to recognize in the context of

victimization. Lastly, because Add Health is an omnibus study, many standard sociometric scales for various measures are included in shortened forms. Thus, although the breadth of topics covered in the Add Health instruments is comprehensive, the depth may not be present for all topics (e.g., depression). More information on each wave of data collection and how the current study analyzes these data can be found in subsequent chapters.

### **Organization of the Dissertation**

The remainder of this dissertation will be divided into several chapters. Chapter 2 focuses specifically on victimization and its various psychological, behavioral, and health-related consequences during adolescence. At this stage in the life course, individuals are between the ages of 11 and 18, and are drawn exclusively from Wave I of the data. This period in the life course is when rates of victimization dramatically rise as youth enter the peak years of the age-crime curve. Social ties primarily involve family and school, although adolescence also marks a dramatic shift in orientation toward peers and the deepening of friendships. Adolescence is particularly important as a period in which autonomy begins to increase, and when personal and psychological resources that guide cognition and decision-making begin to develop (Clausen, 1991; Elder, 1994; Shaffer & Kipp, 2013). This chapter will examine the link between adolescent victimization and a host of psychological, behavioral, and health-related problems, and determine whether adolescent social ties of attachments to parents, school, and friends help explain why some adolescent victims of violence fare better than others.

Chapter 3 explores victimization and its various consequences during early adulthood using data from Wave III of Add Health. Early adulthood is a distinct phase of

the life course in which individuals are between the ages of 18 and 26 and in a period of progressing into new adult roles (Arnett, 2000; Beck, 2012). During this time, delinquency and victimization rates are beginning to plateau and decline, and new social ties to the work force and to romantic partners are being developed (Arnett, 2007a). Unlike in adolescence, young adults engage in more complex forms of decision making and planning (Pharo et al., 2011), and they begin to accumulate the various “capitals”—human, social, and cultural—that shape the content of later lives (Lin, 1999). Although a large body of work examines the consequences of childhood and adolescent victimization in emerging adulthood, we know relatively little about the nature of victimization in early adulthood and the harms it carries. Accordingly, this chapter examines the relationships between victimization in early adulthood and a wide range of psychological, behavioral, and health-related outcomes. In addition, analyses are conducted to determine whether social ties of attachment to parents, job satisfaction, and marriage are protective for victims at this stage in the life course.

Chapter 4 focuses explicitly on adulthood. Data are included from Wave IV of the Add Health when respondents are between the ages of 24 and 32. Adulthood is a unique stage in the life course in that it is characterized by increasing stability. At this point in time, many find themselves in lasting careers, settled into long-term romantic partnerships, and having children. Victimization during adulthood is rarely studied, primarily because adults face much lower risks of victimization than adolescents and young adults. Still, many people their late twenties and thirties become violently victimized (Truman & Langton, 2014), and it is important to gain a deeper understanding of the adverse consequences of this experience. To do so, this chapter assesses the link

between adult victimization and a spectrum of psychological, behavioral, and health outcomes. Potential protective effects of attachments to parents, marriage, job satisfaction, and attachments to children are also examined to determine whether these adult social ties help promote well-being among victims of violence.

Finally, in Chapter 5, the implications of the results are discussed. This chapter revisits the key empirical findings from the previous chapters, and discusses the core implications of these findings for research and policy. In addition, the next steps for future research in this area are discussed, and some final thoughts about victimization and its consequences over the life course are put forth.

In the end, the ultimate goal of this dissertation is to gain a deeper understanding of the conditions under which victimization leads to harms over the life course; an understanding that may come from looking more closely at victims' lives and their social ties.

## CHAPTER 2

### VICTIMIZATION IN ADOLESCENCE

Adolescence is one of the most highly studied periods of development. Few stages in the life course are characterized by so many personal and social changes—changes due to pubertal development, the emergence of sexuality, cognitive development, school transitions, and redefined social roles (Dahl, 2004; Eccles et al., 1993; Steinberg & Morris, 2001). Indeed, as individuals move from the pre-reproductive to the reproductive phase of the life span, they experience the maturation of primary and secondary sexual characteristics, rapid changes in metabolism and physical growth, and substantial restructuring of the cortical regions underlying sensation seeking and impulsivity (Burt, Sweeten, & Simons, 2014; Ellis et al., 2012; Steinberg, 2008, 2010). These changes often lead to heightened novelty seeking, increased nighttime activities, and the pursuit of socially-mediated rewards (Arnett, 2013; Doremus-Fitzwater, Varlinskaya, & Spear, 2010; Walsh, 2002). Delinquent and risky behaviors thus become ever more common, especially as adolescents spend a greater number of their waking hours with peers outside of the home (Akers, 1998; Larson et al., 1996; Warr, 2002).

To be sure, it is well established that criminal behaviors increase rapidly during adolescence, peak around age 17, and steeply decline thereafter (Hall, 1904; Farrington, Piquero, & Jennings, 2013; Moffitt, 1993). These patterns have important implications for the study of victimization, particularly since the age-crime curve closely mirrors the age-victimization curve (Hindelang, 1976; Lauritsen & Laub, 2007; Macmillan, 2001). According to the NCVS, in 2013 rates of violent victimization in the U.S. were highest

among 12 to 17 year olds (Truman & Langton, 2014),<sup>3</sup> and this finding is consistent with a wide range of data indicating that violent victimization is concentrated in adolescence (Craig et al., 2009; Finkelhor et al., 2005, 2013; Kilpatrick et al., 2003).

Given the age distribution of violence, it is not surprising that a lot of victimization research focuses on juveniles (Turanovic, 2015). This work has shown the odds of violent victimization to increase as adolescents have more exposure to potential offenders, engage in risky behaviors (e.g., fighting, drinking, and stealing), and spend greater amounts of time in unstructured and unmonitored social activities (Forde & Kennedy, 1997; Schreck et al., 2002; Stewart et al., 2004; Turanovic & Pratt, 2014). During adolescence, delinquent peers encourage and reward acts of violence (particularly when under the influence of drugs and alcohol), youth are less subject to direct control responses by authority figures, and unstructured time leaves more opportunities for victimization to occur (Gottfredson, Cross, & Soulé, 2007; Henson et al., 2010; Swahn, Bossarte, & Sullivent, 2008).

In this stage of social and cognitive development, a large amount of scholarly attention has been devoted to understanding the adolescent consequences of victimization (Finkelhor, 2008; Menard, 2002). Numerous studies find youthful victimization to increase anxiety (Goul, Niwa, & Boxer, 2013), depression (Kawabata, Tseng, & Crick, 2014; Turner, Finkelhor, & Ormrod, 2006), suicidality (Klomek et al., 2007; Turner et al., 2012; van Geel, Vetter, & Taniol, 2014), low self-esteem (Prinstein, Boergers, & Vernberg, 2001), and symptoms of post-traumatic stress disorder (Boney-McCoy &

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<sup>3</sup> In particular, the rate of violent victimization among 12-17 year olds in 2013 was 52.1 per 1,000. In comparison, the rates of violent victimization among those aged 18-24, 25-34, and 35-49 were 33.8, 29.6, and 20.3 per 1,000, respectively.

Finkelhor, 1995; Kilpatrick et al., 2003). These studies also find that adolescent victims are more likely to use alcohol and drugs (Hay & Evans, 2006; Kaukinen, 2002; Sullivan, Farrell, & Kliever, 2006; Turanovic & Pratt, 2013), to cope poorly with their experiences through crime and violence (Agnew, 2002; Apel & Burrow, 2011; Fagan, 2003; Kirk & Hardy, 2014), and to experience acute health problems (Fredland, Campbell, & Han, 2008).

While this large volume of research has expanded our knowledge base considerably, several problems in the literature still remain. As noted in the previous chapter, many studies lack adequate statistical controls for things like low self-control, neighborhood problems, and cognitive abilities that may render the relationship between victimization and adverse outcomes spurious. In addition, victimization research tends to be highly fragmented across academic disciplines. Rarely do single studies assess a broad range of outcomes stemming from victimization (e.g., behavioral, psychological, *and* health-related outcomes), nor do they assess the variation in these outcomes among victims. Not all victims of violence suffer similar consequences, and given the current state of the literature, we are not really sure why that is. Arguably, what is missing from a more comprehensive understanding of adolescent victimization is the consideration of supportive social ties. In particular, youth who have strong social ties—such as to family, to school, and to friends—may be better equipped to cope with their victimization experiences. Although the importance of social ties has been well documented in the stress-coping literature more broadly, this work has not yet been fully integrated into the study of adolescent victimization and its consequences.

## **Social Ties in Adolescence**

Considerable research has examined social support systems and protective processes during adolescence. With a great deal of consistency, this work has highlighted the role of supportive social ties in promoting psychological health, reducing problem behaviors, and buffering the emotional effects of stress (Gore & Aseltine, 1995; Jackson, 1992; Maume, 2013; Patterson, 1982; Thoits, 1995). Importantly, the reasons why social ties may be beneficial may differ depending on the outcome of interest. For example, for some adverse outcomes (e.g., depression and low self-esteem), strong social ties can serve as coping resources that can help adolescents positively deal with the negative emotions that stem from being violently victimized (Aceves & Cookston, 2007; Agnew, 2006; Kort-Butler, 2010; O'Donnell, Schwab-Stone, & Mueeed, 2002). For other outcomes (e.g., crime and delinquency), those same social ties may function as sources of informal social control (Hirschi, 1969), which may constrain adolescents from reacting to their victimization experience by behaving badly (see also Berg et al., 2012). And although social ties come in many forms, attachments to family, school, and peers have been deemed among the most critical to adolescent well-being (Eccles & Roeser, 2011; Helsen, Vollebergh, & Meeus, 2000; Resnick et al., 1997).

Indeed, parents form the basis for healthy development in childhood (Bowlby, 1988) and they continue to play a central role in preventing maladaptive behaviors and psychological problems in adolescence (Dodge & Pettit, 2003; Greenberg, Siegel, & Leitch, 1983; Wilkinson, 2004). Parents can monitor their children, provide them with support and guidance in times of need, and help foster prosocial coping behaviors. Good relationships with parents have been found to increase self-esteem (Gecas & Schwalbe,



1986; Harter, 1993; Parker & Benson, 2004), lower depression (Helsen et al., 2000; Stice, Ragan, & Randall, 2004; Young et al., 2005), reduce misbehavior (Hawkins et al., 1999; Hirschi, 1969; Sampson & Laub, 1993), and increase general wellness (Armsden & Greenberg, 1987; Park, 2004; Resnick et al., 1997). More specifically, for youth who have been victimized or exposed to violence, supportive ties to parents have been found to reduce the likelihood of substance use, aggression, and violent offending (Brookmeyer, Henrich, & Schwab-Stone, 2005; Gorman-Smith, Henry, & Tolan, 2004; Hardaway, McLoyd, & Wood, 2012).

In addition to parental attachment, connectedness with school is an important protective factor in the lives of young people. Adolescents spend many of their waking hours interacting with classmates and teachers, and schools play an important role in the cultivation of social skills, moral and character development, and the remediation of emotional and behavioral problems (Eccles & Roeser, 2011; Greenberg et al., 2003; Roeser & Eccles, 2000). School engagement can buffer youth against a variety of risky behaviors, influenced in good measure by perceived caring from teachers and high expectations for student performance (Resnick et al., 1997; Steinberg, 1996). For victimized adolescents, strong attachments to school can provide supportive coping resources and foster feelings of self-efficacy that protect against further harms (Agnew, 2006; Cotterell, 1992; Kaufman, 2009). The role of school attachment in promoting resiliency for adolescent victims of violence, however, is understudied relative to other forms of social ties (Estévez, Musitu, & Herrero, 2005; Rigby, 2000; Yeung & Leadbeater, 2010).

Outside of attachments to parents and school, relationships with friends are especially meaningful during adolescence. As young people begin to establish independence from their families during the teen years, friendships bring greater companionship, intimacy, and emotional support (Bukowski, Hoza, & Boivin, 1994; Fehr, 2000; Parks, 2007). Unlike at earlier ages, adolescent friendships involve more self-disclosure and deeper discussions about personal problems and potential solutions (Parker et al., 1995). As a result, strong friendship bonds are known to carry a range of social, emotional, and mental health benefits during the teen years (Flynn, Felmlee, & Conger, 2014; McCreary, Slavin, & Berry, 1996; Stanton-Salazar & Spina, 2005; Ueno, 2005). There is some evidence that for adolescent victims of violence, having close relationships with friends can help guard against anxiety and depression (Holt & Espelage, 2005, 2007), somatic complaints (Rigby, 2000), alcohol use (Shorey et al., 2011), internalizing problems (e.g., fearfulness, sadness, loneliness, worrying), and externalizing behaviors (e.g., destroying things, fighting, lying, stealing, bullying) (Hodges et al., 1999).

Although there is a rich history of research on adolescent social ties, the literature is relatively limited with respect to its focus on young victims of violence. The majority of work in this area is tailored toward examining delinquent outcomes (e.g., offending and substance use) and studies commonly focus on the protective effects of a single social tie (e.g., attachment to parents). The full spectrum of consequences stemming from victimization extends well beyond delinquency, and adolescents can glean social support from multiple sources. Focusing so heavily on a narrow range of outcomes and a few

forms of social support may be hindering our ability to understand more broadly the role of social ties in promoting resiliency for victims of violence.

Accordingly, in what follows, analyses are conducted using Wave I of the Add Health data to: 1) assess the relationships between victimization and a wide range of psychological, behavioral, and health-related problems in adolescence, and 2) to determine whether social ties (i.e., attachments to parents, school, and friends) help explain why some adolescent victims of violence are more likely to experience these problems over others.

### **Sample**

Between April and December 1995, a total of 20,745 adolescents participated in Wave I of the in-home Add Health interviews. All respondents received the same interview, which was one to two hours long depending on the respondents' age and experiences. The majority of interviews were conducted in respondents' homes, and all data were recorded on laptop computers. For less sensitive topics, the interviewer read the questions out loud and entered the respondent's answers. For more sensitive topics, respondents listened through earphones to pre-recorded questions and entered their own answers directly on the computer. The average age of respondents at Wave I was 15 years, ranging from 11 to 18 years.<sup>4</sup>

In the current study, Wave I cases missing information on violent victimization were excluded, as were those without a valid Add Health sampling weight (Chen & Chantala, 2014, Harris, 2011).<sup>5</sup> As is common in large-scale survey data, information was

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<sup>4</sup> More information on Wave I can be found at: <http://www.cpc.unc.edu/projects/addhealth/design/wave1>.

<sup>5</sup> The Add Health sampling weights are used to address potential bias originating from the differential probabilities of sampling and to guard against underestimated standard errors (Chen & Chantala, 2014).

missing on other key variables due to item nonresponse (11.9% of remaining cases at Wave I). To address the potential bias produced by missing data (Allison, 2002), multiple imputation was used to handle cases with item-missing data (Carlin, Galati, & Royston, 2008).<sup>6</sup> This involved a procedure in which 10 imputed data sets were generated by a missingness equation that included all Wave I variables in the present study (Acock, 2005; White, Royston, & Wood, 2011). The results from 10 imputed data sets using pooled parameter estimates were combined to account for the possible underestimation of standard errors observed in single imputation procedures (Schafer, 1997). As a result, 90% of all Wave I respondents were retained in the study sample ( $N = 18,668$ ).<sup>7</sup>

## **Empirical Measures**

### **Adolescent Violent Victimization**

*Adolescent victimization* is a dichotomous variable reflecting whether each participant was a victim of one or more of the following violent acts during the 12 months prior to the Wave I interview: “you had a knife or gun pulled on you,” “you were jumped,” “someone cut or stabbed you,” and “someone shot you” (1 = yes, 0 = no).<sup>8</sup> Each form of violence was fairly rare in the full sample (13.2%, 11.7%, 4.9%, and 1.3%, respectively), and approximately 20.7% of respondents reported being victimized at

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<sup>6</sup> This was accomplished using the *mi* suite for multiple imputation with chained equations available in Stata13.1.

<sup>7</sup> To determine the robustness of the findings, supplemental analyses were conducted using listwise deletion to handle missing data. In terms of sign and significance, the results closely mirrored those observed using multiple imputation.

<sup>8</sup> A dichotomous indicator was chosen given that the substantive focus of the study lies on the relationship between any experience with violent victimization and various outcomes—not how these relationships differ depending on how many forms of violence were experienced, or how often. In preliminary analyses, the findings remained the same in terms of sign and significance regardless of whether victimization was measured as dichotomous variable or a count of the number of forms of victimization experienced. In addition, since one of the primary research questions concerns how *victims* respond to their experiences, victimization is also treated as a selection variable, which, by nature, is dichotomous.

Wave I. Although this measure of violent victimization references incidents only in the last 12 months, it is important to recognize that current victims are likely to have also been victims in the past (Finkelhor et al., 2009; Lauritsen & Quinet, 1995; Turanovic & Pratt, 2014).

While the contexts in which adolescents experienced victimization cannot be determined from the data (e.g., what the relationship between the victim and offender was, where victimization took place, or what the events leading up to victimization were), it is likely that this measure of victimization reflects street violence—forms of victimization that are most likely to occur out of the home. Indeed, more males (29.4%) than females (12.4%) reported being victims of violence in adolescence, which is expected for a measure reflecting street violence rather than intimate partner or dating violence. Moreover, preliminary analyses indicated that the results are robust to controls for having been either physically or sexually abused by a parent, which would be unlikely if this measure was capturing familial violence.<sup>9</sup>

### **Adolescent Social Ties**

Consistent with theory and research on social support, three forms of social ties are assessed in adolescence: attachment to parents, attachment to school, and attachment to friends (Haynie, 2001; Resnick et al., 1997; Schreck, Fisher, & Miller, 2004). *Attachment to parents* is an eight-item index composed of the following dummy-coded items: “you feel close to your mother/mother figure,” “you feel close to your father/father figure,” “your mother/mother figure is warm and loving toward you,” “your father/father

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<sup>9</sup> Readers need to be mindful that the types of victimization examined in the current study do not represent the full spectrum of violence. It is possible that different forms of “hidden” violence that occur disproportionately among females, such as intimate partner violence and sexual assault, yield different findings (see Dugan & Apel, 2005; Fisher, Daigle, & Cullen, 2010).

figure is warm and loving toward you,” “you are satisfied with your relationship with your mother/mother figure,” “you are satisfied with your relationship with your father/father figure,” “you are satisfied with the way you communicate with your mother/mother figure,” and “you are satisfied with the way you communicate with your father/father figure” (1 = yes, 0 = no).<sup>10</sup> Responses were summed so that higher values reflect greater family attachments (range 0 – 8; KR<sub>20</sub> = .84).<sup>11</sup> Factor analysis of tetrachoric correlations (Knol & Berger, 1991; Parry & McArdle, 1991) confirmed that these items are associated with a single latent construct (eigenvalue = 5.26; factor loadings > .69).

*Attachment to school* is measured using six items that assess the extent to which participants felt connected to their school, teachers, and schoolmates: “you feel like you are a part of your school,” “you feel close to people at your school,” “you are happy to be at your school,” “your teachers care about you,” “you feel safe at your school,” and “your teachers treat students fairly” (Haynie, 2001; McNeely & Falci, 2004; McNeely, Nonnemaker, & Blum, 2002). Closed ended responses to each item ranged from 0 (strongly disagree) to 4 (strongly agree), and were summed so that higher values indicate stronger school attachments (range 0 – 24; Cronbach’s  $\alpha$  = .77). Principal components analysis confirmed that these survey items are unidimensional (eigenvalue = 2.82; factor

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<sup>10</sup> Respondents who reported that they did not have a mother figure or a father figure were coded as “0.” To ensure that the findings were not sensitive to this coding decision, individuals with no knowledge of their mothers or fathers were removed from the sample and supplemental analyses were conducted. The results remained the same in terms of sign and significance.

<sup>11</sup> Since the parental attachment scale was created from dichotomous items, the Kuder-Richardson coefficient (KR<sub>20</sub>) is used to assess internal consistency (Kuder & Richardson, 1937). This interpreted in the same manner as the Cronbach’s alpha reliability coefficient, and can be calculated as follows:  $KR_{20} = n/(n-1)[1 - \sum p_i q_i / \sigma_x^2]$ , where  $n$  is the number of dichotomous items,  $p_i$  is the proportion responding “positively” to the  $i$ th item,  $q_i$  is equal to  $1-p_i$ , and  $\sigma_x^2$  is equal to the variance of the total composite.

loadings > .60). Finally, *attachment to friends* is a single survey item that reflects how much respondents felt their friends cared about them (Haynie, 2002; Schreck et al., 2004; Ueno, 2005). Scores for attachment to friends range from 0 (not at all) to 4 (very much).

### **Adolescent Psychological Outcomes**

Several psychological problems are assessed during adolescence, including depression, low self-esteem, and suicidality. *Depression* at Wave I is captured using nine items from the 20-item Center for Epidemiologic Studies Depression (CES-D) scale available in the Add Health data (Radloff, 1977). Previous research has shown the 20-item CES-D to cluster into four subfactors—somatic-retarded activity, depressed affect, positive affect, and interpersonal relationships (Ensel, 1986)—and all four components are represented in the nine-items used here. Specifically, participants were asked to report whether they had experienced the following feelings of depression in the past seven days: “you were bothered by things that don’t usually bother you,” “you felt that you could not shake off the blues, even with help from family and friends,” “you felt that you were just as good as other people” (reverse-coded), “you felt depressed,” “you felt too tired to do things,” “you felt happy” (reverse-coded), “you enjoyed life” (reverse-coded), “you felt sad,” and “you felt that people disliked you.” Closed ended responses for each item ranged from 0 (never/rarely) to 3 (most/all of the time), and were summed to create a scale where larger values reflect greater depressive symptoms (range 0 – 27; Cronbach’s  $\alpha = .80$ ). The CES-D has been previously validated among adolescents and adults (e.g., Boyd et al., 1982; Radloff, 1991; Rushton, Forcier, & Schechtman, 2002), and principal components analyses confirmed the scale was unidimensional (eigenvalue = 3.81; factor loadings > .54).

*Low self-esteem* is assessed using four items from Rosenberg's (1965) Self-Esteem Scale that were available in the data: "you have many good qualities," "you like yourself just the way you are," "you have a lot to be proud of," and "you feel you are doing things just about right." Items ranged from 0 (strongly agree) to 4 (strongly disagree), and were summed so that higher scores indicate lower levels of self-esteem (range 0 – 16; Cronbach's  $\alpha = .79$ ). Prior research has shown the Rosenberg scale to be highly reliable (e.g., if a person completes the scale on two occasions, the two scores tend to be similar) and unidimensional (Baumeister et al., 2003; Gray-Little, Williams, & Hancock, 1997; Robins, Hendin, & Trzesniewski, 2001). Principal components analysis confirmed that the items used here are associated with a single latent construct (eigenvalue = 2.49; factor loadings > .75).

Suicidality in adolescence is examined using two dichotomous reports of suicidal thoughts and behaviors at Wave I. *Suicide ideation* reflects whether participants reported seriously thinking about committing suicide in the past 12 months (1 = yes, 0 = no), and *suicide attempt* indicates whether participants actually tried to commit suicide in the past 12 months (1 = yes, 0 = no).

### **Adolescent Behavioral Outcomes**

Given the links between violent victimization and delinquency established in prior work, behavioral outcomes of violent offending, property offending, alcohol problems, and illicit drug use are assessed. *Violent offending* is operationalized as a variety score that reflects the different forms of violence that respondents engaged in during the year prior to the Wave I interview: "you hurt someone badly enough to need bandages or care from a doctor or nurse," "you pulled a knife or gun on someone," "you used or threatened



to use a weapon to get something from someone,” and “you shot or stabbed someone” (range = 0 – 4). According to Sweeten (2012, p. 554), variety scores are the preferred way to measure criminal offending because they “possess high reliability and validity, and are not compromised by high frequency non-serious items in the scale.” All four forms of violence were fairly rare in the sample (18.5%, 4.8%, 4.2%, and 1.9%, respectively), and approximately 21.9% of adolescents reported engaging in violence at Wave I.

*Property offending* is a four-item variety score that reflects whether respondents committed the following nonviolent acts in the year prior to the Wave I interview: “stole something worth less than \$50,” “deliberately damaged property that didn’t belong to you,” “stole something worth more than \$50,” and “went into a house or building to steal something” (range 0 – 4). The prevalence of each form of property offending was 20.0%, 17.6%, 5.4%, and 5.2%, respectively, and nearly 30.4% of respondents reported committing at least one property crime.

*Alcohol problems* are assessed using a seven-item index indicating how often the following happened in the 12 months prior to the Wave I interview: “you got into trouble with your parents because you had been drinking,” “you’ve had problems at school or with work because you had been drinking,” “you had problems with your friends because you had been drinking,” “you had problems with someone you were dating because you had been drinking,” “you did something you later regretted because you had been drinking,” “you were hung over,” and “you were sick to your stomach or threw up after drinking.” These items are taken from the self-administered Short Michigan Alcohol Screening Test (Selzer, Vinokur, & van Rooijen, 1975), and are commonly used to

measure alcohol problems among adolescents (Joyner & Udry, 2000; Russell, Driscoll, & Truong, 2002; see also White & Labouvie, 1989). Responses ranged from 0 (never) to 4 (5 or more times), and were summed so that higher values reflect greater alcohol problems (Cronbach's  $\alpha = .80$ ). Principal components analysis confirmed that the scale was unidimensional (eigenvalue = 3.29; factor loadings > .56).

Lastly, illicit drug use is captured in two ways: *marijuana use* and *hard drug use* (including cocaine, injection drugs, and methamphetamine). Each of these variables was dichotomized to reflect any marijuana use or hard drug use in the 30 days prior to the Wave I interview (1 = yes, 0 = no). Marijuana and hard drugs are considered separately given the distinct contexts and consequences surrounding each form of drug use (Golub & Johnson, 2001; Macleod et al., 2004).

### **Adolescent Health Outcomes**

Health-related outcomes in adolescence include poor self-rated health and self-reported somatic complaints. *Poor self-rated health* is a single survey item at Wave I that asked respondents, "In general, how is your health?" Responses ranged from 0 (excellent) to 4 (poor), where higher scores reflect worse health. *Somatic complaints* indicate how often respondents experienced the following in the past 12 months: "moodiness," "frequent crying," "fearfulness," "chest pains," "poor appetite," "insomnia," "trouble relaxing," "feeling very tired, for no reason," "feeling physically weak, for no reason." Responses to each item ranged from 0 (never) to 4 (every day). Consistent with prior research (e.g., Blum, Kelly, & Ireland, 2001; Ge et al., 2001), items were summed to create a scale where higher values indicate greater somatic complaints (range = 0 – 34;

Cronbach's  $\alpha = .78$ ). Principal components analysis confirmed that items loaded on a single component (eigenvalue = 3.29; factor loadings > .50).

### **Control Variables**

Several known correlates of adolescent psychological, behavioral, and health outcomes are also included in the analyses to control for potential spuriousness. Since *low self-control* has been linked to a wide variety of adverse outcomes and problematic behaviors (de Ridder et al., 2012; Pratt & Cullen, 2000), a self-control measure is included that reflects respondents' agreement to the following seven items: "when you have a problem to solve one of the first things you do is get as many facts about the problem as possible" (reverse-coded), "when you are attempting to find a solution to a problem you usually try to think of as many different ways to approach the problem as possible" (reverse-coded), "when making decisions you generally use a systematic method for judging and comparing alternatives" (reverse-coded), "after carrying out a solution to a problem you usually try to analyze what went right and what went wrong" (reverse-coded), "you have trouble paying attention in school," "you have trouble getting your homework done," and "you have trouble keeping your mind on what you are doing." Response categories for the first six items ranged from 0 (strongly disagree/never) to 4 (strongly agree/everyday), and for the final item from 0 (never or rarely) to 3 (most or all of the time). Since the number of response categories among these items varied, low self-control is measured using a sum of the z -scores of the seven items, where higher values indicate lower self-control (Cronbach's  $\alpha = .68$ ). This measure is consistent with prior research using the Add Health data (McGloin & Shermer, 2009; see also Beaver, 2008; Boisvert et al., 2012; Perrone et al., 2004).

To control for intellectual ability, each respondents' age-normed Add Health *Picture Vocabulary Test (PVT) score* is included in the analysis. Add Health PVT scores come from a shorter, computerized version of the Peabody Picture Vocabulary Test (Revised) that was administered to adolescents at the beginning of the Wave I interview. During this test, the interviewer reads a word aloud and the respondent selects a picture that best fits the word's meaning. Each word in the PVT corresponds to four simple, black-and-white illustrations arranged in a multiple-choice format (for example, the word "furry" has illustrations of a parrot, dolphin, frog, and cat from which to choose). There are 87 items in the Add Health PVT, and raw scores are standardized by age.

In addition, a measure of adolescents' perceived *low neighborhood integration* is included (Patterson, 1991; Pratt & Cullen, 2005; Teasdale & Silver, 2009). This composite measure is constructed using the following three dummy-coded items: "you know most of the people in your neighborhood," "in the past month, you stopped on the street to talk with someone who lives in your neighborhood," and "people in this neighborhood look out for each other" (1 = true, 0 = false). Items were summed to create an index where higher scores reflect lower neighborhood integration (range 0 – 3; KR<sub>20</sub> = .60).<sup>12</sup> Factor analysis of tetrachoric correlations confirmed that these items were associated with a single latent construct (eigenvalue = 1.45; factor loadings > .61).

Finally, *low parental education*, reflecting whether respondents' parents graduated high school (1 = yes, 0 = no), and the following demographic variables are included in the analyses: *male* (1 = male, 0 = female), *age* (the respondent's age in years

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<sup>12</sup> Although the reliability coefficient for neighborhood integration is below the .70 cutoff, its inclusion in the analysis is necessary as an important correlate of violent victimization and various psychological, behavioral, and health problems in adolescence (e.g., Kawachi & Berkman, 2000; Sampson & Wooldredge, 1987; Villarreal & Silva, 2006).

at Wave I), *black* (1 = black, 0 = otherwise), *Hispanic* (1 = Hispanic, 0 = otherwise), *Native American* (1 = Native American, 0 = otherwise), and *other racial minority* (1 = non-white, 0 = otherwise). Non-Hispanic white serves as the reference category. Summary statistics of the adolescent variables are provided in Table 2.1.

Table 2.1  
*Summary Statistics in Adolescence*

Variables	Full Sample	Victim Subsample	Range
	Mean (SD) or %	Mean (SD) or %	
<u>Violent Victimization</u>			
Adolescent victimization	20.70%	-----	0 – 1
<u>Social Ties</u>			
Attachment to parents	5.45 (2.45)	4.92 (2.47)	0 – 8
Attachment to school	17.06 (3.45)	15.90 (3.82)	0 – 24
Attachment to friends	3.23 (0.81)	3.10 (0.87)	0 – 4
<u>Psychological Outcomes</u>			
Depression	6.03 (4.34)	7.17 (4.61)	0 – 27
Low self-esteem	3.71 (2.57)	4.01 (2.67)	0 – 16
Suicide ideation	13.40%	20.45%	0 – 1
Suicide attempt	3.89%	7.65%	0 – 1
<u>Behavioral Outcomes</u>			
Violent offending	0.30 (0.66)	0.86 (1.03)	0 – 4
Property offending	0.49 (0.88)	0.92 (1.16)	0 – 4
Alcohol problems	1.30 (2.69)	2.34 (3.82)	0 – 28
Marijuana use	14.43%	27.18%	0 – 1
Hard drug use	4.37%	9.34%	0 – 1
<u>Health Outcomes</u>			
Poor self-rated health	2.12 (0.91)	1.22 (0.95)	0 – 4
Somatic complaints	6.31 (4.61)	6.99 (5.02)	0 – 34
<u>Control Variables</u>			
Low self-control	0.01 (4.09)	0.93 (4.45)	-8.99 – 21.43
PVT score	9.96 (1.57)	9.74 (1.47)	1.30 – 14.60
Neighborhood integration	0.79 (0.98)	0.74 (0.94)	0 – 3
Low parental education	7.78%	11.31%	0 – 1
Male	49.48%	69.62%	0 – 1
Age	15.63 (1.73)	15.84 (1.69)	11 – 18
Black	23.22%	28.64%	0 – 1
Hispanic	7.58%	10.41%	0 – 1
Native American	2.81%	4.28%	0 – 1
Other racial minority	7.03%	8.69%	0 – 1
N	18,668	3,878	

## Effects of Victimization on Adolescent Outcomes

Table 2.2  
*Bivariate Correlations between Victimization and Adolescent Outcomes*

Adolescent Outcomes	Victimization
<u>Psychological Outcomes</u>	
Depression	.20**
Low self-esteem	.08**
Suicide ideation	.22**
Suicide attempt	.27**
<u>Behavioral Outcomes</u>	
Violent offending	.63**
Property offending	.38**
Marijuana use	.35**
Hard drug use	.32**
Alcohol problems	.22**
<u>Health Outcomes</u>	
Poor self-rated health	.08**
Somatic complaints	.10**

*Note.* Correlations between victimization and continuous variables are biserial coefficients, and correlations between victimization and other binary variables are tetrachoric coefficients ( $N = 18,668$ ).

\*\* $p < .01$  (two-tailed test).

The analyses begin in Table 2.2 with an overview of the bivariate associations between violent victimization and the adolescent psychological, behavioral, and health-related outcomes. As seen here, victimization is positively related to all of the adolescent outcomes assessed. In keeping with the victim-offender overlap literature, the relationships between victimization, violent offending ( $r = .63$ ), property offending ( $r = .38$ ), marijuana use ( $r = .35$ ), and hard drug use ( $r = .32$ ) are the strongest. Overall, these correlations are consistent with prior studies that assess different forms of violent victimization, operationalize dependent variables differently, and use samples drawn from different populations. While some relationships are more modest than others

(correlations range from .08 to .63), the takeaway from Table 2.2 is that victimization is meaningfully linked to a wide array of problems in adolescence.

Having demonstrated statistically significant bivariate correlations between victimization and the negative outcomes, the next step in the analysis is to see if these relationships “hold up” in a multivariate context. But before proceeding with these models, it is necessary to conduct a series of model diagnostics to determine whether collinearity will bias the parameter estimates. In particular, bivariate correlations between the independent variables do not exceed an absolute value of .33, which is below the traditional threshold of .70, and variance inflation factors are under 1.3, which is well below the standard “conservative” cut off of 4.0 (Tabachnick & Fidell, 2012). Furthermore, the condition index values do not exceed 22, which puts them well beneath the commonly used threshold of 30 specified by Belsley, Kuh, and Welsch (1980). According to this evidence, the observed correlations between the independent variables should not result in biased estimates or inefficient standard errors due to multicollinearity.

### **Models of Victimization and Adolescent Outcomes**

Since the dependent variables follow different distributions, they require different modeling strategies. Specifically, ordinary least-squares (OLS) regression models are estimated for ordinal variables that have relatively normal distributions (i.e., low self-esteem and poor self-rated health), negative binomial regression models are estimated for overdispersed discrete count variables (i.e., depression, violent offending, property offending, alcohol problems, and somatic complaints),<sup>13</sup> and binary logistic regression

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<sup>13</sup> Overdispersed variables were those where the variance was nearly double the mean (Long, 1997).

models are estimated for dichotomous variables (i.e., suicide ideation, suicide attempt, marijuana use, and hard drug use). All multivariate analyses are estimated using the Add Health sampling weights and robust standard errors adjusted to account for the clustering of respondents in schools (Chen & Chantala, 2014; Huber, 1967; White, 1980).<sup>14</sup> Since the results are generated using cross-sectional data, they must be interpreted with caution—causal effects of victimization on the outcomes cannot be inferred. At best, the multivariate estimates reported here should be viewed as high-order correlations.

Tables 2.3 through 2.6 display the relationships between victimization and the adolescent psychological, behavioral, and health-related outcomes, net of control variables.<sup>15</sup> These multivariate results indicate that violent victimization is significantly related to all of the negative outcomes assessed in adolescence ( $p < .01$ ), net of the influences of low self-control, verbal/reasoning ability, low neighborhood integration, parental education, race/ethnicity, gender, and age. For instance, Table 2.3 indicates that victimization is associated with increased levels of depression, low self-esteem, suicide ideation, and attempted suicide. The relationships between violent victimization and suicidality are particularly pronounced, where odds ratios (not shown in Tables) indicate that victimization corresponds to a 90% increase (odds ratio = 1.90) in the odds of suicide ideation and a 152% increase (odds ratio = 2.52) in the odds of attempting suicide.

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<sup>14</sup> Failure to use weights or to account for clustering usually leads to underestimating standard errors and false-positive statistical test results (Chen & Chantala, 2014).

<sup>15</sup> The model  $F$ -test for each multivariate model, which Stata reports in place of a model chi-square when using multiply imputed data, indicates that the null hypothesis that all coefficients are equal to zero can be rejected.  $F$  and chi-squared statistics are really the same thing in that, after normalization, chi-squared is the limiting distribution of  $F$  as the denominator degrees of freedom goes to infinity (Gould, 2013). The chi-square is usually applied to problems where only the asymptotic sampling distribution is known. In multiply imputed data, however, the sampling distribution across the different samples ( $m = 10$ ) is known, which is why an  $F$  is used in place of a chi-square (Gould, 2013).



Table 2.3  
Effects of Victimization on Adolescent Psychological Outcomes

Variables	Depression <sup>a</sup>			Low self-esteem <sup>b</sup>			Suicide ideation <sup>c</sup>			Suicide attempt <sup>c</sup>		
	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>
Victimization	.16	(.02)	9.65**	.25	(.08)	3.30**	.64	(.09)	6.78**	.93	(.16)	5.91**
Low self-control	.05	(.01)	34.58**	.23	(.01)	26.69**	.11	(.01)	15.78**	.13	(.01)	8.87**
PVT score	-.08	(.01)	-12.46**	-.02	(.02)	-1.22	.05	(.02)	2.12*	.01	(.05)	.25
Low neighborhood integration	.05	(.01)	12.73**	.18	(.02)	9.11**	.09	(.02)	3.97**	.08	(.04)	1.96
Low parental education	.07	(.02)	3.15**	.10	(.10)	1.01	-.01	(.11)	-.05	.35	(.17)	2.09**
Male	-.19	(.02)	-12.38**	-.84	(.06)	-14.11**	-.70	(.09)	-8.01**	-1.20	(.16)	-7.43**
Age	.04	(.01)	8.08**	.08	(.02)	4.47**	.03	(.02)	1.92	.01	(.04)	.06
Black	.08	(.03)	2.91**	-.44	(.07)	-5.99**	-.17	(.09)	-1.80	-.10	(.16)	-.62
Hispanic	.10	(.03)	3.13**	.35	(.11)	3.18**	-.20	(.14)	-1.41	-.26	(.30)	-.86
Native American	.13	(.04)	3.11**	.38	(.18)	2.12*	.20	(.17)	1.16	.24	(.26)	.95
Other racial minority	.18	(.04)	5.79**	.62	(.08)	7.47**	.19	(.13)	1.52	.30	(.20)	1.50
Constant	2.39	(.10)	23.77**	2.87	(.32)	8.83**	-2.96	(.37)	-8.02**	-3.47	(.77)	-4.53**
Model <i>F</i> -test	239.09**			148.57**			38.35**			25.31**		

Note. Entries are unstandardized partial regression coefficients (*b*), clustered robust standard errors in parentheses, and *z*-tests ( $N = 18,668$ ).

<sup>a</sup> Negative binomial regression model.

<sup>b</sup> OLS regression model.

<sup>c</sup> Logistic regression model.

\* $p < .05$ ; \*\*  $p < .01$  (two-tailed test).

Table 2.4  
*Effects of Victimization on Adolescent Offending*

Variables	Violent offending <sup>a</sup>			Property offending <sup>a</sup>		
	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>
Victimization	1.48	(.05)	31.81**	.73	(.04)	17.79**
Low self-control	.06	(.01)	10.44**	.09	(.01)	18.41**
PVT score	-.05	(.02)	-2.74**	.11	(.02)	6.90**
Low neighborhood integration	.02	(.01)	1.91	.03	(.02)	1.85
Low parental education	.18	(.07)	2.36*	.06	(.07)	.89
Male	.66	(.05)	13.33**	.42	(.04)	9.96**
Age	-.03	(.01)	-2.79**	-.07	(.01)	-5.11**
Black	.39	(.06)	6.08**	-.10	(.09)	-1.46
Hispanic	.02	(.10)	0.24	.19	(.09)	2.14*
Native American	.33	(.10)	3.11**	.09	(.11)	.80
Other racial minority	-.07	(.10)	-.70	.23	(.07)	3.37**
Constant	-1.46	(.25)	-5.83**	-1.41	(.29)	-4.81**
Model <i>F</i> -test	194.81**			179.48**		

*Note.* Entries are unstandardized partial regression coefficients (*b*), clustered robust standard errors in parentheses, and *z*-tests (*N* = 18,668).

<sup>a</sup>Negative binomial regression model.

\**p* < .05; \*\* *p* < .01 (two-tailed test).

Table 2.5

*Effects of Victimization on Adolescent Substance Use*

Variables	Alcohol problems <sup>a</sup>		Marijuana use <sup>b</sup>		Hard drug use <sup>b</sup>	
	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>
Victimization	.85	(.07)	12.89**	.92	(.08)	11.01**
Low self-control	.10	(.01)	13.87**	.12	(.01)	14.48**
PVT score	.03	(.02)	1.23	.07	(.02)	2.70**
Low neighborhood integration	-.01	(.02)	-.91	.00	(.02)	.00
Low parental education	.08	(.08)	.94	.25	(.11)	2.34*
Male	-.25	(.06)	-4.15**	-.02	(.08)	-.25
Age	.32	(.02)	14.40**	.24	(.03)	9.29**
Black	-.76	(.09)	-8.21**	-.05	(.11)	-.43
Hispanic	-.31	(.13)	-2.41*	-.13	(.14)	-.92
Native American	.06	(.10)	.56	.35	(.19)	1.84
Other racial minority	-.33	(.21)	-1.55	-.32	(.19)	-1.63
Constant	-5.17	(.39)	-13.34**	-6.57	(.44)	-14.95**
Model <i>F</i> -test		67.77**			58.17**	
					25.53**	

*Note.* Entries are unstandardized partial regression coefficients (*b*), clustered robust standard errors in parentheses, and *z*-tests ( $N = 18,668$ ).

<sup>a</sup> Negative binomial regression model.

<sup>b</sup> Logistic regression model.

\* $p < .05$ ; \*\*  $p < .01$  (two-tailed test).

