THE RELATIONSHIP OF COERCION, SOCIAL SUPPORT AND SELF-EFFICACY WITH VIOLENT CRIME

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by

Christopher Eugene Bruell

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In partial fulfillment of the requirements for the degree of Doctor of Philosophy

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ABSTRACT OF DISSERTATION

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Abstract

Both coercion and social support have been included in theoretical explanations of participation in criminal behavior and it is generally hypothesized that coercion causes crime while social support prevents crime. In an attempt to better clarify relationships between coercion, social support, and offending, Colvin, Cullen, and Vander Ven put together their Differential Social Support and Coercion Theory. The current study examines the underlying causal mechanism that drives these relationships. Instead of simply describing the strength and form of the relationships between coercion, social support, and offending, the current study seeks to further explain how the relationships actually work, especially when additional variables (in particular self-efficacy) are introduced. It does so by addressing three research questions: (1) What are the implications of experiencing coercion in multiple settings in terms of participation in violent crime? (2) What is the role of self-efficacy in the relationship between coercion and violent crime? and (3) What is the role of social support as it relates to coercion, self-efficacy, and violent crime?

Longitudinal data from the Project on Human Development in Chicago Neighborhoods were used to test the direct effects of both coercion and social support on violent crime, as well as the mediating effect of self-efficacy on the relationship between coercion and violent crime. The study also tested the potential buffering effects of social support on the relationship between coercion and self-efficacy as well as the relationship between self-efficacy and violent crime.

Results from the analyses demonstrate support for the direct effect of coercion on violent crime as well as for the moderating effect of social support on the relationship between self-
efficacy and violent crime. The study finds little support for the inclusion of self-efficacy in the relationship between coercion and violent crime, however, post hoc analyses did identify social support to be a robust predictor of self-efficacy. The study concludes with a discussion of theoretical and policy implications of the findings.
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Chapter 1: Introduction

There is much research (Clear, 1996; Dhondt, 2012; R. Johnson & Raphael, 2012; Pritikin, 2008; Stahlkopf, Males, & Macallair, 2010) to support the notion that despite exponential increases in incarceration rates in the United States since the 1970s, violent crime rates have remained high, and have even increased in certain jurisdictions. And although violent crime rates have slowly declined over the past ten to twenty years, these longer-term findings still call into question the effectiveness of the policy of attempting to use incarceration as a meaningful response to criminal behavior. Research (Austin et al., 2007; Campbell, 2012; Greenleaf, 2011; Kleiman & Hollander, 2011; Porter, 2013) also suggests a shift in punitive ideology away from the use of mass incarceration and toward more rehabilitative or restorative approaches to responding to lawbreakers. An important by-product of this change is a return to social explanations of crime, many of which had been shelved (in terms of influencing policy) because it had been found (see Martinson, 1974) that programming and policies setup to address offenders based upon these positivist explanations did not “work”.

As the focus on social-environmental explanations for crime intensifies, the need to identify interventions that will successfully address issues at the individual and family levels, as well as those issues that involve broader societal forces, has also become more critical (Akers, 2009; Laub & Sampson, 2003; P.-O. Wikstrom & Sampson, 2003; P.-O. H. Wikstrom, 2006). More recent attempts to incorporate causal elements representing each of these various levels into theoretical explanations of crime have led to much more complex and statistically-demanding models. This has coincidentally made them more difficult to empirically test. Colvin, Cullen, and Vander Ven’s (2002) Differential Coercion and Social Support Theory (DCSS) is
one of these integrated theories that, based upon its complexity and the lack of relevant, comprehensive datasets, has not been fully tested. This study’s primary objective, then, is the empirical testing of some of the DCSS theory’s main propositions. More specifically, it seeks to answer the following research questions in order to better address the need for preventive and reentry programs and policies to not only address the hypothesized negative effects of coercion on offending, but the presumed positive effects of social support as well: (1) What are the implications of experiencing coercion in multiple settings for participation in violent crime? (2) What is the role of self-efficacy in the relationship between coercion and violent crime? (3) What is the role of social support as it relates to coercion, self-efficacy, and violent crime?

The current research seeks to move beyond the often-used black-box explanations that simply demonstrate relationships between variables. Rather, the present study examines the underlying causal mechanism that drives these relationships. More specifically, instead of simply describing the strength and form of the relationships between coercion, social support, and offending, the current study seeks to further explain how the relationships actually work, especially when additional variables (in particular self-efficacy) are introduced. The role of self-efficacy is specifically in terms of individuals’ perceptions of control over their future as it relates to desistance from criminal behavior.

While the inclusion of coercion as an explanatory variable is not a new development in criminology, about a decade ago, in an attempt to move away from the black-box explanations of the relationship between coercion and crime, Colvin and colleagues (2000; 2002) integrated

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1 Over the past thirty to thirty-five years, multiple theorists (see Cullen, 1994; Etzioni, 1970; Patterson, 1982, 1995; Tittle, 1995; to name a few) have included coercion or a comparable concept in their explanations of crime and delinquency.
aspects of multiple theories in order to more fully explain the role of coercion in crime and
delinquency. In his Differential Coercion Theory, Colvin (2000) incorporates elements from
various theoretical perspectives, including control balance theory (Tittle, 1995), social control
theory (Hirschi, 1969), the General Theory of Crime (Gottfredson & Hirschi, 1990), structural
Marxist theory, social support theory (Cullen, 1994), and others, to better explain the underlying
process behind criminal behavior, claiming that different patterns of coercion may lead to the
formation of certain social-psychological deficits that are conducive to criminal behavior.

In an elaboration of Colvin’s (2000) differential coercion theory, Colvin, Cullen, and
Vander Ven (2002) proposed Differential Coercion and Social Support (DCSS) Theory which
investigates the relationship between coercion, social support, various social psychological
deficits, and offending. In both versions of the theory, it is claimed that coercion causes crime
(through the presence of social-psychological deficits) and social support assists in preventing
crime. More specifically, it is argued that individuals who have coercive relations in their past
and who lack sufficient social support may actually knowingly submit to what they believe their
fate is as they lose confidence in their ability to change the circumstances of the coercion being
used against them (Colvin, 2000). This lack of self-efficacy combined with other social-
psychological deficits (including low self-control, externally-directed anger, external locus of
control, and coercive ideation among others) then puts these individuals further at risk for
criminogenic tendencies. The current study focuses on the role of self-efficacy in hopes to
identify its broader function as it relates to individuals’ participation in violent crime.

In doing so, the present study views self-efficacy as a more broadly defined, yet,
reasonable alternative to coercive ideation. Colvin (2000) states that an individual with coercive
relations in his background is more likely to anticipate the same in the future and eventually to become resigned to fate and to lose any confidence in his ability to change coercive circumstances in which he is seemingly trapped. According to Colvin (2000), *coercive ideation* refers to a defensive worldview in which an individual believes that his social environment is full of coercive forces that can only be overcome through coercion. Self-efficacy has been conceptualized as the confidence that individuals have in their ability to “affect and control or to create successful outcomes” (Colvin, 2000, p. 182) and has been presumed to be the opposite of powerlessness and normlessness (Newcomb & Harlow, 1986). The current study addresses the concept of coercive ideation by investigating whether self-efficacy mediates the relationship between experiencing coercion in multiple settings and participation in violent crime. It is also hypothesized that without the proper levels of social support, the individual may see no way to remove himself from coercive forces and may act out through his own coercive acts.

Each of the previous studies (Baron, 2009; Unnever, Colvin, & Cullen, 2004) to have specifically tested Colvin’s (2000) Differential Coercion Theory found significant independent mediating effects of coercive ideation. None of the studies, however, included social support as a potential preventative factor towards crime or as a moderator to coercion. Therefore, in addition to testing the mediating effect of low self-efficacy between coercion and delinquency, the current study incorporates the buffering hypothesis from the stress literature (Cohen & Wills, 1985) to test the moderating role of social support respectively between coercion and delinquency, and between self-efficacy and delinquency. Basically, the buffering hypothesis proposes that social support can interrupt the causal link between stressful events and physical illness. By applying this model to the relationship between coercion and offending, the current study tests interactive
effects of social support with coercion as well as with self-efficacy in order to identify where in the causal process social support might be more effective, if at all.

In addition to these analyses, the current work improves upon previous research by utilizing a dataset that allows for a longitudinal test of DCSS Theory as well as for the inclusion of multiple types of coercion and social support in the same models. Furthermore, the study uses structural equation modeling to allow for more accurate estimations of the role of latent variables (specifically coercion, social support, and self-efficacy) by including their measurement models as well as more advanced investigations of conditional direct (moderating) and indirect (mediating) effects.

In Chapter Two, the dissertation first reviews the theoretical conceptualizations of coercion, and social support, explains the difference between interpersonal and impersonal coercion, and describes the various types of social support measurement. Additionally, by reviewing the background literature on self-efficacy the first section provides the conceptualization and operationalization of the concept of self-efficacy used in the current study. Next, in Chapter Three, the theoretical perspectives comprising of DCSS theory are presented in detail. The relevant literature is then reviewed in Chapter Four, concluding with the introduction of the hypotheses that are tested in the current study, including predictions of the potential mediating and moderating effects of, respectively self-efficacy and social support. This section is followed in Chapter Five by a review of data used in the study as well as the operationalizations of the primary variables used. The results of the analyses are then presented in Chapter Six. Discussion follows in the final chapter. Implications for the study for theory and policy are then discussed, as well as the limitations of the study and suggestions for future research.
Chapter 2: Coercion, Social Support, and Control

This chapter defines the concepts of coercion, social support, and control, and begins to explore their potential relationships in the context of the Differential Coercion and Social Support Theory.

Coercion

Power has been described as an actor’s ability to influence or induce another actor to carry out his commands or other norms that he supports (Skinner, Chapman, & Baltes, 1988). Similarly, Goldhamer and Shils (1939) state that “a person may be said to have power to the extent that he influences the behavior of others in accordance with his own intentions.” Power may differ, though, based upon the means that are used to make individuals comply (Etzioni, 1970). More specifically, Etzioni (1970) identifies three types of power: coercive, remunerative, and normative. Basically, coercive power involves the use, or threat of the use, of force to influence others, while remunerative power relies upon control of material resources and rewards, and normative power is based upon the allocation and manipulation of symbolic rewards and deprivations.

Sidman (1989) describes coercion as control by negative reinforcement or punishment. More specifically, he defines coercion as the “use of punishment and the threat of punishment to get others to act as we would like, and to our practice of rewarding people just by letting them escape from our punishments and threats.” Coercion is “how most people try to control each other” (1989, p. 1). It should be noted, though, that he claims that coercion is generally met with some type of counter-control and that users of coercion can expect some form of retaliation.
Basically, “if people cannot escape or avoid, they will find another way to deflect punishments and threats of punishments; they will learn how to control their controllers” (Sidman, 1989, p. 190). Sidman (1989) also believes that coercion is prevalent in many contexts in individuals’ lives including the home, the workplace, and society in general.

Whatever the context may be, multiple researchers agree that the use of coercion is generally ineffective, and is destructive to society (Chung & Elias, 1996; Molm, 1997; Sidman, 1989). Additionally, as is further discussed below, Colvin and colleagues (2000; 2002) argue that coercion causes crime based upon its triggering of social-psychological deficits. Consistent with Etzioni (1970), Colvin describes coercion as a force that causes an individual to act in a particular way because of the fear or anxiety that it creates.

Coercion occurs when one is compelled to act in a certain way through direct force or intimidation from others or through the pressure of impersonal economic or social forces. Interpersonal forms of coercion may or may not involve the use of violence. Coercion can involve the threat of or actual taking away of something of value, such as a person’s job or other social supports. It is punitive in nature. It motivates behavior because it is physically and/or emotionally painful and because it threatens to or actually does remove both expressive and instrumental social supports (Colvin, 2000, p. 36).

Colvin (2000) refers to the direct force or intimidation from others as interpersonal coercion. Indirect, or impersonal, sources of coercion include pressures that are created by circumstances and structural arrangements that appear to be outside of the individual’s control including economic or social pressure caused by poverty, unemployment, or competition among other groups. According to Colvin, then, coercion can come from multiple sources, including those at both the macro- and micro-levels.
Impersonal Coercion

Colvin (2000) argues that the settings in which an individual might face interpersonal coercion are influenced by impersonal, macro-level factors including economics and culture. Until recently, many of these factors were ignored in the explanation of individual criminal behavior and while they may not account for large amounts of explained variance, these macro-level determinants are important as they shape the environments and social processes in which offending may occur (Colvin, 2000).