Table 2.6  
*Effects of Victimization on Adolescent Health Outcomes*

Variables	Poor self-rated health <sup>a</sup>			Somatic complaints <sup>b</sup>		
	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>
Victimization	.07	(.03)	2.56**	.15	(.02)	7.42**
Low self-control	.04	(.01)	14.31**	.05	(.01)	26.68**
PVT score	-.04	(.01)	-4.29**	.02	(.01)	3.40**
Low neighborhood integration	.04	(.01)	4.59**	.02	(.01)	5.15**
Low parental education	.18	(.04)	4.13**	.03	(.03)	.94
Male	-.17	(.02)	-8.63**	-.38	(.01)	-25.45**
Age	.01	(.01)	.84	.02	(.01)	3.83**
Black	-.06	(.03)	-1.81	-.06	(.03)	-2.08*
Hispanic	.02	(.04)	.58	-.03	(.04)	-.68
Native American	.25	(.06)	4.23**	.10	(.05)	2.11*
Other racial minority	.12	(.04)	2.66**	.03	(.03)	1.02
Constant	1.43	(.14)	9.99**	1.43	(.10)	13.92**
Model <i>F</i> -test		67.90**			193.88**	

*Note.* Entries are unstandardized partial regression coefficients (*b*), clustered robust standard errors in parentheses, and *z*-tests (*N* = 18,668).

<sup>a</sup> OLS regression model.

<sup>b</sup> Negative binomial regression model.

\**p* < .05; \*\* *p* < .01 (two-tailed test).

Moreover, negative binomial models indicate strong relationships between victimization and offending in Table 2.4, where the incidence rate ratios (IRR) show that violent victimization increases the rate of violent offending by a factor of 4.38, and by a factor of 2.05 for property offending. Significant relationships are similarly seen in Table 2.5 between victimization and alcohol problems (IRR = 2.38), marijuana use (odds ratio = 2.54), and hard drug use (odds ratio = 2.78). As seen in Table 2.6, victims of violence are also more likely to experience somatic complaints and to describe themselves as being in poorer health, although these relationships appear to be more modest relative to the effects of victimization on drug use and offending.

### **Sensitivity Analyses**

Despite the consistent pattern of findings in Tables 2.3 to 2.6, further analyses were conducted to determine the robustness of the results. Specifically, additional models were estimated that controlled for different combinations of variables associated with psychological, behavioral, and health problems in adolescence. These included pubertal development, receiving psychological counseling, running away from home, having a physical disability, and having a friend or a family member attempt suicide in the past year. Even with these covariates in the models, the effects remained the same: adolescent violent victimization was significantly related to all of the psychological, behavioral, and health-related outcomes assessed at this stage in the life course. These observed relationships were not only generally stable across all estimations using the full sample, but also among male-only ( $n = 9,236$ ) and female-only ( $n = 9,432$ ) subsamples (see Appendix A).

Lastly, to ensure that the statistically significant findings are not an artifact of the large sample size (Cohen, 1992; Finifter, 1972), all analyses presented in Tables 2.3 to 2.6 were replicated on a 20 percent random subsample of the data ( $n = 3,733$ ). The consistency of findings across all specifications gives added confidence that the relationships reported here are not methodological artifacts. In short, the pattern in the data is clear: in adolescence, violent victimization is significantly related to a host of psychological, behavioral, and health problems.

### **Effects of Social Ties within the Victim Subsample**

Having established the relationships between violent victimization and various problems in adolescence, the next step is to determine why some victims experience these problems while others do not. In particular, the focus here is on whether victims with strong, supportive social ties—to family, to school, and to friends—are more resilient than others. Accordingly, the next set of analyses center only on those who were victims of violence at Wave I ( $n = 3,878$ ; 20.7% of the full sample). Descriptive statistics for the subsample of victims can be found in the right-hand column of Table 2.1.

To determine whether relationships exist between social ties and the dependent variables, the analyses begin by estimating bivariate correlations using the victim subsample. As seen in Table 2.7, attachments to parents, school, and friends are negatively related to the majority of adverse outcomes among victims. Note, however, that attachment to friends is not significantly related to suicide attempts, alcohol problems, or hard drug use. Although some social ties are more strongly related to the dependent variables than others (correlations range from  $-.03$  to  $-.28$ , and are generally larger in magnitude for attachments to parents and school), Table 2.7 shows that, on

balance, supportive social ties are inversely related to a wide array of victims' psychological, behavioral, and health problems in adolescence.

Table 2.7  
*Bivariate Correlations between Social Ties and Adolescent Outcomes among Victims*

Adolescent Outcomes	Attachment to Parents	Attachment to School	Attachment to Friends
<u>Psychological Outcomes</u>			
Depression	-.28**	-.26**	-.15**
Low self-esteem	-.24**	-.27**	-.15**
Suicide ideation	-.24**	-.16**	-.05**
Suicide attempt	-.24**	-.15**	-.01
<u>Behavioral Outcomes</u>			
Violent offending	-.09**	-.13**	-.06**
Property offending	-.13**	-.15**	-.06**
Alcohol problems	-.12**	-.15**	.01
Marijuana use	-.21**	-.16**	-.03*
Hard drug use	-.16**	-.13**	-.01
<u>Health Outcomes</u>			
Self-rated health	-.15**	-.17**	-.10**
Somatic complaints	-.21**	-.22**	-.06**

*Note.* Correlations between social ties and continuous variables are Pearson's coefficients, and correlations between social ties and dichotomous variables are biserial coefficients ( $n = 3,878$ ).

\* $p < .05$ ; \*\* $p < .01$  (two-tailed test).

### Sample Selection Bias

Having established these relationships at the bivariate level, the next step is to estimate multivariate models to see if the patterns in the data hold. Before doing so, it is important to address issues of sample selection bias. Since individuals included in the victim subsample were not selected by random assignment, the results from these models can be biased in ways that undermine both internal and external validity (Berk, 1983; Bushway, Johnson, & Slocum, 2007; Heckman, 1979). For example, it is possible that the likelihood of having social ties or psychological, behavioral, or health problems is

conditional upon being a victim of violence (Kirk, 2011; Stolzenberg & Relles, 1997). When this happens, relationships between variables in the victim subsample may be systematically unrepresentative of those in the full population.

Selection bias has received a fair amount of attention in the social sciences, particularly in recent years (Bushway et al., 2007; Gangl, 2010). According to this body of work, one of the best ways to obtain accurate parameter estimates in the face of sample selection is to model the selection process simultaneously with the regression equation of interest (Boehmke, Morey, & Shannon, 2006; Greene, 1997; Puhani, 2000). In the present case, this strategy involves jointly estimating a probit model for selection into the subsample (i.e., being violently victimized; the “stage one” model) with a second regression model predicting a specific adolescent outcome (i.e., having a psychological, behavioral, or health problem; the “stage two” model). Here, the stage one probit model is estimated using the full sample of adolescents at Wave I ( $N = 18,668$ ), and the stage two regression model is estimated using only the subsample of victims ( $n = 3,878$ ).

Because the dependent variables follow different distributions, they require different modeling strategies. As such, full informational maximum likelihood (FIML) selection models (Bushway et al., 2007; Heckman, 1976) are estimated for normally distributed variables (i.e., low self-esteem and poor self-rated health), Poisson sample selection models (Bratti & Miranda, 2011) are estimated for discrete count variables (i.e., depression, violent offending, property offending, alcohol problems, and somatic complaints), and probit sample selection models (Miranda & Rabe-Hesketh, 2006; Van de Ven & Van Praag, 1981) are estimated for dichotomous variables (i.e., suicide ideation, suicide attempt, marijuana use, and hard drug use). The FIML, Poisson, and



probit models with sample selection are all forms of maximum likelihood models that specify the joint distribution between first- and second-stage equations and maximize their corresponding log-likelihood functions (Heckman, 1979; Jones, 2007; Puhani, 2000).<sup>16</sup>

Table 2.8  
*Summary Statistics for Exclusion Restrictions*

Exclusion Restrictions	Mean (SD) or %	Range
Hang out with friends often	1.98 (1.01)	0 – 3
Allowed to choose your own friends	83.98%	0 – 1
Play a sport with father	24.12%	0 – 1
Long-term residence	52.37%	0 – 1
Parents on public assistance	11.32%	0 – 1
Access to a gun in the home	21.87%	0 – 1
Use rec center in neighborhood	20.48%	0 – 1
BMI	22.58 (4.46)	11.22 – 63.56

*Note.*  $N = 18,668$ .

To ensure that the parameter and variance estimates are not biased as the result of collinearity, it is important to reduce the correlations between first- and second-stage error terms (Bushway et al., 2007; Lennox, Francis, & Wang, 2011; Leung & Yu, 1996). Doing so requires the use of exclusion restrictions—variables that are statistically related to the selection variable (violent victimization), but not to the dependent variables of interest (the adolescent psychological, behavioral, and health outcomes). Driven by theoretical expectations, an exhaustive review of the data was undertaken to identify a

<sup>16</sup> Selection models are estimated in Stata 13 using *heckman* (FIML), *setpoisson* (Poisson with sample selection; Miranda, 2012), and *heckprob* (probit with sample selection). A desirable property of the *setpoisson* model is that it forces overdispersion in the dependent variable to protect against the underestimation of standard errors observed in standard Poisson regression with count data (Bratti & Miranda, 2011). Put differently, these models will not bias the findings in favor of statistical significance.

minimum of two exclusion restrictions per dependent variable. Eight exclusion restrictions were identified at Wave I (see Table 2.8).

Existing research supports that these eight items are appropriate exclusion restrictions. All are linked theoretically to victimization (by affecting proximity to potential offenders, target suitability, or the presence of capable guardianship) but not to all of the psychological, behavioral, and health-related problems under examination. For example, adolescents who *hang out with their friends often* are more likely to be victimized since unstructured socializing in the absence of authority figures presents opportunities for peers to engage in crime and violence (Osgood et al., 1996; Osgood & Anderson, 2004; Schreck et al., 2002). How often one hangs out with friends, however, is unrelated to depression, low self-esteem, or poor self-rated health. This finding is consistent with existing research. Indeed, peers can be both positive and negative influences in adolescence, and youngsters can still feel depressed, unhealthy, or bad about themselves regardless of how often they socialize with friends (Nangle et al., 2003; Prinstein, 2007; Prinstein, Boergers, & Spirito, 2001; Smith & Christakis, 2008). Bivariate correlations confirmed that all exclusion restrictions were significant correlates of victimization ( $r = .06 - .16$ ;  $p < .01$ ), but weak or inconsistent correlates of the dependent variables. More information on the measurement of these items and the bivariate relationships between exclusion restrictions, victimization, and the dependent variables can be found in Appendix B.

Table 2.9  
*Stage One Probit Model Estimating Selection into the Subsample of Victims*

Variables	Victimization		
	<i>b</i>	(SE)	<i>z</i>
Low self-control	.04	(.01)	8.55**
PVT score	-.06	(.01)	-4.45**
Neighborhood integration	.06	(.01)	4.81**
Low parental education	.28	(.06)	4.59**
Male	.61	(.04)	16.86**
Age	.02	(.01)	1.47
Black	.26	(.05)	5.11**
Hispanic	.34	(.07)	5.00**
Native American	.33	(.11)	3.11**
Other racial minority	-.11	(.10)	-1.10
Hang out with friends often	.09	(.02)	4.85**
Allowed to choose friends	-.10	(.05)	-1.98*
Play a sport with father	-.09	(.04)	-2.11*
Long-term residence	-.14	(.04)	-3.56**
Parents on public assistance	.15	(.05)	2.77**
Access to a gun in the home	.16	(.04)	3.55**
Use rec center in neighborhood	.13	(.05)	2.66**
BMI	.01	(.01)	2.41*
Constant	-1.50	(.22)	-6.73**
Model <i>F</i> -test		53.77**	

*Note.* Entries are unstandardized partial regression coefficients (*b*), clustered robust standard errors in parentheses, and *z*-tests ( $N = 18,668$ ).

\* $p < .05$ ; \*\*  $p < .01$  (two-tailed test).

Sample selection methods have been the subject of criticism since they are often estimated without exclusion restrictions (creating problems with collinearity between first and second stage error terms), and because arbitrary variables are commonly used to model the selection process (Berk & Ray, 1982; Bushway et al., 2007; Stolzenberg & Relles, 1990). Fortunately, the Add Health data contain several exclusion restrictions and other strong theoretical correlates of victimization that can be included in the selection model (e.g., low self-control, verbal/reasoning ability, and low neighborhood integration). As seen in Table 2.9, the stage one probit model predicting selection into the victim subsample fit the data well (indicated by a significant *F*-test), and all eight exclusion restrictions were statistically significant ( $p < .05$ ).

### **Models of Social Ties and Adolescent Outcomes**

Tables 2.10 through 2.13 present models that examine how attachments to parents, school, and friends affect whether victims experience various psychological, behavioral, and health-related problems in adolescence. Because results from the stage one probit models remain relatively consistent across all estimations, only the stage two models are presented here. In these models, correlations between independent variables are below the absolute value of .35 and VIFs are below 1.30, suggesting that collinearity is not a problem.<sup>17</sup>

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<sup>17</sup> The condition index value for explanatory variables in the subsample was 26, which slightly exceeded Leung and Yu's (1996) recommended cutoff of 20 for selection models. To ensure that estimates were not biased due to collinearity, in supplemental analyses *PVT score* was removed from the second stage equations to reduce the condition index values to 18. In these analyses the broad pattern of findings remained unchanged (in that social ties were negatively related to problems for victims), but the coefficients for social ties and other explanatory variables (e.g., low self-control) were slightly larger. To avoid any model specification errors, *PVT score* was included in the stage two models as a necessary covariate.

Each selection model estimates a rho coefficient (the correlation between the first and second stage error terms) and a likelihood ratio test of independent equations (the likelihood ratio  $\chi^2$ ). A significant likelihood ratio test indicates that sample selection is a detectable source of bias. Likelihood ratio tests are statistically significant in the models presented in Tables 2.10-2.13, with the exception of those predicting low self-esteem, attempted suicide, violent offending, and alcohol problems. Nevertheless, even in models without significant likelihood ratio tests, correlations between first and second stage error terms are nonzero. Following the recommendations of Bushway et al. (2007), sample selection models are estimated for all outcomes to provide more precise parameter estimates of theoretical relationships.

Overall, the findings presented in Tables 2.10 to 2.13 indicate that social ties are negatively related to nearly all of the adverse outcomes for victims. For instance, Table 2.10 shows that attachments to parents, school, and friends are negatively related to depression and low self-esteem, and that attachments to parents and school reduce the likelihood of suicide ideation and attempted suicide for victims of violence. Although these effects are statistically significant, they appear to be somewhat modest. The rate of depression, for instance, is reduced by 4% (IRR = .96) for one unit increase in parental attachment, 3% (IRR = .97) for a one unit increase in attachment to school, and 6% (IRR = .94) for a one unit increase in attachment to friends.

Table 2.11 presents a similar pattern of findings, in that victims with attachments to parents and school commit less violent offenses (IRR for attachment to parents = .97; IRR for attachment to school = .96), and victims with attachments to parents engage in less property crime (IRR = .95). As in the previous table, these effects do not appear to be

large, but they are nontrivial given the strong overlap between victimization and offending observed at this stage in the life course (see, e.g., Table 2.4).

With respect to the effects of social ties on substance use, Table 2.12 indicates that victims with strong attachments to parents and school are less likely to use marijuana, and that victims with strong attachments to school are less likely to have alcohol problems and use hard drugs. Note, however, that attachment to friends is not related to any form of criminal offending or substance use in Tables 2.11 and 2.12. Lastly, the models presented in Table 2.13 indicate that social ties also reduce victims' health problems, where attachments to parents, school, and friends are negatively related to self-assessments of poor health and somatic complaints.

Taken together, these results demonstrate that for adolescent victims of violence, social ties can mitigate a wide array of adverse outcomes. Attachments to parents and to school seem to be particularly important in that they meaningfully reduced the likelihood of nearly every psychological, behavioral, and health outcome assessed. Although having strong attachments to friends do not reduce suicidality, offending, or substance use among victims, strong friendship ties do reduce certain psychological and health-related problems for victims of violence, including depression, low self-esteem, poor health, and somatic complaints.

Table 2.10  
*Effects of Social Ties on Psychological Outcomes among Adolescent Victims*

Variables	Depression <sup>a</sup>			Low self-esteem <sup>b</sup>			Suicide ideation <sup>c</sup>			Suicide attempt <sup>c</sup>		
	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>
Attachment to parents	-.04	(.01)	-6.72**	-.15	(.03)	-5.52**	-.04	(.02)	-2.80**	-.04	(.02)	-2.48*
Attachment to school	-.03	(.01)	-6.50**	-.10	(.02)	-6.15**	-.03	(.01)	-2.98**	-.02	(.10)	-2.04*
Attachment to friends	-.06	(.01)	-4.21**	-.31	(.07)	-4.58**	-.01	(.03)	.39	-.05	(.05)	-.92
Low self-control	.04	(.01)	8.08**	.15	(.02)	6.57**	.01	(.01)	.51	.02	(.02)	.94
PVT score	-.07	(.01)	-6.13**	.03	(.05)	.54	.04	(.03)	1.38	.02	(.04)	.40
Low neighborhood integration	.02	(.01)	3.35**	.01	(.05)	.26	-.01	(.02)	-.41	.01	(.03)	.50
Low parental education	.01	(.04)	.20	-.26	(.22)	-1.15	-.34	(.10)	-3.52**	-.04	(.15)	-.26
Male	-.20	(.03)	-6.23**	-1.08	(.30)	-3.59**	-.68	(.10)	-6.76**	-.87	(.12)	-7.17**
Age	.01	(.01)	1.12	-.03	(.04)	-.61	-.01	(.02)	-.22	-.02	(.03)	-.85
Black	.03	(.03)	.98	-.64	(.17)	-3.72**	-.32	(.08)	-3.83**	-.28	(.15)	-1.91
Hispanic	.05	(.04)	1.37	.49	(.33)	1.48	-.28	(.09)	-3.07**	-.35	(.15)	-2.36*
Native American	.10	(.06)	1.65	.13	(.32)	.39	-.11	(.19)	-.58	-.03	(.19)	-.15
Other racial minority	.26	(.05)	5.27**	1.36	(.28)	4.88**	.41	(.16)	2.58*	.43	(.16)	2.72**
Constant	3.77	(1.18)	3.19**	8.88	(1.23)	1.71**	1.11	(.50)	2.21*	.84	(.56)	1.50
Rho		.58			-.11			-.61			-.36	
Likelihood ratio $\chi^2$		10.61**			.25			9.92**			3.67	

*Note.* Entries are unstandardized partial regression coefficients (*b*), clustered robust standard errors in parentheses, and *z*-tests (*n* = 3,878). Stage-one probit models predicting selection into the subsample of victims not shown here (see Table 2.9).

<sup>a</sup> Poisson model with sample selection.

<sup>b</sup> FIML model with sample selection.

<sup>c</sup> Probit model with sample selection.

\**p* < .05; \*\* *p* < .01 (two-tailed test).

Table 2.11  
*Effects of Social Ties on Offending among Adolescent Victims*

Variables	Violent offending <sup>a</sup>			Property offending <sup>a</sup>		
	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>
Attachment to parents	-.03	(.01)	-2.04*	-.05	(.01)	-3.74**
Attachment to school	-.04	(.01)	-4.53**	-.01	(.01)	-1.36
Attachment to friends	.06	(.04)	1.56	.03	(.03)	.86
Low self-control	.03	(.01)	5.54**	.62	(.01)	9.10**
PVT score	-.05	(.02)	-2.31*	.08	(.03)	3.06**
Low neighborhood integration	.01	(.02)	.28	.02	(.02)	.96
Low parental education	.02	(.09)	.23	-.11	(.09)	-1.23
Male	.53	(.07)	7.40**	.37	(.08)	4.63**
Age	-.01	(.01)	-.39	-.06	(.02)	-3.72**
Black	.25	(.07)	3.64**	-.15	(.08)	-1.85
Hispanic	.09	(.12)	.74	.07	(.08)	.80
Native American	.39	(.11)	3.51**	.17	(.14)	1.25
Other racial minority	.02	(.14)	.12	.07	(.12)	.57
Constant	.49	(.39)	1.26	.01	(.44)	.01
Rho		-.44			-.62	
Likelihood ratio $\chi^2$		1.53			11.68**	

*Note.* Entries are unstandardized partial regression coefficients (*b*), clustered robust standard errors in parentheses, and *z*-tests (*n* = 3,878). Stage-one probit models predicting selection into the subsample of victims not shown here (see Table 2.9).

<sup>a</sup> Poisson model with sample selection.

\**p* < .05; \*\* *p* < .01 (two-tailed test).



Table 2.12  
*Effects of Social Ties on Substance Use among Adolescent Victims*

Variables	Alcohol problems <sup>a</sup>			Marijuana use <sup>b</sup>			Hard drug use <sup>b</sup>		
	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>
Attachment to parents	-.02	(.01)	-1.48	-.06	(.02)	-3.13**	-.05	(.03)	-1.85
Attachment to school	-.02	(.01)	-2.27*	-.02	(.01)	-2.54*	-.03	(.01)	-2.55*
Attachment to friends	.08	(.04)	1.71	.01	(.04)	.17	.04	(.05)	.78
Low self-control	.07	(.01)	8.51**	.02	(.02)	1.14	.03	(.03)	1.16
PVT score	.06	(.02)	2.21*	.03	(.03)	1.03	.03	(.04)	.77
Low neighborhood integration	-.02	(.02)	-1.04	-.08	(.02)	-3.93**	-.05	(.03)	-1.72
Low parental education	.13	(.10)	1.39	-.11	(.10)	-1.11	-.46	(.14)	-3.40**
Male	-.05	(.07)	-.69	-.20	(.15)	-1.39	-.81	(.15)	-5.47**
Age	.17	(.02)	7.58**	.07	(.03)	2.41*	.07	(.04)	1.97*
Black	-.51	(.14)	-3.66**	-.20	(.08)	-2.33*	-.81	(.15)	-5.47**
Hispanic	.08	(.10)	.77	-.15	(.11)	-1.34	-.15	(.20)	-.74
Native American	.23	(.14)	1.61	-.18	(.18)	-1.04	-.09	(.24)	-.37
Other racial minority	.13	(.19)	.67	-.10	(.13)	-.73	.03	(.21)	.14
Constant	-2.24	(.61)	-3.65**	.04	(.65)	.07	-.96	(1.18)	-.82
Rho		.11			-.63			-.54	
Likelihood ratio $\chi^2$		2.49			4.69*			4.86*	

*Note.* Entries are unstandardized partial regression coefficients (*b*), clustered robust standard errors in parentheses, and *z*-tests (*n* = 3,878). Stage-one probit models predicting selection into the subsample of victims not shown here (see Table 2.9).

<sup>a</sup> Poisson model with sample selection.

<sup>b</sup> Probit model with sample selection.

\**p* < .05; \*\**p* < .01 (two-tailed test).

Table 2.13

*Effects of Social Ties on Health Outcomes among Adolescent Victims*

Variables	Poor self-rated health <sup>a</sup>			Somatic complaints <sup>b</sup>		
	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>
Attachment to parents	-.03	(.01)	-2.51*	-.03	(.01)	-4.24**
Attachment to school	-.02	(.01)	-2.85**	-.02	(.01)	-4.28**
Attachment to friends	-.06	(.02)	-2.68**	-.06	(.02)	-2.84**
Low self-control	.01	(.01)	1.53	.03	(.01)	8.45**
PVT score	-.02	(.03)	-.94	.01	(.01)	.91
Low neighborhood integration	-.01	(.02)	-.29	.01	(.01)	.05
Low parental education	-.07	(.08)	-.82	-.05	(.05)	-.92
Male	-.41	(.10)	-4.14**	-.36	(.04)	-9.70**
Age	.03	(.16)	.17	.01	(.10)	.05
Black	-.23	(.07)	-3.57**	-.07	(.05)	-1.49
Hispanic	-.10	(.09)	-1.11	.06	(.05)	1.23
Native American	.04	(.16)	.25	.02	(.08)	.20
Other racial minority	.20	(.13)	1.60	.03	(.08)	.37
Constant	3.09	(.42)	7.33	2.63	(1.21)	2.18*
Rho		-.49			-.53	
Likelihood ratio $\chi^2$		8.56**			5.01*	

*Note.* Entries are unstandardized partial regression coefficients (*b*), clustered robust standard errors in parentheses, and *z*-tests ( $n = 3,878$ ). Stage-one probit models predicting selection into the subsample of victims not shown here (see Table 2.9). Coefficients and standard errors for age are multiplied by 10 for ease of interpretation.

<sup>a</sup> FIML model with sample selection.

<sup>b</sup> Poisson model with sample selection.

\* $p < .05$ ; \*\*  $p < .01$  (two-tailed test).

The reason why attachment to friends does not reduce offending and substance use for victims could be related to the group-based nature of delinquency in adolescence (Akers, 1998; Haynie & Osgood, 2005; Warr, 2002). Although victims with stronger friendship attachments generally have access to higher levels of peer support (Bukowski, Newcomb, & Hartup, 1998; Hartup & Stevens, 1997; Rubin et al., 2004), they may also have greater exposure to deviant peer influences and increased opportunities to engage in crime, drink alcohol, and use drugs if their friends are doing so (Augustyn & McGloin, 2013; Osgood & Anderson, 2004; Pratt et al., 2010; Thomas & McGloin, 2013). Unlike peer attachment in adolescence, attachments to family and school are more likely to be prosocial (DeVore & Ginsburg, 2005; Fergusson et al., 2007).<sup>18</sup>

## **Validation**

Even though the pattern of findings is similar across Tables 2.10 to 2.13, several additional models were estimated to assess the stability of the results. First, in keeping with Agnew's (1992) general strain theory, analyses were conducted that included an indicator of anger,<sup>19</sup> and that controlled for additional strains such as parental alcoholism, physical disability, low GPA, and parent reports of their dissatisfaction with adolescents' lives. Using all possible combinations of strain variables, and including anger in the models alongside attachments to parents, school, and friends, the results remained the

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<sup>18</sup> While it is likely that victims who have strong attachments to *prosocial* friends engage in less problem behaviors, the measure of friendship attachment in the Add Health in-home survey does not allow for distinctions to be made between having ties to prosocial friends versus deviant friends.

<sup>19</sup> As Agnew (1992, p. 59) argued, "Anger...is the most critical emotional reaction for the purposes of general strain theory. Anger results when individuals blame their adversity on others, and anger is a key emotion because it increases the individual's level of felt injury, creates a desire for retaliation/revenge, energizes the individual for action, and lowers inhibitions." Consistent with prior research using the Add Health data (Kaufman, 2009; Stogner & Gibson, 2010), anger is measured using a proxy that reflects whether parents reported that their teen had a bad temper (1 = yes, 0 = no).

same: social ties meaningfully reduce the likelihood that victims of violence experience psychological, behavioral, and health-related problems in adolescence.

Second, a series of gender-specific models was estimated to determine whether social ties affect male and female victims similarly. Since females are often subject to more monitoring and supervision by parents (Gottfredson & Hirschi, 1990; Jacobsen & Crockett, 2000) and males are more likely to associate with deviant peers (Akers, 1998; Warr, 2002), social ties may operate differently across male and female victims. As seen in Appendix C, regardless of whether models were estimated separately by gender, the pattern of findings remained stable among male victims ( $n = 2,700$ ) and female victims ( $n = 1,178$ ). Indeed, at least one form of social tie was negatively related to each outcome assessed among both males and females.

Lastly, using principle components analysis, a second-order factor was created using attachments to parents, school, and friends to create one indicator of adolescent social ties ( $\lambda = 1.32$ , factor loadings  $> .60$ ). This construct had a significant negative effect on all of the adolescent outcomes assessed in Tables 2.10 to 2.13 ( $p < .05$ )—a pattern no different than what was found previously. In sum, although the effects of social ties on victims' psychological, behavioral, and health problems may be somewhat modest, they are robust across all specifications. Indeed, the overall pattern of results indicates that victims with strong ties to parents, school, and friends fare better than those who lack such ties.

## **Conclusions**

The results in this chapter support existing theory and research on adolescent victimization and its consequences. The analyses demonstrate that violent victimization is a significant risk factor for a host of psychological problems (i.e., depression, low self-esteem, suicide ideation, and suicide attempts), behavioral problems (i.e., violent and property offending, alcohol problems, marijuana use, and hard drug use), and health problems (i.e., poor self-rated health and somatic complaints). In addition, for adolescent victims of violence, having strong attachments to parents, school, and friends can mitigate these adverse outcomes substantially. In particular, at least one form of social tie reduced every problematic outcome assessed here. Although there are other forms of supportive ties that could not be examined—such as mentorship and civic engagement—these findings speak to the importance of attachments to parents, school, and friends in promoting resiliency among youthful victims of violence. And having established these patterns in the data, the focus now turns to the next stage in the life course—emerging adulthood—to determine whether similar patterns emerge.

## CHAPTER 3

### VICTIMIZATION IN EARLY ADULthood

Eighteen has traditionally been considered the age marker for the end of adolescence. It is the age at which most young people finish high school, leave their parents' home, and reach the legal age of "adult status" in a variety of respects (Arnett, 2000). But yet, age 18 rarely signifies the beginning of true adulthood in today's world. A number of demographic changes have taken place in the past half century that have resulted in an extended period of transition between adolescence and adulthood between the ages of 18 to 25—a unique period of the life course referred to as early (or emerging) adulthood (Arnett, 2000).<sup>20</sup> Typically, adulthood is considered to be marked by the following five milestones: completing school, leaving home, becoming financially independent, marrying, and having a child (Furstenburg, 2010). In 1960, most U.S. women (77%) and men (65%) had passed all five of these milestones by age 30. By the year 2009, however, fewer than half of U.S. women and one third of men had done so (U.S. Census Bureau, 2010). Indeed, people today are reaching adulthood later than before. Unlike in decades past, many young people choose to delay parenthood in their early twenties in order to extend their education and training after high school and to explore romantic partnerships.

Arnett (2013) describes several characteristics that distinguish early or "emerging" adulthood from other age periods. In particular, it is the *age of identity explorations*, meaning that it is a time in the life course when people explore various

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<sup>20</sup> The designation *early adulthood* is meant to be synonymous with Arnett's (2000) conceptualization of *emerging adulthood*, which refers to the stage in the life course between the late teens and mid-twenties characterized by a great deal of fluidity and change.

possibilities in love and work as they move toward making enduring choices. Through trying out different possibilities, young adults develop a more definite identity—an understanding of who they are, what their capabilities and limitations are, and how they fit into society. These various explorations, however, also make early adulthood the *age of instability*, where young people transition through multiple jobs, romantic partners, and living situations (e.g., moving away from parents, moving in with roommates, moving back in with parents, moving in with a romantic partner) (Goldscheider & Goldscheider, 1999). Unlike adolescence, early adulthood is also the *age of self-focus*, wherein young people experience a degree of autonomy that they never had before. This might be the first time when individuals can distance themselves from their parents, choose where (or if) they go to school, and choose where they want to live, and these decisions often occur outside of the constraints of marriage, a long-term stable career, or parenthood.

Early adulthood is also an *age of feeling in-between*, where young people tend not to see themselves as adolescents or as adults (Arnett, 2000). They often find themselves in between the reliance on their parents that adolescents have and the long-term commitments in love and work that most adults have. Many report taking greater responsibility for themselves, yet do not feel like full-fledged adults quite yet. And lastly, early adulthood is an *age of possibilities*, where emerging adults often hold a very optimistic view of the future and believe that they will accomplish their dreams and overcome past circumstances, such as an unhappy home life, in an effort to become the person they would like to be.

Despite increasing rates of autonomy, emerging adulthood is also a period of the life course where rates of crime and victimization begin to decline. Although drug and alcohol use remain high throughout the mid-twenties (Arnett, 2005; Hawkins et al., 1992), a series of developmental changes take place in early adulthood that reduce participation in risky lifestyles. Some of these changes are cognitive, involving the maturation of inhibitory mechanisms in the prefrontal cortex (Giedd, 2004; Steinberg, 2007), and some are social, involving strengthened attachments to the workplace, to higher education, and to a romantic partner (Salvolainen, 2009; Sampson & Laub, 1993).

Unlike the volume of research focusing on adolescence, research on the consequences of victimization in emerging adulthood is relatively rare. Although there is evidence to suggest that early adult victimization is linked to things like violence, drug use, and risky sexual behavior (Arata, 2000; Mustaine & Tewksbury, 2000; Reingle & Maldonado-Molina, 2012), it is unclear whether victimization during this stage of the life course leads to a wide spectrum of negative emotional and health consequences. It is possible that since early adults are able to engage in more complex forms of decision making and planning (Pharo et al., 2011), they are less likely to cope with their victimization in problematic ways. On the other hand, since early adulthood tends to be characterized by a great deal of change and instability, individuals' social ties may be in a state of flux as well. Young adults may not have accumulated enough social resources yet to buffer the harms of their experiences (Lin, 1999; Arnett, 2000, 2013). It thus remains an open question whether victimization in early adulthood is linked to the same spectrum of problems as in adolescence.



## **Social Ties in Early Adulthood**

As young people begin the transition to early adulthood, their constellation of social ties evolves. Whereas attachments to peers, parents, and school were among the most salient social ties for adolescents, in early adulthood, important social ties change to involve attachments to the workplace and to a romantic partner. While not all emerging adults will have transitioned into stable careers and long-lasting romantic partnerships just yet, those who have may be better at withstanding the consequences of victimization. Here I focus on three forms of prominent social ties in the post-adolescent years: attachment to parents, job satisfaction, and marriage.

Although many young adults move away from their parents in their early twenties (Arnett, 2013), parental attachments still remain important sources of support. Unlike in adolescence, physical proximity to parents in early adulthood tends to be inversely related to the quality of relationships with them (Dubas & Petersen, 1996; O'Connor et al., 1996). Despite living apart—sometimes in different cities or countries—many emerging adults report routinely relying on their parents for advice and to help them solve problems (Carlson, 2014). Thus, for early adults who are victimized, close relationships with parents may provide them with greater levels of social support needed to cope effectively with their experiences.

Another important social tie in early adulthood concerns job satisfaction. During this stage of the life course, young people become more serious about securing long-term employment. Although many Americans begin working part-time during the teen years (Arnett, 2013; Barling & Kelloway, 1999), these first jobs generally do not provide them

with the knowledge or experience needed in their future occupations (Arnett, 2013; Steinberg & Cauffman, 1995). Indeed, most adolescents are employed in service jobs—at restaurants, retail stores, and movie theaters—those in which the cognitive challenges are minimal and the skills learned are few (Arnett, 2000). As such, many teenagers view their jobs not as occupational preparation but as a way to obtain disposable income for things like clothing, video games, and fast food (Darling et al., 2006; Steinberg & Cauffman, 1995).

Conversely, in early adulthood, work becomes more meaningful and tailored toward preparation for later adult roles. Many young adults seek employment related to the jobs they want to have in the future and set achievable career goals (Arnett, 2000). Establishing financial independence also becomes a greater priority during emerging adulthood, and many begin the transition into full-time employment once they reach their twenties (Arnett, 2013; Scheer, Unger, & Brown, 1996). Those who are satisfied with their careers typically report a greater sense of self-efficacy and mastery, and are more likely to experience socially beneficial relationships with coworkers (Judge & Bono, 2001). As such, satisfying ties to the workforce can provide supportive coping resources to victims (e.g., through coworker networks) and foster feelings of self-efficacy that can protect against further harms.

Outside of attachments to parents and satisfying ties to the workplace, romantic relationships can serve important protective functions for victims of violence in early adulthood. Unlike in adolescence where dating typically last only a few weeks or months

(Connolly et al., 2004), dating in early adulthood often involves deeper levels of emotional and physical intimacy. Arnett (2000) characterized this well, stating that:

[In] adolescence, explorations in love tend to be tentative and transient; the implicit question is, Who would I enjoy being with, here and now? In contrast, explorations in love in emerging adulthood tend to involve a deeper level of intimacy, and the implicit question is more identity focused: Given the kind of person I am, what kind of person do I wish to have as a partner through life? (p. 473).

Accordingly, marriage is one of the most important transitions that young men and women make as they enter adulthood (Arnett, 2013; Waite & Gallagher, 2000). Marriage provides a clear indication of the passage out of adolescence, and is a pivotal point in the life course due to its association with a wide range of positive outcomes.<sup>21</sup> Whether crime, depression, drug use, binge drinking, self-esteem, or suicidality, the literature is rife with findings suggesting that marriage is linked to well-being (Galambos, Barker, & Krahn, 2006; Laub, Nagin, & Sampson, 1998; Schulenberg et al., 2005). These findings are rather consistent, and tend to persist even after individual propensities to marry are taken into account (Horowitz, White, & Howell-White, 1996; King, Massoglia, & Macmillan, 2007; Lucas et al., 2003).

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<sup>21</sup> Although growing numbers of young people now delay marriage until later adulthood (Arnett, 2013; Cherlin, 2004; Shulman & Connolly, 2013), early marriage is not uncommon (Harris, Lee, & DeLeone, 2010). Most young adults consider marriage to be an important life goal and hope to get married someday (Carroll et al., 2007; Whitehead & Popenoe, 2001). And by their early-mid twenties, many young people become committed to longer lasting romantic partnerships (Cohen et al., 2003; Shulman & Connolly, 2013).

There have been several explanations put forth as to why marriage is so beneficial, and these can be extended to explain well-being among victims of crime. First, those who are married may have advantaged access to social support via their spouse (Kessler & Essex, 1982; Vaux, 1988). Couples have a significant vested interest in watching out for one another and encouraging healthy choices and behavior. Due to the support that spouses can provide, victims in lasting intimate relationships may be less likely to experience negative emotions in response to victimization (e.g., anger and depression) or cope in maladaptive ways (e.g., getting drunk, acting out, seeking revenge). Second, in addition to being a source of support, marriage can also function as a source of informal social control. This notion reflects a “social bonding” perspective (Hirschi, 1969), wherein the social tie of marriage creates interdependent systems of obligation and restraint that impose significant costs for engaging in bad behavior (Sampson & Laub, 1993). As such, victims who are married may be constrained from acting out in harmful ways, such as through crime or retaliation.

Third, married people tend to have reduced opportunities to engage in most maladaptive coping behaviors like drinking, using drugs, and having risky sexual encounters since these activities typically occur outside of the home and in the presence of deviant others. Indeed, marriage typically brings about changes in everyday routines that involve things like doing yard work, conducting home improvements, cooking, cleaning, and spending time with in-laws—obligations that significantly decrease the amount of time spent socializing away from home (Gauthier & Furstenberg, 2002; Osgood & Lee, 1993). Accordingly, married people spend less unstructured time with

friends (Osgood et al., 1996) and have less exposure to deviant peer groups (Warr, 1998) that limit their opportunities to cope in deviant ways.

Taken together, existing theory and research on social ties suggests that victims who are close with their parents, who have a satisfying job, and who are married may fare better in response to being victimized in early adulthood. The problem, however, is that these relationships have yet to be examined during this stage in the life course. It remains an open question whether victims without social ties in early adulthood are more vulnerable to the harms associated with being victimized. In what follows, analyses are conducted using Wave III of the Add Health data to: 1) assess the relationships between victimization and a wide range of psychological, behavioral, and health-related problems in early adulthood, and 2) to determine whether social ties (i.e., attachments to parents, job satisfaction, and marriage) help explain why some early adult victims of violence are more likely to experience these problems over others.

### **Sample**

Wave III of the Add Health data was collected eight years after Wave I, between August 2001 and April 2002, when respondents were an average of 22 years of age (ranging from 18 to 26 years). Of the original Wave I respondents, 15,710 participated in the Wave III interview. Consistent with previous waves of data collection, surveys were administered via laptop computers, and information on sensitive topics such as substance use, victimization, and sexual behavior was collected via audio computer-assisted self-interview. Most interviews took place in respondents' homes, and the average length of a complete interview was 134 minutes.

The current sample includes all participants at Wave III who had complete information on violent victimization and a valid sampling weight.<sup>22</sup> Consistent with the methods described in Chapter 2, cases missing information on other key variables (12.4% of the remaining Wave III sample) were handled using multiple imputation (Allison, 2002; Carlin et al., 2008; White et al., 2011).<sup>23</sup> Imputing cases with item missing data resulted in the retention of 91.4% of all Wave III respondents ( $N = 13,872$ ).

## **Empirical Measures**

### **Early Adult Victimization**

*Early adult victimization* is a dichotomous variable reflecting whether participants were victims of the following forms of violence during the 12 months prior to the Wave III interview: “someone pulled a gun on you,” “someone pulled a knife on you,” “you were beaten up, but nothing was stolen from you,” “you were beaten up and something was stolen from you,” “someone stabbed you,” and “someone shot you” (1 = yes, 0 = no). All forms of violence were rare (4.4%, 3.9%, 2.5%, 0.8%, 0.8%, and 0.6%, respectively), and 7.8% of the sample reported being victimized at Wave III. This measure is consistent with prior research using the Add Health data (e.g., Thompson et al., 2008; Turanovic, Reisig, & Pratt, 2015; Turanovic & Pratt, 2015). As noted in Chapter 2, it is important to acknowledge that the forms of victimization examined here do not represent the full spectrum of violence. Gendered forms of victimization that tend to become more common for females during this stage in the life course (e.g., dating

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<sup>22</sup> The Wave II sampling weights are used to address potential bias originating from the differential probabilities of sampling and attrition from Waves I to III (Chen & Chantala, 2014; Harris, 2011).

<sup>23</sup> Similar to the imputation procedures discussed in Chapter 2, multiple imputation with chained equations was carried out using Stata 13. Specifically, 10 imputed data sets were generated by a missingness equation that included all Wave I and Wave III variables used here (Schafer, 1997).

violence and intimate partner victimization) are likely not captured by the survey items used here (Catalano, 2012; Exner-Cortens et al., 2012).

### **Early Adult Social Ties**

In keeping with theory and research on social attachments in early adulthood, three forms of social ties are assessed: attachment to parents, job satisfaction, and marriage. *Attachment to parents* is an six-item index composed of the following dummy-coded items: “you feel close to your mother/mother figure,” “you feel close to your father/father figure,” “your mother/mother figure is warm and loving toward you,” “your father/father figure is warm and loving toward you,” “you enjoy doing things with your mother/mother figure,” and “you enjoy doing things with your father/father figure” (1 = yes, 0 = no). Responses were summed so that higher values reflect greater family attachments (range 0 – 6;  $KR_{20} = .80$ ). Factor analysis of tetrachoric correlations (Knol & Berger, 1991; Parry & McArdle, 1991) confirmed that these items are associated with a single latent construct (eigenvalue = 3.93; factor loadings > .78).<sup>24</sup>

*Job satisfaction* in young adulthood was captured using a single item indicator for whether respondents had a job that they were satisfied with (1 = yes, 0 = no). Approximately 70.0% of young adults reported being employed at Wave III, and 53.2% of all respondents reported having a satisfying job. Although job satisfaction is more commonly measured using different multi-item indexes (e.g., Brayfield & Rothe, 1951; Cooper, Sloan, & Williams, 1988; Hackman & Oldham, 1975), such scales were not

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<sup>24</sup> Consistent with the coding of parental attachment in Chapter 2, respondents who reported that they did not have a mother figure or a father figure were coded as “0.” To ensure that the findings were not sensitive to this coding decision, individuals with no knowledge of their mothers or fathers were removed from the sample and supplemental analyses were conducted. The results remained the same in terms of sign and significance.

available in the data. The use of a single global indicator of job satisfaction is consistent with prior research using the Add Health (Nedelec & Beaver, 2014; Siennick, 2007; Song, Li, & Arvey, 2011).