According to Colvin (2000), poor economic conditions may lead to a more coercive society for a couple of reasons. First, high rates of unemployment indirectly lead to more coercive working conditions as individuals tend to have fewer employment options available to them and little bargaining power with employers. Several researchers (Colvin & Pauly, 1983; Erlanger, 1974; Kohn, 1977; Parcel & Menaghan, 1994; Wilson, 1987) have then linked this workplace control to parental coercive behavior in the home. Second, poor economic conditions such as structural unemployment and poverty may cause additional competition between individuals, as well as desperation, further increasing individuals’ generalized coercive experiences, while at the same time decreasing community cohesiveness (Colvin, 2000; Colvin, et al., 2002). Additional researchers (Agnew, Cullen, Burton, Evans, & Dunaway, 1996; Hagan & McCarthy, 1997) contend that impersonal coercion in the form of economic pressures or neighborhood environments can also cause an individual strain that results which may also eventually lead to offending. This macro-level conceptualization of strain has its roots in Merton’s (1938) classic strain theory. It is believed, however, that unlike strain theory, DCSS
Theory focuses more upon an individual’s sense of control over his particular situation, rather than the negative events or situations that may be present in an individual’s life.

Cultural influences may also contribute to a coercive society, including Anderson’s (1994) code of the streets. Anderson (1994) describes the code of the streets as a set of informal rules on how to act and react in particular neighborhoods based upon respect. According to Anderson (1994), this code is derived from the structural unemployment, poverty, and social isolation that affect inner city life. Wilson (1987, 2009) similarly argues that structural characteristics of communities can influence their culture. Social isolation further contributes by distancing individuals from mainstream society and mainstream values (Wilson, 1987, 2009).

Some children that grow up in the neighborhoods run by these cultural codes often first experience these coercive measures in the home.

The need both to exercise a measure of control and to lash out at somebody is often reflected in the adults’ relations with their children. At the very least, the frustrations of persistent poverty shorten the fuse in such people…In these circumstances a woman – or a man, although men are less consistently present in children’s lives – can be quite aggressive with children, yelling at and striking them for the least little infraction of the rules she has set down. Often little if any serious explanation follows the verbal and physical punishment. This response teaches children a particular lesson. They learn that to solve any kind of interpersonal problem one must quickly resort to hitting or other violent behavior (Anderson, 1994, p. 83).

**Interpersonal Coercion**

Anderson’s explanation of coercion in the home is consistent with Patterson’s (1990, 1995; 1982) research involving the relationship between family discipline and delinquency. Although much of Patterson’s research focused primarily on coercion within the family context, he does highlight that this source of coercion produces poor social skills and antisocial behavior that children then carry into other settings. These additional sources of interpersonal coercion represent micro-level sources of coercion. More specifically, interpersonal coercion involves the
threat or actual use of force and intimidation in order to create compliance in interpersonal relationships (Colvin, 2000; Unnever, et al., 2004). Patterson (1982, 1990, 1995) argues that coercive patterns that affect all family interactions are a product of parents’ frequent, yet inconsistent, use of harsh and punitive discipline. The use of harsh punishment may not always be in response to misbehavior and this further promotes the importance of the inconsistency with which these punitive forms of discipline are applied.

Although the parents of antisocial boys have been observed to threaten, scold, and hit their sons at significantly higher rates than do control parents, most of these reactions are not contingent on misbehaviors. Observational data have shown that these parents are also noncontingent in their use of praise and support for pro-social behavior. The result is that their boys become deficient in their social skills as well as increasingly antisocial (Skinner, 1995, pp. 305-306).

Furthermore, both the child and parents contribute to the coerciveness present in these interchanges, which many times may begin with negative commands, teasing, humiliation, whining and yelling and end with physical attacks (Colvin, 2000). Coercion then becomes a primary learned response to adverse situations in both family and nonfamily environments including peer rejection and academic failure which further compound antisocial behavior (Bandura, 1986; Larzelere & Patterson, 1990).

Because coercive discipline tends to be more erratic, as parents who use coercive discipline tend to do so randomly and not always in response to child misconduct, children are not able to predict when severe sanctions may occur (Larzelere & Patterson, 1990; Patterson, 1982). The child may think “consequences do not arise from my behavior but appear to happen by luck – whether I get caught or not, whether mom or dad is in a bad mood, whether authorities believe my story, whether the teacher, police officer, prosecutor or judge happen to be lenient, overworked, ready to go home, etc” (Colvin, 2000, p. 23). Besides leading to low self-control,
this erratic coercion may also lead to low self-efficacy, or the failure of an individual to believe he can succeed in particular arenas. The concept of self-efficacy is further explained below.

Although Gottfredson and Hirschi (1990) argue that an individual’s level of self-control becomes a static personality trait, other researchers have suggested that people’s propensity for low self-control is maintained through interactions that reinforce this trait. For example, individuals with low self-control tend to act in a way that invites external, coercive control from others which may further advance their perception of being at the mercy of others. Again, if these external, coercive controls are erratic, the individuals cognitive connection between behavior and consequences are simply further damaged. Alternatively, if an individual learns that positive consequences can follow other pro-social types of behavior, it is argued that over time, his level of self-control may increase. Furthermore, Colvin (2000) argues that when coercive relations are removed, social bonds can be strengthened. Sampson and Laub (1993) similarly argue that life courses can and do change, many times with individuals ending up in situations where positive social bonding occurs through enhanced social supports.

To summarize, coercion may typically take place in the family, through parental disciplining patterns, but can also be applied to any relationship in which control is exercised, including those between peers, teacher and student, as well as with macro-level forces such as poverty and unemployment.

Social Support

Similar to coercion, social supports exist at both the micro- and macro- levels, including interactions with family members and/or friends as well as resources available through
neighborhood or governmental agencies. Social support involves responding to the needs and desires of others. In his presidential address to the Academy of Criminal Justice Sciences, Cullen (1994) argues that social supports can affect individuals’ motivations and may actually prevent crime. Cullen notes, though, that it is not necessarily the actual delivery of social support that is important, but the perceptions that individuals may have that they have such supports available to them. Agnew (1992) also identified social support as a coping mechanism for those individuals dealing with stress and other negative emotions and Cohen and Wills (1985) summarize two different processes through which social support can have a positive effect on well-being, the details of which are further addressed later in this paper.

One of the biggest issues surrounding social support is that it has been used to cover a wide variety of social interactions, relationships, activities, and evaluations (Kadushin, 1982; Vaux, 1988), and it has become clear that its multifaceted nature makes it a difficult concept to define. In fact, Vaux (1988, p. 28) actually describes social support as a “metaconstruct” or “a higher order theoretical construct comprised of several legitimate and distinguishable theoretical constructs.” Furthermore, he believes that its complexity has led to both conceptualization and operationalization issues in research many times resulting in conflicting results.

Because social support can mean many different things, it should come as no surprise that its research origins stem from multiple disciplines. In a 1976 epidemiological study, Cassel (1976) noted that social support, or “the presence of other members of the same species”, acted as protection to a host’s susceptibility to causes of environmental disease. In fact, Cassel went as far as to say that the best way to prevent disease was to increase or strengthen an individual’s social support rather than attempting to lessen his exposure to stressors. Social support, then,
according to Cassel acted as a buffering mechanism against the consequences of stress (a concept further discussed below).

Similar to Cassel, Cobb (1976) viewed social support as a stress-buffer. Working in a clinical medicine setting, Cobb was more specific than Cassel, however, about his definition of social support. He described social support as information that fulfills individuals’ social needs while also offering protection from stress and other consequences of crises. It does so through three types of support: emotional, which is drawn from intimate relationships; esteem, which meets an individual’s needs for recognition; and belonging, which provides a sense of membership in society.

In the psychiatry and mental health field, Caplan (1974) believed that others could be influential during times of crisis and developmental transition. Although he did not elaborate much on his use of the term “support system”, Caplan did discuss the importance of the give-and-take and durability of relationships, not only with friends and family members, but also with clergy, mutual-aid groups, and neighborhood-based informal services. Cowen’s (1982) study on informal helping groups supported this suggestion. He found that many individuals were willing to turn to informal support sources such as hairdressers, bartenders, and even lawyers in order to discuss personal issues ranging from divorce to depression.

In addition to describing social support, though, Caplan (1974) also suggested three types of help a support system might provide. First, he explained that a support system might assist an individual to activate psychological resources in order to manage emotional issues. He also stated that a support system’s assistance may come in the form of the sharing of demanding
tasks. Finally, Caplan believed that a support system can provide an individual with the necessary resources (money, materials, skills, etc.) to deal with specific stressors.

Although these authors laid the groundwork for much research surrounding social support, there still exists a large amount of confusion and a great variety of perceptions as to what social support actually is and how to properly measure it (M. J. Stewart, 1993). Prior studies have evaluated social support using a broad range of definitions and their findings can be broken into three distinct levels: the community (or social integration), the social network, and intimate relationships (Lin, 1986).

**Levels of social relationships**

At the community level, researchers have investigated factors such as participation in voluntary associations, church membership, and involvement in ethnic associations (Binder & Freytag, 2013; Chatters, 2000; Fothergill et al., 2011; Piliavin & Siegl, 2007). While many of these studies found significant relationships between measures of social integration and well-being, the variety of elements included in the measures of integration bring into question the importance of particular aspects or types of relationships (Vaux, 1988). Due primarily to these confounding issues, social integration has not been as consistently used in social support research as it previously had been. Lin, Dumin, and Woelfel (1989, p. 155) do not believe that social integration should simply be forgotten about, however, as they suggest that “the community represents the outermost layer of social relations within the social environment exerting an impact on an individual.”

At the opposite end of the spectrum from community relationships are intimate relationships (the focus of the current study). Multiple studies have documented the positive
effects of having close, intimate relationships. The quality of one’s marital relationship has been found to have a positive relationship with biological, psychological, as well as criminological outcomes. Medalie and Goldbourt (1990) found that quality of marital relationship was an influencing factor on incidence of angina pectoris in men, while Bloom, Asher, and White (1985) investigated the negative effects of divorce and separation. Similarly, in criminology, researchers (Bersani, Laub, & Nieuwbeerta, 2009; King, Massoglia, & MacMillan, 2007; Sampson, Laub, & Wimer, 2006) have found marriage, especially strong marital attachment, to be a predictor of desistance from crime among men. Vaux (1988) argues, though, that relying solely upon intimate ties may not fully capture an individual’s social support structure as it may be overly restrictive.

Social networks (as the third form of social relationship) are located between intimate relationships and community-level relationships. Many times, the terms social network and social support system are used interchangeably, however, the existence of a relationship in a network should not necessarily be equated with support. Social networks, then, can be described and analyzed in terms of their structure, composition, and component relationships (Vaux, 1988). These networks can be used to explore intimate relationships within different settings and have their own systemic properties, including size and density, as well as frequency of contacts and the durability and intensity of friendships. Although community social integration and involvement in social networks are important, the current study investigates social support at the intimate level.
Forms of social support

Moving beyond the distinction between levels of support, multiple authors (Cullen, 1994; Lin, 1986; Vaux, 1988) identify two primary types of social support: instrumental or expressive. Instrumental social support includes the giving of advice, guidance, and social connections, as well as material and financial assistance. Lin (1986, p. 20) states that instrumental support “involves the use of the relationship as a means to a goal.” Alternatively, social support can be expressive. Expressive support has been characterized as more emotional and “involves the use of the relationship as an end as well as a means. It is the activity of sharing sentiments, ventilating frustrations, reaching an understanding on issues and problems, and affirming one’s own as well as other’s worth and dignity” (Lin, 1986, p. 20). Vaux (1988, p. 21) adds that the “affective” mode of social support includes “meeting needs for love and affection, esteem and identity, and belonging and companionship. These needs are met respectively through emotional support, feedback and social reinforcement, and socializing.” Additionally, it has been argued that humans have an innate need to interact with their environments in an effective manner; it is human nature to need to experience control (DeCharms, 1968; Deci, 1975; Deci & Ryan, 1985; Harter, 1978; Skinner, 1995; White, 1959).