Lastly, *marriage* is a dichotomous indicator that reflects whether respondents were currently married at the time of the Wave III interview (1 = yes, 0 = no). Nearly 17.3% of young adults reported being married, and this proportion is consistent with estimates from the 2000 U.S. Census for young adults between the ages of 20 and 24 (Elliott & Umberson, 2004; Krieder & Simmons, 2003). Although data limitations prevent assessing the *quality* of these marriages (e.g., marital attachment, connectedness to spouse, and marital satisfaction) (Burman & Margolin, 1992; Gove, Hughes, & Style, 1983; Umberson et al., 2006; Williams, 2003), it is important to examine marital status in light of the body of work indicating that married persons tend to face less emotional, behavioral, and health problems than their unmarried counterparts (Gordon & Rosenthal, 1995; Kiecolt-Glaser & Newton, 2001; Umberson, 1992a; Waite & Gallagher, 2000). Still, since this measure cannot differentiate between people who are happy in their marriages and those who are not, the observed effects of marital status may be conservative and should be interpreted cautiously.

### **Early Adult Psychological Outcomes**

Consistent with the previous chapter, the psychological outcomes assessed in early adulthood include depression, low self-esteem, suicide ideation, and attempted suicide. In keeping with the measure used in adolescence, *depression* in early adulthood is captured using nine items from the CES-D available in Wave III of the Add Health



data (Radloff, 1977). Respondents reported how often during the past seven days they experienced the following: “you were bothered by things that don’t usually bother you,” “you could not shake off the blues, even with help from your family and your friends,” “you felt that you were just as good as other people” (reverse-coded), “you had trouble keeping your mind on what you were doing,” “you were depressed,” “you were too tired to do things,” “you enjoyed life” (reverse-coded), “you were sad,” and “you felt that people disliked you.” Closed ended responses for each item ranged from 0 (never/rarely) to 3 (most/all of the time), and were summed to create a scale where larger values reflect greater depressive symptoms (range 0 – 27; Cronbach’s  $\alpha = .80$ ). Principal components analysis confirmed that the scale was unidimensional (eigenvalue = 3.74; factor loadings > .44).

*Low self-esteem* at Wave III is also measured the same way as it was in Wave I, using the following four items from Rosenberg’s (1965) self-esteem scale: “you have many good qualities,” “you have a lot to be proud of,” “you like yourself just the way you are,” and “you feel you are doing things just about right.” Items ranged from 0 (strongly agree) to 4 (strongly disagree), and were summed so that higher scores indicate lower levels of self-esteem (range 0 – 16; Cronbach’s  $\alpha = .78$ ). Principal components analysis confirmed that the items used here are associated with a single latent construct (eigenvalue = 2.46; factor loadings > .74).

Just as in the Chapter 2, suicidality is assessed using *suicide ideation* and *suicide attempt*. Suicide ideation reflects whether participants reported seriously thinking about committing suicide in the year prior to the Wave III interview (1 = yes, 0 = no), and

*suicide attempt* indicates whether participants made an attempt to commit suicide during that time (1 = yes, 0 = no).

### **Early Adult Behavioral Outcomes**

In keeping with research on victimization and risky behaviors in early adulthood, behavioral outcomes of violent offending, property offending, alcohol problems, illicit drug use, and risky sexual behavior are assessed. With the exception of risky sexual behavior—a problematic form of maladaptive coping more common in the post-adolescent years—all behavioral outcomes are consistent with those examined during adolescence (see Chapter 2). *Violent offending* is a four-item variety score that captures whether respondents committed the following types of violence during the year prior to the Wave III interview: “hurt someone badly in a fight,” “used a weapon to get something from someone,” “pulled a knife or gun on someone,” and “shot or stabbed someone.” All forms of violence were rare in the full sample (5.7%, 2.0%, 1.4%, and 0.5%, respectively), which is consistent with the literature on desistance from crime in early adulthood (Laub & Sampson, 2001; Piquero, 2008; Stouthamer-Loeber et al., 2004). Approximately 8.1% of the sample engaged in at least one form of violence at Wave III.

*Property offending* is operationalized as a variety score that reflects whether respondents “deliberately damaged someone else’s property,” “stole something worth less than \$50,” “stole something worth more than \$50,” or “went into a house or building to steal something” in the 12 months prior to the Wave III interview. Each form of property offending was relatively rare (8.7%, 7.4%, 3.3%, and 1.8%, respectively), and this is in keeping with patterns of reduced offending during early adulthood.

Approximately 14.0% of early adults committed at least one property crime in the past year.

*Alcohol problems* is a seven-item summated scale that reflects how often respondents experienced the following issues during the year prior to the Wave III interview: “you had problems at school or work because you had been drinking,” “you had problems with friends because you had been drinking,” “you had problems with someone you were dating because you had been drinking,” “you were hung over,” “you were sick to your stomach or threw up after drinking,” “you got into a sexual situation that you later regretted because you had been drinking,” and “you were drunk at school or work.” These items are commonly used to assess problems related to alcoholism in young adults (Hawkins et al., 1992; Selzer et al., 1975; Tangney, Baumeister, & Boone, 2004). Item responses ranged from 0 (never) to 4 (5 or more times), where higher values reflect greater alcohol problems (range 0 – 28; Cronbach’s  $\alpha = .75$ ). Principal components analysis confirmed that the scale was unidimensional (eigenvalue = 4.10; factor loadings > .69). *Marijuana use* and *hard drug use* are each dichotomous variables that reflect any use in the past 30 days (1 = yes, 0 = no).

In addition, at this stage of the life course, an indicator for *risky sexual behavior* is included. This measure reflects whether participants did one or more of the following in the year prior to the Wave III interview: “paid someone to have sex with you,” “had sex with someone who paid you to do so,” and “had sex with someone who takes or shoots street drugs using a needle” (1 = yes, 0 = no). This measure is consistent with prior

research assessing problematic sexual behavior during the transition to adulthood (Aalsma et al., 2010; Hair et al., 2009; Turanovic & Pratt, 2015).

### **Early Adult Health Outcomes**

The health-related outcomes assessed in early adulthood include poor self-rated health, and whether respondents were recently diagnosed with a sexually-transmitted infection (STI). Consistent with the measure used in adolescence, *poor self-rated health* in early adulthood is a single survey item at Wave III that asks respondents, “In general, how is your health?” Responses ranged from 0 (excellent) to 4 (poor), where higher scores indicate worse health. *STI diagnosis* reflects whether a doctor or nurse told participants in the past 12 months that they had chlamydia, gonorrhea, trichomoniasis, syphilis, genital herpes, genital warts, or human papilloma virus (1 = yes, 0 = no). Approximately 5.5% of the sample reported receiving an STI diagnosis in the year prior to the Wave III interview. Although recent STI diagnosis could not be assessed during adolescence, its inclusion here is important given the research on the sexual health consequences of trauma and violence in early adulthood (Ellickson et al., 2005; Hahm et al., 2010; Haydon, Hussey, & Hapern, 2011).

### **Control Variables**

In addition to demographic variables (e.g., age, sex, and race), several known correlates of adverse psychological, behavioral, and health outcomes in early adulthood are included in the analyses. These include prior victimization, low self-control, adolescent PVT scores, financial hardship, and being enrolled in school. In an attempt to better isolate the effects of victimization in early adulthood from victimization in

adolescence, an indicator of *prior victimization* is included. This is a dichotomous variable that reflects whether respondents reported being a victim of violence at Wave I (i.e., having a knife or gun pulled on you, being jumped, being cut or stabbed, or being shot in the past year) (1 = yes, 0 = no). Approximately 44.3% of those who reported being violently victimized in early adulthood were also victimized during adolescence. The results were not sensitive to the inclusion of prior victimization in the analyses.

*Low self-control* is assessed using the following nine items available in the Wave III data: “I often try new things just for fun or thrills, even if most people think they are a waste of time,” “when nothing new is happening, I usually start looking for something exciting,” “I can usually get people to believe me, even when what I’m saying isn’t quite true,” “I often do things based on how I feel at the moment,” “I sometimes get so excited that I lose control of myself,” “I like it when people can do whatever they want, without strict rules and regulations,” “I often follow my instincts, without thinking through all the details,” “I can do a good job of ‘stretching the truth’ when I’m talking to people,” and “I change my interests a lot, because my attention often shifts to something else.” Each item featured a 5-point response set, ranging from 1 (not true) to 5 (very true). The scale exhibits a high level of internal consistency (Cronbach’s  $\alpha = .87$ ), and is coded so that higher scores indicate lower levels of self-control.<sup>25</sup> These scale items originate from the novelty-seeking dimension of Cloninger’s Tridimensional Personality Questionnaire (Cloninger, 1987), and are often used to measure self-control in early adulthood (e.g.,

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<sup>25</sup> Low self-control is assessed differently than in adolescence due to changes made to the Add Health survey at Wave III. Supplemental analyses indicated that the pattern of findings observed between victimization, social ties, and the adverse outcomes in early adulthood were not sensitive to use of the Wave I versus the Wave III indicator of low self-control.

Boisvert et al., 2012; Hu, Davies, & Kandel, 2006; Turanovic et al., 2015). Principal components analysis indicated that the self-control scale was associated with a single latent construct (eigenvalue = 4.34; factor loadings > .66).

*PVT score* is the same measure used in adolescence, drawn from a shortened computerized version of the Peabody Picture Vocabulary Test (Revised) at Wave I. To take into account socioeconomic disadvantage in early adulthood (Hill et al., 2010), an indicator of *financial hardship* is included. This is a dichotomous variable that reflects whether respondents or someone in their household did not have enough money in the past year to “pay the full amount of rent or mortgage,” “pay the full amount of a gas, electricity, or oil bill,” or if “services were turned off by the gas or electric company or the oil company wouldn’t deliver because payments were not made” (1 = yes, 0 = no). Factor analysis of tetrachoric correlations confirmed that these items are associated with a single latent construct (eigenvalue = 2.09; factor loadings > .76). A measure of whether respondents said that they were currently *in school* at the Wave III interview is also included (1 = in school, 0 = otherwise).

And finally, the following demographic variables are included as controls: *male* (1 = male, 0 = female), *age* (the respondent’s age in years at Wave I), *black* (1 = black, 0 = otherwise), *Hispanic* (1 = Hispanic, 0 = otherwise), *Native American* (1 = Native American, 0 = otherwise), and *other racial minority* (1 = non-white, 0 = otherwise). Non-Hispanic white serves as the reference category. Summary statistics of the variables used in early adulthood are provided in Table 3.1

Table 3.1  
*Summary Statistics in Early Adulthood*

Variables	Full Sample	Victim Subsample	Range
	Mean (SD) or %	Mean (SD) or %	
<u>Victimization</u>			
Early adult victimization	7.84%	-----	0 – 1
<u>Supportive Attachments</u>			
Attachment to parents	4.80 (1.63)	4.46 (1.71)	0 – 6
Job satisfaction	53.54%	47.07%	0 – 1
Marriage	17.25%	10.32%	0 – 1
<u>Psychological Outcomes</u>			
Depression	4.63 (4.09)	5.87 (4.63)	0 – 27
Low self-esteem	3.12 (2.31)	3.40 (2.53)	0 – 16
Suicide ideation	5.99%	13.37%	0 – 1
Suicide attempt	1.53%	3.68%	0 – 1
<u>Behavioral Outcomes</u>			
Violent offending	0.09 (0.37)	0.56 (0.85)	0 – 4
Property offending	0.21 (0.61)	0.51 (0.91)	0 – 4
Alcohol problems	1.26 (2.77)	1.76 (3.25)	0 – 28
Marijuana use	21.09%	39.96%	0 – 1
Hard drug use	6.48%	16.07%	0 – 1
Risky sexual behavior	3.29%	10.05%	0 – 1
<u>Health Outcomes</u>			
STI diagnosis	5.50%	6.67%	0 – 1
Poor self-rated health	0.99 (0.86)	1.11 (0.90)	0 – 4
<u>Control Variables</u>			
Prior victimization	19.56%	44.31%	0 – 1
Low self-control	23.10 (8.30)	28.18 (8.26)	9 – 45
PVT score	10.05 (1.46)	9.93 (1.39)	1.40 – 14.60
Financial hardship	14.69%	22.07%	0 – 1
In school	37.29%	27.20%	0 – 1
Male	47.25%	74.63%	0 – 1
Age	21.99 (1.76)	21.79 (1.76)	18 – 26
Black	22.07%	28.71%	0 – 1
Hispanic	7.21%	7.92%	0 – 1
Native American	2.81%	4.50%	0 – 1
Other racial minority	9.33%	8.00%	0 – 1
N	13,872	1,088	

## Effects of Victimization on Early Adult Outcomes

Table 3.2  
*Bivariate Correlations between Victimization and Early Adult Outcomes*

Early Adult Outcomes	Victimization
<u>Psychological Outcomes</u>	
Depression	.14**
Low self-esteem	.06*
Suicide ideation	.25**
Suicide attempt	.21**
<u>Behavioral Outcomes</u>	
Violent offending	.66**
Property offending	.31**
Alcohol problems	.09**
Marijuana use	.30**
Hard drug use	.30**
Risky sexual behavior	.34**
<u>Health Outcomes</u>	
STI diagnosis	.06*
Poor self-rated health	.06*

*Note.* Correlations between victimization and continuous variables are biserial coefficients, and correlations between victimization and other binary variables are tetrachoric coefficients ( $N = 13,872$ ).

\*  $p < .05$ ; \*\* $p < .01$  (two-tailed test).

The analyses begin with an overview of the bivariate associations between violent victimization and the various psychological, behavioral, and health-related outcomes in early adulthood (see Table 3.2). Much like in adolescence (Chapter 2), victimization is positively related to all of the early adult outcomes assessed, and these findings are consistent with studies linking early adult victimization to negative outcomes (e.g., Meade et al., 2009).

Once again, victimization appears to be most strongly related to the behavioral outcomes. Here these include violent offending ( $r = .66$ ), risky sexual behavior ( $r = .34$ ), property offending ( $r = .31$ ), marijuana use ( $r = .30$ ), and hard drug use ( $r = .30$ ). Recall that in Chapter 2, adolescent victimization was also strongly linked to violent offending,



and property offending, marijuana use, and hard drug use. In addition, early adult victimization is more modestly related to low self-esteem ( $r = .06$ ), alcohol problems ( $r = .09$ ), poor self-rated health ( $r = .06$ ), and STI diagnosis ( $r = .06$ ). These patterns are not inconsistent with those observed during adolescence, in that the bivariate relationships between adolescent victimization, alcohol use, low self-esteem, and the health-outcomes were also among the smallest in magnitude. Nevertheless, having established that early adult victimization is correlated with all of the negative outcomes, the next step in the analysis is to determine whether these relationships remain in a multivariate context.

### **Models of Victimization and Early Adult Outcomes**

To assess the relationship between victimization and negative outcomes in early adulthood, ordinary least-squares regression, logistic regression, and negative binomial regression techniques are used.<sup>26</sup> Just as in Chapter 2, OLS regression models are estimated for outcome variables that follow a relatively normal distribution (i.e., low self-esteem and poor self-rated health), negative binomial regression models are estimated for overdispersed discrete count variables (i.e., depression, violent offending, property offending, and alcohol problems), and binary logistic regression models are estimated for dichotomous variables (i.e., suicide ideation, suicide attempt, marijuana use, hard drug use, risky sexual behavior, and STI diagnosis). In keeping with guidelines for analyzing the Add Health data (Chen & Chantala, 2014), all multivariate analyses are estimated

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<sup>26</sup> Before estimating the multivariate regression models, a series of model diagnostics were examined to ensure that collinearity was not a problem. Bivariate correlations between the independent variables did not exceed an absolute value of .29 (well below the traditional threshold of .70), and variance inflation factors did not exceed 1.95 (below the standard “conservative” cut off of 4.0) (Tabachnick & Fidell, 2012). In addition, the condition index values for models in Tables 3.3 to 3.6 did not exceed the threshold of 30 specified by Belsley et al. (1980). As such, the observed correlations between the independent variables should not result in biased estimates due to multicollinearity.

using the Add Health sampling weights (calculated for the use of Wave I and Wave III data) and robust standard errors adjusted for the clustering of respondents in schools (Harris, 2011).

Tables 3.3 through 3.6 display the relationships between victimization and the various psychological, behavioral, and health-related outcomes in early adulthood, net of control variables. Recall that in Chapter 2, victimization during adolescence was associated with all of the adverse adolescent outcomes assessed—ranging all the way from depression, low self-esteem, somatic complaints, and poor self-rated health, to offending, drug use, alcohol problems, and suicidality.

Overall, the multivariate results presented in Tables 3.3 to 3.6 tell a slightly different story than they did during adolescence (see Chapter 2). While victimization is significantly related to many widespread problems in early adulthood, these effects are less universal. For instance, Table 3.3 indicates that in early adulthood, violent victimization is significantly related to depression and to suicide ideation, but not to low self-esteem or attempted suicide. These findings stand somewhat in contrast to those from adolescence, in that low self-esteem and suicide attempts no longer appear to be related to victimization in early adulthood. Still, just as in adolescence, the findings in Table 3.3 indicate that in early adulthood, victims of violence are more likely to be depressed and to have suicidal thoughts.

Table 3.3  
Effects of Victimization on Psychological Outcomes in Early Adulthood

Variables	Depression <sup>a</sup>			Low self-esteem <sup>b</sup>			Suicide ideation <sup>c</sup>			Suicide attempt <sup>c</sup>		
	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>
Victimization	.16	(.04)	3.90**	.12	(.13)	.97	.57	(.16)	3.58**	.46	(.31)	1.49
Prior victimization	.09	(.03)	2.74**	.12	(.08)	1.41	.20	(.15)	1.33	.40	(.25)	1.60
Low self-control	.20	(.02)	11.90**	.17	(.04)	4.32**	.52	(.08)	6.68**	.59	(.15)	3.97**
PVT score	-.07	(.01)	-7.30**	.05	(.03)	1.79	.14	(.05)	3.00**	.09	(.08)	1.19
Financial hardship	.29	(.03)	9.56**	.73	(.10)	7.34**	.68	(.16)	4.32**	.70	(.29)	2.45*
In school	-.07	(.02)	-2.92**	-.32	(.08)	-4.22**	-.05	(.13)	-.37	-.30	(.25)	-1.17
Male	-.29	(.02)	-13.64**	-.35	(.07)	-5.05**	-.41	(.13)	-3.12**	-1.03	(.26)	-3.97**
Age	-.01	(.01)	-1.58	-.02	(.02)	-.82	-.07	(.04)	-1.97*	-.12	(.06)	-1.93
Black	.07	(.03)	2.35*	-.41	(.09)	-4.64**	-.59	(.15)	-3.84**	.17	(.32)	.53
Hispanic	.16	(.06)	2.65**	-.10	(.11)	-.89	.13	(.15)	.86	.99	(.34)	2.89**
Native American	-.06	(.07)	-.87	.07	(.23)	.29	.33	(.33)	.98	.01	(.58)	.02
Other racial minority	.16	(.04)	3.74**	.27	(.12)	2.29*	.17	(.24)	.71	1.29	(.27)	4.69**
Constant	1.91	(.14)	14.09**	6.69	(.44)	15.29**	-4.29	(.76)	-5.63**	-4.62	(1.28)	-3.63**
Model <i>F</i> -test		47.05**			129.01**			12.59**			10.70**	

Note. Entries are unstandardized partial regression coefficients (*b*), clustered robust standard errors in parentheses, and *z*-tests. (*N* = 13,872). Coefficients and standard errors for low self-control are multiplied by 10 for ease of interpretation.

<sup>a</sup> Negative binomial regression model.

<sup>b</sup> OLS regression model.

<sup>c</sup> Logistic regression model.

\**p* < .05; \*\* *p* < .01 (two-tailed test).

Table 3.4  
*Effects of Victimization on Offending in Early Adulthood*

Variables	Violent offending <sup>a</sup>			Property offending <sup>a</sup>		
	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>
Victimization	1.71	(.11)	15.75**	.53	(.10)	5.32**
Prior victimization	.34	(.11)	3.17**	.16	(.09)	1.73
Low self-control	.52	(.06)	8.33**	.60	(.05)	11.27**
PVT score	-.06	(.03)	-1.80	.16	(.03)	4.80**
Financial hardship	-.11	(.13)	-.86	.27	(.09)	2.88**
In school	-.45	(.12)	-3.69**	.16	(.07)	2.22*
Male	.75	(.16)	4.85**	.65	(.09)	7.01**
Age	-.08	(.04)	-2.07*	-.13	(.02)	-6.43**
Black	.57	(.11)	5.28**	.28	(.09)	3.04**
Hispanic	.20	(.19)	1.08	.20	(.18)	1.10
Native American	-.06	(.33)	-.17	-.22	(.26)	-.85
Other racial minority	-.40	(.18)	-2.19*	.32	(.16)	2.07*
Constant	-2.89	(.67)	-4.29	-3.50	(.54)	-6.55**
Model <i>F</i> -test		78.80**			179.48**	

*Note.* Entries are unstandardized partial regression coefficients (*b*), clustered robust standard errors in parentheses, and *z*-tests (*N* = 13,872). Coefficients and standard errors for low self-control are multiplied by 10 for ease of interpretation.

<sup>a</sup> Negative binomial regression model.

\**p* < .05; \*\* *p* < .01 (two-tailed test).

**Table 3.5**  
*Effects of Victimization on Risky Behavioral Outcomes in Early Adulthood*

Variables	Alcohol problems <sup>a</sup>			Marijuana use <sup>b</sup>			Hard drug use <sup>b</sup>			Risky sexual behavior <sup>b</sup>		
	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>
Victimization	.13	(.10)	1.31	.49	(.13)	3.86**	.43	(.17)	2.47*	.57	(.21)	2.71**
Prior victimization	.97	(.07)	13.06**	.46	(.09)	5.37**	.32	(.14)	2.36*	.36	(.16)	2.09*
Low self-control	.28	(.04)	7.51**	.64	(.05)	13.47**	.86	(.07)	11.89**	.41	(.08)	5.27**
PVT score	.05	(.03)	1.66	.17	(.03)	5.98**	.14	(.03)	4.46**	-.11	(.06)	-2.00*
Financial hardship	.12	(.08)	1.57	.54	(.11)	4.93**	.39	(.16)	2.50*	.32	(.17)	1.88
In school	-.19	(.08)	-2.30*	-.13	(.08)	-1.55	-.26	(.13)	-1.98*	-.34	(.16)	-2.13*
Male	-.44	(.07)	-5.92**	.19	(.07)	2.62**	.17	(.10)	1.65	1.04	(.21)	4.89**
Age	.32	(.03)	11.90**	-.09	(.02)	-4.49**	-.14	(.03)	-5.32**	-.02	(.04)	-.41
Black	-.87	(.12)	-7.57**	-.20	(.11)	-1.92	-1.06	(.22)	-4.89**	1.22	(.18)	6.69**
Hispanic	-.31	(.14)	-2.11*	-.50	(.15)	-3.40**	-.15	(.22)	-.67	.30	(.24)	1.28
Native American	.28	(.20)	1.38	.24	(.27)	.87	.01	(.34)	.01	.03	(.59)	.04
Other racial minority	-.20	(.22)	-.88	-.53	(.16)	-3.36**	-.12	(.27)	-.44	.39	(.38)	1.04
Constant	-5.91	(.48)	-12.38**	-3.27	(.47)	-6.96**	-4.30	(.62)	-6.98**	-4.29	(1.05)	-4.07**
Model <i>F</i> -test		44.13**			55.84**			28.91**			24.78**	

*Note.* Entries are unstandardized partial regression coefficients (*b*), clustered robust standard errors in parentheses, and *z*-tests (*N* = 13,872). Coefficients and standard errors for low self-control are multiplied by 10 for ease of interpretation.

<sup>a</sup> Negative binomial regression model.

<sup>b</sup> Logistic regression model.

\**p* < .05; \*\* *p* < .01 (two-tailed test).

Table 3.6  
*Effects of Victimization on Health Outcomes in Early Adulthood*

Variables	STI Diagnosis <sup>a</sup>			Poor self-rated health <sup>b</sup>		
	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>
Victimization	.27	(.29)	.93	.02	(.04)	.50
Prior victimization	-.01	(.19)	-.04	.12	(.03)	4.56**
Low self-control	.23	(.08)	2.86**	.10	(.02)	6.18**
PVT score	.07	(.04)	1.57	-.02	(.01)	-2.16*
Financial hardship	.58	(.16)	3.61**	.29	(.04)	7.89**
In school	-.47	(.15)	-3.26**	-.12	(.02)	-4.88**
Male	-.89	(.16)	-5.42**	-.23	(.03)	-8.72**
Age	-.09	(.03)	-3.28**	-.02	(.01)	-2.24*
Black	1.08	(.11)	9.51**	-.01	(.03)	-.25
Hispanic	-.06	(.20)	-.31	-.01	(.04)	-.19
Native American	.39	(.34)	1.14	.06	(.08)	.74
Other racial minority	1.08	(.11)	9.51**	.12	(.05)	2.37*
Constant	-2.52	(.76)	-3.34**	2.27	(.15)	14.68**
Model <i>F</i> -test		26.79**			39.77**	

*Note.* Entries are unstandardized partial regression coefficients (*b*), clustered robust standard errors in parentheses, and *z*-tests (*N* = 13,872). Coefficients and standard errors for low self-control are multiplied by 10 for ease of interpretation.

<sup>a</sup> Logistic regression model.

<sup>b</sup> OLS regression model.

\**p* < .05; \*\* *p* < .01 (two-tailed test).

As seen in Table 3.4, violent victimization remains a strong correlate of offending in early adulthood. In particular, incidence rate ratios (IRR) indicate that victimization increases the rate of violent offending by a factor of 5.57, and by a factor of 1.60 for property offending. Significant relationships are also observed in Table 3.5 between victimization, drug use, and risky sexual behavior, where victims of violence in early adulthood are more likely to use marijuana (odds ratio = 1.63), hard drugs (odds ratio = 1.54), and to engage in high risk sexual practices (odds ratio = 1.77). These findings mirror those observed in Chapter 2, where the relationships between adolescent violent victimization, offending, and drug use were especially robust. Unlike in adolescence, however, findings in Tables 3.5 and 3.6 indicate that victimization in early adulthood is unrelated related to alcohol problems or to poor self-rated health. Table 3.6 also shows that victimization is not associated with a recent STI diagnosis in early adulthood.

### **Sensitivity Analyses**

To ensure that this pattern of findings was not sensitive to the methodological choices that were made, a series of supplemental analyses were conducted. First, models were estimated that controlled for prior levels of the outcome variables that were available in Wave I of the data (the data did not contain, for example, indicators of risky sexual behavior or recent STI diagnosis at Wave I). These results mirrored was presented in Tables 3.3 to 3.6, where victimization in early adulthood was still related to depression, suicide ideation, violent offending, property offending, marijuana use, and hard drug use, but not to low self-esteem, attempted suicide, alcohol problems, or poor self-rated health.

Second, analyses were conducted that controlled for different combinations of variables known to be linked to psychological, behavioral, and health problems in early adulthood. These included residential mobility (e.g., number of addresses lived at since 1995), being foreign born (i.e., outside of the U.S.), educational attainment, income, number of hospitalizations in the past five years, having ever been homeless, body mass index, and having an eating disorder. Even with these various covariates in the models, the significant findings observed in Tables 3.3 to 3.6 remained. It is also important to note that the results were not sensitive to the inclusion of prior victimization, the measure of low self-control used (i.e., low self-control from Wave I rather than Wave III), or whether variables such as being enrolled in school or financial hardship were in the models.

Third, models were estimated separately for males and females to determine whether the pattern of findings could be generalized to both genders. In early adulthood, females become more likely to experience violence at the hands of intimate partners (Thompson et al., 2006; Whitaker et al., 2007), and thus victimization may carry different consequences. As seen in Appendix D, however, the results were remarkably similar for males and females, although victimization was linked to risky sexual behavior among women (Table D7) and not men (Table D3). This minor difference notwithstanding, the findings suggest that victimization in early adulthood is a significant predictor of numerous psychological and behavioral problems (e.g., depression, offending, drug use, suicide ideation) for both males and females, but that these effects are less widespread than at earlier stages of the life course.



### **Effects of Social Ties within the Victim Subsample**

Consistent with the research objectives, the next step in the analysis is to examine why some victims of violence are more resilient than others to the various psychological, behavioral, and health problems in early adulthood. Specifically, the focus here is on whether victims with supportive social ties—in the form of attachments to parents, job satisfaction, and marriage—fare better than others. Accordingly, the next set of analyses center only on those who were victims of violence at Wave III ( $n = 1,088$ ; 7.84% of the full sample). Descriptive statistics for the subsample of victims can be found in Table 3.1.

The analyses begin by examining bivariate correlations between the early adult social ties and the dependent variables using the victim subsample. As seen in Table 3.7, attachments to parents, job satisfaction, and marriage in early adulthood are negatively related to many of the adverse outcomes examined among victims. These significant correlations are rather modest in magnitude (ranging from  $-.09$  to  $-.20$ ), and parental attachment and job satisfaction are negatively related to more of the outcome variables than marriage. Nevertheless, with the exceptions of hard drug use and STI diagnosis, at least one form of social tie is negatively related to all of the outcomes assessed in early adulthood at the bivariate level. Recall that in Chapter 2, at least one form of adolescent social tie was related to each outcome assessed—both at the bivariate and multivariate levels. Further analysis in a multivariate context is thus warranted to determine whether the bivariate associations between social ties and the dependent variables in Table 3.7 withstand statistical controls.

Table 3.7

*Bivariate Correlations between Social Ties and Early Adult Outcomes among Victims*

Early Adult Outcomes	Attachment to Parents	Job Satisfaction	Marriage
<u>Psychological Outcomes</u>			
Depression	-.16**	-.11**	.02
Low self-esteem	-.15**	-.16**	-.07
Suicide ideation	-.09**	-.02	-.06
Suicide attempt	-.10**	-.11**	-.01
<u>Behavioral Outcomes</u>			
Violent offending	-.05	-.09**	-.10
Property offending	-.06	-.06	-.12**
Alcohol problems	-.04	-.10**	.04
Marijuana use	-.09**	-.10**	-.20**
Hard drug use	-.04	-.04	-.04
Risky sexual behavior	-.18**	-.06	-.06
<u>Health Outcomes</u>			
STI diagnosis	-.01	-.03	-.02
Poor self-rated health	-.12**	-.07	-.01

*Note.* Correlations between continuous variables are Pearson's coefficients, correlations between continuous and dichotomous variables are biserial coefficients, and correlations between dichotomous variables are tetrachoric coefficients ( $n = 1,088$ ).

\* $p < .05$ ; \*\* $p < .01$  (two-tailed test).

**Sample Selection Bias**

Since the subsample of victims does not represent a random sample of young adults, measures must be taken to ensure that the findings do not suffer from sample selection bias (Berk, 1983; Bushway et al., 2007; Heckman, 1979). Indeed, sample selection bias can undermine both internal and external validity, and result in misleading parameter estimates (Kirk, 2011; Stolzenberg & Relles, 1997). Following the methods described in Chapter 2, sample selection bias is addressed by estimating a series of selection models (Boehmke et al., 2006; Greene, 1997; Puhani, 2000). These models jointly estimate a probit model for selection into the subsample, using the full sample of

young adults at Wave III ( $N = 13,872$ ), with a second stage model using only the subsample of victims ( $n = 1,088$ ).

Consistent with the analytic strategy used in Chapter 2, full informational maximum likelihood (FIML) selection models (Bushway et al., 2007; Heckman, 1976) are estimated for normally distributed ordinal variables (i.e., low self-esteem and poor self-rated health), Poisson regression models with sample selection (Bratti & Miranda, 2011) are estimated for discrete count variables (i.e., depression, violent offending, property offending, and alcohol problems), and probit models with sample selection (Miranda & Rabe-Hesketh, 2006; Van de Ven & Van Praag, 1981) are estimated for dichotomous variables (i.e., suicide ideation, suicide attempt, marijuana use, hard drug use, risky sexual behavior, and STI diagnosis). In addition, to reduce the correlations between first- and second-stage error terms (Bushway et al., 2007; Lennox et al., 2011), five exclusion restrictions were identified at Wave III (a minimum of two per dependent variable), and these can be seen in Table 3.8.

Table 3.8  
*Summary Statistics for Exclusion Restrictions in Early Adulthood*

Exclusion Restrictions	Mean (SD) or %	Range
Exercise in order to lose weight	37.61%	0 – 1
Intelligence relative to others	3.96 (1.07)	0 – 5
Feel older than others your age	17.21%	0 – 1
Lived on a working farm	7.23%	0 – 1
Served in military reserves	2.44%	0 – 1

*Note.*  $N = 13,872$ .

Literature supports that these items are appropriate exclusion restrictions in that they are linked theoretically to victimization but not to all of the psychological, behavioral, and health-related problems examined in early adulthood. As but one example, young adults who *exercise in order to lose weight* are less likely to be victimized, possibly because people who appear more physically active are viewed as more capable of staving off an attacker and represent less suitable targets for victimization (Felson & Boba, 2010). Exercising in order to lose weight, however, is unrelated to depression, low self-esteem, suicide ideation, suicide attempts, or alcohol problems. Although exercise is known to carry many psychological and health benefits (Fallon & Hausenblas, 2005; Taliaferro et al., 2009; Telama et al., 2005), there is also evidence to suggest that healthy young adults who try to lose weight unnecessarily are more likely to have body image distortion, and can feel depressed, suicidal, or bad about themselves despite being physically active (French & Jeffrey, 1994; Furnham, Badmin, & Sneade, 2002; Leichty, 2010).

Bivariate correlations confirmed that all exclusion restrictions were significant correlates of victimization ( $r = .06 - .14$ ;  $p < .01$ ), but weak or inconsistent correlates of the dependent variables. More information on the measurement of these items and the bivariate relationships between exclusion restrictions, victimization, and the outcome variables can be found in Appendix E.

Table 3.9

*Stage One Probit Model Estimating Selection into the Subsample of Victims*

Variables	Victimization		
	<i>b</i>	(SE)	<i>z</i>
Prior victimization	.42	(.06)	7.07**
Low self-control	.31	(.03)	11.31**
PVT score	-.01	(.02)	-.49
Financial hardship	.21	(.07)	3.06**
In school	-.21	(.07)	-2.89**
Male	.49	(.05)	9.22**
Age	-.06	(.02)	-3.75**
Black	.23	(.07)	3.33**
Hispanic	.08	(.15)	.50
Native American	.33	(.15)	2.17*
Other racial minority	-.35	(.12)	-2.78**
Exercise in order to lose weight	-.14	(.06)	-2.47*
Intelligence relative to others	.05	(.02)	2.96**
Feel older than others your age	.10	(.04)	2.47*
Lived on a working farm	.12	(.06)	2.00*
Served in military reserves	.25	(.09)	2.79**
Constant	-1.63	(.37)	-4.40**
Model <i>F</i> -test		57.52**	

*Note.* Entries are unstandardized partial regression coefficients (*b*), clustered robust standard errors in parentheses, and *z*-tests (*N* = 13,872). Coefficients and standard errors for low self-control are multiplied by 10 for ease of interpretation.

\**p* < .05; \*\* *p* < .01 (two-tailed test).

Table 3.9 presents the stage one probit model predicting selection into the victim subsample. To ensure that the selection process is modeled rigorously, all control variables are included in the regression model alongside exclusion restrictions. The stage one model fit the data well (indicated by a significant model *F*-test), and the five exclusion restrictions were significant at the .05 level.

### **Models of Social Ties and Early Adult Outcomes**

To determine whether social ties of parental attachment, job satisfaction, and marriage serve protective functions for victims in early adulthood, a series of regression models are estimated in Tables 3.10 through 3.15. It is important to note that within all models, correlations between independent variables are below an absolute value of .35 and VIFs are below 1.30, indicating that collinearity is not a problem. Although likelihood ratio tests for sample selection bias are statistically significant only in models predicting depression, low self-esteem, violent offending, property offending, and marijuana use, selection models are estimated for all outcomes in order to produce more efficient and reliable parameter estimates (Bushway et al., 2007; Puhani, 2000). In addition, because results from the stage one models remain relatively consistent across all estimations, only second stage models using the victim subsample are presented here.

Overall, the findings indicate that social ties are related to very few adverse outcomes among victims in early adulthood. Of the three social ties examined during this stage in the life course (i.e., attachment to parents, job satisfaction, and marriage), parental attachment appears to be the most salient protective factor in that it is negatively related to multiple outcomes, including low self-esteem (Table 3.10), marijuana use (Table 3.12), risky sexual behavior (Table 3.12), and poor self-rated health (Table 3.13).

Still, parental attachment is not related to the majority of life outcomes, including depression, suicide ideation, suicide attempts, violent offending, property offending, alcohol problems, hard drug use, and recent STI diagnosis. Contrary to expectations, job satisfaction is not related to any of the adverse outcomes examined among victims, and the protective effects of marriage are limited only to marijuana use (Table 3.12).

Recall that in Chapter 2, at least one social tie in the form of attachment to parents, school, and friends was negatively related to each outcome examined among adolescent victims. Based on the results presented here, social ties do not seem to serve the same protective functions for victims in early adulthood as in adolescence (see Chapter 2). Although job satisfaction and marriage were not assessed during adolescence, it is clear that the protective effects of parental attachment are not nearly as universal for victims in early adulthood as they were for adolescent victims.

To a certain extent, the effects of parental attachment can be explained in that, during early adulthood, parents do not have the same degree of control or influence over their children's lives. A large number of young adults leave home at 18, and the period of early adulthood is a time when many young adults strive to establish independence from their parents. Some studies have shown that young adults who move away from their parents experience greater psychological well-being, reduced anxieties, and less problematic family relations (Aseltine & Gore, 1993; Graber & Brooks-Gunn, 1996; Smetana, Metzger, & Campione-Barr, 2004)—suggesting that parents may not be the primary sources of social support (or restraint) in the lives of young adults. Further tests are needed, however, to determine why social ties of job satisfaction and marriage are largely unrelated to negative outcomes for victims in early adulthood.

Table 3.10  
*Effects of Social Ties on Psychological Outcomes among Victims in Early Adulthood*

Variables	Depression <sup>a</sup>			Low self-esteem <sup>b</sup>			Suicide ideation <sup>c</sup>			Suicide attempt <sup>c</sup>		
	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>
Attachment to parents	-.02	(.02)	-1.06	-.14	(.06)	-2.44*	-.06	(.04)	-1.54	-.04	(.04)	-.83
Job satisfaction	-.02	(.06)	-.27	-.47	(.25)	-1.89	-.11	(.14)	-.78	-.09	(.15)	-.59
Marriage	-.10	(.12)	-.81	-.24	(.27)	-.86	-.06	(.04)	-1.18	-.33	(.18)	1.82
Prior victimization	.27	(.13)	2.14*	1.49	(.34)	4.42**	-.13	(.34)	-.38	.16	(.16)	1.01
Low self-control	.03	(.01)	3.68**	.10	(.02)	6.69**	.01	(.03)	.39	.04	(.01)	3.74**
PVT score	-.07	(.03)	-2.60**	.13	(.10)	1.22	.12	(.06)	2.26*	.02	(.04)	.48
Financial hardship	.27	(.10)	2.55**	1.59	(.33)	4.75**	.37	(.28)	1.32	-.06	(.27)	-.21
In school	-.30	(.10)	-3.20**	-.66	(.35)	-1.88	.05	(.22)	.21	-.12	(.17)	-.69
Male	-.30	(.14)	-2.08*	1.18	(.30)	3.89**	-.46	(.37)	-1.27	.02	(.16)	.13
Age	-.05	(.02)	-2.36*	-.22	(.09)	-2.55**	-.04	(.07)	-.58	-.06	(.05)	-1.28
Black	.06	(.09)	.69	.02	(.37)	.07	-.52	(.21)	-2.48*	.23	(.19)	1.22
Hispanic	.39	(.11)	3.64**	-.14	(.37)	-.38	-.04	(.32)	-.14	.35	(.24)	1.47
Native American	.23	(.19)	1.28	1.87	(.83)	2.24*	.12	(.41)	.29	-.12	(.34)	-.36
Other racial minority	-.34	(.17)	-2.04*	-1.37	(.72)	-1.91	-.33	(.41)	-.82	.09	(.27)	.32
Constant	1.94	(.56)	3.48**	-5.42	(1.99)	-2.72**	-.95	(2.19)	-.43	-3.10	(1.10)	-2.83**
Rho		.54			.55			-.21			.29	
Likelihood ratio $\chi^2$		17.59**			17.72**			.32			.41	

*Note.* Entries are unstandardized partial regression coefficients (*b*), clustered robust standard errors in parentheses, and *z*-tests ( $n = 1,088$ ). Stage-one probit models predicting selection into the subsample of victims not shown here (see Table 3.9).

<sup>a</sup> Poisson model with sample selection.

<sup>b</sup> FIML model with sample selection.

<sup>c</sup> Probit model with sample selection.

\* $p < .05$ ; \*\* $p < .01$  (two-tailed test).



Table 3.11  
*Effects of Social Ties on Offending among Victims in Early Adulthood*

Variables	Violent offending <sup>a</sup>			Property offending <sup>a</sup>		
	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>
Attachment to parents	-.01	(.05)	-.13	-.04	(.05)	-.86
Job satisfaction	-.20	(.12)	-1.67	-.12	(.14)	-.91
Marriage	-.42	(.25)	-1.67	-.32	(.25)	-1.28
Prior victimization	.12	(.22)	.53	-.19	(.28)	-.68
Low self-control	.04	(.02)	2.62**	.03	(.02)	1.74
PVT score	.03	(.05)	.58	.15	(.06)	2.28*
Financial hardship	-.20	(.19)	-1.06	.10	(.21)	.44
In school	-.53	(.18)	-2.95**	.10	(.17)	.59
Male	.25	(.28)	.87	-.22	(.35)	-.64
Age	-.01	(.05)	-.23	-.12	(.05)	-2.14*
Black	.29	(.17)	1.73	.01	(.18)	.03
Hispanic	.13	(.18)	.76	.02	(.41)	.06
Native American	-.26	(.43)	-.59	-1.19	(.49)	-2.43*
Other racial minority	-.01	(.34)	-.03	-.50	(.39)	-1.28
Constant	-1.68	(1.00)	-1.68	-.52	(1.36)	-.38
Rho		-.39			.53	
Likelihood ratio $\chi^2$		4.39*			7.32**	

*Note.* Entries are unstandardized partial regression coefficients (*b*), clustered robust standard errors in parentheses, and *z*-tests (*n* = 1,088). Stage-one probit models predicting selection into the subsample of victims not shown here (see Table 3.9).

<sup>a</sup> Poisson model with sample selection.

\**p* < .05; \*\* *p* < .01 (two-tailed test).

Table 3.12  
*Effects of Social Ties on Risky Behavioral Outcomes among Victims in Early Adulthood*

Variables	Alcohol problems <sup>a</sup>			Marijuana use <sup>b</sup>			Hard drug use <sup>b</sup>			Risky sexual behavior <sup>b</sup>		
	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>
Attachment to parents	.07	(.04)	1.69	-.05	(.03)	-2.00*	-.01	(.05)	-.16	-.06	(.03)	-2.38*
Job satisfaction	.25	(.14)	1.80	-.10	(.09)	-1.19	-.03	(.17)	-.17	.13	(.09)	1.61
Marriage	-.10	(.16)	-.64	-.44	(.19)	-2.31*	-.14	(.26)	-.55	-.19	(.12)	-1.55
Prior victimization	.26	(.30)	.84	.33	(.11)	3.14**	.02	(.40)	.06	-.27	(.14)	-1.94
Low self-control	-.04	(.20)	-.19	.34	(.06)	5.85**	.20	(.31)	.61	-.07	(.13)	-.51
PVT score	-.04	(.06)	-.60	.06	(.04)	1.18	.01	(.06)	1.99*	-.02	(.03)	-.59
Financial hardship	.11	(.24)	.45	.25	(.10)	2.65**	.01	(.25)	.03	-.03	(.16)	-.19
In school	.24	(.17)	1.40	-.27	(.09)	-3.05**	-.18	(.28)	-.65	.09	(.10)	.86
Male	-.66	(.36)	-1.85	.42	(.15)	2.78**	-.46	(.44)	-1.05	-.22	(.16)	-1.36
Age	.29	(.06)	5.08**	-.09	(.02)	-3.92**	-.10	(.09)	-1.06	.04	(.02)	2.13*
Black	-.59	(.22)	-2.63**	.12	(.15)	.82	-.29	(.23)	-1.27	.17	(.19)	.91
Hispanic	-.28	(.23)	-1.21	-.03	(.17)	-.17	.31	(.22)	1.40	-.03	(.11)	-.26
Native American	.01	(.34)	.02	.21	(.17)	1.20	-.01	(.42)	-.03	-.65	(.43)	-1.49
Other racial minority	.08	(.27)	.29	-.50	(.20)	-2.54*	.33	(.39)	.85	.13	(.29)	.47
Constant	-2.80	(1.34)	-2.08*	-1.86	(.53)	-3.49**	-.42	(2.34)	-.18	.53	(1.04)	.51
Rho		-.20			.47			-.22			-.37	
Likelihood ratio $\chi^2$		.97			6.21*			.10			3.35	

*Note.* Entries are unstandardized partial regression coefficients (*b*), clustered robust standard errors in parentheses, and *z*-tests ( $n = 1,088$ ). Stage-one probit models predicting selection into the subsample of victims not shown here (see Table 3.9).

Coefficients and standard errors for low self-control are multiplied by 10 for ease of interpretation.

<sup>a</sup> Poisson model with sample selection.

<sup>b</sup> Probit model with sample selection.

\* $p < .05$ ; \*\* $p < .01$  (two-tailed test).

Table 3.13

*Effects of Social Ties on Health Outcomes among Victims in Early Adulthood*

Variables	STI diagnosis <sup>a</sup>			Poor self-rated health <sup>b</sup>		
	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>
Attachment to parents	.04	(.06)	.72	-.06	(.02)	-2.54*
Job satisfaction	.29	(.25)	1.15	-.12	(.08)	-1.48
Marriage	-.08	(.26)	-.30	.11	(.17)	.65
Prior victimization	-.08	(.19)	-.40	.02	(.10)	.23
Low self-control	.02	(.03)	.70	.02	(.01)	2.14*
PVT score	-.15	(.09)	-1.72	.02	(.04)	.65
Financial hardship	.01	(.22)	.05	.23	(.08)	2.85**
In school	-.46	(.25)	-1.83	-.10	(.09)	-1.13
Male	-.62	(.17)	-3.57**	-.31	(.09)	-3.40
Age	-.08	(.04)	-2.17**	.00	(.02)	-.08
Black	.26	(.23)	1.11	-.13	(.10)	-1.31
Hispanic	-.06	(.22)	-.28	-.16	(.16)	-.99
Native American	-.45	(.31)	-1.42	-.44	(.18)	-2.39*
Other racial minority	-.36	(.30)	-1.83	.26	(.23)	1.13
Constant	-.76	(.87)	-.88	1.16	(.56)	2.08*
Rho		-.26			.11	
Likelihood ratio $\chi^2$		.01			1.89	

*Note.* Entries are unstandardized partial regression coefficients (*b*), clustered robust standard errors in parentheses, and *z*-tests (*n* = 1,088). Stage-one probit models predicting selection into the subsample of victims not shown here (see Table 3.9).

<sup>a</sup> Probit model with sample selection

<sup>b</sup> FIML model with sample selection.

\**p* < .05; \*\* *p* < .01 (two-tailed test).

## **Real or Artifact?**

Before conducting these further tests, it is important to ensure that the results presented here are not methodological artifacts. To do so, a series of supplemental analyses are conducted. First, models are estimated separately for men and women to determine whether the findings are specific to using a mixed-gender sample (see Appendix F). It is possible that the impact of social ties varies by gender, and that these effects are masked by including male and female victims together in the analyses. Traditionally, the effects of marriage on well-being have been thought of as highly gendered (Giordano, Cernkovich, & Rudolph, 2002; Levrentz, 2006; Williams, 2003), where studies often find men to benefit more from marital unions than women (Bernard, 1972; Gove & Tudor, 1973; Radloff, 1975).

There are several explanations for why this is so. Some have speculated that since men are more likely to be criminally involved, they have a greater tendency to “marry up” and women to “marry down” (Bersani, Laub, & Nieuwbeerta, 2009; King et al., 2007; Laub & Sampson, 2003; Sampson, Laub, & Wimer, 2006). Others have suggested that more women suffer from “relational deficits” in their marital unions, in that they expect a quality of emotional support within marriage that men are not typically socialized to provide (Bernard, 1976; Blood & Wolfe, 1960; Williams, 1988). And others have argued that marriage is more beneficial to men because the traditional adult roles of married women (e.g., raising children and maintaining a household) are less valued and more frustrating (Gilligan, 1982; Gove & Tudor, 1973; Stacey, 1998). Nevertheless, as seen in Appendix F, the findings remain remarkably similar when models are estimated

separately by gender. Although some gender-specific findings emerge in that marriage is negatively related to marijuana use among males (Table F3) and job satisfaction is negatively related to property crime among females (Table F6), the broader pattern of results remains the same. Whether male or female, social ties of parental attachment, job satisfaction, and marriage are inconsistent protective factors for victims of violence in early adulthood. Thus, the results do not appear to be sensitive to using a mixed-gender sample.

Second, models are estimated to determine whether the pattern of findings are an artifact of examining specific forms of social ties over others, such as marriage rather than cohabitation. As life course scholars note (Elder, 1974), the transition to adulthood unfolds within sociocultural contexts that vary across cohorts. Compared to their earlier counterparts, current cohorts of men and women experience prolonged periods of intimacy prior to marriage (Arnett, 2013; Simon & Barrett, 2010; Soons & Kalmijn, 2009), and at least two-thirds of emerging adults in the U.S. cohabit before ever getting married (Kennedy & Bumpass, 2008; Kiernan, 2004; Smock, 2000). Since the protective effects of romantic partnerships may not be limited to marriage as traditionally defined (Sampson et al., 2006)—especially for Add Health respondents coming of age in the early 2000s—models are reestimated to include an indicator of cohabitation (1 = currently living with romantic partner, 0 = otherwise).

As seen in Appendix G, the key findings remain the same—social ties have minimal protective effects for victims of violence in early adulthood. The effects of living with a romantic partner are somewhat unique from marriage in that cohabitation is not

related to marijuana use (Table G1) and is negatively related only to attempted suicide (Table G1). Those differences aside, cohabitation does not seem to buffer victims against many negative life outcomes in early adulthood—a pattern no different than what was found previously with respect to marriage.

Third, a series of models is estimated to ensure that the findings are robust to the measurement of key variables and to the inclusion of additional covariates. To start with, an alternate parental attachment scale is created to include items on nonresident biological parents and on parent-child activities. Regardless of whether these items are added to the parental attachment scale, it remains negatively related to low self-esteem, marijuana use, risky sexual behavior, and poor self-rated health—results that echo those presented previously. Next, models are specified to include various combinations of covariates, such as being divorced, number of times cohabitated with a partner, educational attainment, monthly income, number of jobs worked, hours spent working per week, closeness to a mentor, living with parents, and having children. The results are sturdy—parental attachment remains negatively related to the same few outcomes, and job satisfaction and marriage still remain unrelated to nearly all of the dependent variables. In sum, the low protective effects of social ties in early adulthood do not seem to be an artifact of using a mixed-gender sample, choosing to examine more traditional forms of social ties such as marriage over cohabitation, measuring social ties a specific way, or including particular control variables in the regression models.

## Further Tests

Having established that the findings are robust, a key question remains: why are social ties of job satisfaction and marriage not protective in early adulthood? One explanation may be that emerging adults have not fully transitioned into their new roles just yet. While a large portion of young adults may have satisfying jobs and be married, these ties may not yet be mature enough to serve protective functions. To further examine this possibility, two sets of bivariate contingency tables are examined—one for job satisfaction, and one for marriage. These are estimated using the full sample of respondents.

Table 3.14  
*Contingency Tables for Job Satisfaction in Early Adulthood*

Variables	Job Satisfaction	No Job Satisfaction	Pearson $\chi^2$
Still work at first job	11.24%	3.90%	261.86**
In college	57.24%	52.51%	31.72**
Binge drink in past year	49.22%	45.29%	21.73**
Live with a parent	39.16%	42.74%	18.59**
N	7,427	6,445	

\*\*  $p < .01$  (two-tailed test).

First, differences between young adults with and without satisfying jobs were examined along several key dimensions (see Table 3.14). These included whether they *still worked at their first job*, were *in college*, whether they engaged in *binge drinking in the past year* (i.e., had five or more alcoholic drinks in a row), and whether they currently *lived with their parents*. Based on these findings, it indeed seems as though most young adults have not yet transitioned into fruitful, long-term careers.

For instance, early adults with satisfying jobs were more likely to report that they still worked at their first ever job—something that is highly unlikely if they were engaged in a career with long-term promise. Since most young people enter the workforce via low level service positions—those that require little skill and that bring few opportunities for advancement—very few aspire to keep their first job throughout adulthood (Arnett, 2013; Steinberg & Cauffman, 1995). In addition, the findings show that early adults with satisfying jobs are more likely to be enrolled in college, and to engage lifestyles that include binge drinking. A large proportion of those with satisfying jobs also reported that they still lived with their parents (nearly 40%), suggesting that most young persons have not yet achieved the type of financial independence that a long-term career provides. So while many early adults may find their jobs enjoyable—especially while they attend school and live at home—it is unlikely that these jobs provide a sense of achievement, opportunities for promotion, or a mature network of supportive coworkers. As such, having a satisfying job at this stage in the life course might not be very protective.

Next, bivariate comparisons between married and unmarried young adults were made along several facets of well-being (see Table 3.15). As seen here, married young adults seem to be faring worse than their unmarried counterparts in a variety of respects. In particular, nearly half of married early adults reported having children, which can be exceedingly stressful during this stage of the life course (Jaffee, 2002). Childcare responsibilities might make full-time work or continued schooling problematic, and can also put a great deal of strain on a new marriage. Those who are married are also more



likely to experience financial hardship, to have less than a 12<sup>th</sup> grade education, to have high blood pressure, to be on food stamps, and to be prescribed headache medication.

Table 3.15  
*Contingency Tables for Marriage in Early Adulthood*

Variables	Married	Not Married	Pearson $\chi^2$
Parent to a child	48.42%	13.30%	1,593.90**
Financial hardship	19.27%	13.70%	49.55**
Less than 12 <sup>th</sup> grade education	15.39%	11.56%	27.48**
High blood pressure	7.60%	5.03%	25.79**
Receiving food stamps	6.49%	4.42%	18.88**
Prescribed headache medication	7.02%	5.60%	7.37**
N	2,393	11,479	

\*\*  $p < .01$  (two-tailed test).

While these findings may seem in contrast with the criminological literature on marriage as a *prosocial* role transition (e.g., Sampson & Laub, 1990), some family sociologists have recognized that early intimate unions, especially marriage, have negative consequences (Kuhl et al., 2012; Wickrama, Merten, & Elder, 2005). In particular, early marriage has been found to be associated with lower human capital for both partners, and people who marry at younger ages tend to report lower marital quality and higher rates of divorce than those who marry later on (Amato et al., 2007; Teachman, 2002). Some research has even found that early marriage increases the likelihood of obesity and other poor physical and mental health outcomes (Wickrama, Wickrama, & Baltimore, 2010). Thus, marriage during the early twenties may represent a “rush to adulthood” (Caspi & Bem, 1990; Elder, George, & Shanahan, 1996), which creates a chronically stressful life situation that places excessive demands on financially ill-

equipped young adults due to an increase in adult and family responsibilities (Wickrama et al., 2010).

Taken together, the explanation that the social ties of marriage and job satisfaction are premature in early adulthood has some empirical merit. In general, those who are married do not seem to reaping the protective benefits of marital unions, and those with satisfying jobs do not appear to be working in long-term, adult careers. Perhaps these social ties will serve more protective functions later in the life course, after they have had time to develop, strengthen, and mature.

### **Conclusions**

The results in this chapter indicate that, relative to adolescence, the harmful effects of victimization in early adulthood are less diverse, where victimization is linked to a more limited range of negative life outcomes. Still, these outcomes are rather serious, and they include depression, suicide ideation, violence, property offending, marijuana use, hard drug use, and risky sexual behavior. So while the problems linked to victimization in early adulthood are fewer in number than in adolescence, this does not imply that victimization is somehow less serious for young adults.

In addition, the findings show that social ties play less of a role for victims in early adulthood than in adolescence. Although attachment to parents helped buffer victims against several harms, job satisfaction and marriage were unrelated to most of the negative life outcomes examined. These patterns likely reflect the fact that early adulthood is a marked period of transition in which people are in the process of growing out of one set of social ties (e.g., to parents and to high school) and into a set of new ones

(e.g., to a romantic partner and to a career). Although there were limitations with respect to the measurement of social ties in that the *quality* of marriages could not be assessed, it is likely that most early adults have not fully embraced their new adult roles yet (Smith et al., 2011). Over time, as individuals continue to mature, these social ties may become more stable and protective. Accordingly, the focus now turns toward the next stage in the life course, adulthood, to see whether these predictions hold true.

## CHAPTER 4

### VICTIMIZATION IN ADULTHOOD

It is not unusual for adults to remark that “youth is wasted on the young.” This statement is presumably made out of the sentiment that kids just do not know how good they have it. After all, they are free to run around, play, get dirty, and take naps, all while having adults provide for their every need. And that is perhaps what irks adults the most: growing up often means getting up early to go to work (maybe to a job that you do not even like); having a mortgage (or two) that takes chunks out of your paycheck every month; having a spouse that demands attention, kids that need to be fed and clothed, and pets that have to be cared for. In short, adults often have a lot of responsibilities, so they long for the days when they had none.

But the fact is, according to the body of social and behavioral research, adults actually have it pretty good. They tend to lead more stable lives (Roberts, Caspi, & Moffitt, 2001), they are better off economically (Land & Russell, 1996), their interpersonal relationships are less tumultuous (Arnett, 2007b), they have more autonomy over their life choices and decisions (Ford et al., 2000), they participate in far less of the kinds of risky behaviors that they did during previous stages of the life course (Steinberg et al., 2008), and they are much less likely to be victimized (Menard, 2012; Truman & Langton, 2014). Not only that, as individuals enter adulthood they likely have developed better coping skills that help them stay resilient should they be victimized.

Why might this be the case? Part of the explanation lies in the well-documented developmental processes that affect cognitions and emotion regulation as people age

(Burt et al., 2014; Pratt, 2015; Smith, Steinberg, & Chein, 2014). Relative to their younger counterparts, adults tend to have better executive functioning, they are less impulsive, and they are less likely to lose control in emotionally charged situations (Zimmerman & Iwanski, 2014). Adults also tend to have stronger social ties—bonds to family, friends, and prosocial institutions—that work to keep their behavior in check. These social ties provide sources of social control (Sampson & Laub, 1993), affect who people hang out with (Warr, 1998), and place constraints on daily activities (Laub & Sampson, 2003).

Although criminological research is often criticized for focusing too heavily on adolescents (Cullen, 2011), in the past few decades, scholars have devoted a fair amount of attention toward studying crime in adulthood. This work primarily focuses on the importance of adult social ties (e.g., marriage and work) and the processes by which they lead to desistance from crime (Giordano et al., 2002; Lyngstad & Skardhamar, 2013; Skardhamar & Savolainen, 2014). But yet, unlike research on crime in adulthood, research on *victimization* during this stage of the life course is virtually nonexistent. Aside from the literature on intimate partner violence against women (e.g., Bonomi et al., 2006; Campbell, 2002; Coker et al., 2000), we know little about the extent to which more general forms of adult victimization carry psychological, behavioral, and health-related consequences.

### **Social Ties in Adulthood**

The kinds of social ties that adults form are similar to those in emerging adulthood. For example, just like when they were younger, adults can still have ties to

their parents. Indeed, while most adults' behavior is no longer controlled by their mothers or fathers (or at least less so than when they were adolescents or young adults), many parents still serve as important sources of support for their grown up children (Umberson, 1992b). Most parents report that they provide their adult children a great deal of companionship and advice, as well as financial, practical, and emotional support. Such support is unlikely to be reciprocated, and it is often provided despite limited material resources and what may also be considerable geographic distance (Fingerman et al., 2009). In short, even in adulthood, ties to parents can still be important.

Moreover, adults can also form strong ties to their jobs. Unlike during emerging adulthood, adults tend to be settling into their long-term careers. No longer are they skipping from job to job like they did in their youth, but at this point they instead have likely spent a lengthy amount of time in an occupation (Kooij et al., 2011). And a consequence of being more entrenched in an occupation is that adults' ties to the workplace can become quite strong (Mauno, Ruokolainen, & Kinnunen, 2013). Those ties can serve as sources of support (e.g., from valued coworkers) as well as social control (e.g., the stake in conformity that comes with having a job that is valued), and often restructures one's routine activities in ways that are more prosocial (e.g., people tend to hang out with their work friends who have a similar stake in conformity; Warr, 1998).

These same kinds of processes are also likely to characterize marriage in adulthood as well. To be sure, just like it was discussed in Chapter 3, marriage can serve as a source of social support and social control, and can also serve as a constraint on risky behavioral routines. But unlike marriage during emerging adulthood, being married as an

adult is generally reflective of a much longer courtship and relationship (Booth & Edwards, 1985). Adults tend to know their spouses better than they did earlier in life. What is more, adults have typically matured to the point where they are more likely to make better choices when it comes to picking a mate—something they may not have been very good at when they were their younger selves (Uecker, 2012). Marriage in adulthood is therefore unlikely to result in one's exposure to a deviant spouse, and is instead more likely to result in the consistent exposure to another prosocial person.

A final source of social ties in adulthood concerns having children. On the one hand, there is plenty of evidence that having kids can be stressful. They cost a lot of money, they push the limits of parental patience, and they prompt spats between spouses who may disagree on how to handle misbehavior (Pedro, Ribeiro, & Shelton, 2012). But for those adults who actually enjoy being parents and are attached to their children, having kids can serve a similar function as marriage and work in that they can restrict adults' activities to be more prosocial and can encourage greater stakes in conformity (Laub & Sampson, 2003). Parents also want to be good role models for their children—they often see doing so as a core part of their identity (Giordano, 2010)—which often translates into a conscious effort to behave better in general. Thus, despite the grief that kids might occasionally cause their parents, the parents generally benefit considerably from having them around.

Adult social ties are qualitatively different from those in adolescence and early adulthood in two important respects. First, these are social ties that individuals formed themselves and are responsible for maintaining (Vaux, 1988). Earlier in life, such as in

adolescence, social ties are more likely to be provided for you. Most kids attend school where they spend a lot of time with their same-age peers and are watched over by teachers, they tend to live at home where they interact frequently with their parents and caregivers, and their parents tend to support them—at least financially—regardless of how they behave (see, e.g., Siennick, 2011). But as people age, they become increasingly more responsible for developing and nurturing their social ties themselves. Absent an arranged marriage, for example, spouses are not provided to people, they are chosen. And the quality of that marital tie is the result of sustained effort to keep the relationship healthy.

Second, adult social ties have had more time to develop. By the time people reach their thirties, they have likely finished college, found a stable job, and spent a length of time in a serious romantic relationship. This is in contrast to early adulthood, where social ties were either in transition, or brand-new. Thus, adult social ties are assumed to be much more self-generated, valued, and protective than they were in previous stages of the life course. They are likely to serve as sources of social control, to facilitate the formation of prosocial peer groups, and to structure routine activities in conventional ways (Sampson et al., 2006; Siennick & Osgood, 2008; Warr, 2002). Indeed, this means that adults with strong social ties are less likely to be victimized (Menard, 2012; Wittebrood & Nieuwbeerta, 2000), and that those same social ties can serve as coping resources should adults actually get victimized. Thus, the potential harms associated with victimization might be mitigated for adults with strong social ties.



Accordingly, in what follows, analyses are conducted using Wave IV of the Add Health data to: 1) assess the relationships between victimization and a wide range of psychological, behavioral, and health-related problems in adulthood (when respondents are entering into their 30s), and 2) to determine whether social ties of attachments to parents, job satisfaction, marriage, and attachment to children help explain why some adult victims of violence are more likely to experience these problems over others.

### **Sample**

Wave IV of the Add Health data was collected in 2008 and 2009 with the original Wave I respondents. At the time of the interview, the Wave IV participants were approximately 29 years old (ranging between 24 and 32) and settling into adulthood. Over 90% of Wave I participants were located, and 80.3% of eligible sample members were interviewed at Wave IV ( $N = 15,701$ ). Similar to previous waves of data collection, interviewers administered surveys using laptop computers, and respondents used audio computer-assisted self-interview methods to answer questions on sensitive topics. The survey lasted 90 minutes, and most interviews took place in respondents' homes.

All participants at Wave IV who had complete information on violent victimization and a valid Add Health sampling weight were included in the current sample. In keeping with the methods described in Chapters 2 and 3, cases missing information on other key variables (11.4% of the remaining Wave IV sample) were handled using multiple imputation (Allison, 2002; Carlin et al., 2008; White et al., 2011). Imputing the data resulted in the retention of 90.0% of all Wave IV respondents in the study sample ( $N = 14,130$ ).

## Empirical Measures

### Adult Victimization

*Adult victimization* is assessed using Wave IV reports of whether the following took place in the past 12 months: “someone pulled a knife or gun on you,” “someone shot or stabbed you,” and “you were beaten up” (1 = yes, 0 = no). All forms of victimization were relatively rare in the data (6.7%, 3.4%, and 3.2%, respectively), and approximately 8.3% of respondents reported being victims of violence in adulthood. The prevalence of adult violent victimization in the data is close to that observed in early adulthood (7.8%, see Chapter 3). That the proportion of adult victimization is similar to (and even slightly higher than) early adulthood is somewhat inconsistent with the existing literature (e.g., Menard, 2012; Wittebrood & Nieuwbeerta, 2000) and with national estimates documenting declining rates of victimization among 25 to 34 year-olds (Truman & Langton, 2014).

It is important to note, however, that over 2,600 respondents were interviewed at Wave IV who were not in the early adult sample at Wave III (see Chapter 3). The Wave IV respondents not in the Wave III data are unique in that they have significantly higher rates of victimization (9.6% of Wave IV respondents not sampled in Wave III reported being victims of violence in adulthood, compared to 7.5% of those also present in Wave III of the data). To ensure that the inclusion of these respondents did not bias the results in any way, supplemental analyses were conducted that excluded from the sample all Wave IV respondents not present in Wave III of the data (see Appendix H). Since the findings did not appear to be sensitive to the exclusion of these individuals, all Wave IV

respondents with valid information on key variables were included in the analysis. Nonetheless, it is likely these individuals are contributing to the greater proportion of victims in the data at Wave IV.

### **Adult Social Ties**

Consistent with theory and research on social attachments in adulthood, four forms of social ties are assessed here: attachment to parents, job satisfaction, marriage, and attachment to children. *Attachment to parents* is a six-item index composed of the following dummy-coded items: “you feel close to your mother/mother figure,” “you feel close to your father/father figure,” “you are satisfied with the way your mother/mother figure and you communicate with each other,” “you are satisfied with the way your father/father figure and you communicate with each other,” “you and your mother/mother figure talk on the telephone, exchange letters, or exchange mail” at least once a week, and “you and your father/father figure talk on the telephone, exchange letters, or exchange mail” at least once a week (1 = yes, 0 = no). Responses were summed so that higher values reflect greater parental attachments (range 0 – 6;  $KR_{20} = .72$ ). Factor analysis of tetrachoric correlations (Knol & Berger, 1991; Parry & McArdle, 1991) confirmed that these items are associated with a single latent construct (eigenvalue = 3.31; factor loadings > .63).<sup>27</sup>

Job satisfaction and marriage are measured the same ways as in Chapter 3. In particular, *job satisfaction* is a single item indicator for whether respondents currently

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<sup>27</sup> Just as in Chapters 2 and 3, respondents who reported that they did not have a mother figure or father figure were coded as “0.” Supplemental analyses revealed that the findings were not sensitive to this coding decision. Specifically, the results remained the same in terms of sign and significance when respondents without a mother or father were excluded from the sample.

had a job that they were satisfied with (1 = yes, 0 = no). Approximately 65% of adults reported having a job where they worked least 10 hours per week, and 61% reported having a satisfying job. *Marriage* is a dichotomous indicator that reflects whether respondents were married at the time of the Wave IV interview (1 = yes, 0 = no). Over 40% of adults reported being married, which is consistent with national estimates from the 2009 American Community Survey for people between the ages of 25 to 34 (U.S. Census Bureau, 2010). Recall that in Chapter 3, only 17% of respondents reported being married in early adulthood. The much larger proportion of married respondents in the sample confirms that many have transitioned out of emerging adulthood and into their adult roles. Approximately 50% of adults at Wave IV indicated that they have been married at least once.

Lastly, at this stage in the life course, a measure of *attachment to children* is included. This is a four-item index assessing respondents' agreement to the following items: "the major source of stress in my life is my child(ren)" (reverse-coded), "I feel overwhelmed by the responsibility of being a parent" (reverse-coded) "I am happy in my role as parent," and "I feel close to my child(ren)" (1 = yes, 0 = no). Responses were summed so that higher values reflect greater attachments to children (range 0 – 4;  $KR_{20} = .90$ ). Factor analysis of tetrachoric correlations confirmed that these items are associated with a single latent construct (eigenvalue = 3.82; factor loadings > .89). Over 50% of adults reported having at least one child at Wave IV.<sup>28</sup>

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<sup>28</sup> Respondents who did not have children were coded as "0." Doing so is consistent with existing research assessing the effects of attachment to children on crime and well-being (Ganem & Agnew, 2007; Giordano et al., 2002).

An indicator of attachment to children was chosen over whether respondents simply had children for a couple reasons. First, estimates from the American Community Survey suggest that in 2009—the year that the Wave IV Add Health data were collected—34% of U.S. children lived in single-parent families (U.S. Census Bureau, 2010). Many parents live apart from their children and can have complicated relationships with them due to increasing rates of divorce, separation, and parental incarceration (see, e.g., Glaze & Maruschak, 2008; U.S. Census Bureau, 2010). Accordingly, it made sense to select a measure of social ties that could tap into the strength of attachments between parents and children. Second, existing research suggests that parenthood can have both positive and negative effects on adults (Demo & Cox, 2000; Nomaguchi & Milkie, 2003). Since parenthood can bring some adults a great deal of stress, particularly if children are “difficult” (see Rutter, Giller, & Hagell, 1998), it is likely that the quality of a parent-child relationship will be more strongly related to adults’ behavior and well-being than simply having a child (Ganem & Agnew, 2007; Giordano et al., 2002).

### **Adult Psychological Outcomes**

The psychological outcomes assessed in adulthood mirror those examined in Chapters 2 and 3, and include depression, suicide ideation, and attempted suicide.<sup>29</sup> *Depression* is measured uniformly across all waves of the data, using nine items from the CES-D available in the Add Health survey. Specifically, during the Wave IV interview, respondents reported how often during the past seven days the following were true: “you were bothered by things that usually don’t bother you,” “you could not shake off the

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<sup>29</sup> Low self-esteem, which was assessed in Chapters 2 and 3, is no longer available in the data at Wave IV.

blues, even with help from your family and your friends,” “you felt you were just as good as other people” (reverse-coded), “you had trouble keeping your mind on what you were doing,” “you felt depressed,” “you felt that you were too tired to do things,” “you enjoyed life” (reverse-coded), “you felt sad,” and “you felt that people disliked you.” Responses to each item ranged from 0 (never/rarely) to 3 (most/all of the time), and were summed to create a scale where larger values reflect greater depressive symptoms (range 0 – 27; Cronbach’s  $\alpha = .81$ ). Principal components analysis confirmed that the scale was unidimensional (eigenvalue 3.73; factor loadings  $> .48$ ).

*Suicide ideation* reflects whether participants reported seriously thinking about committing suicide in the year prior to the Wave IV interview (1 = yes, 0 = no), and *suicide attempt* indicates whether participants actually tried to commit suicide in the past year (1 = yes, 0 = no). Both indicators of suicidality in adulthood are measured the same ways as they were in adolescence and early adulthood (see Chapter 2 and Chapter 3).

### **Adult Behavioral Outcomes**

All adult behavioral outcomes mirror those examined during early adulthood (see Chapter 3), and include violent offending, property offending, alcohol problems, marijuana use, hard drug use, and risky sexual behavior. *Violent offending* is a three-item variety score that captures whether respondents committed the following types of violence during the year prior to the Wave IV interview: “got in a serious physical fight,” “used a weapon to get something from someone,” and “hurt someone badly enough in a physical fight that he or she needed care from a doctor or nurse.” All forms of violence were rare in the sample (5.1%, 1.9%, and 0.8%, respectively), and only 5.4% of adults

reported engaging in violent offending at Wave IV. As expected based on patterns of offending and desistance over the life course, this proportion is lower than in adolescence and early adulthood.

Consistent with the measure used in Chapters 2 and 3, *property offending* is a variety score from Wave IV that reflects whether respondents did the following in the past year: “deliberately damaged someone else’s property,” “stole something worth less than \$50,” “stole something worth more than \$50,” or “went into a house or building to steal something.” Each form of property offending was more rare than at previous stages in the life course (4.0%, 3.9%, 1.7%, and 0.6%, respectively), and this is in keeping with patterns of reduced offending during adulthood. Approximately 7.4% of adults committed at least one property crime in the past year.

*Alcohol problems* is a summated scale from Wave IV that reflects how often the following happened in the past 12 months: your drinking “interfered with your responsibilities at work or school,” you were “under the influence of alcohol when you could have gotten yourself or others hurt, or put yourself or others at risk,” “you had legal problems because of your drinking,” and “you had problems with your family, friends, or people at work or school because of your drinking.” These items are similar to those used to assess alcohol problems in Chapters 2 and 3, and are consistent with existing research on alcoholism in adulthood (Clark & Hilton, 1991; Leonard & Homish, 2008; Miller & Tonigan, 1995). Item responses ranged from 0 (never) to 2 (more than one time), and were summed so that higher values reflect greater alcohol problems (range 0 – 8;

Cronbach's  $\alpha = .79$ ). Principal components analysis confirmed that the scale was unidimensional (eigenvalue = 2.52; factor loadings  $> .73$ ).

*Marijuana use* and *hard drug use* are measured the same as in previous waves of the data, and each reflect any use in the 30 days prior to the Wave IV interview (1 = yes, 0 = no). As expected, a smaller proportion of respondents reported using drugs in adulthood than in early adulthood (e.g., 15.9% of adults and 21.1% of emerging adults reported using marijuana). Lastly, adult *risky sexual behavior* indicates whether respondents paid for sex or had sex with 10 or more people in the past year (1 = yes, 0 = no). Although Wave IV of the data contained fewer items on risky sexual behavior than Wave III (see Chapter 3), this indicator is in line with prior work assessing problematic sexual behaviors and promiscuity in adulthood (Bellis, Hughes, & Ashton, 2004; Ward et al., 2005).

### **Adult Health Outcomes**

The health-related outcomes in adulthood include poor self-rated health, and whether respondents were recently diagnosed with a sexually-transmitted infection (STI). Consistent with the measure used in adolescence and in early adulthood, *poor self-rated health* is a single survey item at Wave IV that asks respondents, "In general, how is your health?" Responses range from 0 (excellent) to 4 (poor), where higher scores indicate worse health. Scores on this variable reflect some health declines in adulthood, where more adults reported that they had "fair" or "poor" health than adolescents or emerging adults.



*STI diagnosis* is measured the same way as in Chapter 3, and reflects whether a doctor or nurse told participants in the past 12 months that they had chlamydia, gonorrhea, trichomoniasis, syphilis, genital herpes, genital warts, or human papilloma virus (1 = yes, 0 = no). More respondents reported having an STI in adulthood (9.1%) than in early adulthood (5.5%), which likely reflects the fact that more adults reported having sexual intercourse (94.3% versus 85.7% of emerging adults).

### **Control Variables**

In addition to demographic variables (e.g., age, sex, and race), several known correlates of adverse psychological, behavioral, and health outcomes in adulthood are included in the analyses. These include prior victimization, low self-control, adolescent PVT scores, financial hardship, and being a college graduate. Consistent with the analyses in early adulthood (see Chapter 3), a dichotomous indicator of *prior victimization* is included that reflects whether respondents reported being a victim of violence at Wave I (i.e., having a knife or gun pulled on you, being jumped, being cut or stabbed, or being shot in the past year) (1 = yes, 0 = no).

*Low self-control* is assessed using the following six items available in the Wave IV data: “I like to take risks,” “I get upset easily,” “I live my life without much thought for the future,” “when making a decision, I go with my ‘gut feeling’ and don’t think much about the consequences of each alternative,” “I make a mess of things,” and “I lose my temper.” Each item featured a 5-point response set, ranging from 1 (strongly disagree) to 5 (strongly agree). These items are consistent with Gottfredson and Hirschi’s (1990, p. 90) assertion that individuals with low self-control are “impulsive, insensitive,

physical (as opposed to mental), risk-taking, short-sighted, and nonverbal.” Similar items have also been used to assess adult levels of self-control in prior research (Jang & Rhodes, 2012; Lonardo et al., 2010). The scale exhibits an acceptable level of internal consistency (Cronbach’s  $\alpha = .61$ ), and is coded so that higher scores indicate lower levels of self-control. Principal components analysis indicated that the self-control scale was associated with a single latent construct (eigenvalue = 2.09; factor loadings > .39).<sup>30</sup>

*PVT score* is the same measure used in adolescence and early adulthood, drawn from a shortened computerized version of the Peabody Picture Vocabulary Test (Revised) at Wave I. Just as in Chapter 3, *financial hardship* in adulthood is a dichotomous variable that reflects whether respondents or someone in their household did not have enough money in the past year to “pay the full amount of rent or mortgage,” “pay the full amount of a gas, electricity, or oil bill,” or if “services were turned off by the gas or electric company or the oil company wouldn’t deliver because payments were not made” (1 = yes, 0 = no). A measure of whether respondents indicated they had *graduated college* at the Wave IV interview is also included (1 = college graduate, 0 = otherwise) along with the following demographic variables: *male* (1 = male, 0 = female), *age* (the respondent’s age in years at Wave I), *black* (1 = black, 0 = otherwise), *Hispanic* (1 = Hispanic, 0 = otherwise), *Native American* (1 = Native American, 0 = otherwise), and *other racial minority* (1 = non-white, 0 = otherwise). Non-Hispanic white serves as

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<sup>30</sup> Low self-control is measured differently at all three stages of the life course due to changes made to the Add Health survey at each wave of data collection. Nevertheless, supplemental analyses indicated that the pattern of findings observed between adult victimization, social ties, and adverse outcomes were not sensitive to use of the Wave I or Wave III indicators of low self-control.

the reference category. Summary statistics of all variables included in the adulthood analyses are provided in Table 4.1

Table 4.1  
*Summary Statistics in Adulthood*

Variables	Full Sample	Victim Subsample	Range
	Mean (SD) or %	Mean (SD) or %	
<u>Victimization</u>			
Adult victimization	8.30%	-----	0 – 1
<u>Supportive Attachments</u>			
Attachment to parents	4.00 (1.75)	3.61 (1.80)	0 – 6
Job satisfaction	61.21%	49.47%	0 – 1
Marriage	40.68%	26.89%	0 – 1
Attachment to children	1.63 (1.75)	1.57 (1.71)	0 – 4
<u>Psychological Outcomes</u>			
Depression	5.27 (4.10)	6.09 (4.59)	0 – 27
Suicide ideation	6.61%	10.02%	0 – 1
Suicide attempt	1.38%	2.76%	0 – 1
<u>Behavioral Outcomes</u>			
Violent offending	0.08 (0.36)	0.48 (0.83)	0 – 3
Property offending	0.10 (0.41)	0.29 (0.68)	0 – 4
Alcohol problems	0.99 (1.90)	1.26 (2.27)	0 – 8
Marijuana use	15.90%	24.06%	0 – 1
Hard drug use	5.96%	13.37%	0 – 1
Risky sexual behavior	2.83%	10.19%	0 – 1
<u>Health Outcomes</u>			
STI diagnosis	9.07%	12.30%	0 – 1
Poor self-rated health	1.34 (0.92)	1.48 (1.01)	0 – 4
<u>Control Variables</u>			
Prior victimization (W1)	19.84%	36.22%	0 – 1
Low self-control	14.82 (3.05)	16.00 (3.43)	6 – 30
PVT score (W1)	10.08 (1.45)	9.74 (1.46)	1.50 – 13.40
Financial hardship	18.73%	32.89%	0 – 1
College graduate	32.02%	16.84%	0 – 1
Male	46.84%	62.83%	0 – 1
Age	29.12 (1.73)	28.98 (1.82)	25 – 34
Black	22.45%	36.56%	0 – 1
Hispanic	7.04%	5.11%	0 – 1
Native American	2.68%	3.49%	0 – 1
Other racial minority	8.11%	4.81%	0 – 1
N	14,130	1,173	

## Effects of Victimization on Adult Outcomes

Table 4.2  
*Bivariate Correlations between Victimization and Adult Outcomes*

Adult Outcomes	Victimization
<u>Psychological Outcomes</u>	
Depression	.17**
Suicide ideation	.14**
Suicide attempt	.20**
<u>Behavioral Outcomes</u>	
Violent offending	.61**
Property offending	.31**
Alcohol problems	.04*
Marijuana use	.16**
Hard drug use	.24**
Risky sexual behavior	.37**
<u>Health Outcomes</u>	
STI diagnosis	.10**
Poor self-rated health	.05*

*Note.* Correlations between victimization and continuous variables are biserial coefficients, and correlations between victimization and other binary variables are tetrachoric coefficients ( $N = 14,130$ ).

\*  $p < .05$ ; \*\* $p < .01$  (two-tailed test).

The analyses begin in Table 4.2 with an overview of the bivariate associations between violent victimization and the various psychological, behavioral, and health-related outcomes in adulthood. As seen here, adult victimization is positively related to all of the outcomes assessed at this stage in the life course. These patterns are consistent with the bivariate findings observed in adolescence and in early adulthood, and with the existing (but somewhat limited) research linking adult victimization to negative life outcomes (e.g., Koss, Koss, & Woofruff, 1991; Langton & Truman, 2014; Menard, 2012). Once again, victimization is most strongly related to the behavioral outcomes, particularly to violent offending ( $r = .61$ ), property offending ( $r = .31$ ), risky sexual behavior ( $r = .37$ ), and hard drug use ( $r = .24$ ). Some correlations between victimization

and the outcomes are understated in magnitude, such as the associations with poor self-rated health ( $r = .05$ ) and alcohol problems ( $r = .04$ ). Still, victimization in early adulthood is significantly linked to a wide array of problems at the bivariate level. Accordingly, the next step in the analysis is to determine whether these associations remain once other variables are taken into account.

### **Models of Victimization on Adult Outcomes**

Just as in Chapters 2 and 3, multivariate analyses assessing the relationship between adult victimization and negative outcomes are conducted using ordinary least-squares regression, logistic regression, and negative binomial regression techniques.<sup>31</sup> All multivariate analyses are estimated using the Add Health sampling weights (calculated for the use of Wave IV data) and clustered robust standard errors that adjust for similarities between respondents sampled from the same schools (Harris, 2011).

Tables 4.3 to 4.6 display the relationships between adult victimization and the psychological, behavioral, and health-related outcomes, net of control variables. Recall that in Chapter 2, victimization during adolescence was associated with all of the adverse outcomes assessed—depression, low self-esteem, suicide ideation, attempted suicide, violent and property offending, alcohol problems, marijuana use, hard drug use, poor self-rated health, and somatic complaints. In Chapter 3, victimization during early

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<sup>31</sup> Consistent with the analytic strategy used in previous chapters, OLS regression models are estimated for ordinal outcomes (i.e., poor self-rated health), negative binomial regression models are estimated for count variables with overdispersion (i.e., depression, violent offending, property offending, and alcohol problems), and logistic regression models are estimated for dichotomous outcomes (i.e., suicide ideation, suicide attempt, marijuana use, hard drug use, risky sexual behavior, and STI diagnosis). Collinearity did not appear to be an issue since variance inflation factors among independent variables were below 1.25 and the condition index values for models in Tables 4.3 to 4.6 were below 30 (Belsley et al., 1980; Tabachnick & Fidell, 2012).

adulthood was also linked to a wide array of outcomes, including depression, suicide ideation, violent and property offending, marijuana use, hard drug use, and risky sexual behavior. Still, a unique pattern of findings emerged in that victimization was not associated with low self-esteem, attempted suicide, alcohol problems, STI diagnosis, or poor self-rated health. This pattern seemed to indicate that the consequences of victimization “narrowed,” or became less widespread, as people aged out of adolescence.

As seen in Tables 4.3 to 4.6, this trend seems to continue into adulthood, where adult victimization is linked to fewer problematic outcomes than at previous stages in the life course. No longer is violent victimization associated with depression (Table 4.3), suicide ideation (Table 4.3), property offending (Table 4.4), or marijuana use (Table 4.5)—life outcomes that were linked to being victimized in adolescence and in early adulthood. Adult victimization is also unrelated to alcohol problems (Table 4.5) and to poor self-rated health (Table 4.6), although these null findings are consistent with those observed among early adults.