Perceived Control

According to Gurin and Brim (1984, p. 282), “the sense of control…is fundamental to human life” and this has been a common thread across time, social status, and age (Skinner, 1995). Unfortunately, though, much of the research on control and, more specifically, perceived control is quite broad and is composed of a hodge-podge of many areas of sociology and
psychology. Skinner (1995) argues that while multiple theories of perceived control have been presented to assist in the explanation of how experiences lead to beliefs and beliefs then affect interactions, they each focus on different parts of the same overall process, referred to as the competence system. Competence has been broadly defined as the “connection between behaviors and outcomes; it is the extent to which a person feels capable of producing desired and preventing undesired events; [its] opposite…is helplessness” (Patrick, Skinner, & Connell, 1993, p. 782). Skinner (1995, p. 15) further argues that the need for competence is a driving force behind people’s motivation for action, as well as inaction.

A need for competence explains the power of control and the universal psychological devastation of its loss…It explains why beliefs about control are not just cold cognitions, like concepts or facts, but instead are hot convictions filled with emotion and personal meaning and capable of propelling people into action or stopping them in their tracks…Postulating a need for competence gives ultimate power to individuals as sources and agents of their own motivation.

One of the primary constructs associated with the competence system is self-efficacy (Skinner, 1995). An explanation of the construct highlights its role in the competence system, and more broadly in terms of motivation.

Self-efficacy

Bandura (1977, p. 193) argued that most theories of perceived control focus on beliefs regarding the expected effectiveness of responses in producing outcomes, without taking into account whether or not an individual actually believes that he can “successfully execute the behavior required to produce the outcome.” He labeled this expectancy construct self-efficacy. Bandura (1992) further identifies perceived self-efficacy as the most focal and pervasive mechanism of agency, as it influences how individuals feel, think, and act, adding that it plays an important role in levels of motivation and performance accomplishments. Because of its intrinsic
association with agency (Bandura, 1992), the present study focuses upon the construct of self-efficacy and investigates the impact of both coercion and social support on individuals’ perceptions of levels of control as well as their effects on offending.

The importance of self-efficacy becomes more evident when it is viewed through Skinner and colleagues’ (1988) distinction among types of beliefs (Figure 1). They define three sets of beliefs that operate in the regulation and interpretation of action, including: control, strategy, and capacity beliefs. It is important to note, however, that the term “beliefs” highlights the type actual form of the control.

Beliefs denote convictions rather than more cerebral and reality-based judgments, estimates, or evaluations. Beliefs denote cognitive constructions and so are open to revision. Beliefs can refer to the future or the past. They can also be used at any level of generality from the most specific to the most global (Skinner, 1995, p. 31).

The three aforementioned sets of beliefs are differentiated based upon the connection between agents and ends; between means and ends; and between agents and means. Basically, as seen in Figure 1, control beliefs refer to whether or not an individual expects himself to be able to produce desired ends or prevent undesired ends; strategy beliefs refer to an individual’s expectancies involving whether or not particular means are sufficient to produce certain outcomes; and capacity beliefs refer to an individual’s expectancies of whether or not he has access to particular means.

Because of their role as the primary regulatory beliefs, the current study will focus primarily on control beliefs or, as Bandura (1977) has defined them, self-efficacy. Additionally, research has demonstrated a link between self-efficacy and adolescent involvement in various problem

Bandura (1977, 1986, 2006) argues that self-efficacy is the foundation of human motivation, well-being, as well as accomplishments. It is not necessarily concerned with the skills one has, but with the thoughts about what one can do with those skills. Perceived self-efficacy involves individuals’ judgments of their abilities to organize cognitive, social and behavioral subskills in order to execute particular courses of actions (Bandura, 1986).

Additionally, through the consequences of and ability to observe the differential effects of these actions, individuals are able to determine which actions are appropriate in which settings and to then act accordingly (Bandura, 1977).

To better explain how self-efficacy affects human motivation and regulation, Bandura (1992) describes four associated processes and their relations to self-efficacy: cognitive, motivational, affective, and selection processes. Bandura (1992) argues that individuals’ beliefs about their efficacy affect the manner in which they construct and prepare for anticipated scenarios. Basically, he suggests a positive relationship between an individual’s level of perceived efficacy and expected performance if/when the actor is faced with these actual scenarios: individuals with high beliefs of efficacy see themselves succeeding and this provides a positive guide for performance, while those who have low senses of efficacy visualize failure which may then weaken their performances in actual scenarios. Additionally, environment may play an important role in the efficacy-cognition relationship. People’s beliefs may be influenced by the extent to which they believe they have the ability to influence or control their
environment. When the same predictor contributes to different effects or the same effect has multiple predictors, individuals may become confused about what action leads to what effect. Similarly, even if behavior has been positively reinforced, individuals may not choose the same action in the future if they believe, based upon other information, that they will not be similarly rewarded (Bandura, 1977). This highlights the effects of individuals living in coercive environments, especially when the coercion is delivered on an inconsistent basis. These effects are further explained below in the discussion of contingencies.

People’s beliefs about what they can or cannot do may also affect their motivation (Bandura, 1992). Individuals set goals and plan subsequent actions based upon their anticipated outcome of those actions. Those who have stronger beliefs in what they can accomplish tend to expect favorable outcomes, while those who expect themselves to perform poorly tend to create negative outcomes and may relax their efforts or even cancel their attempts early when faced with obstacles and failures. Additionally, failures or reversals may actually cause self-doubts to set in more quickly further reducing motivation.

Bandura (1992) also explains that social support may play an important role in the affective process by reducing the aversiveness of stress-inducing negative life events. Individuals who believe they can control potential threats are not as bothered by them, so instead of simply acting as a buffer against stressors, social support may boost an individual’s self-efficacy which then enables successful adaptations to stressors. Finally, Bandura (1992) argues that individuals can influence their life paths through the environments they select and create, highlighting the importance of the various contexts of coercion and/or social support that individuals may face. Children actually construct their beliefs through interactions with the environment in a
cumulative way (Skinner, 1995). Any choice individuals make is influenced by factors that further affect development. Therefore, the stronger an individual’s beliefs in his abilities, the more options he opens for himself, the better prepared he is for these options, and the more successful he will be at them.