Despite the fact that the problems linked to adult victimization are fewer in number, they are still quite severe. Indeed, in adulthood, being violently victimized is associated with attempted suicide (Table 4.3), violent offending (Table 4.4), hard drug use (Table 4.5), risky sexual behavior (Table 4.5), and being diagnosed with an STI (Table 4.6). Consistent with patterns observed during adolescence and early adulthood, the relationships between victimization and violent offending are especially robust (Table 4.4), where incident rate ratios (IRR) indicate that violent victimization increases the rate of violent offending by a factor of 5.44. Outside of violent offending, however, hard drug

use remains the only other outcome consistently related to victimization at all three points in time—adolescence, early adulthood, and adulthood.<sup>32</sup> Altogether, these findings indicate that, relative to earlier stages of the life course, being victimized in adulthood is linked to a less diverse—but rather serious—set of negative consequences.

### **Sensitivity Analyses**

As indicated previously and seen in Appendix H, the pattern of findings observed in Tables 4.3 to 4.6 is robust to the exclusion of over 2,400 respondents not present in Wave III of the Add Health data. Still, just as in previous chapters, it was important to confirm that the results thus far are not sensitive to the methodological choices that were made. Accordingly, a series of supplemental analyses were conducted. First, models were estimated that controlled for prior levels of the outcome variables from Wave I, from Wave III, and then from Waves I *and* III (although not all adult outcomes were available in the Wave I data, like risky sexual behavior and STI diagnosis). The results from these models confirmed that the findings presented in Tables 4.3 to 4.6 were largely robust: adult victimization remained significantly related to attempted suicide, violent offending, hard drug use, and STI diagnosis. There was one exception, however, in that victimization was no longer related to risky sexual behavior in adulthood when prior risky sexual behavior was included in the regression model ( $b = .24$ ,  $z = 1.71$ ,  $p = .171$ ). It is thus important that the finding in Table 4.5 be interpreted with caution.

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<sup>32</sup> While risky sexual behavior was a similarly robust correlate of victimization in early adulthood, this outcome was not available in the data to assess during adolescence.

Table 4.3  
Effects of Victimization on Psychological Outcomes in Adulthood

Variables	Depression <sup>a</sup>			Suicide ideation <sup>c</sup>			Suicide attempt <sup>c</sup>		
	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>
Victimization	.04	(.02)	1.74	.07	(.11)	.63	.46	(.21)	2.16*
Prior victimization	.06	(.02)	2.78**	.03	(.12)	.29	.10	(.21)	.48
Low self-control	.07	(.01)	14.83**	.12	(.01)	10.13**	.14	(.03)	5.37**
PVT score	-.01	(.01)	-2.34*	.08	(.04)	2.02*	-.19	(.07)	-2.84**
Financial hardship	.24	(.02)	11.86**	.39	(.10)	4.06**	.24	(.21)	1.13
College graduate	-.08	(.02)	-4.09**	-.28	(.12)	-2.44*	-.63	(.28)	-2.19*
Male	-.17	(.02)	-9.46**	-.20	(.11)	-1.86	-.38	(.22)	-1.71
Age	.04	(.06)	.77	-.10	(.28)	-.34	.42	(.57)	.74
Black	.15	(.03)	5.15**	-.03	(.12)	-.27	-.01	(.24)	-.03
Hispanic	.08	(.04)	2.13*	-.37	(.19)	-1.98*	-.97	(.52)	-1.86
Native American	.03	(.04)	.62	.35	(.26)	1.32	.83	(.42)	1.98*
Other racial minority	.14	(.04)	3.84**	.08	(.22)	.36	-1.45	(.52)	-2.76**
Constant	.66	(.12)	5.42**	-5.35	(.61)	-8.78**	-5.40	(1.23)	-4.37**
Model <i>F</i> -test	117.17**			14.54**			8.31**		

*Note.* Entries are unstandardized partial regression coefficients (*b*), clustered robust standard errors in parentheses, and *z*-tests. (*N* = 14,130). Coefficients and standard errors for age are multiplied by 10 for ease of interpretation.

<sup>a</sup>Negative binomial regression model.

<sup>b</sup>OLS regression model.

<sup>c</sup>Logistic regression model.

\**p* < .05; \*\* *p* < .01 (two-tailed test).



Table 4.4  
*Effects of Victimization on Offending in Adulthood*

Variables	Violent offending <sup>a</sup>			Property offending <sup>a</sup>		
	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>
Victimization	1.69	(.15)	11.27**	.03	(.11)	.30
Prior victimization	.54	(.14)	3.77**	.33	(.10)	3.23**
Low self-control	.14	(.02)	7.47**	.11	(.02)	6.51**
PVT score	.17	(.05)	3.25**	.16	(.06)	2.63**
Financial hardship	.45	(.15)	3.04**	.62	(.16)	3.70**
College graduate	-.87	(.20)	-4.29**	-.11	(.17)	-.63
Male	1.08	(.15)	7.16**	.74	(.09)	7.81**
Age	-.06	(.04)	-1.64	-.10	(.04)	-2.66**
Black	.56	(.15)	3.62**	.21	(.13)	1.58
Hispanic	.44	(.31)	1.42	.55	(.30)	1.83
Native American	.68	(.41)	1.66	-.35	(.33)	-1.10
Other racial minority	-.01	(.39)	-.03	.03	(.24)	.11
Constant	-7.11	(.92)	-7.75**	-5.38	(.68)	-7.95**
Model <i>F</i> -test	60.47**			25.85**		

*Note.* Entries are unstandardized partial regression coefficients (*b*), clustered robust standard errors in parentheses, and *z*-tests (*N* = 14,130).

<sup>a</sup> Negative binomial regression model.

\**p* < .05; \*\* *p* < .01 (two-tailed test).

**Table 4.5**  
*Effects of Victimization on Risky Behavioral Outcomes in Adulthood*

Variables	Alcohol problems <sup>a</sup>			Marijuana use <sup>b</sup>			Hard drug use <sup>b</sup>			Risky sexual behavior <sup>b</sup>		
	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>
Victimization	-.06	(.06)	-1.08	.05	(.09)	.51	.28	(.11)	2.53*	.44	(.17)	2.62**
Prior victimization	.26	(.05)	5.04**	.39	(.07)	5.68**	.29	(.11)	2.64**	.45	(.13)	3.35**
Low self-control	.50	(.07)	7.50**	.62	(.09)	6.92**	.90	(.13)	6.89**	.79	(.21)	3.81**
PVT score	.27	(.02)	12.74**	.20	(.02)	-5.49**	.18	(.04)	4.55**	.05	(.05)	.91
Financial hardship	.22	(.06)	4.06**	.67	(.07)	9.67**	.59	(.10)	5.65**	.23	(.17)	1.39
College graduate	.14	(.05)	2.80**	-.39	(.08)	-4.81**	-.53	(.14)	-3.82**	-.07	(.58)	-.13
Male	.43	(.04)	9.87**	.53	(.07)	7.56**	.34	(.09)	3.78**	1.25	(.17)	7.28**
Age	-.04	(.01)	-2.80**	-.11	(.02)	-5.49**	-.09	(.03)	-2.99**	-.02	(.05)	-.43
Black	-.89	(.10)	-9.15**	.06	(.11)	.54	-1.13	(.18)	-6.18**	1.05	(.17)	6.28**
Hispanic	-.20	(.10)	-1.96	-.37	(.16)	-2.32*	-.16	(.20)	-.59	.36	(.29)	1.21
Native American	.42	(.16)	2.60**	.30	(.19)	1.57	.54	(.27)	2.00*	-.27	(.70)	-.38
Other racial minority	-.32	(.13)	-2.46*	-.13	(.17)	-.79	-.46	(.28)	-1.66	-.07	(.58)	-.13
Constant	-3.27	(.36)	-9.01**	-3.45	(.50)	-6.96**	-4.82	(.66)	-7.30**	-6.45	(.99)	-6.52**
Model <i>F</i> -test		43.08**			40.79**			24.55**			22.27**	

*Note.* Entries are unstandardized partial regression coefficients (*b*), clustered robust standard errors in parentheses, and *z*-tests (*N* = 14,130). Coefficients and standard errors for low self-control are multiplied by 10 for ease of interpretation.

<sup>a</sup> Negative binomial regression model.

<sup>b</sup> Logistic regression model.

\**p* < .05; \*\* *p* < .01 (two-tailed test).

Table 4.6  
*Effects of Victimization on Health Outcomes in Adulthood*

Variables	STI Diagnosis <sup>a</sup>			Poor self-rated health <sup>b</sup>		
	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>
Victimization	.25	(.11)	2.32*	-.02	(.03)	-.67
Prior victimization	.08	(.09)	.86	.05	(.03)	1.64
Low self-control	.44	(.12)	3.71**	.33	(.03)	10.63**
PVT score	.01	(.03)	.18	-.01	(.01)	-1.23
Financial hardship	.37	(.11)	3.43**	.26	(.03)	9.68**
College graduate	.05	(.09)	.49	-.33	(.02)	-14.62**
Male	-1.08	(.09)	-11.97**	-.10	(.02)	-5.05**
Age	-.88	(.27)	-3.32**	.03	(.07)	.53
Black	.49	(.10)	4.79**	.09	(.03)	3.25**
Hispanic	.22	(.22)	1.01	.14	(.04)	3.44**
Native American	.55	(.27)	2.08*	.07	(.08)	.79
Other racial minority	-.44	(.22)	-2.03*	.17	(.06)	2.75**
Constant	-1.70	(.59)	-2.88**	.87	(.15)	5.69**
Model <i>F</i> -test		25.32**			66.25**	

*Note.* Entries are unstandardized partial regression coefficients (*b*), clustered robust standard errors in parentheses, and *z*-tests (*N* = 14,130). Coefficients and standard errors for low self-control and age are multiplied by 10 for ease of interpretation.

<sup>a</sup> Logistic regression model.

<sup>b</sup> OLS regression model.

\**p* < .05; \*\* *p* < .01 (two-tailed test).

Second, a variety of analyses were conducted that controlled for different combinations of variables known to be linked to psychological, behavioral, and health-related problems in adulthood. These included child physical and sexual abuse, being arrested, experiencing parental incarceration, having ADHD, having an eating disorder, being obese, smoking, being born outside of the U.S., having diabetes, having health insurance, and being on food stamps. Even with various combinations of these covariates in the models, the findings remained consistent with those presented in Tables 4.3 to 4.6.

Lastly, and consistent with the previous chapters, a series of gender-specific models were estimated to determine whether the pattern of findings differed between males or females (see Appendix I). Similar to earlier stages of the life course, the findings remained generally consistent across men and women, although victimization was not related to attempted suicide (Table I5) or STI diagnosis (Table I8) among females. Overall, these findings confirm that victimization in adulthood is a significant predictor of several serious psychological, behavioral, and health problems (e.g., attempted suicide, violent offending, hard drug use, STI diagnosis), but that these effects are less widespread than in adolescence and early adulthood.

### **Effects of Social Ties within the Victim Subsample**

Consistent with the research objectives, the next step in the analysis is to examine why some victims of violence are more likely than others to experience various psychological, behavioral, and health-related problems in adulthood. Specifically, the focus here is on whether victims with strong adult social ties—in the form of attachments to parents, job satisfaction, marriage, and attachment to children—fare better than others. Accordingly, the next set of analyses center only on those who were victims of violence

at Wave IV ( $n = 1,173$ ; 8.3% of the full sample). Descriptive statistics for the subsample of victims can be found in the right hand column of Table 4.1.

Table 4.7

*Bivariate Correlations between Social Ties and Adult Outcomes among Victims*

Adult Outcomes	Attachment to Parents	Job Satisfaction	Marriage	Attachment to Children
<u>Psychological Outcomes</u>				
Depression	-.20**	-.25**	-.15**	-.03
Suicide ideation	-.20**	-.26**	-.12*	-.08*
Suicide attempt	-.15**	-.19**	-.16**	-.09*
<u>Behavioral Outcomes</u>				
Violent offending	-.17**	-.11**	-.35**	-.08*
Property offending	-.19**	-.22**	-.23*	-.15**
Alcohol problems	-.02	.00	-.14**	-.10**
Marijuana use	-.13**	-.05*	-.23**	-.09*
Hard drug use	-.09*	-.06*	-.25**	-.10*
Risky sexual behavior	-.17**	-.09*	-.40**	-.12**
<u>Health Outcomes</u>				
STI diagnosis	-.08*	-.04	-.20**	.00
Poor self-rated health	-.13**	-.17**	-.07*	.03

*Note.* Correlations between continuous variables are Pearson's coefficients, correlations between continuous and dichotomous variables are biserial coefficients, and correlations between dichotomous variables are tetrachoric coefficients ( $n = 1,173$ ).

\* $p < .05$ ; \*\* $p < .01$  (two-tailed test).

The analyses begin by examining bivariate correlations between the adult social ties and the dependent variables using the victim subsample. As seen in Table 4.7, attachments to parents, job satisfaction, marriage, and attachments to children are negatively related to most of the adverse outcomes in adulthood. In addition, many of the correlations between social ties and the dependent variables are larger in magnitude than they were in early adulthood. Marriage, for instance, is strongly related to risky sexual behavior ( $r = -.40$ ), violent offending ( $r = -.35$ ), and hard drug use ( $r = -.25$ ). Bivariate

correlations for job satisfaction are also stronger than in early adulthood, particularly with respect to suicide ideation ( $r = -.26$ ), depression ( $r = -.25$ ), and property offending ( $r = -.25$ ). Unlike the relationships observed in Chapter 3, at least one form of adult social tie is related to each outcome at the bivariate level. While it seems as though social ties are playing a more important role for victims in adulthood, further analysis in a multivariate context is warranted.

### **Sample Selection Bias**

Once again, focusing on a subsample of victims requires that measures be taken to guard against sample selection bias (Berk, 1983; Kirk, 2011; Puhani, 2000). Following the same strategy detailed in Chapters 2 and 3, data are analyzed using a series of multivariate selection models that jointly estimate a probit model for selection into the subsample ( $N = 14,130$ ) with a second stage model using only the subsample of victims ( $n = 1,173$ ).<sup>33</sup> To reduce the correlations between first- and second-stage error terms (Bushway et al., 2007; Lennox et al., 2011), six exclusion restrictions were identified at Wave IV (a minimum of two per dependent variable), and these can be seen in Table 4.8.

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<sup>33</sup> FIML models were estimated for ordinal variables (i.e., poor self-rated health), Poisson models with sample selection were estimated for discrete count variables (i.e., depression, violent offending, property offending, and alcohol problems), and probit models with sample selection were estimated for dichotomous variables (e.g., suicide ideation, suicide attempt, marijuana use, hard drug use, risky sexual behavior, and STI diagnosis). Variance inflation factors and condition index values revealed no problems with collinearity in the models presented in Tables 4.9 to 4.13.

Table 4.8  
*Summary Statistics for Exclusion Restrictions in Adulthood*

Exclusion Restrictions	Mean (SD) or %	Range
Walk for exercise	33.08%	0 – 1
Gambled for money	72.84%	0 – 1
Work 10 hours per week	64.94%	0 – 1
Served in military reserves	7.08%	0 – 1
Feel less intelligent than others	3.91%	0 – 1
Disinterested in others' problems	1.42 (0.95)	0 – 4

*Note.*  $N = 14,130$ .

These exclusion restrictions are both statistically and theoretically appropriate. For example, adults who work at least 10 hours a week are less likely to be victimized, possibly because they spend a greater amount of their time in structured activities or in the presence of others who can serve as capable guardians (Felson & Boba, 2010). Working a minimum of 10 hours a week, however, is unrelated to violent offending, property offending, hard drug use, risky sexual behavior, STI diagnosis, and poor self-rated health. Given the broader literature on adult social ties, this finding is not terribly surprising (Simons et al., 2002; Wadsworth, 2006). Although being employed can carry many benefits for adults, not everyone enjoys their job. Working at a place where coworkers are rude, or where you feel overworked, unappreciated, and underpaid, can undermine the positive benefits of being employed (Maslach et al., 2001). Someone can be employed without being invested in a career or forming positive social ties to the workplace. Bivariate correlations confirmed that all exclusion restrictions were significant correlates of victimization, but weak or inconsistent correlates of the dependent variables (see Appendix J for more information).

Table 4.9

*Stage One Probit Model Estimating Selection into the Subsample of Victims*

Variables	Victimization		
	<i>b</i>	(SE)	<i>z</i>
Prior victimization	.27	(.07)	3.64**
Low self-control	.03	(.01)	3.22**
PVT score	-.02	(.03)	-.95
Financial hardship	.33	(.09)	3.76**
College graduate	-.15	(.08)	-1.88
Male	.26	(.07)	3.91**
Age	-.02	(.02)	-1.15
Black	.31	(.08)	3.76**
Hispanic	.01	(.20)	.07
Native American	.15	(.24)	.63
Other racial minority	.09	(.20)	.45
Walk for exercise	.08	(.04)	2.02*
Gambled for money	.14	(.07)	2.14*
Work 10 hours per week	-.07	(.04)	-2.05*
Served in military reserves	.25	(.06)	3.82**
Feel less intelligent than others	.16	(.07)	2.23*
Disinterested in others' problems	-.02	(.02)	-.97
Constant	-1.66	(.23)	-7.21**
Model <i>F</i> -test		11.56**	

*Note.* Entries are unstandardized partial regression coefficients (*b*), clustered robust standard errors in parentheses, and *z*-tests (*N* = 14,130).

\**p* < .05; \*\**p* < .01 (two-tailed test).

The stage one probit model for selection into the victim subsample is seen in Table 4.9. As seen here, all control variables are included in the regression model alongside exclusion restrictions. A statistically significant model *F*-test indicates that this model fits the data well. Five of the six exclusion restrictions were significantly related to being victimized in adulthood at the *p* < .05 level.



## Models of Social Ties and Adult Outcomes

To determine whether adult social ties serve protective functions for victims, a series of regression models are estimated in Tables 4.10 to 4.13.<sup>34</sup> In contrast to early adulthood (Chapter 3), the results presented here indicate that social ties play important roles. Of the four social ties examined during this stage in the life course—attachment to parents, job satisfaction, marriage, and attachment to children—marriage appears to be the most salient protective factor in that it is negatively related to depression (Table 4.10), violent offending (Table 4.11), property offending (Table 4.11), marijuana use (Table 4.12), hard drug use (Table 4.12), and risky sexual behavior (Table 4.13) among adult victims. Recall that in Chapter 3, being married was generally not protective for victims, and it was only shown to decrease marijuana use. Job satisfaction, which was unrelated to all of the outcomes in Chapter 3, also seems to matter more during this stage in the life course, in that it is inversely related to depression (Table 4.11) and property offending (4.12) among adult victims.

Much like in early adulthood, attachment to parents remains an important social tie for adult victims of violence. In particular, attachment to parents is negatively related to depression (Table 4.10), suicide ideation (Table 4.10), property offending (Table 4.11), risky sexual behavior (Table 4.12), and poor self-rated health (Table 4.13) among adult victims. With the exception of the effects on property offending in adulthood, these significant relationships mirror those presented in Chapter 3 (see Tables 3.10 to 3.13).

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<sup>34</sup> Likelihood ratio tests for sample selection bias are statistically significant only in models predicting suicide ideation (Table 4.10), attempted suicide (Table 4.10), violent offending (Table 4.11), marijuana use (Table 4.12), and poor self-rated health (Table 4.13), suggesting that selection bias is not a problem in most models. Still, in keeping with the analytic strategy described in Chapters 2 and 3, selection models are estimated for all outcomes to ensure that the findings are as efficient and reliable as possible (Bushway et al., 2007; Puhani, 2000).

Table 4.10  
*Effects of Social Ties on Psychological Outcomes among Victims in Adulthood*

Variables	Depression <sup>a</sup>			Suicide ideation <sup>c</sup>			Suicide attempt <sup>c</sup>		
	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>
Attachment to parents	-.06	(.01)	-4.32**	-.06	(.02)	-2.67**	-.03	(.02)	-1.58
Job satisfaction	-.24	(.04)	-6.11**	-.11	(.08)	-1.41	-.02	(.07)	-.22
Marriage	-.10	(.04)	-2.41*	-.09	(.08)	-1.09	-.05	(.06)	-.80
Attachment to children	-.03	(.01)	-1.86	-.03	(.02)	-1.31	-.03	(.02)	-1.38
Prior victimization	.04	(.05)	.69	-.01	(.09)	-.06	-.03	(.09)	-.33
Low self-control	.05	(.01)	6.49**	.02	(.02)	.94	.01	(.02)	.58
PVT score	-.02	(.02)	-1.53	.06	(.03)	1.73	.01	(.03)	.29
Financial hardship	.22	(.05)	4.71**	.08	(.08)	.96	-.06	(.08)	-.75
College graduate	-.05	(.05)	-1.02	.01	(.09)	.05	-.18	(.17)	-1.07
Male	-.21	(.04)	-4.87**	-.06	(.08)	-.74	-.09	(.07)	-1.23
Age	.01	(.01)	.97	.01	(.02)	.33	-.01	(.02)	-.53
Black	-.02	(.07)	-.24	-.33	(.09)	-3.78**	-.35	(.09)	-3.86**
Hispanic	.03	(.08)	.41	-.20	(.19)	-1.03	-.64	(.27)	-2.42*
Native American	-.08	(.10)	-.83	.10	(.16)	.61	-2.07	(.79)	-2.61**
Other racial minority	.07	(.08)	.94	-.28	(.19)	-1.51	-.16	(.16)	-.98
Constant	1.60	(.37)	4.31**	-.17	(.89)	-.19	.75	(.70)	1.07
Rho		-.37			-.58			-.65	
Likelihood ratio $\chi^2$		.45			7.39**			14.31**	

*Note.* Entries are unstandardized partial regression coefficients (*b*), clustered robust standard errors in parentheses, and *z*-tests (*n* = 1,173). Stage-one probit models predicting selection into the subsample of victims not shown here (see Table 4.9).

<sup>a</sup> Poisson model with sample selection.

<sup>b</sup> FIML model with sample selection.

<sup>c</sup> Probit model with sample selection.

\**p* < .05; \*\* *p* < .01 (two-tailed test).

Table 4.11  
*Effects of Social Ties on Offending among Victims in Adulthood*

Variables	Violent offending <sup>a</sup>			Property offending <sup>a</sup>		
	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>
Attachment to parents	-.07	(.05)	-1.45	-.11	(.05)	-2.03*
Job satisfaction	-.21	(.19)	-1.07	-.59	(.21)	-2.75**
Marriage	-.56	(.22)	-2.54*	-.58	(.28)	-2.10*
Attachment to children	-.03	(.06)	-.49	-.07	(.07)	-.93
Prior victimization	.62	(.19)	3.23**	.85	(.28)	3.04**
Low self-control	.09	(.03)	2.71**	.21	(.04)	4.78**
PVT score	.05	(.07)	.72	.20	(.09)	2.37*
Financial hardship	.53	(.18)	3.00**	.83	(.18)	4.71**
College graduate	-.75	(.24)	-3.18**	-.55	(.34)	-1.64
Male	1.16	(.19)	5.98**	.65	(.24)	2.70**
Age	-.07	(.04)	-1.80	-.07	(.06)	-1.10
Black	.25	(.28)	.91	.83	(.40)	2.06*
Hispanic	.23	(.44)	.53	1.03	(.62)	1.67
Native American	.92	(.28)	3.28**	.26	(.44)	.58
Other racial minority	-.53	(.26)	-2.06*	-.27	(.42)	-.65
Constant	-3.70	(1.50)	-2.46*	-9.47	(2.18)	-4.33**
Rho		.62			.56	
Likelihood ratio $\chi^2$		4.01*			3.03	

*Note.* Entries are unstandardized partial regression coefficients (*b*), clustered robust standard errors in parentheses, and *z*-tests (*n* = 1,173). Stage-one probit models predicting selection into the subsample of victims not shown here (see Table 4.9).

<sup>a</sup> Poisson model with sample selection.

\**p* < .05; \*\* *p* < .01 (two-tailed test).

Table 4.12  
*Effects of Social Ties on Risky Behavioral Outcomes among Victims in Adulthood*

Variables	Alcohol problems <sup>a</sup>		Marijuana use <sup>b</sup>		Hard drug use <sup>b</sup>		Risky sexual behavior <sup>b</sup>	
	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)
Attachment to parents	-.02	(.03)	-.51	-.01	(.01)	-.95	-.04	(.03)
Job satisfaction	-.17	(.12)	-1.43	-.05	(.06)	-.80	-.05	(.10)
Marriage	-.26	(.14)	-1.88	-.15	(.06)	-2.45*	-.32	(.11)
Attachment to children	-.07	(.03)	-2.01*	-.03	(.01)	-1.79	-.03	(.03)
Prior victimization	.41	(.14)	3.05**	.22	(.06)	3.63**	.18	(.14)
Low self-control	.11	(.02)	4.86**	.04	(.01)	5.64**	.05	(.02)
PVT score	.32	(.05)	6.82**	.06	(.03)	2.13*	.03	(.04)
Financial hardship	.48	(.12)	4.00**	.26	(.07)	3.87**	.34	(.13)
College graduate	-.14	(.14)	-1.01	-.25	(.08)	-3.05**	-.28	(.15)
Male	.46	(.13)	3.49**	.23	(.06)	3.99**	.19	(.11)
Age	.01	(.04)	.25	-.01	(.02)	-.88	-.01	(.03)
Black	-.41	(.21)	-2.00	.15	(.09)	1.74	-.58	(.28)
Hispanic	-.48	(.28)	-1.70	-.25	(.15)	-1.68	-.08	(.19)
Native American	.71	(.46)	1.56	-.11	(.15)	-.72	.04	(.24)
Other racial minority	-.53	(.33)	-1.59	.23	(.12)	1.92	-.06	(.22)
Constant	-6.73	(1.24)	-5.44**	-3.17	(.42)	-7.53**	-2.59	(1.20)
Rho	.49			.59			.47	
Likelihood ratio $\chi^2$		3.35			10.13**			.01
								2.52

*Note.* Entries are unstandardized partial regression coefficients (*b*), clustered robust standard errors in parentheses, and *z*-tests ( $n = 1,173$ ). Stage-one probit models predicting selection into the subsample of victims not shown here (see Table 4.9).

<sup>a</sup> Poisson model with sample selection.

<sup>b</sup> Probit model with sample selection.

\* $p < .05$ ; \*\*  $p < .01$  (two-tailed test).

Table 4.13  
*Effects of Social Ties on Health Outcomes among Victims in Adulthood*

Variables	STI diagnosis <sup>a</sup>			Poor self-rated health <sup>b</sup>		
	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>
Attachment to parents	-.05	(.03)	-1.56	-.04	(.01)	-3.07**
Job satisfaction	.01	(.11)	.07	-.18	(.05)	-3.66**
Marriage	-.36	(.16)	-2.22*	-.03	(.05)	-.60
Attachment to children	-.01	(.03)	-.20	-.01	(.02)	-.61
Prior victimization	.02	(.26)	.09	.11	(.07)	1.54
Low self-control	.03	(.04)	.95	.06	(.01)	6.26**
PVT score	-.01	(.05)	-.12	-.02	(.02)	-1.05
Financial hardship	.36	(.11)	3.24**	.39	(.07)	5.60**
College graduate	.11	(.18)	.61	-.30	(.08)	-3.95**
Male	-.45	(.18)	-2.56*	-.10	(.06)	-1.60
Age	-.02	(.04)	-.39	.03	(.02)	1.61
Black	.20	(.32)	.63	.25	(.09)	2.84**
Hispanic	.22	(.19)	1.18	.21	(.15)	1.44
Native American	.44	(.36)	1.23	.08	(.15)	.55
Other racial minority	.08	(.27)	.31	.27	(.13)	2.00*
Constant	-1.40	(3.32)	-.42	-1.32	(.46)	-2.85**
Rho		.18			.63	
Likelihood ratio $\chi^2$		.01			7.10**	

*Note.* Entries are unstandardized partial regression coefficients (*b*), clustered robust standard errors in parentheses, and *z*-tests (*n* = 1,173). Stage-one probit models predicting selection into the subsample of victims not shown here (see Table 4.9).

<sup>a</sup> Probit model with sample selection.

<sup>b</sup> FIML model with sample selection.

\**p* < .05; \*\* *p* < .01 (two-tailed test).

Attachment to children seems to be the least salient social tie examined here, and is only associated with lower alcohol problems for victims of violence (Table 4.12). Still, with the exception of suicide attempts, at least one form of social tie is negatively related to every outcome assessed among adult victims. This pattern mirrors rather closely the findings observed during adolescence (Chapter 2). Relative to early adults, those in adulthood have likely have spent greater time cultivating and strengthening their social ties, and thus these ties serve more protective functions.

### **Supplemental Analyses**

In order to determine whether the results presented here are both reliable and stable, several additional models are estimated. Unlike in previous waves of the data, Wave IV captures relatively detailed information from all respondents on the quality of their romantic relationships. To ensure that the findings presented here were not an artifact of using marriage as a social tie, a series of additional models were estimated that replaced marriage with an indicator of *attachment to partner*. This measure was a three item variety score that assessed whether respondents were committed to their relationship, happy in their relationship, and loved their partner a lot (range 0 – 3).<sup>35</sup>

As seen in Appendix K, attachment to partner operated largely the same as marriage, where it reduced depression (Table K1), violent offending (Table K2), property offending (Table K2), marijuana use (Table K3), hard drug use (Table K3), risky sexual behavior (Table K3), and the likelihood of STI diagnosis (Table K4). Unlike marriage, however, attachment to partner was also negatively related to suicide ideation (Table K1), suggesting that being in a committed romantic relationship—but not necessarily being

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<sup>35</sup> Respondents who were not currently in romantic relationships (20.9%) were coded as “0.”

married—is associated with a lower likelihood of having suicidal thoughts for victims of violence.

Next, just as in Chapters 2 and 3, successions of models were estimated that controlled for additional forms of stress and lifestyle factors. These included having ever been divorced, having ever been fired, the number of jobs had in the past five years, experiencing the death of a parent, the amount of time per week spent caring for a child, and the number of hours spent at work per week. Regardless of whether various combinations of these variables were included in the models, the pattern of findings remained the same—at least one form of social tie was negatively related to each outcome (with the exception of attempted suicide).<sup>36</sup> Altogether, these results indicate that social ties once again play an important role for victims of violence in adulthood. Although some social ties were related to more of the outcomes than others (e.g., marriage), it is clear that victims who are close to their parents, who have a satisfying job, who are married, and who are attached to their children are less likely to experience negative life outcomes.

## **Conclusions**

As the results show, the consequences of victimization continue to narrow into adulthood. Relative to adolescence and early adulthood, adult victimization was related to a more limited range of negative outcomes. These included attempted suicide, violent

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<sup>36</sup> Due to the small number of female victims of violence in adulthood, the data could not accommodate estimating models separately for male and female victims using the covariates described previously. Due to limited variation in key variables, models would have to be estimated without controls for race/ethnicity (i.e., Hispanic, Native American, and other racial minority), college graduate, and the key social tie of job satisfaction. Without these variables in the models, the results are less reliable and difficult to compare with those in Tables 4.10 to 4.13. Despite this shortcoming, the supplemental analyses described above should instill confidence that the pattern of findings is stable.

offending, hard drug use, risky sexual behavior, and STI diagnosis. Unlike in previous stages of the life course, depression, suicide ideation, property offending, and marijuana use were not linked to victimization in adulthood. Notably, across the three stages of the life course examined, violent offending and hard drug use were the only two outcomes consistently related to being victimized.

In addition, the results showed that social ties matter for the well-being of adult victims. By the time they reach their thirties, most adults have had time to strengthen their social ties and to develop deeper stakes in conformity. Here, at least one form of social tie—attachment to parents, job satisfaction, marriage, and attachment to children—was related to each of the negative outcomes in adulthood, with the notable exception of attempted suicide. Because adult victims of violence (males in particular) are more likely to attempt suicide, it is important to identify additional protective factors against this problem that could not be assessed here. Such factors may include civic engagement, attachment to peers, and attachments to siblings or other family members.

Attention now turns to the final chapter where I revisit the research questions, summarize the key findings from Chapters 2-4, discuss their implications, and provide suggestions for next steps in this line of work.



## CHAPTER 5

### DISCUSSION

The term “criminology” used to be one that had broad meaning. Dating back nearly 100 years, criminology was intended to encompass the study of the causes of crime as well as the institutional responses to it (Pratt & Turanovic, 2012). Indeed, Sutherland’s (1924) *Criminology* was remarkably all-encompassing. It covered everything from victimization and the causes of crime, to the police system, pretrial detention, and the courts, to juvenile justice, prisons, probation, and parole, to philosophy and ethics of punishment, and even the prevention of crime. In this work, Sutherland also recognized the importance of parenting, he noted the association between psychopathy and crime, and he even provided hints about the relationship between biological factors and delinquency. In short, in the early days, criminology was unapologetically interdisciplinary, borrowing concepts from economics, political science, philosophy, anthropology, psychology, law, and sociology.

But things did not stay that way. What became thought of as “criminology” narrowed considerably over time. It started with the Sutherland-Glueck debate, which was Sutherland’s successful attack on the interdisciplinary research on criminal careers by Sheldon and Eleanor Glueck (Laub, 2004, 2006; Laub & Sampson, 1991).<sup>37</sup> In their works, the Gluecks focused on the family, school, peers, personality development, temperament, body structure, and formal sanctions (e.g., arrest and prison), and they paid close attention to issues of aging and maturational reform. They rejected the idea of unilateral causation—whether biological, sociological, or psychological in nature—and

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<sup>37</sup> This debate took place largely during the 1930s and 1940s, and Sutherland critiqued a wide range of the Gluecks’ works (1937, 1940, 1943, 1945). For more details, see Laub and Sampson (1991).

“refused to pigeonhole their interpretations into any one disciplinary box” (Laub & Sampson, 1991, p. 1410).

Sutherland took issue with this kind of work. Despite little evidence of this stance in his early writings, by the late 1930s Sutherland became “vehemently antipsychiatry” (Laub & Sampson, 1991, p. 1412). As he rose to prominence within the field of sociology, he began to view crime as a strictly social phenomenon that could *only* be explained by social factors (Gottfredson & Hirschi, 1990; Laub & Sampson, 1991). The Gluecks’ focus on individual-level correlates of crime, like age and personality traits, clearly did not fit within Sutherland’s brand of sociological theorizing. Laub (2004, p. 11) captured this well, stating:

“For Sutherland, the Gluecks’ multiple-factor approach to crime represented a symbolic threat to the intellectual status of sociological criminology, and his attack served the larger interests of sociology in establishing proprietary rights to criminology.”

Accordingly, the study of the causes of crime became confined to particular sources. This resulted in a sociological stranglehold over criminology that lasted for decades.

Things changed again in the 1960s with the President’s Commission on Law Enforcement and Administration of Justice, along with the creation of institutions like the Law Enforcement Assistance Administration. With this new emphasis on the administration of justice, the once inseparable study of the causes of crime and the institutional responses to crime entered into a socially constructed divorce into the fields

of criminology and criminal justice—a separation that remains strongly enforced to this day (Clear, 2001; Hemmens & Clear, 2013; Steinmetz et al., 2014).<sup>38</sup>

The field of criminology has become further narrowed, and yet ironically more fragmented at the same time, with increased substantive specialization in recent decades (Laub, 2006). We now have specialty areas, specialty journals, and special divisions within the American Society of Criminology and the Academy of Criminal Justice Sciences. These subgroups encompass policing, corrections and sentencing, critical criminology, women and crime, victimology, life course criminology, experimental criminology, international criminology, and crime prevention. On the one hand, this specialization can be beneficial, in that it provides us with a certain depth of knowledge within each of these substantive areas. But with this greater depth comes a cost: the inability to see linkages between/across these different specialty areas.

The study of victimization is a prime example of this problem. With some scattered exceptions (e.g., von Hentig, 1948; Mendelsohn, 1956; Wolfgang, 1958), victimization research was not really taken seriously until the late 1970s. And once it was, criminologists confined themselves almost exclusively to focusing on a single issue within the victimization literature: identifying the *causes* of victimization. As a result, we have certainly learned a lot about the precursors to victimization over the years, particularly with respect to the types of ecological factors, personality traits, and risky

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<sup>38</sup> One needs to look no further than the division between the American Society of Criminology (ASC) and the Academy of Criminal Justice Sciences (ACJS). Although there is a great deal of overlap in membership between the two divisions, ASC tends to be more closely associated with those who study the causes of crime, and ACJS with those who gear their work toward criminal justice practitioners (Hemmens & Clear, 2013).

lifestyles that enhance one's risk of being victimized (Hindelang et al., 1978; Schreck, 1999; Sampson & Wooldredge, 1987).

But yet, understanding the *consequences* of victimization requires busting out of what is now considered to be “criminology.” To be sure, if we wanted to learn about the adverse outcomes associated with victimization, we would not get too far by limiting our reading to the mainstream criminological literature. Instead, we currently need to look outside of the criminological canon into the work done within developmental psychology, social psychology, sociology, public health, social work, and gender studies (e.g., Campbell, 2002; Finkelhor, 2008; Macmillan, 2001). This is not necessarily a bad thing. The work that seems to move ideas forward in larger steps—indeed, those that go beyond merely placing another brick on the wall of cumulative knowledge—are those that cut across disciplinary boundaries (e.g., Agnew, 1992; Moffitt, 1993; Laub & Sampson, 2003; Sampson, Raudenbush, & Earls, 1997). Criminology, and certainly victimization research, may be best served by an interdisciplinary approach (Abbott, 2001; Laub, 2006).

Inspired—and certainly humbled—by the risks taken by these works, and with a respectful eye turned toward the early days of criminology when the intellectual tent was large and inclusive, the approach taken in this dissertation was one that cared little for the boundaries imposed by any given academic field. Instead, from the very beginning a core intention was to welcome the insights provided by scholars working across a wide range of behavioral sciences. Armed with that mindset, the objective of this dissertation was to use data from three distinct periods in the life course to examine two primary research questions through a decidedly interdisciplinary lens: 1) are the consequences of

victimization age-graded? And 2) are the effects of social ties in mitigating the consequences of victimization age-graded? The broader purpose of asking and answering these questions was to shine a brighter light on the conditions under which victimization does—or does not—lead to a wide array of harms as people live their lives through time. Accordingly, the remainder of this chapter discusses the key findings regarding these questions, their core implications, the next steps for future research in this area, and some final thoughts about victimization and its consequences over the life course.

### **Summary of Key Findings**

With respect to the first research question—are the consequences of victimization age-graded—the answer is a resounding “yes.” This can be seen in two observed patterns in the results. First, there is a wide array of adverse outcomes associated with victimization in adolescence, yet victimization becomes linked to fewer and fewer of these outcomes as people move into emerging adulthood and ultimately into adulthood (see Table 5.1). The explanation for this finding likely lies in how coping skills develop with age. Part of that development can be attributed to neurocognitive changes associated with aging. In particular, as people move into adulthood, their executive functioning increases, they become better at regulating their emotions, and their self-control is enhanced (Pratt, 2015; Roberts, Wood, & Caspi, 2008; Smith et al., 2013). For instance, the prefrontal cortex—the part of the brain responsible for decision making, emotional regulation, and inhibitory responses—continues to develop until people are at least 20 years old (Giedd, 2004; Romer, 2010). So while most adolescents can conceptually understand the risks associated with their behaviors by age 14, the inhibitory mechanisms required to resist those risky behaviors are not equivalent to that of adults until around

age 20 (Giedd, 2004; Pharo et al., 2011). It is thus likely that young people are more likely to cope with victimization in problematic ways (Agnew, 2006; Hay & Evans, 2006; Turanovic & Pratt, 2013). Another reason that the consequences of victimization narrow into adulthood could also involve the development and cultivation of supportive coping resources over time (more on this below).

Table 5.1  
*Summary of Findings: Effects of Victimization on Negative Life Outcomes*

Outcomes	Adolescent Victimization (Tables 2.3-2.6)	Early Adult Victimization (Tables 3.3-3.6)	Adult Victimization (Tables 4.3-4.6)
<u>Psychological Outcomes</u>			
Depression	✓	✓	
Low self-esteem	✓		n/a
Suicide ideation	✓	✓	
Suicide attempt	✓		✓
<u>Behavioral Outcomes</u>			
Violent offending	✓	✓	✓
Property offending	✓	✓	
Alcohol problems	✓		
Marijuana use	✓	✓	
Hard drug use	✓	✓	✓
Risky sexual behavior	n/a	✓	✓
<u>Health Outcomes</u>			
Poor self-rated health	✓		
Somatic complaints	✓	n/a	n/a
STI diagnosis	n/a		✓

*Note.* Information on the statistically significant effects of victimization is drawn from Tables 2.3-2.6, 3.3-3.6, and 4.3-4.6.

✓ = effect of victimization on the outcome is statistically significant ( $p < .05$ ).

n/a = outcome not included in the analysis.

The second observed pattern is that, although the problems related to victimization become fewer in number over the life course, they remain quite serious.

Recall that in adulthood, being violently victimized was associated with increases in attempted suicide, violent offending, hard drug use, risky sexual behavior, and STI diagnosis (see Table 5.1). Also recall that violent offending and hard drug use were related to victimization across all three stages of the life course examined. Thus, I would caution against making inferences that victimization somehow becomes less severe over time, or that people become increasingly resilient to victimization as they approach their thirties.<sup>39</sup> Not all adverse outcomes are created equal—just because victimization is linked to a fewer number consequences over the life course may not negate the fact that it is still related to several serious harms.

With respect to the second research question—whether the effects of social ties mitigate the harms associated with victimization—that answer is also clearly a “yes.” The pattern observed in the results is that social ties tend to play a prominent role in buffering the harms associated with victimization during adolescence and adulthood, but not so much in emerging adulthood (see Table 5.2). Why might this be the case? The explanation likely lies in the changing nature of social ties as people age. During adolescence, social ties (e.g., to family and to school) are largely provided to you, and if you receive quality ones you can consider yourself fortunate—those with strong ties benefit greatly in host of ways (Gore & Aseltine, 1995; Jackson, 1992; Maume, 2013; Patterson, 1982; Thoits, 1995). Strong ties to parents, school, and friends can provide

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<sup>39</sup> The notion of resilience is a complicated one, in part because a universally agreed-upon definition does not exist in the literature. For some, resiliency means the ability to withstand bad things happening to you without experiencing devastating outcomes (Davis, 2014). For others, resiliency can mean performing better than expected given your exposure to risks, trauma, or stress (Beathea et al., 2014). And others have argued that resilience can only be assessed across multiple domains of functioning and across time (McGloin & Widom, 2001).

supportive coping resources (Agnew, 2006), and can also serve as important sources of restraint that prevent victims from adversely reacting to their experiences (Hirschi, 1969).

Table 5.2  
*Summary of Findings: Effects of Social Ties on Negative Outcomes among Victims*

Outcomes	Adolescent Social Ties (Tables 2.10-2.13)	Early Adult Social Ties (Tables 3.10-3.13)	Adult Social Ties (Tables 4.10-4.13)
<u>Psychological Outcomes</u>			
Depression	✓		✓
Low self-esteem	✓	✓	n/a
Suicide ideation	✓		
Suicide attempt	✓		✓
<u>Behavioral Outcomes</u>			
Violent offending	✓		✓
Property offending	✓		✓
Alcohol problems	✓		✓
Marijuana use	✓	✓	✓
Hard drug use	✓		✓
Risky sexual behavior	n/a	✓	✓
<u>Health Outcomes</u>			
Poor self-rated health	✓	✓	✓
Somatic complaints	✓	n/a	n/a
STI diagnosis	n/a		✓

*Note.* Information on the statistically significant effects of social ties is drawn from Tables 2.10-2.13, 3.10-3.13, and 4.10-4.13.

✓ = the effect of at least one form of social tie is statistically significant ( $p < .05$ ).

n/a = outcome not included in the analysis.

During emerging adulthood, social ties appear to be in a state of transition—a transition that entails what Arnett (2007b, p. 208) referred to as moving “from socialization to self-socialization.” This is a period in which people are in the process of growing out of one set of social ties and into a set of new ones. Even if new adult social ties are formed during this stage—such as to marriage and to a job—they are likely to be



too new to provide the same kinds of benefits as the ones that are being left behind. In contrast, by the time people reach their thirties, adult social ties (e.g., to a spouse, to the workplace, or to children) have had more time to become entrenched. Such ties are likely protective for victims in adulthood because they serve as sources of social control structure routine activities in conventional ways, and promote socializing with prosocial peers (Sampson et al., 2006; Siennick & Osgood, 2008; Warr, 2002).

A final key finding from the data does not concern what was found, but rather what was not. In particular, the life course does not end with Wave IV of Add Health. People still have interesting and important life experiences well after their thirtieth birthday—experiences that may profoundly shape how they cope with and respond to being victimized. Accordingly, research aimed at assessing whether the patterns observed here extend into the later stages of adulthood is still critical. This will be a challenge for criminology, a discipline that historically not taken adulthood very seriously (Cullen, 2011).

### **Implications of Key Findings**

Having summarized the key findings, the question remains—what does all of this mean collectively? This section addresses the core implications of this study and its results for theory, research, and public policy concerning victimization.

In terms of theoretical implications, there is need to develop an interdisciplinary, unified theory of victimization and its consequences. This has not yet been done, in part because the victimization literature is so fragmented across academic disciplines that conceptualize victimization in a number of different ways. For example, within developmental psychology, scholars focus almost exclusively on childhood victimization,

which they consider to be a singular, life-defining event (Cicchetti & Toth, 2005). Children's experiences with violence are thought to be unique from other forms of maltreatment, and these experiences are thought to profoundly shape their developmental trajectories (Appleyard et al., 2005; Finkelhor, 2008). In the social psychology and stress literatures, however, victimization is treated much like any other external stressor. It is not seen as terribly unique from other forms of acute strain, and it is often lumped into a single measure of stress along with other negative life experiences (Kobasa, 1979)—things like having money troubles, getting fired, experiencing a breakup, or experiencing the death of someone close (including a pet) (see, e.g., Jang & Johnson, 2003). The treatment of victimization within criminology is also unique from other disciplines in that victimization is often viewed as the product of being involved in deviant and criminal behaviors, particularly during adolescence (Lauritsen et al., 1991; Lauritsen & Laub, 2007).

What is important to recognize here is that victimization can be all of these things: a highly traumatic life event, a source of acute stress, and something closely linked to risky behaviors. The daunting—and yet critically important—task at hand will be to cover this full body of literature and extract general patterns and principles that can guide future work on the consequences of victimization.

In terms of research implications, this study illustrates the importance of two key issues moving forward. First, future research should specify and measure directly the intervening mechanisms that are assumed to explain the link between victimization and its consequences. Gone are the days of correlating victimization with some outcome, controlling for a perfunctory set of generic covariates, and taking a significant

“victimization effect” as evidence that whatever speculated (yet unmeasured) causal process specified is, in fact, responsible for that relationship. This strategy, which leaves much to be desired, has been the norm in victimization research for decades. By specifying and measuring directly intervening processes, we can better explain variation in victims’ experiences and identify the factors that promote well-being.

The second implication for research is that victimization and its consequences are worthy of study their own right, not just in their relationship to offending. In recent years, criminologists have devoted a great deal of attention toward the study of the victim-offender overlap, with prominent scholars claiming that victimization and offending are so intertwined that they cannot be fully understood apart from one another (see, e.g., Berg et al., 2012; Lauritsen & Laub, 2007). While there is certainly a strong correlation between victimization and offending, crime is only one of many potential outcomes stemming from victimization. As an involuntary, unjust event, victimization carries many behavioral, social, psychological, and health-related harms that likely extend well-beyond the crime-prone years. We have barely begun to understand the processes by which victimization leads to negative consequences, how these consequences change over time, and the factors that explain why some victims are more vulnerable to experiencing particular harms over others.

The key policy implication from this study concerns appropriate support interventions for victimization of violence. In particular, victim support services need to be flexible enough to address the multiple problems faced by victims of violence at multiple stages of the life course. Interventions that are tailored narrowly to address only one or two problems that victims face, such as depression and low self-esteem, for

instance, will likely do little to mitigate victims' use of hard drugs, risky sexual behaviors, acts of violence, or suicide ideation. In addition, since the consequences of victimization are age-graded, support interventions need to be as well. Interventions must be sensitive to the importance of social ties in the lives of victims, and recognize particular stages in development (i.e., emerging adulthood) when these ties are lacking.

It is recognized, however, that attachments to parents, school, the workplace, and to a spouse are often dependent upon a complex set of social processes at the individual, familial, institutional, and community levels. Some of these processes are supportive and beneficial (e.g., high levels of parental efficacy, communities that strongly support their schools and children, and high levels of civic engagement), and others are more problematic (e.g., family disruption due to divorce or parental incarceration, high rates of school and community violence, teacher turnover, and limited job prospects). The fact that these processes are fundamentally intertwined highlights the importance of linking victim services within the criminal justice system to those provided by social service agencies, educational institutions, and health care professionals.

While the notion of "strengthening social ties" may not be one that is easily translated into specific program initiatives, recognizing that there is considerable variation in how victims fare according to their levels of social support is important. In an era of strapped budgets and dwindling resources, it is important to target victim intervention efforts on those who need it most. Victim advocates could thus play an important role by paying explicit attention to the factors that indicate victims are at risk for various problems during particular stages of the life course. The need for strong social

ties could be facilitated and remedied by referring victims to group-based interventions and community services that can foster prosocial connections.

### **Next Steps**

As this body of literature moves forward, I would hope that the research presented here sparks much additional scholarly debate and empirical research. And in the process, I see three questions as arguably the most critical. The first question is: Does victimization carry cumulative harms across different stages of the life course? While the current study examined the associations between victimization and various outcomes *within* particular stages of the life course, the important next step is to examine whether victimization at one point in time affects outcomes later on. Those who experience multiple victimizations and hardships may erode their social support resources over time, and people who are victimized when young may lack the ability to form prosocial ties later in life (Macmillan, 2001). A number of studies find that the support networks of people who have mental health difficulties, substance abuse and behavioral problems, and who are in poor physical health tend to be composed of relatively few, simple, nonreciprocal relationships predominantly with family members (Vaux, 1988; Lin, 1999; 2002). It is thus possible that victims most in need of social ties are those least likely to have access to them.

The second important question for future research is: What are the conditions under which victimization can activate social support? While the large body of victimization research tends to focus on negative or deleterious outcomes stemming from victimization, it is also possible that, for some, victimization can strengthen ties to others in their support network. In times of distress, people may be more likely to elicit support

from loved ones, reach out to friends and coworkers, and receive advice and guidance—processes that may actually strengthen relationships and social ties (even if only temporarily). Of course, given the deleterious consequences associated with victimization, it is clear that distress does not result in support benefits for everyone. It is thus critical to identify the conditions under which and for whom this happens. The idea that distress can trigger the support process is not new, but it is one that seems to have been forgotten over time (see, e.g., Vaux, 1988).

Relatedly, the third question is: What are the conditions under which victimization leads to desistance from crime? Although a great deal of literature indicates that victimization can lead to increases in crime and deviance (e.g., through retaliation; see Berg et al., 2012; Stewart et al., 2006), there is also evidence to suggest that, for some, victimization can lead to the termination of risky lifestyles and desistance from crime. The problem, however, is that we do not have a very good understanding as to why some victimized offenders desist from crime and others do not. For some, victimization can be a negative enough event to mark a turning point for the end of criminal careers (e.g., Baumeister, 1994; Jacques & Wright, 2008). In general, criminologists have not done a very good job of uncovering how *negative* life events can result in *positive* life outcomes—most work, particularly with respect to victimization, focuses on how negative events can lead to even worse outcomes. But it is important to begin examining offenders' varied responses to victimization in this way if we wish to better understand why people desist from crime.

### **Concluding Remarks**

The empirical findings here are of course technically limited to the specifics of the Add Health research design and the measures adapted from the survey. The forms of social ties examined are by no means comprehensive, nor are the forms of victimization assessed representative of the full spectrum of violence. But the key findings of this study should not be dismissed. By focusing on a wide spectrum of problems related to victimization during three distinct stages of the life course, this study represented a necessary first step toward moving victimization research into the realm of developmental criminology. While there is still much more work to be done in this regard, it is vital that victimization scholars start to embrace a developmental perspective that recognizes the importance of both structure and process, and that views victimization and its outcomes through a “developmental network of causal factors” (Loeber & LeBlanc, 1990, p. 433).

In the end, the world is complex. Victimization has complex causes and consequences—causes and consequences that change and evolve as the life course proceeds. Understanding victimization means embracing that complexity, not fighting against it. And understanding victimization is important. It affects the lives of so many in chronic and acute ways, both of which can carry the potential threat of enduring harm. The work presented here was conducted with the hope of making things a little better by bringing some additional understanding to victims’ lives and social ties.

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APPENDIX A

GENDER-SPECIFIC MODELS OF VICTIMIZATION ON ADOLESCENT

OUTCOMES

Table A1  
*Effects of Victimization on Psychological Outcomes among Adolescent Males*

Variables	Depression <sup>a</sup>			Low self-esteem <sup>b</sup>			Suicide ideation <sup>c</sup>			Suicide attempt <sup>c</sup>		
	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>
Victimization	.15	(.02)	6.86**	.20	(.09)	2.25*	.58	(.10)	5.81**	.79	(.23)	3.39**
Low self-control	.05	(.01)	9.04**	.18	(.01)	12.24**	.11	(.01)	8.77**	.10	(.02)	4.02**
PVT score	-.08	(.01)	-10.06**	-.01	(.03)	-.37	.08	(.04)	1.81	.01	(.08)	.05
Low neighborhood integration	.05	(.01)	8.90**	.21	(.03)	7.12**	.15	(.03)	5.10**	.19	(.06)	3.07**
Low parental education	.04	(.04)	.81	.12	(.18)	.69	-.24	(.21)	-1.13	.42	(.34)	1.25
Age	.04	(.01)	6.84**	.12	(.02)	6.18**	.11	(.03)	3.62**	.05	(.05)	1.02
Black	.10	(.03)	3.03**	-.27	(.11)	-2.45*	-.12	(.14)	-.88	-.04	(.26)	-.14
Hispanic	.10	(.04)	2.69**	.52	(.16)	3.17**	-.38	(.21)	-1.82	-1.12	(.51)	-2.20*
Native American	.09	(.06)	1.58	.14	(.21)	.67	-.08	(.31)	-.26	-.58	(.47)	-1.22
Other racial minority	.21	(.04)	5.44**	.63	(.13)	4.94**	.33	(.18)	1.80	.13	(.35)	.38
Constant	2.08	(.24)	8.67**	1.16	(.40)	2.92**	-5.10	(.64)	-8.01**	-5.36	(1.80)	-4.54**
Model <i>F</i> -test	83.80**			66.59**			30.21**			8.10**		

*Note.* Entries are unstandardized partial regression coefficients (*b*), clustered robust standard errors in parentheses, and *z*-tests ( $n = 9,237$ ).

<sup>a</sup> Negative binomial regression model.

<sup>b</sup> OLS regression model.

<sup>c</sup> Logistic regression model.

\* $p < .05$ ; \*\* $p < .01$  (two-tailed test).

Table A2  
*Effects of Victimization on Offending among Adolescent Males*

Variables	Violent offending <sup>a</sup>			Property offending <sup>a</sup>		
	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>
Victimization	1.41	(.06)	18.65**	.71	(.06)	12.61**
Low self-control	.05	(.01)	8.23**	.08	(.01)	14.48**
PVT score	-.03	(.02)	-1.53	.12	(.02)	7.14**
Low neighborhood integration	.02	(.02)	1.18	.02	(.02)	.95
Low parental education	.12	(.10)	1.20	-.04	(.08)	-.45
Age	.01	(.01)	.49	-.03	(.01)	-2.28*
Black	.34	(.07)	4.71**	-.12	(.07)	-1.61
Hispanic	-.10	(.12)	-.85	.08	(.09)	.88
Native American	.32	(.13)	2.41*	.21	(.14)	1.49
Other racial minority	.00	(.10)	.01	.16	(.08)	1.88
Constant	-1.44	(.32)	-4.44**	-1.56	(.32)	-4.93**
Model <i>F</i> -test		104.63**			81.01**	

*Note.* Entries are unstandardized partial regression coefficients (*b*), clustered robust standard errors in parentheses, and *z*-tests (*n* = 9,237).

<sup>a</sup> Negative binomial regression model.

\**p* < .05; \*\* *p* < .01 (two-tailed test).

Table A3  
*Effects of Victimization on Substance Use among Adolescent Males*

Variables	Alcohol problems <sup>a</sup>		Marijuana use <sup>b</sup>		Hard drug use <sup>b</sup>	
	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>
Victimization	.87	(.08)	11.25**	.98	(.11)	8.58**
Low self-control	.10	(.01)	10.83**	.11	(.01)	10.54**
PVT score	.02	(.03)	.65	.06	(.04)	1.68
Low neighborhood integration	.00	(.02)	-.10	.01	(.03)	9.15**
Low parental education	-.06	(.13)	-.49	.28	(.21)	1.37
Age	.38	(.02)	16.34**	.27	(.03)	.18
Black	-.63	(.13)	-4.84**	.19	(.14)	1.38
Hispanic	-.27	(.14)	-2.03*	-.08	(.17)	-.48
Native American	.11	(.17)	.67	.68	(.25)	2.68**
Other racial minority	-.32	(.16)	-1.98*	-.17	(.20)	-.81
Constant	-5.29	(.44)	-12.12**	-7.08	(.61)	-11.59**
Model <i>F</i> -test		55.02**			35.77**	
					16.22**	

*Note.* Entries are unstandardized partial regression coefficients (*b*), clustered robust standard errors in parentheses, and *z*-tests ( $n = 9,237$ ).

<sup>a</sup> Negative binomial regression model.

<sup>b</sup> Logistic regression model.

\* $p < .05$ ; \*\* $p < .01$  (two-tailed test).

Table A4  
*Effects of Victimization on Health Outcomes among Adolescent Males*

Variables	Poor self-rated health <sup>a</sup>			Somatic complaints <sup>b</sup>		
	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>
Victimization	.08	(.03)	2.83**	.15	(.03)	5.09**
Low self-control	.04	(.01)	8.33**	.05	(.01)	10.22**
PVT score	-.04	(.01)	-2.76**	.01	(.01)	1.39
Low neighborhood integration	.05	(.01)	4.11**	.02	(.01)	2.92**
Low parental education	.14	(.07)	2.07*	-.06	(.06)	-.98
Age	-.02	(.08)	-.22	.01	(.01)	1.52
Black	-.06	(.04)	-1.49	-.06	(.04)	-1.57
Hispanic	.03	(.06)	.44	-.01	(.06)	-.12
Native American	.23	(.09)	2.58*	.01	(.06)	.23
Other racial minority	.07	(.06)	1.24	.05	(.05)	.86
Constant	1.32	(.19)	6.91**	1.25	(.15)	8.10**
Model <i>F</i> -test		17.94**			41.34**	

*Note.* Entries are unstandardized partial regression coefficients (*b*), clustered robust standard errors in parentheses, and *z*-tests (*n* = 9,237).

<sup>a</sup> OLS regression model.

<sup>b</sup> Negative binomial regression model.

\**p* < .05; \*\* *p* < .01 (two-tailed test).



Table A5  
*Effects of Victimization on Psychological Outcomes among Adolescent Females*

Variables	Depression <sup>a</sup>			Low self-esteem <sup>b</sup>			Suicide ideation <sup>c</sup>			Suicide attempt <sup>c</sup>		
	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>
Victimization	.16	(.02)	6.79**	.30	(.13)	2.21*	.68	(.15)	4.42**	.99	(.20)	5.06**
Low self-control	.06	(.01)	10.94**	.26	(.01)	13.53**	.12	(.01)	13.42**	.14	(.02)	8.09**
PVT score	-.08	(.01)	-9.20**	-.04	(.03)	-1.32	.03	(.03)	.87	.01	(.05)	.18
Low neighborhood integration	.04	(.01)	8.26**	.16	(.02)	7.14**	.04	(.03)	1.48	.03	(.05)	.65
Low parental education	.10	(.03)	3.93**	.07	(.12)	.67	.12	(.15)	.79	.33	(.22)	1.50
Age	.03	(.01)	4.95**	.03	(.03)	1.19	-.01	(.03)	-.49	-.02	(.05)	-.35
Black	.08	(.03)	2.43*	-.58	(.10)	-5.53**	-.20	(.12)	-1.62	-.12	(.19)	-.61
Hispanic	.10	(.04)	2.53*	.19	(.14)	1.35	-.08	(.21)	-.37	.01	(.31)	.04
Native American	.16	(.06)	2.87**	.63	(.31)	2.06*	.41	(.23)	1.78	.53	(.32)	1.69
Other racial minority	.15	(.04)	3.86**	.56	(.12)	4.77**	.03	(.21)	.17	.34	(.27)	1.27
Constant	2.47	(.23)	10.81**	3.78**	(.51)	7.44**	-1.95	(.56)	-3.46**	-3.17	(.92)	-3.43**
Model <i>F</i> -test	121.05**			96.34**			25.39**			23.90**		

*Note.* Entries are unstandardized partial regression coefficients (*b*), clustered robust standard errors in parentheses, and *z*-tests ( $n = 9,431$ ).

<sup>a</sup>Negative binomial regression model.

<sup>b</sup>OLS regression model.

<sup>c</sup>Logistic regression model.

\* $p < .05$ ; \*\* $p < .01$  (two-tailed test).

Table A6  
*Effects of Victimization on Offending among Adolescent Females*

Variables	Violent offending <sup>a</sup>			Property offending <sup>a</sup>		
	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>
Victimization	1.59	(.08)	19.42**	.72	(.07)	11.01**
Low self-control	.07	(.01)	8.03**	.10	(.01)	13.88**
PVT score	-.07	(.03)	-2.49*	.09	(.02)	4.01**
Low neighborhood integration	.04	(.02)	2.04*	.04	(.02)	2.03*
Low parental education	.24	(.10)	2.35*	.17	(.10)	1.63
Age	-.13	(.02)	-5.64**	-.12	(.02)	-5.58**
Black	.52	(.10)	5.24**	-.09	(.09)	-1.03
Hispanic	.27	(.12)	2.31*	.33	(.12)	2.71**
Native American	.36	(.18)	2.01*	-.14	(.15)	-.94
Other racial minority	-.18	(.19)	-.95	.31	(.10)	3.04**
Constant	-.01	(.39)	-.01	-.41	(.41)	-.99
Model <i>F</i> -test	134.06**			53.52**		

*Note.* Entries are unstandardized partial regression coefficients (*b*), clustered robust standard errors in parentheses, and *z*-tests (*n* = 9,431).

<sup>a</sup> Negative binomial regression model.

\**p* < .05; \*\* *p* < .01 (two-tailed test).

Table A7  
Effects of Victimization on Substance Use among Adolescent Females

Variables	Alcohol problems <sup>a</sup>		Marijuana use <sup>b</sup>		Hard drug use <sup>b</sup>	
	<i>b</i>	(SE) <i>z</i>	<i>b</i>	(SE) <i>z</i>	<i>b</i>	(SE) <i>z</i>
Victimization	.78	(.09) 8.66**	.77	(.13) 6.02**	.94	(.22) 4.25**
Low self-control	.11	(.01) 10.22**	.13	(.01) 12.09**	.15	(.02) 8.84**
PVT score	.05	(.03) 1.55	.07	(.04) 2.01*	.01	(.06) .11
Low neighborhood integration	-.01	(.21) -.67	.00	(.03) .03	.03	(.04) .75
Low parental education	.19	(.11) 1.81	.21	(.18) 1.19	-.33	(.28) -1.18
Age	.25	(.01) 7.98**	.20	(.03) 5.88**	.17	(.05) 3.14**
Black	-.91	(.11) -7.94**	-.33	(.15) -2.26*	-2.11	(.34) -6.29**
Hispanic	-.34	(.17) -1.99	-.17	(.19) -.92	-.77	(.34) -2.23*
Native American	.06	(.15) .42	-.10	(.30) -.35	-.28	(.40) -.70
Other racial minority	-.29	(.29) -1.00	-.50	(.29) -1.72	-.82	(.53) -1.55
Constant	-4.30	(.52) -8.00**	-5.87	(.56) -10.55**	-5.95	(1.03) -5.80**
Model <i>F</i> -test		37.26**		27.70**		20.18**

*Note.* Entries are unstandardized partial regression coefficients (*b*), clustered robust standard errors in parentheses, and *z*-tests (*n* = 9,431).

<sup>a</sup> Negative binomial regression model.

<sup>b</sup> Logistic regression model.

\**p* < .05; \*\* *p* < .01 (two-tailed test).

Table A8  
*Effects of Victimization on Health Outcomes among Adolescent Females*

Variables	Poor self-rated health <sup>a</sup>			Somatic complaints <sup>b</sup>		
	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>
Victimization	.06	(.06)	.93	.16	(.03)	5.92**
Low self-control	.04	(.01)	8.31**	.05	(.01)	9.30**
PVT score	-.04	(.01)	-3.14**	.03	(.01)	3.35**
Low neighborhood integration	.04	(.01)	3.36**	.02	(.01)	4.12**
Low parental education	.20	(.05)	3.87**	.09	(.03)	2.76**
Age	.01	(.01)	1.49	.02	(.01)	4.57**
Black	-.04	(.04)	-.98	-.06	(.03)	-1.88
Hispanic	.02	(.04)	.49	-.05	(.05)	-1.10
Native American	.26	(.07)	3.71**	.17	(.06)	2.82**
Other racial minority	.17	(.06)	3.08**	.00	(.04)	.13
Constant	1.34	(.21)	6.33**	1.25	(.14)	9.23**
Model <i>F</i> -test		31.06**			58.05**	

*Note.* Entries are unstandardized partial regression coefficients (*b*), clustered robust standard errors in parentheses, and *z*-tests (*n* = 9,431).

<sup>a</sup> OLS regression model.

<sup>b</sup> Negative binomial regression model.

\**p* < .05; \*\* *p* < .01 (two-tailed test).

APPENDIX B

EXCLUSION RESTRICTIONS IN ADOLESCENCE

Table B1

*Survey Items Used to Measure Exclusion Restrictions in Adolescence*

Exclusion Restrictions	Wave I Survey Items	Coding
1. Hang out with friends often	During the past week, how many times did you just hang out with friends?	0 = Never, to 3 = 5 or more times
2. Allowed to choose your own friends	Do your parents let you make your own decisions about the people you hang around with?	0 = No, 1 = Yes
3. Play a sport with father	Have you played a sport with your [biological father/father figure] in the past four weeks?	0 = No, 1 = Yes
4. Long-term residence	Think about the house or apartment building in which you lived in January 1990... Do you still live there?	0 = No, 1 = Yes
5. Parents on public assistance	Does your [mother/father] receive public assistance, such as welfare?	0 = No, 1 = Yes
6. Access to a gun in the home	Is a gun easily available to you in your home?	0 = No, 1 = Yes
7. Use rec center in neighborhood	Do you use a physical fitness or recreation center in your neighborhood?	0 = No, 1 = Yes
8. BMI	Weight converted to kilograms, height converted to meters	$BMI = kg/m^2$

Table B2  
*Bivariate Correlations between Exclusion Restrictions, Victimization, and Adolescent Outcomes*

Variables	Hang out with friends often	Allowed to choose friends	Play a sport with father	Long-term residence	Parents on public assistance	Access to a gun in the home	Use rec center in neighborhood	BMI
Victimization	.11**	-.07**	-.04**	-.12**	.16**	.12**	.06**	.07**
Depression	.00	-.11**	-.14**	-.07**	.10**	-.01	-.03**	.05**
Low self-esteem	-.01	-.03**	-.12**	-.03**	.04**	.01	-.07**	.06**
Suicide ideation	.04**	-.01	-.15**	-.01	.01	.13**	-.06**	.05**
Suicide attempt	-.09**	-.16**	-.05**	-.01	.09**	.09**	-.01	.01
Violent offending	.09**	.01	-.01	-.06**	.07**	.10**	.04**	.05**
Property offending	.12**	.02*	-.01	-.02*	.02**	.09**	.04**	.00
Alcohol problems	.14**	.04**	-.05**	.01	.00	.11**	.01	.03**
Marijuana use	.15**	.08**	-.11**	-.01	.07**	.08**	.01	.01
Hard drug use	.09**	.01	-.09**	-.05**	.01	.11**	-.01	.00
Poor self-rated health	.00	.03**	-.12**	-.04**	.05**	-.01	-.08**	.20**
Somatic complaints	.04**	.00	-.08**	-.03**	.03**	.04**	-.03**	.01

*Note.*  $N = 18,668$ .

\*  $p < .05$ ; \*\*  $p < .01$  (two-tailed test).

## APPENDIX C

### EFFECTS OF SOCIAL TIES BY GENDER IN ADOLESCENCE



Table C1  
*Effects of Social Ties on Psychological Outcomes among Male Victims in Adolescence*

Variables	Depression <sup>a</sup>			Low self-esteem <sup>b</sup>			Suicide ideation <sup>c</sup>			Suicide attempt <sup>c</sup>		
	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>
Attachment to parents	-.03	(.01)	-4.15**	-.11	(.03)	-3.98**	-.08	(.03)	-2.72**	-.02	(.06)	-.41
Attachment to school	-.02	(.01)	-4.60**	-.12	(.02)	-6.43**	-.07	(.02)	-2.88**	-.08	(.03)	-2.52*
Attachment to friends	-.08	(.02)	-4.36**	-.40	(.08)	-5.51**	.09	(.09)	1.01	-.15	(.20)	-.73
Low self-control	.03	(.01)	7.10**	.14	(.02)	8.23**	.04	(.02)	2.45*	.03	(.03)	.91
PVT score	-.07	(.02)	-4.41**	.01	(.06)	.11	.03	(.07)	.47	-.07	(.12)	-.61
Low neighborhood integration	.03	(.01)	2.87**	.04	(.05)	.85	.08	(.05)	1.63	.16	(.08)	1.99*
Low parental education	-.01	(.06)	-.06	-.30	(.25)	-1.20	-.20	(.28)	-.70	.49	(.40)	1.23
Age	.02	(.01)	2.57**	.03	(.04)	.73	.01	(.05)	.19	.05	(.06)	.77
Black	.06	(.04)	1.50	-.40	(.18)	-2.28*	-.43	(.21)	-2.01*	-.42	(.41)	-1.03
Hispanic	.06	(.05)	1.20	.48	(.28)	1.72	-.22	(.23)	-.99	-1.09	(.64)	-1.69
Native American	.10	(.08)	1.27	.48	(.30)	1.59	.12	(.39)	.30	-.20	(.53)	-.38
Other racial minority	.28	(.06)	4.67**	1.34	(.34)	3.97**	.87	(.31)	2.81**	1.06	(.46)	2.29*
Constant	2.30	(.23)	9.91**	7.16	(.98)	7.31**	-.77	(1.22)	-.63	-1.44	(1.76)	-.82
Model <i>F</i> -test	30.06**			32.52**			6.31**			4.07**		

*Note.* Entries are unstandardized partial regression coefficients (*b*), clustered robust standard errors in parentheses, and *z*-tests (*n* = 2,700).

<sup>a</sup> Negative binomial regression model.

<sup>b</sup> OLS regression model.

<sup>c</sup> Logistic regression model.

\**p* < .05; \*\* *p* < .01 (two-tailed test).

Table C2  
*Effects of Social Ties on Offending among Male Victims in Adolescence*

Variables	Violent offending <sup>a</sup>			Property offending <sup>a</sup>		
	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>
Attachment to parents	-.02	(.01)	-1.30	-.04	(.02)	-2.52*
Attachment to school	-.04	(.01)	-3.99**	-.01	(.01)	-1.37
Attachment to friends	.04	(.05)	.89	.03	(.04)	.83
Low self-control	.03	(.01)	4.95**	.06	(.01)	7.98**
PVT score	-.05	(.03)	-1.70	.05	(.03)	2.00*
Low neighborhood integration	.00	(.02)	-.12	.03	(.23)	1.29
Low parental education	-.01	(.11)	-.12	-.09	(.11)	-.85
Age	.03	(.02)	1.55	-.04	(.02)	-1.70
Black	.21	(.08)	2.56*	-.12	(.10)	-1.20
Hispanic	-.06	(.13)	-.45	-.01	(.11)	-.09
Native American	.36	(.13)	2.72**	.18	(.17)	1.01
Other racial minority	-.02	(.15)	-.13	.04	(.19)	.23
Constant	.54	(.47)	1.17	.27	(.53)	.51
Model <i>F</i> -test		8.74**			15.60**	

*Note.* Entries are unstandardized partial regression coefficients (*b*), clustered robust standard errors in parentheses, and *z*-tests (*n* = 2,700).

<sup>a</sup> Negative binomial regression model.

\**p* < .05; \*\* *p* < .01 (two-tailed test).

Table C3  
*Effects of Social Ties on Substance Use among Male Victims in Adolescence*

Variables	Alcohol problems <sup>a</sup>			Marijuana use <sup>b</sup>			Hard drug use <sup>b</sup>		
	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>
Attachment to parents	-.01	(.02)	-.75	-.12	(.30)	-3.99**	-.10	(.04)	-2.25*
Attachment to school	-.02	(.01)	-2.03*	-.06	(.02)	-3.46**	-.08	(.03)	-2.82**
Attachment to friends	.11	(.05)	2.11*	.06	(.08)	.79	.13	(.14)	.93
Low self-control	.08	(.01)	6.99**	.07	(.02)	4.03**	.09	(.02)	3.75**
PVT score	.01	(.03)	.31	-.01	(.05)	-.23	.12	(.09)	1.27
Low neighborhood integration	-.01	(.03)	-.45	-.10	(.05)	-1.96	-.09	(.06)	-1.45
Low parental education	.03	(.13)	.20	.30	(.20)	1.45	-.62	(.36)	-1.72
Age	.26	(.03)	8.99**	.15	(.04)	3.84**	.26	(.06)	4.50**
Black	-.38	(.16)	-2.37*	-.09	(.18)	-.49	-1.66	(.46)	-3.58**
Hispanic	.10	(.14)	.68	.11	(.19)	.62	.20	(.40)	.49
Native American	-.05	(.20)	-.23	.28	(.30)	.91	.43	(.40)	1.08
Other racial minority	.32	(.30)	1.04	-.21	(.30)	-.71	-.08	(.39)	-.19
Constant	-3.36	(.72)	-4.70**	-1.71	(.99)	-1.72	-5.87	(1.50)	-3.90**
Model <i>F</i> -test	18.54**			9.15**			6.52**		

*Note.* Entries are unstandardized partial regression coefficients (*b*), clustered robust standard errors in parentheses, and *z*-tests ( $n = 2,700$ ).

<sup>a</sup> Negative binomial regression model.

<sup>b</sup> Logistic regression model.

\* $p < .05$ ; \*\* $p < .01$  (two-tailed test).

Table C4

*Effects of Social Ties on Health Outcomes among Male Victims in Adolescence*

Variables	Poor self-rated health <sup>a</sup>			Somatic complaints <sup>b</sup>		
	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>
Attachment to parents	-.03	(.02)	-1.92	-.03	(.01)	-4.48**
Attachment to school	-.02	(.01)	-2.68**	-.02	(.01)	-3.24**
Attachment to friends	-.05	(.03)	-1.76	-.05	(.02)	-2.20*
Low self-control	.03	(.01)	3.51**	.04	(.01)	7.17**
PVT score	-.05	(.02)	-2.30*	-.01	(.02)	-.26
Low neighborhood integration	.02	(.02)	1.33	.01	(.01)	.85
Low parental education	-.03	(.10)	-.30	-.08	(.08)	-.98
Age	.01	(.02)	.65	-.01	(.01)	-.69
Black	-.15	(.07)	-2.31*	-.11	(.07)	-1.49
Hispanic	.05	(.06)	.76	.13	(.06)	2.35*
Native American	.26	(.18)	1.42	.06	(.09)	.64
Other racial minority	.17	(.14)	1.26	.05	(.11)	.43
Constant	2.16	(.39)	5.49**	2.57	(.31)	8.34**
Model <i>F</i> -test		6.95**			15.84**	

*Note.* Entries are unstandardized partial regression coefficients (*b*), clustered robust standard errors in parentheses, and *z*-tests (*n* = 2,700).

<sup>a</sup> OLS regression model.

<sup>b</sup> Negative binomial regression model.

\**p* < .05; \*\* *p* < .01 (two-tailed test).

Table C5  
*Effects of Social Ties on Psychological Outcomes among Female Victims in Adolescence*

Variables	Depression <sup>a</sup>			Low self-esteem <sup>b</sup>			Suicide ideation <sup>c</sup>			Suicide attempt <sup>c</sup>		
	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>
Attachment to parents	-.05	(.01)	-7.13**	-.22	(.04)	-5.82**	-.09	(.04)	-2.08*	-.16	(.07)	-2.55*
Attachment to school	-.02	(.01)	-4.96**	-.06	(.03)	-2.29*	-.04	(.02)	-1.67	-.02	(.03)	-.53
Attachment to friends	-.04	(.03)	-1.48	-.19	(.13)	-1.39	-.10	(.10)	-1.03	-.02	(.16)	-.10
Low self-control	.03	(.01)	7.41**	.20	(.03)	7.30**	.09	(.02)	3.91**	.10	(.03)	3.96**
PVT score	-.09	(.01)	-6.37**	-.01	(.09)	-.15	.02	(.07)	.25	.02	(.01)	.15
Low neighborhood integration	.01	(.01)	.96	.03	(.05)	.62	-.01	(.05)	-.27	.01	(.05)	.21
Low parental education	.06	(.07)	.86	-.27	(.24)	-1.14	-.51	(.32)	-1.57	-.11	(.42)	-.27
Age	-.01	(.01)	-1.03	-.18	(.06)	-2.88**	.01	(.06)	.07	-.08	(.09)	-.90
Black	.01	(.05)	.14	-.89	(.23)	-3.83**	-.30	(.27)	-1.14	-.16	(.31)	-.51
Hispanic	.05	(.05)	1.05	.27	(.33)	.82	-.21	(.26)	-.80	.03	(.45)	.07
Native American	.09	(.08)	1.25	-.22	(.54)	-.40	.07	(.42)	.17	.68	(.44)	1.56
Other racial minority	.28	(.08)	3.40**	1.37	(.38)	3.60**	.59	(.55)	1.08	.59	(.52)	1.14
Constant	3.35	(.36)	9.27**	9.35	(1.37)	6.85**	.30	(1.34)	.22	-.04	(1.72)	-.02
Model <i>F</i> -test	37.99**			19.45**			3.09**			3.79**		

*Note.* Entries are unstandardized partial regression coefficients (*b*), clustered robust standard errors in parentheses, and *z*-tests ( $n = 1,178$ ).

<sup>a</sup> Negative binomial regression model.

<sup>b</sup> OLS regression model.

<sup>c</sup> Logistic regression model.

\* $p < .05$ ; \*\*  $p < .01$  (two-tailed test).

Table C6  
*Effects of Social Ties on Offending among Female Victims in Adolescence*

Variables	Violent offending <sup>a</sup>			Property offending <sup>a</sup>		
	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>
Attachment to parents	-.05	(.02)	-2.55*	-.07	(.02)	-3.16**
Attachment to school	-.03	(.02)	-1.94	-.01	(.02)	-.41
Attachment to friends	.07	(.07)	1.02	-.02	(.06)	-.34
Low self-control	.05	(.01)	3.49**	.07	(.01)	5.60**
PVT score	-.04	(.03)	-1.37	.16	(.05)	3.58**
Low neighborhood integration	.02	(.03)	.82	-.01	(.03)	-.27
Low parental education	.09	(.13)	.67	-.15	(.18)	-.82
Age	-.12	(.30)	-3.99**	-.15	(.03)	-4.60**
Black	.44	(.12)	3.69**	-.20	(.14)	-1.50
Hispanic	.48	(.17)	2.86**	.30	(.19)	1.60
Native American	.45	(.20)	2.21*	.02	(.20)	.11
Other racial minority	.24	(.34)	.71	.20	(.28)	.72
Constant	2.04	(.74)	2.76**	.78	(.78)	1.00
Model <i>F</i> -test		11.41**			13.47**	

*Note.* Entries are unstandardized partial regression coefficients (*b*), clustered robust standard errors in parentheses, and *z*-tests (*n* = 1,178).

<sup>a</sup> Poisson model with sample selection.

\**p* < .05; \*\* *p* < .01 (two-tailed test).

Table C7  
*Effects of Social Ties on Substance Use among Female Victims in Adolescence*

Variables	Alcohol problems <sup>a</sup>			Marijuana use <sup>b</sup>			Hard drug use <sup>b</sup>		
	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>
Attachment to parents	-.07	(.02)	-3.26**	-.08	(.05)	-1.52	-.13	(.07)	-2.01*
Attachment to school	-.04	(.02)	-2.21*	-.06	(.03)	-2.09*	-.02	(.05)	-.44
Attachment to friends	.12	(.10)	1.14	-.14	(.13)	-1.06	-.17	(.15)	-1.15
Low self-control	.06	(.01)	4.61**	.10	(.03)	3.77**	.10	(.03)	2.97**
PVT score	.17	(.06)	2.77**	.06	(.08)	.79	-.06	(.09)	-.68
Low neighborhood integration	-.01	(.04)	-.23	-.09	(.07)	-1.25	.02	(.07)	.29
Low parental education	.39	(.25)	1.59	-.24	(.34)	-.72	-.48	(.42)	-1.14
Age	.11	(.05)	2.25*	.14	(.06)	2.29*	-.02	(.08)	-.22
Black	-.61	(.20)	-3.02**	-.32	(.24)	-1.34	-2.24	(.55)	-4.06**
Hispanic	-.04	(.18)	-.21	-.22	(.40)	-.55	-.99	(.54)	-1.84
Native American	.66	(.21)	3.10**	-.19	(.57)	-.33	-.01	(.62)	-.02
Other racial minority	.02	(.26)	.07	-.67	(.37)	-1.80	.23	(.73)	.31
Constant	-1.99	(1.11)	-1.79	-2.04	(1.35)	-1.51	.22	(1.75)	.12
Model <i>F</i> -test		8.48**			3.96**			3.97**	

*Note.* Entries are unstandardized partial regression coefficients (*b*), clustered robust standard errors in parentheses, and *z*-tests (*n* = 1,178).

<sup>a</sup> Negative binomial regression model.

<sup>b</sup> Logistic regression model.

\**p* < .05; \*\* *p* < .01 (two-tailed test).

**Table C8**  
*Effects of Social Ties on Health Outcomes among Female Victims in Adolescence*

Variables	Poor self-rated health <sup>a</sup>			Somatic complaints <sup>b</sup>		
	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>
Attachment to parents	-.05	(.02)	-2.91**	-.02	(.01)	-1.57
Attachment to school	-.01	(.01)	-.60	-.01	(.01)	-2.42*
Attachment to friends	-.07	(.07)	-1.05	-.04	(.03)	-1.19
Low self-control	.03	(.01)	3.01**	.03	(.01)	6.29**
PVT score	-.03	(.04)	-.78	.02	(.02)	1.35
Low neighborhood integration	.02	(.02)	.73	.01	(.01)	.38
Low parental education	.18	(.11)	1.63	-.02	(.07)	-.26
Age	.01	(.03)	.36	.01	(.02)	.56
Black	-.06	(.11)	-.48	-.03	(.06)	-.58
Hispanic	-.14	(.21)	-.66	-.08	(.12)	-.70
Native American	.43	(.21)	2.02*	-.09	(.15)	-.60
Other racial minority	.18	(.21)	.87	-.03	(.11)	-.28
Constant	2.00	(.60)	3.32**	2.22	(.35)	6.36**
Model <i>F</i> -test		10.06**			11.85**	

*Note.* Entries are unstandardized partial regression coefficients (*b*), clustered robust standard errors in parentheses, and *z*-tests (*n* = 1,178).

<sup>a</sup> OLS regression model.

<sup>b</sup> Negative binomial regression model.

\**p* < .05; \*\* *p* < .01 (two-tailed test).



APPENDIX D

GENDER-SPECIFIC MODELS OF VICTIMIZATION ON EARLY ADULT  
OUTCOMES

Table D1  
*Effects of Victimization on Psychological Outcomes among Early Adult Males*

Variables	Depression <sup>a</sup>			Low self-esteem <sup>b</sup>			Suicide ideation <sup>c</sup>			Suicide attempt <sup>c</sup>		
	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>
Victimization	.10	(.05)	2.05*	.03	(.15)	.24	.45	(.21)	2.11*	.45	(.47)	.94
Prior victimization	.07	(.04)	1.74	.06	(.09)	.64	.18	(.20)	.88	.24	(.36)	.66
Low self-control	.18	(.03)	6.62**	.11	(.06)	1.91	.05	(.01)	4.26**	.50	(.52)	.97
PVT score	-.07	(.01)	-5.53**	.02	(.04)	.57	.02	(.07)	.28	-.06	(.08)	-.74
Financial hardship	.36	(.06)	6.03**	.87	(.16)	5.45**	.84	(.21)	3.98**	.50	(.52)	.97
In school	-.11	(.04)	-2.73**	-.27	(.10)	-2.68**	.15	(.18)	.86	.23	(.27)	.85
Age	-.02	(.01)	-1.73	.01	(.03)	.51	-.06	(.05)	-1.15	.05	(.10)	.52
Black	.11	(.05)	2.07*	-.34	(.12)	-2.78**	-.80	(.25)	-3.24**	.53	(.51)	1.03
Hispanic	.16	(.10)	1.58	.12	(.15)	.80	-.19	(.26)	-.75	1.48	(.52)	2.86**
Native American	-.09	(.12)	-.72	-.15	(.38)	-.39	.39	(.54)	.72	.92	(.84)	1.10
Other racial minority	.19	(.08)	2.33*	.35	(.19)	1.90	-.01	(.43)	-.01	1.23	(.55)	2.22*
Constant	1.75	(.23)	7.70**	2.27	(.63)	3.63**	-3.65	(1.18)	-3.09**	-8.31	(2.11)	-3.94**
Model <i>F</i> -test	22.52**			7.58**			5.60**			4.36**		

*Note.* Entries are unstandardized partial regression coefficients (*b*), clustered robust standard errors in parentheses, and *z*-tests. (*n* = 6,554). Coefficients and standard errors for low self-control are multiplied by 10 for ease of interpretation.