**Contingencies**

An additional feature of control is what has been labeled contingencies. A contingency is the connection between action and outcomes; or more specifically, when an event consistently, discriminatively, and quickly follows some action, the event is considered contingent upon the action. Conversely, if an event is just as likely to occur without the action having taken place as when it does, the two are considered non-contingent (Seligman, 1975). Consistent with Bandura, Seligman (1975, p. 137) contends that contingencies are a key feature of the control experience, especially those tied to environment:

> I am convinced that certain arrangements of environmental contingencies will produce a child who believes he is helpless – that he cannot succeed – and that other contingencies will produce a child who believes that his responses matter – that he can control his little world.

Additionally, family and school have been identified as among the various social agents that can also determine contingencies (Skinner, 1995). Certain contexts can actually increase the amount of resources available to individuals in order to assist them to produce desired outcomes, while other, erratic contingencies, such as coercion, may negatively affect individuals’ perceived control.

Again, as noted above, individuals' perceptions of particular environments depend upon self-appraisals of their coping abilities (Bandura, 1997). Individuals who have a high sense of
coping efficacy are able to reduce stress and anxiety by mobilizing coping efforts such as social support (Benight & Bandura, 2004). These social supports can be more than just a buffer against harsh environments, they may "model coping attitudes and skills, provide incentives for engagement in beneficial activities, and motivate others by showing that difficulties are surmountable by perseverant effort. The enabling function of social support can enhance self-efficacy [italics added]" as it has been shown to do in the stress and traumatization literatures (Benight & Bandura, 2004, p. 1134).

It should be noted, though, that unless they actually improve an individual’s experience of control, social supports will not be an effective coping mechanism due to the fact that perceived control affects individuals’ initial appraisals of the stressfulness of events (Bandura, 1992). Therefore, high levels of perceived control can prevent non-contingencies while low levels can increase experiences of disorder. Furthermore, the interactions between control beliefs and actions can actually contribute to a self-perpetuating cycle, or what Colvin et al (2002) refer to in the DCSS Theory as either “vicious” or “virtuous” cycles. More detail on this is provided in the next chapter.
**Chapter 3: Theoretical Background of DCSS Theory**

Perhaps the biggest critique of Colvin’s (2000) original Differential Coercion Theory is its “complexity” and “the fact that most existing data sets do not contain information on the whole variety of causal factors outlined in the perspective” (Baron, 2009, p. 240). “In particular, [Colvin] fails to translate his intuitively appealing arguments into specific arguments phrased in terms of measurable dependent and independent variables” (Alexander & Bernard, 2002, p. 393). Colvin et al’s (2002) elaborated DCSS Theory is even more complicated in that it attempts to extend the understanding of the interplay between coercion and crime to include social support.

This chapter first identifies and briefly explains a couple of theories that have previously incorporated the concept of coercion or a similar construct into their explanations of crime and/or delinquency. Additionally, because Colvin (2000) argues that in addition to leading to anger, repeated exposure to coercion can also affect an individual’s social bond, a brief discussion of General Strain Theory, Social Control theory, and a General Theory of Crime as they relate to DCSS Theory is also included. Social Support and Control Balance Theories are then reviewed in introducing the role of social support. The importance of the potential varying levels of each of the explanatory variables is also explained as it relates to DCSS Theory. Finally, the relationships between these various concepts are tied together in the explanation of DCSS Theory.

**Patterson's Coercion Theory**

One of the earliest theorists to investigate the relationship between coercion and delinquency was Gerald R. Patterson whose work focused on family discipline and its effects on
delinquency. Patterson (1982, 1990, 1995) argues that coercive patterns that affect all family interactions are a product of parents’ frequent, yet inconsistent, use of harsh and punitive discipline. The use of harsh punishment may not always be in response to misbehavior and this further promotes the importance of the inconsistency with which these punitive forms of discipline are applied.

Although the parents of antisocial boys have been observed to threaten, scold, and hit their sons at a significantly higher rates than do control parents, most of these reactions are not contingent on misbehaviors. Observational data have shown that these parents are also noncontingent in their use of praise and support for pro-social behavior. The result is that their boys become deficient in their social skills as well as increasingly antisocial (Skinner, 1995, pp. 305-306).

Furthermore, both the child and parents contribute to the coerciveness present in these interchanges, which many times may begin with negative commands, teasing, humiliation, whining and yelling and end with physical attacks (Colvin, 2000). Coercion then becomes a primary learned response to adverse situations in both family and nonfamily environments (Bandura, 1986).

Patterson relies upon social learning theory to better explain how individuals may imitate the coercive models that they have experienced when exercising their own control. For example, a parent may try to discipline his or her child and the child may react in an aversive manner to which the parent responds with an escalated attempt to discipline the child. The child then responds with an escalated aversive response and this process continues until eventually the parent gives up. Over time, the parent eventually stops attempting to discipline the child’s aversive behaviors which are then maintained, and perhaps exacerbated through positive and negative reinforcement each time this cycle takes place. Positive reinforcements may include the attention gained from others. Negative reinforcements occur when the parent desists in the
discipline attempt because of the child’s aversive responses. Basically, the child has learned that it is acceptable to act aversively in order to get what he or she wants.

Patterson also argues that different delinquency outcomes can come from different parental disciplining styles, leading to two different trajectories of adolescent deviance. “Early starters” tend to come from families that engage in the coercion process while the child is still young. These individuals tend to be at greater risk of becoming life-course persisters (Moffitt, 1997). On the other hand, “late starters”, or adolescent-limited offenders (Moffitt, 1997), tend to simply drift towards delinquent behaviors near the end of adolescence when they are influenced by peers.

In response to their findings regarding the relationship between coercive parenting and delinquency, Patterson and a variety of colleagues identify five approaches to protect against development of delinquent behaviors. First, parents must be able to recognize inappropriate or deviant behavior across settings. If deviant behavior is recognized, consistent appropriate discipline should be used, instead of discipline that is lax, inconsistent, and harsh (Bandura, 1986). Second, effective parents should monitor the child’s whereabouts, peer associations, and free time activities, as well as clearly communicating rules as well as consequences (Bandura, 1986). Third, instead of subjecting the child to ineffective social problem-solving skills through the parent’s lack of communication, increased anger, blaming, and poor compromising strategies, as is often done during verbal and physical altercations, parents should teach appropriate social problem-solving skills (Bandura, 1986). Fourth, parents should communicate positively and show interest, care, and support of the child (Bandura, 1986; White, 1959). Finally, parents should positively reinforce prosocial behaviors (White, 1959), as it is argued that
parents that do not reinforce positive behaviors are more likely to engage in coercion within the family (Harter, 1978).