<sup>a</sup> Negative binomial regression model.

<sup>b</sup> OLS regression model.

<sup>c</sup> Logistic regression model.

\**p* < .05; \*\* *p* < .01 (two-tailed test).

Table D2  
*Effects of Victimization on Offending among Early Adult Males*

Variables	Violent offending <sup>a</sup>			Property offending <sup>a</sup>		
	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>
Victimization	1.59	(.12)	13.35**	.40	(.11)	3.74**
Prior victimization	.38	(.10)	3.77**	.10	(.11)	.92
Low self-control	.05	(.01)	6.70**	.05	(.01)	8.49**
PVT score	-.07	(.04)	-1.83	.16	(.04)	3.67**
Financial hardship	-.18	(.12)	-1.50	.31	(.09)	3.29**
In school	-.39	(.15)	-2.63**	.15	(.09)	1.58
Age	-.11	(.30)	-3.64**	-.12	(.02)	-5.61**
Black	.51	(.11)	4.57**	.19	(.12)	1.58
Hispanic	.03	(.26)	.13	.02	(.25)	.09
Native American	-.13	(.37)	-.34	-.38	(.32)	-1.16
Other racial minority	-.36	(.20)	-1.76	.25	(.19)	1.31
Constant	-1.36	(.71)	-1.90	-2.61	(.68)	-3.86**
Model <i>F</i> -test		53.18**			16.92**	

*Note.* Entries are unstandardized partial regression coefficients (*b*), clustered robust standard errors in parentheses, and *z*-tests (*n* = 6,554).

<sup>a</sup> Negative binomial regression model.

\**p* < .05; \*\* *p* < .01 (two-tailed test).

Table D3  
*Effects of Victimization on Risky Behavioral Outcomes among Early Adult Males*

Variables	Alcohol problems <sup>a</sup>			Marijuana use <sup>b</sup>			Hard drug use <sup>b</sup>			Risky sexual behavior <sup>b</sup>		
	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>
Victimization	.21	(.14)	1.56	.41	(.15)	2.74**	.36	(.15)	2.39*	.28	(.21)	1.31
Prior victimization	.94	(.09)	10.44**	.47	(.10)	4.88**	.19	(.18)	1.06	.40	(.18)	2.23*
Low self-control	.03	(.01)	4.46**	.06	(.01)	10.32**	.08	(.01)	9.74**	.04	(.01)	3.83**
PVT score	.05	(.04)	1.35	.15	(.03)	4.33**	.15	(.05)	3.03**	-.12	(.07)	-1.80
Financial hardship	-.11	(.13)	-.90	.63	(.13)	4.82**	.37	(.22)	1.69	.15	(.23)	.68
In school	-.12	(.13)	-.86	-.05	(.12)	-.42	-.14	(.18)	-.80	-.44	(.19)	-2.31*
Age	.39	(.03)	11.36**	-.05	(.03)	-1.78	-.11	(.04)	-2.95**	-.02	(.05)	-.36
Black	-.77	(.17)	-4.52**	-.11	(.14)	-.80	-1.16	(.29)	-4.02**	1.11	(.23)	4.78**
Hispanic	-.31	(.17)	-1.78	-.59	(.23)	-2.57*	-.37	(.22)	-1.73	.52	(.24)	2.15*
Native American	.40	(.28)	1.43	.33	(.35)	.94	.52	(.46)	1.13	.21	(.65)	.33
Other racial minority	-.17	(.19)	-.86	-.48	(.18)	-2.62**	-.51	(.34)	-1.48	.46	(.45)	1.02
Constant	-7.58	(.69)	-11.03	-3.69	(.54)	-6.78**	-4.40	(.88)	-4.98**	-2.92	(1.31)	-2.22*
Model <i>F</i> -test		26.42**			31.39**			14.83**			8.16**	

*Note.* Entries are unstandardized partial regression coefficients (*b*), clustered robust standard errors in parentheses, and *z*-tests ( $n = 6,554$ ).

<sup>a</sup> Negative binomial regression model.

<sup>b</sup> Logistic regression model.

\* $p < .05$ ; \*\*  $p < .01$  (two-tailed test).

Table D4

*Effects of Victimization on Health Outcomes among Early Adult Males*

Variables	STI Diagnosis <sup>a</sup>			Poor self-rated health <sup>b</sup>		
	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>
Victimization	.09	(.30)	.31	.03	(.05)	.62
Prior victimization	-.01	(.26)	-.02	.09	(.04)	2.58*
Low self-control	.17	(.11)	-1.66	.07	(.02)	2.80**
PVT score	-.01	(.09)	-.17	-.01	(.01)	-1.05
Financial hardship	.30	(.29)	1.02	.24	(.05)	4.60**
In school	-.72	(.22)	-3.33**	-.14	(.04)	-3.76**
Age	-.09	(.06)	-1.66	-.01	(.01)	-.34
Black	.97	(.22)	4.33**	-.04	(.04)	-.96
Hispanic	-.72	(.65)	-1.12	-.04	(.05)	-.92
Native American	.76	(.57)	1.33	.01	(.12)	.12
Other racial minority	-.31	(.42)	-.74	.17	(.07)	2.44*
Constant	-2.22	(1.29)	-1.72	.92	(.23)	3.94**
Model <i>F</i> -test		6.07**			11.54**	

*Note.* Entries are unstandardized partial regression coefficients (*b*), clustered robust standard errors in parentheses, and *z*-tests (*n* = 6,554). Coefficients and standard errors for low self-control are multiplied by 10 for ease of interpretation.

<sup>a</sup> Logistic regression model.

<sup>b</sup> OLS regression model.

\**p* < .05; \*\* *p* < .01 (two-tailed test).

Table D5  
*Effects of Victimization on Psychological Outcomes among Early Adult Females*

Variables	Depression <sup>a</sup>			Low self-esteem <sup>b</sup>			Suicide ideation <sup>c</sup>			Suicide attempt <sup>c</sup>		
	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>
Victimization	.36	(.07)	4.82**	.49	(.27)	1.85	.88	(.24)	3.62**	.58	(.41)	1.43
Prior victimization	.12	(.04)	2.91**	.23	(.16)	1.43	.28	(.22)	1.25	.51	(.34)	1.50
Low self-control	.22	(.03)	9.14**	.26	(.07)	3.82**	.48	(.09)	5.46**	.40	(.14)	2.90**
PVT score	-.06	(.01)	-4.58**	.07	(.03)	2.46*	.26	(.06)	4.19**	.18	(.12)	1.48
Financial hardship	.25	(.04)	6.37**	.61	(.12)	5.23**	.56	(.21)	2.69**	.78	(.32)	2.43*
In school	-.03	(.03)	-.99	-.37	(.10)	-3.74**	-.23	(.17)	-1.33	-.56	(.39)	-1.45
Age	-.01	(.01)	-1.02	-.05	(.03)	-1.54	-.09	(.05)	-1.94	-.24	(.08)	-3.17**
Black	.03	(.04)	.73	-.48	(.12)	-4.01**	-.41	(.19)	-2.22*	.00	(.40)	.00
Hispanic	.16	(.06)	2.58*	-.33	(.23)	-1.44	.43	(.26)	1.66	.72	(.41)	1.76
Native American	-.04	(.10)	-.37	.28	(.32)	.87	.31	(.35)	.88	-.61	(.64)	-.94
Other racial minority	.10	(.06)	1.74	.18	(.14)	1.31	.31	(.24)	1.30	1.28	(.39)	-1.45
Constant	1.82	(.19)	9.58**	2.76	(.50)	5.56**	-5.18	(.90)	-5.72**	-3.18	(1.55)	-2.05*
Model <i>F</i> -test	19.50**			12.57**			11.00**			8.76**		

*Note.* Entries are unstandardized partial regression coefficients (*b*), clustered robust standard errors in parentheses, and *z*-tests (*n* = 7,318). Coefficients and standard errors for low self-control are multiplied by 10 for ease of interpretation.

<sup>a</sup> Negative binomial regression model.

<sup>b</sup> OLS regression model.

<sup>c</sup> Logistic regression model.

\**p* < .05; \*\* *p* < .01 (two-tailed test).

Table D6  
*Effects of Victimization on Offending among Early Adult Females*

Variables	Violent offending <sup>a</sup>			Property offending <sup>a</sup>		
	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>
Victimization	2.24	(.16)	13.96**	1.15	(.20)	5.67**
Prior victimization	.29	(.30)	.96	.45	(.17)	2.60**
Low self-control	.07	(.01)	6.51**	.07	(.01)	10.32**
PVT score	-.03	(.08)	-.32	.19	(.04)	4.39**
Financial hardship	.16	(.32)	.49	.22	(.18)	1.25
In school	-.68	(.27)	-2.49*	.23	(.12)	1.83
Age	.05	(.10)	.47	-.14	(.04)	-3.62**
Black	.76	(.30)	2.53*	.45	(.15)	3.11**
Hispanic	.80	(.34)	2.36*	.56	(.52)	1.08
Native American	.34	(.52)	.65	.11	(.38)	.29
Other racial minority	-.79	(.39)	-2.03*	.47	(.25)	1.85
Constant	-5.82	(1.49)	-3.92**	-4.03	(.75)	-5.40**
Model <i>F</i> -test		42.61**			34.91**	

*Note.* Entries are unstandardized partial regression coefficients (*b*), clustered robust standard errors in parentheses, and *z*-tests (*n* = 7,318).

<sup>a</sup> Negative binomial regression model.

\**p* < .05; \*\* *p* < .01 (two-tailed test).

Table D7  
*Effects of Victimization on Risky Behavioral Outcomes among Early Adult Females*

Variables	Alcohol problems <sup>a</sup>			Marijuana use <sup>b</sup>			Hard drug use <sup>b</sup>			Risky sexual behavior <sup>b</sup>		
	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>
Victimization	.10	(.18)	.55	.84	(.29)	2.94**	1.25	(.42)	3.01**	1.98	(.39)	5.08**
Prior victimization	.97	(.11)	8.99**	.41	(.17)	2.37*	.24	(.24)	.97	.08	(.34)	.25
Low self-control	.03	(.01)	5.17**	.07	(.01)	7.60**	.09	(.01)	6.68**	.05	(.01)	3.63**
PVT score	.05	(.04)	1.43	.19	(.04)	5.32**	.16	(.06)	2.49*	-.08	(.01)	-.84
Financial hardship	.28	(.09)	3.19**	.47	(.13)	3.47**	.48	(.24)	2.02*	.80	(.24)	3.29**
In school	-.24	(.10)	-2.57*	-.24	(.11)	-2.22*	-.44	(.18)	-2.45*	.00	(.32)	.00
Age	.25	(.03)	7.17**	-.17	(.03)	-5.67**	-.18	(.05)	-3.56**	-.05	(.07)	-.67
Black	-.98	(.12)	-8.42**	-.34	(.13)	-2.57*	-.90	(.31)	-2.92**	1.47	(.30)	4.89**
Hispanic	-.31	(.17)	-1.87	-.36	(.23)	-1.59	.25	(.36)	.70	-2.11	(1.00)	-2.11*
Native American	.19	(.26)	.75	.14	(.35)	.39	-.96	(.49)	-1.97*	-1.87	(1.10)	-1.70
Other racial minority	-.25	(.32)	-.79	-.64	(.23)	-2.84**	.43	(.31)	1.38	-.19	(.81)	-.24
Constant	-4.80	(.58)	-8.22**	-2.45	(.69)	-3.53**	-3.85	(1.12)	-3.43**	-4.75	(1.64)	-2.90**
Model <i>F</i> -test			35.73**			28.45**			12.37**			25.77**

*Note.* Entries are unstandardized partial regression coefficients (*b*), clustered robust standard errors in parentheses, and *z*-tests (*n* = 7,318).

<sup>a</sup> Negative binomial regression model.

<sup>b</sup> Logistic regression model.

\**p* < .05; \*\* *p* < .01 (two-tailed test).



Table D8

*Effects of Victimization on Health Outcomes among Early Adult Females*

Variables	STI Diagnosis <sup>a</sup>			Poor self-rated health <sup>b</sup>		
	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>
Victimization	.57	(.42)	1.35	.08	(.08)	1.00
Prior victimization	-.02	(.21)	-.12	.16	(.05)	3.11**
Low self-control	.26	(.10)	2.50*	.14	(.02)	6.77**
PVT score	.12	(.05)	2.34*	-.02	(.01)	-1.77
Financial hardship	.72	(.17)	4.21**	.33	(.05)	6.09**
In school	-.37	(.18)	-2.04*	-.10	(.03)	-3.55**
Age	-.10	(.04)	-2.54*	-.03	(.01)	-2.76**
Black	1.13	(.15)	7.66**	.02	(.04)	.58
Hispanic	.22	(.30)	.75	.03	(.06)	.54
Native American	.20	(.38)	.54	.10	(.11)	.92
Other racial minority	-.01	(.35)	-.04	.07	(.06)	1.19
Constant	-3.12	(.95)	-3.30**	1.39	(.22)	6.18**
Model <i>F</i> -test		23.58**			16.85**	

*Note.* Entries are unstandardized partial regression coefficients (*b*), clustered robust standard errors in parentheses, and *z*-tests ( $n = 7,318$ ). Coefficients and standard errors for low self-control are multiplied by 10 for ease of interpretation.

<sup>a</sup> Logistic regression model.

<sup>b</sup> OLS regression model.

\* $p < .05$ ; \*\*  $p < .01$  (two-tailed test).

## APPENDIX E

### EXCLUSION RESTRICTIONS IN EARLY ADULthood

Table E1

*Survey Items Used to Measure Exclusion Restrictions in Early Adulthood*

Exclusion Restrictions	Wave III Survey Items	Coding
1. Exercise in order to lose weight	In the past 7 days, did you exercise to lose weight?	0 = No, 1 = Yes
2. Intelligence relative to others	Compared to other people your age, how intelligent are you?	0 = Moderately below average, to 5 = Extremely above average
3. Feel older than others your age	In general, how do you feel relative to others your age?	0 = Younger/about the same, 1 = Older
4. Lived on a working farm	Have you ever lived on a working farm?	0 = No, 1 = Yes
5. Served in military reserves	Have you ever been in the military reserves?	0 = No, 1 = Yes

Table E2

*Bivariate Correlations between Exclusion Restrictions, Victimization, and Outcomes in Early Adulthood*

Variables	Exercise in order to lose weight	Intelligence relative to others	Feel older than others your age	Lived on a working farm	Served in military reserves
Victimization	-.11**	.06*	.12**	.10**	.14**
Depression	-.01	-.18**	.10**	-.03	-.08*
Low self-esteem	.01	-.21**	-.05	-.03	-.04
Suicide ideation	.02	-.02	.09**	.04	-.01
Suicide attempt	.05	-.09**	.10**	.02	.00
Violent offending	-.02	.00	.14**	.08*	.08*
Property offending	-.06*	.09**	-.03	.02	.00
Alcohol problems	.00	.04	.04	.07*	.03
Marijuana use	-.13**	.02	-.03	.04	-.02
Hard drug use	-.12**	.01	-.03	.03	-.01
Risky sexual behavior	-.11**	-.01	.12**	-.01	.14**
STI diagnosis	-.08*	-.02	.07*	-.05	.00
Poor self-rated health	-.03	-.17**	.02	-.01	-.13**

Note.  $N = 13,872$ .

\* $p < .05$ ; \*\*  $p < .01$  (two-tailed test).

## APPENDIX F

### EFFECTS OF SOCIAL TIES BY GENDER IN EARLY ADULthood

Table F1  
*Effects of Social Ties on Psychological Outcomes among Male Victims in Early Adulthood*

Variables	Depression <sup>a</sup>			Low self-esteem <sup>b</sup>			Suicide ideation <sup>c</sup>			Suicide attempt <sup>c</sup>		
	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>
Attachment to parents	-.02	(.02)	-.89	.02	(.07)	.26	-.09	(.09)	-.92	-.28	(.16)	-1.76
Job satisfaction	-.14	(.08)	-1.69	-.31	(.25)	-1.23	-.50	(.35)	-1.41	-.30	(.73)	-.41
Marriage	-.12	(.14)	-.84	.39	(.46)	.83	-.45	(.57)	-.78	.99	(.87)	1.14
Prior victimization	.12	(.09)	1.37	.89	(.24)	3.66**	-.04	(.35)	-.10	-.33	(.56)	-.59
Low self-control	.02	(.01)	3.42**	-.02	(.02)	-.94	.03	(.02)	1.21	.05	(.05)	1.00
PVT score	-.08	(.03)	-2.47*	-.17	(.10)	-1.70	.24	(.11)	2.08*	.01	(.16)	.03
Financial hardship	.11	(.10)	1.09	.65	(.28)	2.35*	.50	(.46)	1.09	-1.98	(.63)	-3.16**
In school	-.25	(.11)	-2.35*	-.34	(.26)	-1.28	.02	(.45)	.06	-.61	(.76)	-.81
Age	-.02	(.02)	-.81	.02	(.07)	.21	-.09	(.09)	-1.05	-.08	(.23)	-.33
Black	.10	(.10)	1.02	-1.40	(.31)	-4.51**	-1.05	(.47)	-2.22*	.55	(.69)	.79
Hispanic	.23	(.19)	1.22	-.16	(.55)	-.28	-.70	(.62)	-1.14	1.18	(.90)	1.32
Native American	.18	(.20)	.89	-.34	(.32)	-1.09	.45	(.96)	.47	.53	(.83)	.64
Other racial minority	-.24	(.16)	-1.46	-.31	(.31)	-.99	-2.66	(.88)	-3.02**	-1.23	(1.19)	-1.03
Constant	2.23	(.58)	3.82**	9.42	(1.70)	5.53	-3.18	(2.15)	-1.48	-2.66	(4.96)	-.54
Model <i>F</i> -test		5.21**			3.49**			2.57**				2.49**

*Note.* Entries are unstandardized partial regression coefficients (*b*), clustered robust standard errors in parentheses, and *z*-tests (*n* = 812).

<sup>a</sup> Negative binomial regression model.

<sup>b</sup> OLS regression model.

<sup>c</sup> Logistic regression model.

\**p* < .05; \*\* *p* < .01 (two-tailed test).

Table F2  
*Effects of Social Ties on Offending among Male Victims in Early Adulthood*

Variables	Violent offending <sup>a</sup>			Property offending <sup>a</sup>		
	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>
Attachment to parents	.02	(.04)	.57	-.03	(.05)	-.64
Job satisfaction	-.12	(.14)	-.88	-.01	(.16)	-.07
Marriage	-.41	(.26)	-1.55	-.33	(.35)	-.95
Prior victimization	.22	(.14)	1.64	.04	(.16)	.25
Low self-control	.04	(.01)	4.97**	.04	(.01)	3.99**
PVT score	.05	(.05)	1.00	.21	(.07)	2.80**
Financial hardship	-.23	(.16)	-1.39	.20	(.18)	1.10
In school	-.45	(.17)	-2.63**	.04	(.17)	.22
Age	-.02	(.04)	-.48	-.13	(.05)	-2.85**
Black	.36	(.16)	2.20*	.23	(.21)	1.07
Hispanic	-.15	(.21)	-.73	-.03	(.37)	-.09
Native American	-.24	(.47)	-.50	-.97	(.42)	-2.34*
Other racial minority	-.13	(.41)	-.33	-.69	(.41)	-1.71
Constant	-2.13	(.82)	-2.58*	-1.97	(1.20)	-1.65
Model <i>F</i> -test		3.60**			4.70**	

*Note.* Entries are unstandardized partial regression coefficients (*b*), clustered robust standard errors in parentheses, and *z*-tests (*n* = 812).

<sup>a</sup> Negative binomial regression model.

\**p* < .05; \*\* *p* < .01 (two-tailed test).

Table F3  
*Effects of Social Ties on Risky Behavioral Outcomes among Male Victims in Early Adulthood*

Variables	Alcohol problems <sup>a</sup>			Marijuana use <sup>b</sup>			Hard drug use <sup>b</sup>			Risky sexual behavior <sup>b</sup>		
	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>
Attachment to parents	.06	(.05)	1.11	-.14	(.07)	-2.09*	.05	(.11)	.44	-.22	(.12)	-1.78
Job satisfaction	.28	(.17)	1.63	-.30	(.24)	-1.29	-.06	(.31)	-.19	.32	(.38)	.86
Marriage	-.20	(.23)	-.90	-1.50	(.49)	-3.09**	-.05	(.52)	-.09	-.37	(.63)	-.58
Prior victimization	.68	(.17)	3.93**	.07	(.24)	.29	.42	(.32)	1.34	.41	(.38)	1.10
Low self-control	.03	(.13)	2.27*	.02	(.02)	1.55	.05	(.02)	2.52*	.04	(.02)	2.06*
PVT score	-.05	(.08)	-.63	.20	(.09)	2.16*	.03	(.01)	2.64**	-.03	(.02)	-.19
Financial hardship	.23	(.19)	1.20	.75	(.30)	2.53*	.46	(.38)	1.21	-.01	(.42)	-.03
In school	.22	(.20)	1.11	-.33	(.27)	-1.22	-.26	(.37)	-.69	-.35	(.46)	-.75
Age	.28	(.06)	4.62**	-.11	(.06)	-1.78	-.22	(.08)	-2.54*	-.01	(.10)	-.09
Black	-.53	(.25)	-2.12*	-.10	(.28)	-.35	-.73	(.45)	-1.64	1.41	(.40)	3.58**
Hispanic	-.49	(.31)	-1.58	-.86	(.49)	-1.75	-.58	(.65)	-.89	-.01	(.68)	-.01
Native American	-.10	(.51)	-.20	-.07	(.58)	-.11	-.04	(.53)	-.07	-2.75	(1.16)	-2.37*
Other racial minority	-.08	(.42)	-.19	-.94	(.51)	-1.84	.49	(.49)	1.00	.42	(.69)	.61
Constant	-5.06	(1.48)	-3.40**	-.36	(1.53)	-.23	-3.46	(1.88)	-1.84	-3.06	(2.62)	-1.17
Model <i>F</i> -test		4.00**			2.97**			3.04**			3.26**	

*Note.* Entries are unstandardized partial regression coefficients (*b*), clustered robust standard errors in parentheses, and *z*-tests (*n* = 812).

<sup>a</sup> Negative binomial regression model.

<sup>b</sup> Logistic regression model.

\**p* < .05; \*\* *p* < .01 (two-tailed test).



Table F4  
*Effects of Social Ties on Health Outcomes among Male Victims in Early Adulthood*

Variables	STI diagnosis <sup>a</sup>			Poor self-rated health <sup>b</sup>		
	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>
Attachment to parents	.21	(.13)	1.64	-.04	(.03)	-1.64
Job satisfaction	.49	(.44)	1.11	-.19	(.09)	-2.03*
Marriage	-.22	(.80)	-.28	.14	(.21)	.68
Prior victimization	-.01	(.62)	-.01	.07	(.09)	.72
Low self-control	-.04	(.03)	-.46	.01	(.01)	1.55
PVT score	-.04	(.02)	-2.33*	.02	(.04)	.56
Financial hardship	.37	(.57)	.65	.21	(.11)	1.88
In school	-.81	(.69)	-1.18	-.06	(.10)	-.59
Age	-.22	(.15)	-1.45	.00	(.02)	.11
Black	.34	(.50)	.68	-.12	(.12)	-1.04
Hispanic	-2.90	(.85)	-3.40**	-.22	(.16)	-1.44
Native American	-1.92	(1.02)	-1.89	-.36	(.23)	-1.53
Other racial minority	-1.52	(1.03)	-1.48	.38	(.27)	1.39
Constant	3.69	(2.34)	1.58	.75	(.61)	1.23
Model <i>F</i> -test		3.09**			2.04*	

*Note.* Entries are unstandardized partial regression coefficients (*b*), clustered robust standard errors in parentheses, and *z*-tests (*n* = 812).

<sup>a</sup> Logistic regression model.

<sup>b</sup> OLS regression model.

\**p* < .05; \*\* *p* < .01 (two-tailed test).

Table F5  
*Effects of Social Ties on Psychological Outcomes among Female Victims in Early Adulthood*

Variables	Depression <sup>a</sup>			Low self-esteem <sup>b</sup>			Suicide ideation <sup>c</sup>			Suicide attempt <sup>c</sup>		
	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>
Attachment to parents	-.04	(.03)	-1.37	.16	(.12)	1.30	-.16	(.12)	-1.36	.24	(.21)	1.13
Job satisfaction	.27	(.10)	2.77**	1.07	(.45)	2.40*	.65	(.43)	1.49	-.10	(.60)	-.17
Marriage	.12	(.15)	.81	-.97	(.75)	-1.29	1.09	(.71)	1.53	.84	(.81)	1.05
Prior victimization	.01	(.11)	.04	.98	(.55)	1.78	.08	(.48)	.16	.12	(.80)	.15
Low self-control	.01	(.01)	2.52*	.03	(.02)	1.04	.06	(.03)	1.91	.08	(.05)	1.53
PVT score	.01	(.04)	.15	.03	(.18)	.14	.25	(.19)	1.32	.38	(.27)	1.38
Financial hardship	.18	(.13)	1.33	.16	(.53)	.29	1.64	(.50)	3.32**	.82	(1.21)	.68
In school	-.17	(.13)	-1.36	-.14	(.46)	-.31	-.04	(.52)	-.07	.55	(.84)	.65
Age	-.02	(.03)	-.79	.04	(.12)	.35	-.11	(.13)	-.84	-.10	(.20)	-.52
Black	-.05	(.13)	-.35	-.70	(.47)	-1.48	-.60	(.65)	-.92	.96	(1.05)	.92
Hispanic	.48	(.24)	2.00*	.98	(.86)	1.14	1.53	(.76)	2.02*	1.12	(1.28)	.88
Other racial minority	-.07	(.15)	-.45	1.58	(1.03)	1.53	.94	(.77)	1.22	1.68	(.93)	1.81
Constant	2.01	(.68)	2.97**	5.74	(2.66)	2.15*	-4.40	(3.14)	-1.40	-9.39	(5.97)	-1.57
Model <i>F</i> -test		1.96*			2.14*			2.40**			1.97*	

*Note.* Entries are unstandardized partial regression coefficients (*b*), clustered robust standard errors in parentheses, and *z*-tests (*n* = 276). Due to the small sample size, the variable “other racial minority” in these models also includes Native Americans.

<sup>a</sup> Negative binomial regression model.

<sup>b</sup> OLS regression model.

<sup>c</sup> Logistic regression model.

\**p* < .05; \*\* *p* < .01 (two-tailed test).

Table F6  
*Effects of Social Ties on Offending among Female Victims in Early Adulthood*

Variables	Violent offending <sup>a</sup>			Property offending <sup>a</sup>		
	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>
Attachment to parents	-.10	(.07)	-1.32	-.09	(.08)	-.95
Job satisfaction	-.21	(.29)	-.71	-.63	(.32)	-1.97*
Marriage	-.46	(.60)	-.76	-.18	(.45)	-.41
Prior victimization	.33	(.33)	1.01	.34	(.31)	1.10
Low self-control	.04	(.02)	2.24*	.06	(.02)	3.78**
PVT score	.01	(.11)	.08	-.16	(.13)	-1.27
Financial hardship	-.28	(.30)	-.94	-.39	(.30)	-1.32
In school	-1.28	(.46)	-2.77**	-.34	(.35)	-.97
Age	-.01	(.10)	-.12	-.05	(.08)	-.71
Black	.33	(.37)	.90	-.24	(.39)	-.61
Hispanic	1.22	(.54)	2.25*	-.31	(.57)	-.55
Other racial minority	-.06	(.42)	-.13	-.93	(.68)	-1.37
Constant	-1.42	(1.96)	-.72	.78	(1.69)	.46
Model <i>F</i> -test		2.11*			2.86**	

*Note.* Entries are unstandardized partial regression coefficients (*b*), clustered robust standard errors in parentheses, and *z*-tests (*n* = 276). Due to the small sample size, the variable “other racial minority” in these models also includes Native Americans.

<sup>a</sup> Negative binomial regression model.

\**p* < .05; \*\* *p* < .01 (two-tailed test).

Table F7  
*Effects of Social Ties on Risky Behavioral Outcomes among Female Victims in Early Adulthood*

Variables	Alcohol problems <sup>a</sup>		Marijuana use <sup>b</sup>		Hard drug use <sup>b</sup>		Risky sexual behavior <sup>b</sup>	
	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)
Attachment to parents	-.11	(.10)	-1.08	-.19	(.12)	-1.62	-.17	(.14)
Job satisfaction	-.08	(.30)	-.28	-.33	(.43)	-.77	-.36	(.49)
Marriage	.55	(.40)	1.39	-.68	(.59)	-1.16	-.63	(.97)
Prior victimization	.35	(.30)	1.18	-.45	(.56)	-.79	-.70	(.66)
Low self-control	.02	(.02)	.95	.10	(.03)	3.75**	.09	(.04)
PVT score	-.01	(.12)	-.04	.17	(.16)	1.04	.16	(.20)
Financial hardship	.79	(.35)	2.25*	-1.60	(.53)	-3.03**	-1.38	(.82)
In school	.75	(.32)	2.35*	-.62	(.49)	-1.26	-.90	(.61)
Age	.34	(.09)	3.79**	-.16	(.11)	-1.45	-.31	(.14)
Black	-1.16	(.41)	-2.82**	-.01	(.47)	-.03	.18	(.60)
Hispanic	.11	(.57)	.20	2.74	(1.15)	2.38*	3.78	(1.32)
Other racial minority	-.54	(.56)	-.97	-.14	(.61)	-.23	.59	(.65)
Constant	-5.13	(1.81)	-2.83**	-.88	(2.31)	-.38	.13	(3.21)
Model <i>F</i> -test		3.86**			3.02**			2.13*

*Note.* Entries are unstandardized partial regression coefficients (*b*), clustered robust standard errors in parentheses, and *z*-tests (*n* = 276). Due to the small sample size, the variable “other racial minority” in these models also includes Native Americans.

<sup>a</sup> Negative binomial regression model.

<sup>b</sup> Logistic regression model.

\**p* < .05; \*\* *p* < .01 (two-tailed test).

Table F8

*Effects of Social Ties on Health Outcomes among Female Victims in Early Adulthood*

Variables	STI diagnosis <sup>a</sup>			Poor self-rated health <sup>b</sup>		
	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>
Attachment to parents	.03	(.18)	.19	-.13	(.05)	-2.75**
Job satisfaction	.48	(.54)	.89	.08	(.15)	.54
Marriage	.13	(1.02)	.13	.17	(.21)	.81
Prior victimization	-.53	(.65)	-.82	-.28	(.15)	-1.86
Low self-control	.00	(.03)	.02	.02	(.01)	2.78**
PVT score	.04	(.21)	.21	.02	(.06)	.33
Financial hardship	-.60	(.90)	-.67	.32	(.16)	2.04*
In school	-1.31	(.96)	-1.37	-.17	(.17)	-1.05
Age	-.06	(.15)	-.40	-.01	(.05)	-.25
Black	.75	(.66)	1.14	-.21	(.17)	-1.28
Hispanic	1.90	(.99)	1.92	.01	(.24)	.03
Other racial minority	-.81	(.88)	-.92	-.45	(.26)	-1.73
Constant	-1.62	(3.59)	-.45	1.38	(.91)	1.51
Model <i>F</i> -test		1.86*			3.17**	

*Note.* Entries are unstandardized partial regression coefficients (*b*), clustered robust standard errors in parentheses, and *z*-tests (*n* = 276). Due to the small sample size, variable “other racial minority” in these models also includes Native Americans.

<sup>a</sup> Logistic regression model.

<sup>b</sup> OLS regression model.

\**p* < .05; \*\* *p* < .01 (two-tailed test).

## APPENDIX G

### EFFECTS OF COHABITATION IN EARLY ADULthood

Table G1

*Effects of Social Ties on Psychological Outcomes among Victims in Early Adulthood*

Variables	Depression <sup>a</sup>			Low self-esteem <sup>b</sup>			Suicide ideation <sup>c</sup>			Suicide attempt <sup>c</sup>		
	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>
Attachment to parents	-.02	(.02)	-1.07	-.15	(.06)	-2.57*	-.07	(.04)	-1.69	-.04	(.05)	-.90
Job satisfaction	-.02	(.06)	-.32	-.47	(.25)	-1.91	-.11	(.14)	-.75	-.08	(.16)	-.50
Cohabitation	-.04	(.10)	-.44	-.20	(.27)	-.74	-.38	(.25)	-1.49	-.76	(.25)	-2.97**
Prior victimization	.26	(.13)	2.05*	1.49	(.34)	4.39**	-.11	(.38)	-.30	.19	(.16)	1.21
Low self-control	.03	(.01)	3.68**	.11	(.02)	6.66**	.01	(.03)	.38	.04	(.01)	3.60**
PVT score	-.08	(.03)	-2.59*	.01	(.01)	1.16	.12	(.06)	2.09*	.01	(.04)	.27
Financial hardship	.27	(.11)	2.57*	1.61	(.33)	4.85**	.40	(.31)	1.32	-.05	(.27)	-.19
In school	-.30	(.10)	-3.05**	-.66	(.36)	-1.86	.01	(.24)	.06	-.20	(.17)	-1.13
Male	-.31	(.14)	-2.14*	1.18	(.30)	3.92**	-.48	(.41)	-1.18	.01	(.16)	.02
Age	-.05	(.02)	-2.36*	-.21	(.09)	-2.36*	-.04	(.08)	-.56	-.05	(.05)	-1.04
Black	.06	(.09)	.71	.04	(.36)	.12	-.53	(.21)	-2.51*	.21	(.20)	1.05
Hispanic	.39	(.11)	3.57**	-.15	(.37)	-.41	-.08	(.32)	-.26	.29	(.24)	1.19
Native American	.24	(.18)	1.38	1.91	(.84)	2.26*	.20	(.44)	.46	-.09	(.34)	-.26
Other racial minority	-.35	(.16)	-2.11*	-1.41	(.72)	-1.94	-.40	(.45)	-.88	.04	(.27)	.16
Constant	2.01	.58	3.47**	-5.32	(2.00)	-2.66**	-.81	(2.43)	-.33	-2.99	(1.08)	-2.79**
Rho		.49			.53			-.21				.22
Likelihood ratio $\chi^2$		17.08**			17.12**			.19				.55

*Note.* Entries are unstandardized partial regression coefficients (*b*), clustered robust standard errors in parentheses, and *z*-tests ( $n = 1,088$ ). Stage-one probit models predicting selection into the subsample of victims not shown here (see Table 3.9).

\* $p < .05$ ; \*\* $p < .01$  (two-tailed test).

<sup>a</sup> Poisson model with sample selection.

<sup>b</sup> FIML model with sample selection.

<sup>c</sup> Probit model with sample selection.

\* $p < .05$ ; \*\* $p < .01$  (two-tailed test).

Table G2  
*Effects of Social Ties on Offending among Victims in Early Adulthood*

Variables	Violent offending <sup>a</sup>			Property offending <sup>a</sup>		
	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>
Attachment to parents	-.01	(.05)	-.07	-.05	(.05)	-1.15
Job satisfaction	-.22	(.12)	-1.84	-.12	(.14)	-.90
Cohabitation	.14	(.20)	.70	-.38	(.25)	-1.50
Prior victimization	.10	(.22)	.45	-.09	(.27)	-.70
Low self-control	.04	(.01)	2.69**	.03	(.02)	1.79
PVT score	.03	(.05)	.56	.14	(.07)	2.13*
Financial hardship	-.21	(.19)	-1.08	.13	(.21)	.62
In school	-.48	(.19)	-2.61**	.09	(.17)	.53
Male	.25	(.28)	.87	-.23	(.35)	-.66
Age	-.02	(.05)	-.37	-.12	(.05)	-2.24*
Black	.31	(.17)	1.88	.02	(.18)	.09
Hispanic	.15	(.18)	.81	-.01	(.40)	-.02
Native American	-.25	(.43)	-.59	-1.12	(.48)	-2.31*
Other racial minority	-.01	(.33)	-.03	-.23	(.14)	-1.63
Constant	-1.79	(1.03)	-1.74	-2.16	(1.02)	-2.11*
Rho		-.38			.49	
Likelihood ratio $\chi^2$		4.21*			7.76**	

*Note.* Entries are unstandardized partial regression coefficients (*b*), clustered robust standard errors in parentheses, and z-tests ( $n = 1,088$ ). Stage-one probit models predicting selection into the subsample of victims not shown here (see Table 3.9).

<sup>a</sup> Poisson model with sample selection.

\* $p < .05$ ; \*\*  $p < .01$  (two-tailed test).



Table G3  
*Effects of Social Ties on Risky Behavioral Outcomes among Victims in Early Adulthood*

Variables	Alcohol problems <sup>a</sup>			Marijuana use <sup>b</sup>			Hard drug use <sup>b</sup>			Risky sexual behavior <sup>b</sup>		
	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>
Attachment to parents	.08	(.04)	1.83	-.03	(.01)	-2.61**	-.01	(.05)	-.27	-.06	(.03)	-2.38*
Job satisfaction	.25	(.14)	1.78	-.09	(.04)	-2.17*	-.03	(.18)	-.20	.13	(.08)	1.60
Cohabitation	.22	(.17)	1.31	.06	(.05)	1.15	-.20	(.19)	-1.01	-.15	(.12)	-1.28
Prior victimization	.25	(.31)	.80	.38	(.05)	7.41**	.03	(.40)	.09	-.27	(.14)	-1.87
Low self-control	-.04	(.20)	-.18	.37	(.05)	7.44**	.20	(.31)	.65	-.05	(.13)	-.38
PVT score	-.03	(.07)	-.52	.03	(.02)	1.72	.11	(.06)	1.97*	-.02	(.03)	-.65
Financial hardship	.10	(.24)	.40	.27	(.05)	4.89**	.04	(.25)	.14	-.02	(.17)	-.15
In school	.27	(.16)	1.68	-.16	(.05)	-3.17**	-.18	(.27)	-.69	.08	(.11)	.73
Male	-.64	(.36)	-1.79	.39	(.05)	7.32**	-.45	(.46)	-.99	-.21	(.17)	-1.27
Age	.28	(.06)	4.96**	-.07	(.01)	-5.35**	-.10	(.09)	-1.14	.04	(.02)	1.98*
Black	-.58	(.22)	-2.61**	.22	(.06)	3.94**	-.29	(.24)	-1.22	.18	(.19)	.96
Hispanic	-.27	(.23)	-1.18	.07	(.09)	.80	.29	(.23)	1.27	-.03	(.12)	-.26
Native American	-.01	(.33)	-.03	.15	(.13)	1.16	.04	(.42)	.09	-.63	(.43)	-1.46
Other racial minority	.10	(.27)	.36	-.22	(.10)	-2.13*	.30	(.40)	.75	.12	(.30)	.40
Constant	-2.86	(1.36)	-2.10	-2.35	(.30)	-7.90**	-.39	(2.36)	-.16	.48	(1.07)	.45
Rho		-.20			.49			.18			-.39	
Likelihood ratio $\chi^2$		.93			8.47**			.89			2.82	

*Note.* Entries are unstandardized partial regression coefficients (*b*), clustered robust standard errors in parentheses, and *z*-tests ( $n = 1,088$ ). Stage-one probit models predicting selection into the subsample of victims not shown here (see Table 3.9).

Coefficients and standard errors for low self-control are multiplied by 10 for ease of interpretation.

<sup>a</sup> Poisson model with sample selection.

<sup>b</sup> Probit model with sample selection.

\* $p < .05$ ; \*\* $p < .01$  (two-tailed test).

Table G4  
*Effects of Social Ties on Health Outcomes among Victims in Early Adulthood*

Variables	STI diagnosis <sup>a</sup>			Poor self-rated health <sup>b</sup>		
	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>
Attachment to parents	.04	(.06)	.71	-.05	(.02)	-2.33*
Job satisfaction	.31	(.26)	1.20	-.11	(.08)	-1.37
Cohabitation	-.22	(.34)	-.65	.10	(.11)	.89
Prior victimization	-.25	(.52)	-.49	.55	(.18)	3.04**
Low self-control	-.02	(.03)	-.67	.04	(.01)	6.16**
PVT score	-.13	(.12)	-1.06	.01	(.04)	.30
Financial hardship	-.02	(.33)	-.06	.53	(.13)	4.27**
In school	-.37	(.63)	-.59	-.29	(.13)	-2.22*
Male	-.78	(.19)	-4.06**	.36	(.16)	2.27*
Age	-.05	(.13)	-.38	-.07	(.03)	-2.12*
Black	.17	(.40)	.43	.03	(.14)	.22
Hispanic	-.02	(.18)	-.11	-.14	(.15)	-.92
Native American	-.51	(.32)	-1.60	-.09	(.23)	-.38
Other racial minority	-.06	(.68)	-.09	-.22	(.29)	-.78
Constant	2.54	(1.49)	1.71	-1.87	(.86)	-2.18*
Rho		-.36			.15	
Likelihood ratio $\chi^2$		.88			.69	

*Note.* Entries are unstandardized partial regression coefficients (*b*), clustered robust standard errors in parentheses, and *z*-tests ( $n = 1,088$ ). Stage-one probit models predicting selection into the subsample of victims not shown here (see Table 3.9).

<sup>a</sup> Probit model with sample selection.

<sup>b</sup> FIML model with sample selection.

\* $p < .05$ ; \*\*  $p < .01$  (two-tailed test).