Patterson and colleagues empirically tested these suggestions by establishing “parent effectiveness training” at the Oregon School Learning Center. At this training, parents of delinquent youths were trained to discipline their children in consistent, non-coercive manners. By randomly assigning delinquent families to the program, Patterson was able to evaluate the program’s effectiveness and demonstrate significant differences in “post-test” delinquency between the treatment and control groups, with the experimental group showing a significant decrease in the amount of delinquency (DeCharms, 1968; La Guardia, 2008).

Although much of Patterson’s research focused primarily on coercion within the family context, he does highlight that this coercion produces poor social skills and antisocial behavior that children then carry into other settings. These attributes may then lead to coercive responses from others in settings outside of the family including peer rejection and academic failure which further compound antisocial behavior (Larzelere & Patterson, 1990). In an attempt to tie together coercion in one setting to coercion in another, Colvin and Pauly (1983) constructed their integrated structural-Marxist theory.

Colvin and Pauly's Integrated Structural Marxist Theory

According to this theory, coercive control is conducive to delinquency due to its effects on the production of weak, alienated social bonds between the controller and the one that is being controlled (Colvin & Pauly, 1983). Structural-Marxist theory stresses the importance of the workplace in understanding control relations. More specifically, they rely upon Etzioni’s (1970)
organizational compliance theory which states that workplaces are generally dominated by one of three types of control: normative, remunerative, or coercive. Normative control involves the use of praise and emotional support and the manipulation of symbolic reward. Remunerative control includes the manipulation of material rewards, including the promise of pay raises. Coercive control involves threats and force such as the threat of job loss which can deprive one of his material means for survival. It should be noted that these types of workplace controls do tend to be class based and differentiated.

Colvin and Pauly (1983) and Kohn (1977) further argue that levels of workplace control can affect parents’ control and disciplining of children. Those individuals that work in a coercive environment tend to use coercion to discipline their children which leads to more alienated bonds between the children and parents. These children then carry these alienated bonds into the school setting where, through their antisocial behavior, they tend to elicit more coercive controls at school which simply reinforces their initial alienated bonds. Colvin (2000) does clarify, however, that although the integrated structural-Marxist theory highlights the historical contexts of the workplace, the general theoretical statement truly is independent of context. That is, “coercion produces alienated bonds, which, if reinforced by continual coercive relations, produce chronic involvement in serious delinquent behavior” (Colvin, 2000, p. 16). It is also important to note that while the theory focuses primarily on the effects that coercion has on social bonding, other social-psychological outcomes may also be conducive to criminality, including, but not limited to, anger.
Agnew’s General Strain Theory

In his General Strain Theory, Agnew (1985) reconceptualized strain theory by introducing negative stimuli as a potential source of strain. “In particular, it is argued that adolescents are often placed in aversive situations from which they cannot legally escape” (Agnew, 1985, p. 154). These situations may include “parental rejection, unfair or inconsistent discipline, parental conflict, adverse or negative school experiences, and unsatisfactory relations with peers” (Agnew, 1985, p. 155). These coercive interpersonal relations are highly likely to produce strong emotional responses, in the form of anger, especially when the coercive treatment is viewed as unjust or arbitrary. It is argued, then, that this strong sense of anger predisposes individuals to crime and/or delinquency (Agnew, 1992).

Anger…is the most critical emotional reaction for the purposes of the 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, lowers inhibitions, in part because individuals believe that others will feel their aggression as justified. Anger, then, affects the individual in several ways that are conducive to delinquency (Agnew, 1992, pp. 59-60).

It should be noted that impersonal coercion in the form of economic pressures or neighborhood environments can also cause an individual strain that results in anger (Agnew, et al., 1996). It is the anger produced by both interpersonal and impersonal forms of coercion that, when directed at others, more likely leads to predatory criminal behavior.

Hirschi’s Social Control Theory & Gottfredson and Hirschi’s Self-Control Theory

It has been discussed above how particular types of coercion may lead to weakened or alienated social bonds that may be conducive to criminality. While Hirschi’s (1969) social control theory discusses how individuals are prevented from deviant behavior because of the
restraint put on them by social bonds, Hirschi does not talk in much detail about the production of these bonds. He clearly outlines the different types of bonds, including attachments, commitments, involvement, and beliefs, but states that these bonds simply come from proper socialization. The focus of social control theory, however, is on factors that cause people to conform (social bonds), not on those that cause individuals to deviate. It is simply assumed that individuals are naturally drawn to deviance unless they are restrained. Once again, Colvin and Pauly’s (1983) integrated structural-Marxist theory attempts to explain how coercive control may be one of the factors responsible for weak bonds which may cause individuals to deviate.

In a similar vein, Gottfredson and Hirschi (1990) claim that individuals commit crime because of a lack of self-control that they attribute to parents’ failure to correct children’s misconduct. They further argue that an individual’s self-control is established in early childhood and that it is a fairly consistent personality trait throughout the life-course, meaning that an individual who has low levels of self-control early in life will have a greater propensity for committing crimes for the rest of his life. This differs from Hirschi’s (1969) social control theory as it can be argued that individuals’ social bonds can change throughout the life-course and thus can alter behavior (Sampson & Laub, 1997).

Colvin (2000) believes that in many cases, children who are subjected to coercive discipline have little incentive to learn self-control. Because coercive discipline tends to be more erratic, as parents who use coercive discipline tend to do so randomly and not always in response to child misconduct, children are not able to predict when severe sanctions may occur (Larzelere & Patterson, 1990; Patterson, 1982). The child may think “consequences do not arise from my behavior but appear to happen by luck – whether I get caught or not, whether mom or dad is in a
bad mood, whether authorities believe my story, whether the teacher, police officer, prosecutor or judge happen to be lenient, overworked, ready to go home, etc” (Colvin, 2000, p. 23). Besides leading only to low self-control, it should be apparent how erratic coercion may also lead to an external locus of control, and – possibly – low self-efficacy.