## APPENDIX H

### MODELS EXCLUDING RESPONDENTS ABSENT AT WAVE III

Table H1  
*Effects of Victimization on Psychological Outcomes in Adulthood*

Variables	Depression <sup>a</sup>			Suicide ideation <sup>c</sup>			Suicide attempt <sup>c</sup>		
	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>
Victimization	.04	(.03)	1.38	.14	(.12)	1.13	.50	(.23)	2.12*
Prior victimization	.07	(.02)	2.73**	-.06	(.13)	-.48	.04	(.24)	.16
Low self-control	.07	(.01)	9.37**	.12	(.01)	9.12**	.13	(.03)	4.82**
PVT score	-.01	(.01)	-1.78	.10	(.04)	2.34*	-.19	(.10)	-2.08*
Financial hardship	.23	(.02)	10.92**	.41	(.11)	3.76**	.13	(.26)	.50
College graduate	-.08	(.02)	-4.18**	-.29	(.13)	-2.30*	-.72	(.31)	-2.33*
Male	-.19	(.02)	-9.38**	-.16	(.12)	-1.30	-.41	(.23)	-1.73
Age	.01	(.01)	1.18	-.03	(.32)	-.10	.06	(.07)	.90
Black	.15	(.03)	4.87**	-.03	(.13)	-.22	-.12	(.29)	-.40
Hispanic	.10	(.03)	2.91**	-.34	(.22)	-1.52	-1.08	(.55)	-1.96
Native American	.02	(.04)	.44	.40	(.27)	1.49	.82	(.43)	1.92
Other racial minority	.13	(.04)	3.54**	.02	(.21)	.08	-1.39	(.50)	-2.75**
Constant	.62	(.14)	4.48**	-5.68	(.64)	-8.85**	-5.38	(1.30)	-4.12**
Model <i>F</i> -test	97.21**			11.85**			7.08**		

*Note.* Entries are unstandardized partial regression coefficients (*b*), clustered robust standard errors in parentheses, and *z*-tests (*N* = 11,728).

<sup>a</sup> Negative binomial regression model.

<sup>b</sup> OLS regression model.

<sup>c</sup> Logistic regression model.

\**p* < .05; \*\* *p* < .01 (two-tailed test).

Table H2  
*Effects of Victimization on Offending in Adulthood*

Variables	Violent offending <sup>a</sup>			Property offending <sup>a</sup>		
	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>
Victimization	1.84	(.18)	10.23**	.58	(.18)	3.23**
Prior victimization	.54	(.18)	2.94**	.34	(.17)	2.05*
Low self-control	.14	(.02)	8.76**	.11	(.01)	8.49**
PVT score	.15	(.05)	3.02**	.19	(.04)	4.30**
Financial hardship	.25	(.12)	1.99*	.46	(.12)	3.80**
College graduate	-.67	(.16)	-4.20**	.04	(.13)	.34
Male	1.18	(.11)	10.87**	.79	(.11)	7.42**
Age	-.10	(.04)	-2.59*	-.12	(.03)	-3.86**
Black	.57	(.13)	4.32**	.24	(.15)	1.65
Hispanic	.28	(.25)	1.12	.50	(.23)	2.17*
Native American	.79	(.23)	3.45**	.02	(.35)	.07
Other racial minority	-.46	(.17)	-2.75**	-.02	(.26)	-.07
Constant	-6.48	(.84)	-7.73**	-5.03	(.76)	-6.61
Model <i>F</i> -test	57.42**			17.14**		

*Note.* Entries are unstandardized partial regression coefficients (*b*), clustered robust standard errors in parentheses, and *z*-tests (*N* = 11,728).

<sup>a</sup> Negative binomial regression model.

\**p* < .05; \*\* *p* < .01 (two-tailed test).

Table H3  
*Effects of Victimization on Risky Behavioral Outcomes in Adulthood*

Variables	Alcohol problems <sup>a</sup>			Marijuana use <sup>b</sup>			Hard drug use <sup>b</sup>			Risky sexual behavior <sup>b</sup>		
	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>
Victimization	-.06	(.07)	-.85	.02	(.10)	.20	.27	(.13)	2.13*	.42	(.20)	2.15*
Prior victimization	.28	(.06)	4.92**	.41	(.08)	5.13**	.29	(.12)	2.44*	.60	(.14)	4.19**
Low self-control	.05	(.01)	7.10**	.07	(.01)	6.91**	.09	(.01)	6.32**	.07	(.02)	2.98**
PVT score	.27	(.02)	12.83**	.20	(.03)	6.05**	.17	(.04)	4.18**	.01	(.07)	.06
Financial hardship	.20	(.05)	3.73**	.64	(.08)	8.47**	.68	(.12)	5.76**	.19	(.19)	1.04
College graduate	.17	(.05)	3.07**	-.43	(.09)	-4.60**	-.59	(.14)	-4.22**	-.20	(.18)	-1.06
Male	.41	(.05)	8.81**	.58	(.07)	7.82**	.37	(.10)	3.86**	1.29	(.18)	7.11**
Age	-.05	(.02)	-3.28**	-.12	(.02)	-5.14**	-.11	(.03)	-3.43**	-.01	(.06)	-.23
Black	-.96	(.10)	-9.80**	.01	(.12)	.11	-1.23	(.20)	-6.27**	.96	(.22)	4.29**
Hispanic	-.19	(.12)	-1.63	-.40	(.19)	-2.15*	-.11	(.24)	-.48	.14	(.34)	.40
Native American	.39	(.16)	2.42*	.28	(.22)	1.25	.62	(.29)	2.15*	-.07	(.63)	-.11
Other racial minority	-.28	(.13)	-2.22*	-.24	(.20)	-1.20	-.38	(.30)	-1.28	-.23	(.52)	-.44
Constant	-3.11	(.37)	-8.52**	-3.37	(.55)	-6.11**	-4.70	(.73)	-6.41**	-5.94	(1.19)	-5.00**
Model <i>F</i> -test		47.12**			31.86**			24.55**			18.93**	

*Note.* Entries are unstandardized partial regression coefficients (*b*), clustered robust standard errors in parentheses, and *z*-tests (*N* = 11,728).

<sup>a</sup> Negative binomial regression model.

<sup>b</sup> Logistic regression model.

\**p* < .05; \*\* *p* < .01 (two-tailed test).

Table H4  
*Effects of Victimization on Health Outcomes in Adulthood*

Variables	STI Diagnosis <sup>a</sup>			Poor self-rated health <sup>b</sup>		
	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>
Victimization	.25	(.11)	2.25*	-.01	(.03)	-.34
Prior victimization	.09	(.10)	.92	.06	(.03)	2.26*
Low self-control	.04	(.01)	3.09**	.04	(.01)	6.63**
PVT score	-.02	(.04)	-.55	-.04	(.08)	-.53
Financial hardship	.27	(.12)	2.20*	.27	(.03)	9.67**
College graduate	-.03	(.10)	-.34	-.34	(.02)	-14.30**
Male	-1.20	(.10)	-12.23**	-.11	(.02)	-5.15**
Age	-.09	(.03)	-3.32**	.01	(.07)	.23
Black	.39	(.11)	3.47**	.11	(.03)	3.74**
Hispanic	.25	(.24)	1.05	.14	(.05)	2.91**
Native American	.51	(.26)	1.94	.05	(.88)	.58
Other racial minority	-.45	(.24)	-1.87	.15	(.07)	2.21*
Constant	-1.34	(.61)	-2.21*	.77	(.16)	4.89**
Model <i>F</i> -test		20.99**			62.33**	

*Note.* Entries are unstandardized partial regression coefficients (*b*), clustered robust standard errors in parentheses, and *z*-tests (*N* = 11,728).

<sup>a</sup> Logistic regression model.

<sup>b</sup> OLS regression model.

\**p* < .05; \*\* *p* < .01 (two-tailed test).

Table H5

*Stage One Probit Model Estimating Selection into the Subsample of Victims*

Variables	Victimization		
	<i>b</i>	(SE)	<i>z</i>
Prior victimization	.12	(.04)	2.73**
Low self-control	.03	(.01)	5.71**
PVT score	-.01	(.02)	-.94
Financial hardship	.06	(.06)	.99
College graduate	-.06	(.05)	-1.08
Male	.02	(.04)	.56
Age	.01	(.01)	1.43
Black	.25	(.05)	5.12**
Hispanic	.07	(.07)	1.00
Native American	.13	(.13)	1.03
Other racial minority	.01	(.08)	.05
Walk for exercise	.10	(.04)	2.19**
Gambled for money	-.14	(.04)	-3.62**
Work 10 hours per week	-.08	(.04)	-2.03*
Served in military reserves	.20	(.07)	2.63**
Feel less intelligent than others	.17	(.07)	2.32*
Disinterested in others' problems	.03	(.06)	.52
Constant	-1.64	(.25)	-6.69**
Model <i>F</i> -test		10.97**	

*Note.* Entries are unstandardized partial regression coefficients (*b*), clustered robust standard errors in parentheses, and *z*-tests (*N* = 11,728).

\**p* < .05; \*\**p* < .01 (two-tailed test).



Table H6  
*Effects of Social Ties on Psychological Outcomes among Victims in Adulthood*

Variables	Depression <sup>a</sup>			Suicide ideation <sup>c</sup>			Suicide attempt <sup>c</sup>		
	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>
Attachment to parents	-.06	(.01)	-3.78**	-.06	(.03)	-2.41*	-.02	(.01)	-1.68
Job satisfaction	-.26	(.05)	-5.75**	-.09	(.08)	-1.06	-.01	(.06)	-.24
Marriage	-.07	(.05)	-1.62	-.03	(.07)	-.44	-.02	(.04)	.64
Attachment to children	-.02	(.02)	-1.39	-.03	(.02)	-1.24	-.03	(.02)	-1.46
Prior victimization	.06	(.06)	.91	-.02	(.11)	-.22	-.04	(.08)	-.44
Low self-control	.05	(.01)	5.32**	.01	(.02)	.62	.01	(.01)	.51
PVT score	-.02	(.02)	-.85	.08	(.03)	2.41*	.02	(.02)	1.00
Financial hardship	.16	(.05)	3.12**	.01	(.08)	.12	-.10	(.08)	-1.23
College graduate	-.06	(.06)	-.96	.07	(.09)	.75	-.12	(.14)	-.82
Male	-.23	(.05)	-4.62**	-.09	(.08)	-1.04	-.10	(.08)	-1.27
Age	.01	(.01)	.97	.00	(.02)	.02	.00	(.02)	-.03
Black	-.02	(.08)	-.22	-.22	(.09)	-2.48*	-.31	(.08)	-3.73**
Hispanic	.02	(.09)	.19	-.03	(.16)	-1.61	-.45	(.20)	-2.30*
Native American	-.12	(.09)	-1.35	.15	(.16)	.99	-1.38	(.60)	-2.31*
Other racial minority	.01	(.09)	.12	-.27	(.17)	-1.61	-.14	(.13)	-1.01
Constant	1.60	(.43)	3.75**	-.08	(.99)	-.08	.91	(.61)	1.50
Rho		-.32			-.49			-.57	
Likelihood ratio $\chi^2$		.33			7.68**			16.15**	

*Note.* Entries are unstandardized partial regression coefficients (*b*), clustered robust standard errors in parentheses, and *z*-tests (*n* = 967). Stage-one probit models predicting selection into the subsample of victims not shown here (see Table H5).

<sup>a</sup> Poisson model with sample selection.

<sup>b</sup> FIML model with sample selection.

<sup>c</sup> Probit model with sample selection.

\**p* < .05; \*\* *p* < .01 (two-tailed test).

Table H7  
*Effects of Social Ties on Offending among Victims in Adulthood*

Variables	Violent offending <sup>a</sup>			Property offending <sup>a</sup>		
	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>
Attachment to parents	-.07	(.06)	-1.17	-.09	(.06)	-1.41
Job satisfaction	-.23	(.21)	-1.08	-.92	(.23)	-4.02**
Marriage	-.44	(.22)	-2.01*	-.53	(.30)	-1.79
Attachment to children	-.03	(.07)	-.44	-.06	(.08)	-.77
Prior victimization	.62	(.22)	2.83**	.93	(.32)	2.86**
Low self-control	.08	(.04)	2.07*	.21	(.05)	4.08**
PVT score	.04	(.08)	.56	.08	(.10)	.82
Financial hardship	.38	(.21)	1.82	.63	(.22)	2.84**
College graduate	-.75	(.26)	-2.87**	-.41	(.37)	-1.10
Male	1.14	(.21)	5.52**	.68	(.24)	2.82**
Age	-.06	(.04)	-1.52	-.02	(.07)	-.32
Black	.23	(.32)	.72	.65	(.39)	1.69
Hispanic	.29	(.54)	.53	1.07	(.58)	1.83
Native American	.84	(.31)	2.72**	-.10	(.37)	-.28
Other racial minority	-.55	(.27)	-2.02*	-.23	(.45)	-.52
Constant	-3.09	(1.76)	-1.76	-8.87	(2.52)	-3.51**
Rho		.52			.59	
Likelihood ratio $\chi^2$		1.10			29.64**	

*Note.* Entries are unstandardized partial regression coefficients (*b*), clustered robust standard errors in parentheses, and *z*-tests (*n* = 967). Stage-one probit models predicting selection into the subsample of victims not shown here (see Table H5).

<sup>a</sup> Poisson model with sample selection.

\**p* < .05; \*\* *p* < .01 (two-tailed test).

Table H8  
*Effects of Social Ties on Risky Behavioral Outcomes among Victims in Adulthood*

Variables	Alcohol problems <sup>a</sup>			Marijuana use <sup>b</sup>			Hard drug use <sup>b</sup>			Risky sexual behavior <sup>b</sup>		
	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>
Attachment to parents	-.01	(.03)	-1.15	-.02	(.02)	-.99	-.04	(.03)	-1.17	-.15	(.09)	-1.77
Job satisfaction	-.06	(.12)	-.54	-.07	(.07)	-1.00	-.16	(.12)	-1.31	.28	(.32)	.86
Marriage	-.14	(.13)	-1.02	-.10	(.07)	-1.46	-.38	(.16)	-2.34*	-1.40	(.48)	-2.89**
Attachment to children	-.07	(.04)	-1.53	-.04	(.02)	-2.02*	.01	(.03)	.22	.10	(.09)	1.05
Prior victimization	.54	(.16)	3.39**	.24	(.07)	3.30**	.16	(.18)	.87	.69	(.33)	2.10*
Low self-control	.11	(.03)	4.23**	.05	(.01)	5.32**	.06	(.02)	3.33**	.04	(.03)	1.27
PVT score	.03	(.06)	5.63**	.06	(.04)	1.79	.05	(.06)	.93	-.05	(.12)	-.42
Financial hardship	.43	(.14)	3.12**	.11	(.08)	1.33	.34	(.15)	2.34*	-.23	(.40)	-.59
College graduate	-.15	(.15)	-.95	-.25	(.09)	-2.88**	-.18	(.17)	-1.05	-.69	(.47)	-1.49
Male	.36	(.14)	2.53*	.24	(.07)	3.50**	.23	(.14)	1.60	1.41	(.41)	3.48**
Age	-.03	(.04)	-.72	-.01	(.02)	-.74	-.02	(.04)	-.63	.01	(.10)	.13
Black	-.40	(.25)	-1.63	.08	(.10)	.79	-.76	(.44)	-1.73	-.52	(.34)	-1.50
Hispanic	-.74	(.34)	-2.18*	-.30	(.16)	-1.87	-.18	(.25)	-.72	-3.71	(.77)	-4.79**
Native American	.78	(.47)	1.66	-.11	(.16)	-.70	.12	(.29)	.42	-.52	(.61)	-.86
Other racial minority	-.43	(.32)	-1.32	.07	(.14)	.52	.01	(.29)	.02	-.87	(.58)	-1.50
Constant	-6.28	(1.34)	-4.68**	-3.12	(.52)	-5.98**	-2.97	(1.49)	-2.00*	-3.70	(2.62)	-1.41
Rho		.53			.47			.34			-.37	
Likelihood ratio $\chi^2$		10.89**			1.65			.09			1.00	

*Note.* Entries are unstandardized partial regression coefficients (*b*), clustered robust standard errors in parentheses, and *z*-tests (*n* = 967). Stage-one probit models predicting selection into the subsample of victims not shown here (see Table H5).

<sup>a</sup> Poisson model with sample selection.

<sup>b</sup> Probit model with sample selection.

\**p* < .05; \*\* *p* < .01 (two-tailed test).

Table H9  
*Effects of Social Ties on Health Outcomes among Victims in Adulthood*

Variables	STI diagnosis <sup>a</sup>			Poor self-rated health <sup>b</sup>		
	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>
Attachment to parents	-.05	(.03)	-1.52	-.04	(.02)	-2.44*
Job satisfaction	-.06	(.11)	-.59	-.15	(.06)	-2.69**
Marriage	-.33	(.14)	-2.22*	-.07	(.06)	-1.12
Attachment to children	-.04	(.03)	-1.24	-.01	(.02)	-.72
Prior victimization	-.03	(.17)	-.19	.07	(.07)	.98
Low self-control	.02	(.03)	.83	.03	(.10)	3.95**
PVT score	-.02	(.05)	-.33	-.01	(.02)	-.57
Financial hardship	.26	(.13)	2.02*	.30	(.08)	3.75**
College graduate	-.02	(.15)	-.14	-.27	(.07)	-3.71**
Male	-.50	(.17)	-2.89	-.16	(.05)	-2.98**
Age	-.03	(.04)	-.69	.01	(.02)	.76
Black	.20	(.18)	1.09	.08	(.07)	1.10
Hispanic	.32	(.22)	1.48	.15	(.13)	1.16
Native American	.34	(.33)	1.03	-.01	(.16)	-.07
Other racial minority	.14	(.24)	.58	.16	(.12)	1.35
Constant	-.98	(2.22)	-.44	1.10	(.39)	2.83**
Rho		.23			-.17	
Likelihood ratio $\chi^2$		.04			.03	

*Note.* Entries are unstandardized partial regression coefficients (*b*), clustered robust standard errors in parentheses, and *z*-tests (*n* = 967). Stage-one probit models predicting selection into the subsample of victims not shown here (see Table H5).

<sup>a</sup> Probit model with sample selection.

<sup>b</sup> FIML model with sample selection.

\**p* < .05; \*\* *p* < .01 (two-tailed test).

## APPENDIX I

### GENDER-SPECIFIC MODELS OF VICTIMIZATION ON ADULT OUTCOMES

**Table II**  
*Effects of Social Ties on Psychological Outcomes among Adult Males*

Variables	Depression <sup>a</sup>			Suicide ideation <sup>c</sup>			Suicide attempt <sup>c</sup>		
	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>
Victimization	.02	(.03)	.65	.23	(.16)	1.40	.63	(.32)	1.98*
Prior victimization	.06	(.03)	2.25*	-.04	(.16)	-.25	.26	(.29)	.91
Low self-control	.06	(.01)	7.53**	.09	(.02)	4.72**	.14	(.04)	3.79**
PVT score	-.01	(.01)	-1.24	.10	(.06)	1.79	-.16	(.12)	-1.39
Financial hardship	.27	(.03)	8.43**	.43	(.17)	2.53*	.20	(.33)	.61
College graduate	-.06	(.03)	-1.89	-.51	(.20)	-2.59*	-1.04	(.61)	-1.72
Age	.01	(.01)	1.45	.04	(.05)	.80	.01	(.10)	.11
Black	.19	(.05)	4.17*	-.43	(.26)	-1.67	.21	(.41)	.51
Hispanic	.13	(.05)	2.49*	-.72	(.35)	-2.06*	-.82	(.70)	-1.17
Native American	-.01	(.07)	-.16	.10	(.40)	.26	1.18	(.60)	1.96
Other racial minority	.18	(.05)	3.64**	.01	(.37)	.04	-1.98	(.75)	-2.62**
Constant	.43	(.18)	2.33**	-5.80	(1.16)	-4.99**	-5.66	(2.52)	-2.25*
Model <i>F</i> -test	52.10**			4.96**			4.01**		

*Note.* Entries are unstandardized partial regression coefficients (*b*), clustered robust standard errors in parentheses, and *z*-tests ( $n = 6,618$ ).

<sup>a</sup> Negative binomial regression model.

<sup>b</sup> OLS regression model.

<sup>c</sup> Logistic regression model.

\* $p < .05$ ; \*\* $p < .01$  (two-tailed test).

Table I2  
*Effects of Social Ties on Offending among Adult Males*

Variables	Violent offending <sup>a</sup>			Property offending <sup>a</sup>		
	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>
Victimization	1.05	(.13)	8.01**	.03	(.15)	.22
Prior victimization	.73	(.13)	5.73**	.37	(.11)	3.28**
Low self-control	.12	(.02)	7.20**	.10	(.02)	6.19**
PVT score	.10	(.05)	2.23*	.16	(.05)	3.50**
Financial hardship	.24	(.14)	1.75	.60	(.15)	3.92**
College graduate	-.57	(.17)	-3.36**	.20	(.14)	1.45
Age	-.11	(.04)	-2.57*	-.12	(.04)	-3.25**
Black	.26	(.12)	1.75	.02	(.15)	.12
Hispanic	.12	(.22)	.56	.57	(.29)	1.98*
Native American	.84	(.24)	3.46**	-.43	(.32)	-1.34
Other racial minority	-.43	(.19)	-2.31*	.12	(.26)	.47
Constant	-4.29	(.93)	-4.62**	-3.93	(.83)	-4.71**
Model <i>F</i> -test		27.22**			11.64**	

*Note.* Entries are unstandardized partial regression coefficients (*b*), clustered robust standard errors in parentheses, and *z*-tests (*n* = 6,618).

<sup>a</sup> Negative binomial regression model.

\**p* < .05; \*\* *p* < .01 (two-tailed test).

Table I3  
*Effects of Social Ties on Risky Behavioral Outcomes among Adult Males*

Variables	Alcohol problems <sup>a</sup>			Marijuana use <sup>b</sup>			Hard drug use <sup>b</sup>			Risky sexual behavior <sup>b</sup>		
	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>
Victimization	-.08	(.08)	-1.08	.15	(.11)	1.33	.32	(.15)	2.17*	.50	(.18)	2.78**
Prior victimization	.24	(.06)	4.02**	.41	(.09)	4.73**	.24	(.13)	1.85	.40	(.14)	2.88**
Low self-control	.04	(.01)	5.09**	.04	(.01)	3.52**	.08	(.02)	4.20**	.07	(.02)	3.51**
PVT score	.25	(.03)	9.22**	.19	(.04)	5.41**	.12	(.06)	2.06*	.08	(.06)	1.19
Financial hardship	.19	(.08)	2.51*	.71	(.10)	6.88**	.51	(.16)	3.22**	.05	(.21)	.24
College graduate	.05	(.07)	.69	-.35	(.11)	-3.12**	-.55	(.21)	-2.65**	.07	(.19)	.37
Age	-.03	(.02)	-1.60	-.10	(.03)	-3.30**	-.07	(.04)	-1.82	-.01	(.05)	-.13
Black	-.77	(.11)	-6.86**	.06	(.14)	.44	-1.27	(.22)	-5.70**	1.04	(.18)	5.70**
Hispanic	-.14	(.12)	-1.17	-.24	(.20)	-1.22	-.22	(.23)	-.94	.38	(.33)	1.14
Native American	.35	(.22)	1.57	.24	(.26)	.95	.53	(.39)	1.37	-.08	(.70)	-.11
Other racial minority	-.26	(.15)	-1.67	-.14	(.23)	-.59	-.36	(.39)	-.94	-.19	(.61)	-.31
Constant	-2.60	(.48)	-5.43**	-2.75	(.69)	-3.97**	-3.96	(.94)	-4.19**	-5.57	(1.09)	-5.10**
Model <i>F</i> -test		18.01**			15.71**			10.68**			10.89**	

*Note.* Entries are unstandardized partial regression coefficients (*b*), clustered robust standard errors in parentheses, and *z*-tests ( $n = 6,618$ ).

<sup>a</sup> Negative binomial regression model.

<sup>b</sup> Logistic regression model.

\* $p < .05$ ; \*\*  $p < .01$  (two-tailed test).



Table I4  
*Effects of Social Ties on Health Outcomes among Adult Males*

Variables	STI diagnosis <sup>a</sup>			Poor self-rated health <sup>b</sup>		
	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>
Victimization	.34	(.17)	1.98*	-.04	(.04)	-.88
Prior victimization	.29	(.15)	1.91	.01	(.03)	.37
Low self-control	.06	(.02)	3.51**	.03	(.01)	7.12**
PVT score	.08	(.06)	1.19	-.01	(.01)	-.47
Financial hardship	.05	(.21)	.24	.29	(.04)	7.18**
College graduate	.07	(.19)	.37	-.29	(.03)	-9.18**
Age	-.01	(.05)	-.13	.02	(.01)	2.39*
Black	1.04	(.18)	5.70**	.03	(.04)	.80
Hispanic	.38	(.33)	1.14	.09	(.08)	1.18
Native American	-.08	(.70)	-.11	.04	(.14)	.29
Other racial minority	-.19	(.61)	-.31	.17	(.08)	2.18*
Constant	-5.57	(1.09)	-5.10	.50	(.22)	2.31*
Model <i>F</i> -test		10.89**			31.07**	

*Note.* Entries are unstandardized partial regression coefficients (*b*), clustered robust standard errors in parentheses, and *z*-tests (*n* = 6,618).

<sup>a</sup> Logistic regression model.

<sup>b</sup> OLS regression model.

\**p* < .05; \*\* *p* < .01 (two-tailed test).

Table I5  
*Effects of Social Ties on Psychological Outcomes among Adult Females*

Variables	Depression <sup>a</sup>			Suicide ideation <sup>c</sup>			Suicide attempt <sup>c</sup>		
	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>
Victimization	.06	(.03)	1.86	-.07	(.15)	-.43	.29	(.30)	.96
Prior victimization	.06	(.03)	1.90	.10	(.18)	.58	-.16	(.30)	-.55
Low self-control	.08	(.01)	5.39**	.15	(.02)	7.80**	.15	(.04)	3.60**
PVT score	-.02	(.01)	-1.70	.06	(.06)	1.00	-.21	(.08)	-2.60**
Financial hardship	.22	(.02)	9.19**	.38	(.13)	2.93**	.29	(.26)	1.15
College graduate	-.09	(.02)	-3.66**	-.10	(.14)	-.71	-.43	(.33)	-1.29
Age	-.01	(.01)	-.70	-.06	(.04)	-1.64	.07	(.07)	1.02
Black	.11	(.03)	3.30**	.24	(.15)	1.67	-.17	(.30)	-.55
Hispanic	.03	(.06)	.50	-.12	(.23)	-.51	-1.10	(.76)	-1.44
Native American	.06	(.07)	.96	.52	(.33)	1.60	.59	(.63)	.94
Other racial minority	.10	(.05)	1.76	.16	(.25)	.62	-1.13	(.74)	-1.53
Constant	.71	(.15)	4.75**	-5.13	(.79)	-6.46**	-5.67	(1.29)	-4.40**
Model <i>F</i> -test	75.27**			10.81**			4.41**		

*Note.* Entries are unstandardized partial regression coefficients (*b*), clustered robust standard errors in parentheses, and *z*-tests ( $n = 7,512$ ).

<sup>a</sup> Negative binomial regression model.

<sup>b</sup> OLS regression model.

<sup>c</sup> Logistic regression model.

\* $p < .05$ ; \*\* $p < .01$  (two-tailed test).

Table I6  
*Effects of Social Ties on Offending among Adult Females*

Variables	Violent offending <sup>a</sup>			Property offending <sup>a</sup>		
	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>
Victimization	.99	(.22)	4.49**	.04	(.19)	.20
Prior victimization	.38	(.21)	1.78	.28	(.19)	1.46
Low self-control	.17	(.02)	7.41**	.16	(.02)	7.34**
PVT score	.08	(.07)	1.05	.24	(.06)	4.05**
Financial hardship	.49	(.20)	2.47*	.44	(.16)	2.82**
College graduate	-1.18	(.29)	-4.12**	-.32	(.19)	-1.73
Age	-.09	(.05)	-2.08*	-.11	(.04)	-2.84**
Black	.91	(.21)	4.32**	.56	(.19)	2.99**
Hispanic	.58	(.36)	1.63	.46	(.29)	1.58
Native American	.38	(.43)	.87	.87	(.50)	1.76
Other racial minority	-.07	(.46)	-.16	-.30	(.34)	-.88
Constant	-6.48	(1.12)	-5.78**	-6.57	(1.03)	-6.37**
Model <i>F</i> -test		23.75**			15.29**	

*Note.* Entries are unstandardized partial regression coefficients (*b*), clustered robust standard errors in parentheses, and *z*-tests (*n* = 7,512).

<sup>a</sup> Negative binomial regression model.

\**p* < .05; \*\* *p* < .01 (two-tailed test).

Table I7  
*Effects of Social Ties on Risky Behavioral Outcomes among Adult Females*

Variables	Alcohol problems <sup>a</sup>			Marijuana use <sup>b</sup>			Hard drug use <sup>b</sup>			Risky sexual behavior <sup>b</sup>		
	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>
Victimization	-.03	(.11)	-.24	-.12	(.13)	-.90	.33	(.17)	1.97*	.63	(.25)	2.49*
Prior victimization	.27	(.10)	2.77**	.36	(.13)	2.73**	.41	(.20)	2.02*	.64	(.25)	2.60*
Low self-control	.06	(.01)	6.00**	.09	(.01)	7.53**	.11	(.02)	5.38**	.11	(.04)	2.89**
PVT score	.31	(.03)	10.44**	.21	(.04)	4.81**	.27	(.05)	5.19**	-.04	(.13)	-.28
Financial hardship	.28	(.07)	3.92**	.63	(.10)	6.23**	.70	(.15)	4.57**	.68	(.25)	2.78**
College graduate	.23	(.07)	3.11**	-.46	(.10)	-4.65**	-.51	(.17)	-3.06**	-.64	(.44)	-1.45
Age	-.06	(.02)	-2.74**	-.13	(.03)	-4.77**	-.13	(.04)	-3.30**	-.07	(.09)	-.77
Black	-1.06	(.14)	-7.73**	.06	(.15)	.39	-.95	(.25)	-3.86**	1.08	(.36)	3.03**
Hispanic	-3.02	(.21)	-1.47	-.64	(.23)	-2.78**	.01	(.30)	.03	.27	(.60)	.45
Native American	.49	(.19)	2.62**	.35	(.27)	1.30	.58	(.33)	1.76	-1.08	(1.03)	-1.06
Other racial minority	-.38	(.17)	-2.25*	-.13	(.25)	-.53	-.65	(.29)	-2.27*	.33	(.93)	.35
Constant	-3.57	(.53)	-6.80**	-3.78	(.71)	-5.29**	-5.61	(.98)	-5.73**	-5.48	(1.99)	-2.75**
Model <i>F</i> -test		28.57**			25.18**			14.92**			10.82**	

*Note.* Entries are unstandardized partial regression coefficients (*b*), clustered robust standard errors in parentheses, and *z*-tests (*n* = 7,512).

<sup>a</sup> Negative binomial regression model.

<sup>b</sup> Logistic regression model.

\**p* < .05; \*\* *p* < .01 (two-tailed test).

Table I8  
*Effects of Social Ties on Health Outcomes among Adult Females*

Variables	STI diagnosis <sup>a</sup>			Poor self-rated health <sup>b</sup>		
	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>
Victimization	.19	(.12)	1.58	.01	(.03)	.24
Prior victimization	-.08	(.14)	-.60	.11	(.05)	2.42*
Low self-control	.04	(.01)	2.77**	.03	(.01)	6.76**
PVT score	.03	(.04)	.74	-.01	(.01)	-1.03
Financial hardship	.41	(.12)	3.49**	.22	(.03)	6.27**
College graduate	-.01	(.11)	-.08	-.37	(.03)	-12.30**
Age	-.09	(.03)	-3.21**	-.01	(.01)	-1.72
Black	.33	(.12)	2.74**	.14	(.04)	3.56**
Hispanic	.20	(.28)	.73	.20	(.08)	2.60*
Native American	.49	(.29)	1.68	.10	(.09)	1.05
Other racial minority	-.50	(.26)	-1.91	.15	(.07)	2.10*
Constant	-1.67	(.69)	-2.43*	1.13	(.21)	5.40**
Model <i>F</i> -test		6.35**			40.29**	

*Note.* Entries are unstandardized partial regression coefficients (*b*), clustered robust standard errors in parentheses, and *z*-tests (*n* = 7,512).

<sup>a</sup> Logistic regression model.

<sup>b</sup> OLS regression model.

\**p* < .05; \*\* *p* < .01 (two-tailed test).

APPENDIX J

EXCLUSION RESTRICTIONS IN ADULTHOOD

Table J1

*Survey Items Used to Measure Exclusion Restrictions in Adulthood*

Exclusion Restrictions	Wave IV Survey Items	Coding
1. Walk for exercise	In the past seven days, did you walk for exercise?	0 = No, 1 = Yes
2. Gambled for money	Have you ever bought lottery tickets, played video games or slot machines for money, bet on horses or sporting events, or taken part in any other kinds of gambling for money?	0 = No, 1 = Yes
3. Work 10 hours per week	Are you currently working for pay at least 10 hours a week?	0 = No, 1 = Yes
4. Served in military reserves	Have you ever been in the military reserves?	0 = No, 1 = Yes
5. Feel less intelligent than others	Compared to other people your age, how intelligent are you?	0 = Average or above average, 1 = Below average
6. Disinterested in others' problems	I am not interested in other people's problems.	0 = Strongly disagree, to 4 = Strongly agree

Table J2

*Bivariate Correlations between Exclusion Restrictions, Victimization, and Outcomes in Adulthood*

Variables	Walk for exercise	Gambled for money	Work 10 hours per week	Served in military reserves	Feel less intelligent than others	Dis- interested in problems
Victimization	.05**	.07**	-.05**	.08**	.08**	.05**
Depression	.02	-.03	-.09**	-.05**	.20**	.07**
Suicide ideation	.01	.02	-.09**	.03	.14**	.00
Suicide attempt	.12**	-.06**	-.15**	-.01	.23**	.01
Violent offending	.05**	.09**	-.01	.02	.14**	.08**
Property offending	-.03	.11**	.03	.02	.03	.05**
Alcohol problems	-.08**	.27**	.10**	.11**	-.03	-.01
Marijuana use	.01	.14**	.08**	-.10**	.03	.06**
Hard drug use	-.05*	.14**	.02	-.05*	.02	.07**
Risky sexual behavior	.01	.04*	.01	.08**	.06**	.04*
STI diagnosis	.01	-.02	.01	-.06**	.06**	-.04*
Poor self-rated health	-.02	.03	-.02	-.09**	.17**	.06**

Note.  $N = 14,130$ .

\* $p < .05$ ; \*\*  $p < .01$  (two-tailed test).



## APPENDIX K

### EFFECTS OF ATTACHMENT TO PARTNER IN ADULTHOOD

Table K1  
*Effects of Social Ties on Psychological Outcomes among Victims in Adulthood*

Variables	Depression <sup>a</sup>			Suicide ideation <sup>c</sup>			Suicide attempt <sup>c</sup>		
	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>
Attachment to parents	-.05	(.01)	-4.04**	-.06	(.02)	-2.48*	-.04	(.02)	-1.80
Job satisfaction	-.24	(.04)	-5.97**	-.12	(.08)	-1.45	-.03	(.08)	-.40
Attachment to partner	-.08	(.01)	-5.98**	-.07	(.03)	-2.14*	-.01	(.03)	-.40
Attachment to children	-.03	(.01)	-2.05*	-.03	(.02)	-1.49	-.04	(.03)	-1.57
Prior victimization	.03	(.05)	.61	-.01	(.09)	-.10	-.01	(.09)	-.14
Low self-control	.05	(.01)	6.71**	.02	(.02)	.92	.02	(.02)	1.08
PVT score	-.03	(.02)	-1.84	.06	(.03)	1.71	-.01	(.03)	-.18
Financial hardship	.21	(.05)	4.70**	.08	(.09)	.92	-.07	(.08)	-.85
College graduate	-.07	(.05)	-1.30	-.01	(.10)	-.15	-.17	(.18)	-.97
Male	-.21	(.04)	-4.86**	-.06	(.08)	-.74	-.09	(.08)	-1.17
Age	.01	(.01)	1.03	.01	(.02)	.34	.00	(.02)	.01
Black	.01	(.07)	.22	-.34	(.09)	-3.78**	-.38	(.09)	-4.02**
Hispanic	.04	(.09)	.42	-.22	(.21)	-1.07	-.70	(.27)	-2.61**
Native American	-.07	(.10)	-.73	.11	(.17)	.67	-2.29	(.90)	-2.54**
Other racial minority	.08	(.08)	1.00	-.30	(.21)	-1.07	-.18	(.17)	-1.08
Constant	1.62	(.37)	4.40**	-.19	(.96)	-.19	.88	(.71)	1.24
Rho		-.24			-.41			-.55	
Likelihood ratio $\chi^2$		.15			7.20**			13.37**	

*Note.* Entries are unstandardized partial regression coefficients (*b*), clustered robust standard errors in parentheses, and *z*-tests (*n* = 1,173). Stage-one probit models predicting selection into the subsample of victims not shown here (see Table 4.9).

<sup>a</sup> Poisson model with sample selection.

<sup>b</sup> FIML model with sample selection.

<sup>c</sup> Probit model with sample selection.

\**p* < .05; \*\* *p* < .01 (two-tailed test).

Table K2  
*Effects of Social Ties on Offending among Victims in Adulthood*

Variables	Violent offending <sup>a</sup>			Property offending <sup>a</sup>		
	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>
Attachment to parents	-.06	(.05)	-1.17	-.08	(.05)	-1.56
Job satisfaction	-.24	(.19)	-1.25	-.60	(.21)	-2.82**
Attachment to partner	-.22	(.05)	-4.09**	-.37	(.08)	-4.63**
Attachment to children	-.04	(.06)	-.74	-.06	(.08)	-.83
Prior victimization	.61	(.19)	3.28**	.82	(.28)	2.96**
Low self-control	.10	(.03)	3.05**	.21	(.05)	4.63**
PVT score	.03	(.07)	.44	.20	(.08)	2.43*
Financial hardship	.55	(.26)	1.43	.85	(.18)	4.65**
College graduate	-.80	(.23)	-3.44**	-.61	(.33)	-1.85
Male	1.16	(.20)	5.86**	.66	(.25)	2.58*
Age	-.07	(.04)	-1.69	-.09	(.06)	-1.48
Black	.38	(.26)	1.43	.95	(.39)	4.24*
Hispanic	.15	(.45)	.33	1.04	(.69)	1.50
Native American	.96	(.27)	3.58**	.25	(.48)	.53
Other racial minority	-.59	(.25)	-2.40*	-.24	(.41)	-.58
Constant	-3.83	(1.51)	-2.54*	-3.16	(.89)	-3.53**
Rho		.62			.52	
Likelihood ratio $\chi^2$		6.38*			3.47	

*Note.* Entries are unstandardized partial regression coefficients (*b*), clustered robust standard errors in parentheses, and *z*-tests (*n* = 1,173). Stage-one probit models predicting selection into the subsample of victims not shown here (see Table 4.9).

<sup>a</sup> Poisson model with sample selection.

\**p* < .05; \*\* *p* < .01 (two-tailed test).

Table K3  
*Effects of Social Ties on Risky Behavioral Outcomes among Victims in Adulthood*

Variables	Alcohol problems <sup>a</sup>		Marijuana use <sup>b</sup>		Hard drug use <sup>b</sup>		Risky sexual behavior <sup>b</sup>	
	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)
Attachment to parents	-.02	(.03)	-.59	-.02	(.01)	-1.02	-.08	(.04)
Job satisfaction	-.21	(.12)	-1.73	-.06	(.06)	-1.03	.12	(.14)
Attachment to partner	-.09	(.04)	-1.93	-.05	(.02)	-2.36*	-.19	(.05)
Attachment to children	-.08	(.03)	-2.34*	-.04	(.02)	-2.37*	.03	(.04)
Prior victimization	.41	(.14)	3.02**	.23	(.07)	3.38**	.02	(.17)
Low self-control	.11	(.02)	4.72**	.04	(.01)	5.29**	.01	(.03)
PVT score	.31	(.05)	6.40**	.07	(.03)	2.17*	.03	(.04)
Financial hardship	.48	(.12)	3.97**	.23	(.07)	3.20**	-.09	(.11)
College graduate	-.17	(.14)	-1.23	-.27	(.09)	-3.11**	-.20	(.27)
Male	.46	(.13)	3.51**	.25	(.06)	4.13**	.63	(.16)
Age	.00	(.04)	.09	-.01	(.02)	-.90	-.02	(.03)
Black	-.37	(.20)	-1.82	.16	(.09)	1.91	-.20	(.11)
Hispanic	-.47	(.30)	-1.56	-.23	(.16)	-1.47	-.42	(.35)
Native American	.66	(.45)	1.47	-.11	(.15)	-.69	-.02	(.15)
Other racial minority	-.52	(.34)	-1.53	.23	(.12)	1.84	-.41	(.20)
Constant	-6.55	(1.28)	-5.11**	-3.12	(.44)	-7.01**	.41	(1.92)
Rho	.49				.59			
Likelihood ratio $\chi^2$		3.30			10.15**			
					.45			
					.36			

*Note.* Entries are unstandardized partial regression coefficients (*b*), clustered robust standard errors in parentheses, and *z*-tests ( $n = 1,173$ ). Stage-one probit models predicting selection into the subsample of victims not shown here (see Table 4.9).

<sup>a</sup> Poisson model with sample selection.

<sup>b</sup> Probit model with sample selection.

\* $p < .05$ ; \*\*  $p < .01$  (two-tailed test).

Table K4  
*Effects of Social Ties on Health Outcomes among Victims in Adulthood*

Variables	STI diagnosis <sup>a</sup>			Poor self-rated health <sup>b</sup>		
	<i>b</i>	(SE)	<i>z</i>	<i>b</i>	(SE)	<i>z</i>
Attachment to parents	-.03	(.02)	-1.30	-.04	(.01)	-3.00**
Job satisfaction	-.01	(.06)	-.13	-.18	(.05)	-3.67**
Attachment to partner	-.06	(.03)	-2.23*	-.03	(.02)	-1.96
Attachment to children	-.01	(.02)	-.41	-.01	(.02)	.75
Prior victimization	.05	(.09)	.55	.10	(.07)	1.41
Low self-control	.04	(.01)	3.79**	.06	(.10)	6.12**
PVT score	-.01	(.03)	-.41	-.02	(.02)	-1.02
Financial hardship	.27	(.08)	3.20**	.38	(.07)	5.52**
College graduate	.02	(.09)	.28	-.30	(.08)	-4.00
Male	-.32	(.08)	-4.18**	-.10	(.06)	-1.59
Age	-.02	(.02)	-.85	.03	(.02)	1.64
Black	.28	(.08)	3.20**	.25	(.09)	2.78**
Hispanic	.17	(.14)	1.24	.20	(.15)	1.35
Native American	.28	(.23)	1.25	.08	(.15)	.55
Other racial minority	.09	(.16)	.58	.26	(.13)	1.98*
Constant	-2.19	(.56)	-3.93**	-1.24	(.47)	-2.61**
Rho		.45			-.35	
Likelihood ratio $\chi^2$		.08			2.12	

*Note.* Entries are unstandardized partial regression coefficients (*b*), clustered robust standard errors in parentheses, and *z*-tests (*n* = 1,173). Stage-one probit models predicting selection into the subsample of victims not shown here (see Table 4.9).

<sup>a</sup> Probit model with sample selection.

<sup>b</sup> FIML model with sample selection.

\**p* < .05; \*\* *p* < .01 (two-tailed test).