Although Gottfredson and Hirschi (1990) argue that an individual’s level of self-control becomes a static personality trait, other researchers have suggested that people’s propensity for low self-control is maintained through interactions that reinforce this trait. For example, individuals with low self-control tend to act in a way that invites external, coercive control from others which may further advance their perception of being at the mercy of others. Again, if these external, coercive controls are erratic, the individual’s cognitive connection between behavior and consequences are simply further damaged. Alternatively, if an individual learns that positive consequences can follow other prosocial types of behavior, it is argued that over time, his level of self-control may increase. Furthermore, Colvin (2000) argues that when coercive relations are removed, social bonds can be strengthened. Sampson and Laub (1993) similarly argue that life courses can and do change, many times with individuals ending up in situations where positive social bonding occurs through enhanced social supports.

**Cullen’s Social Support Theory**

As discussed above, social support involves responding to the needs and desires of others. In his presidential address to the Academy of Criminal Justice Sciences, Cullen (1994) argues that social supports can affect individuals’ motivations and may actually prevent crime.

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2 For a more detailed discussion see Nagin & Paternoster (2000).
Cullen notes, though, that it is not necessarily the actual delivery of social support that is important, but the perceptions that individuals may have that they have such supports available to them. Similar to coercion, social supports exist at both the micro and macro level, including interactions with family members and/or friends, as well as resources made available through neighborhoods or governmental agencies.

Relying upon Akers’ (1975) social learning theory, Cullen (1994) further stresses the importance of the source of the social support, as the possibility exists that it may come from illegitimate sources as well as law-abiding sources. According to Cloward and Ohlin (1961), individuals may seek out social support from illegitimate sources if they do not have access to legitimate sources. If the individuals gain access to these illegitimate sources, they may actually accumulate “criminal capital” including information, skills, and other resources that lead to successful engagement in crime (Deci & Ryan, 1985).

Another important dimension of social support, similar to that of coercion, is the consistency with which it is delivered, which may result in differential social-psychological effects. Colvin et al (2002) argue that when social support is given (or is perceived to be available) on a consistent basis, a stronger degree of trust between the giver and the recipient can be expected. This strong sense of trust, then, can be transformed into a strong social bond, while at the same time preventing strain and anger and generates strong, internalized self-control (Cullen, Wright, & Chamlin, 1999). Conversely, erratic delivery of support implies that an individual cannot depend upon the potential assistance from that source. Although individuals in these situations are not necessarily coerced, erratic support may lead to some anger and
contribute to low self-control as the individuals may not feel in control over when their behavior elicits support and when it does not (Colvin, et al., 2002).

**Tittle’s Control Balance Theory**

Colvin (2000) notes that Tittle’s (1995) control balance theory incorporates concepts that are very similar to the idea of differential coercion. In this theory, Tittle argues that deviant behavior is controlled by the ratio of control a person exercises to the level of control which is exercised over the person. Basically, the ratio can be balanced, in deficit, or in surplus. A balanced ratio is most conducive to conformity, while an imbalance may produce a propensity towards deviance. While Colvin’s theory tends to better parallel control deficit situations, it is important to understand the various relationships between the control ratio and deviance.

In his theory, Tittle (1995) mentions the importance of both autonomy and constraint. A control balance, or a ratio equal to 1, implies that an individual has no more force or control over other individuals as they do over you and thus one has no desire to extend control over others nor fear that they will do so to you. In a control surplus, an individual has greater autonomy, or control over others than they have over him. In this type of balance, the individual will attempt to further extend the control they have over others using deviant techniques. Finally, a control deficit implies that an individual has lost autonomy in that other people or forces have more control over him than he does over them. In these situations, the individual being controlled attempts to escape or balance out the deficit through predatory acts, defiance, or submission.

According to Tittle (1995), the opportunity for deviance is generally present, however, whether or not the deviance occurs and if it does occur, in what form, also depends upon the
levels of constraint that are present. Constraint can either allow or block particular types of
deviance, based upon three factors. First, constraint may be a function of the control imbalance
itself; it is either stronger compared to autonomy in a control deficit, or weaker relative to
autonomy in a control surplus. Second, constraint can be influenced by the individual’s risk
assessment of getting caught. Finally, constraint may come from others based upon the perceived
seriousness of the deviance.

Similar to Patterson’s (2008) argument that different delinquent outcomes are caused by
different parental disciplining styles, Tittle (1995) attempts to demonstrate a nonlinear
relationship between control and deviance. That is, both types of imbalances (surpluses and
deficits) tend to lead to deviance, although generally of different types. These differential
relations between coerciveness and deviance are a primary element in Colvin et al’s (2002)
DCSS Theory.

**Differential Coercion and Social Support Theory**

DCSS Theory’s simplest claim is that coercion tends to cause crime while social support
tends to prevent it. Colvin et al (2002, p. 27), believe that coercion and social support are
inversely related, with “social support soften[ing] or prevent[ing] the experience of coercion,
whereas coercion undermines (and threatens to remove) social support.” Colvin et al (2002) use
social support and coercion to differentiate between virtuous and vicious cycles. In a virtuous
cycle, individuals give social support to others and are thus less likely to be involved in crime
(Cullen, 1994). They tend to reciprocate the support to those that give social support to them
which leads to a non-criminal environment. Alternatively, individuals can be caught up in
vicious cycles, characterized by coercion and a lack of social support. In these vicious cycles, individuals that have encountered coercion in their past tend to react coercively towards others, which reduces their potential for social support and simply further elicits coercion from others. This makes crime more likely.

It is theorized that in many instances this cycle of coercion may then lead to social psychological deficits which may then lead to criminal behavior or cause exclusion from conventional opportunities that have been associated with future crime. In this type of cycle, coercion and lack of social support in an individual’s past help to form a person who is more likely to use coercion in his own relations with others and who is also insensitive to the needs and desires of others (Colvin, 2000). Additionally, Colvin (2000) argues that individuals may shift from one environment of coercion to another, where coercive events tend to become provocative as the individuals come to recognize their lack of control in particular situations.

Coercion – Social Support Relationship

An important point regarding the relationship between social support and coercion is that while the two tend to be inversely related, they are, in fact, distinct variables (Colvin, et al., 2002; Cullen, 1994). And while they are linked through an inverse relationship, “this does not mean that the concepts are polar opposites. They point to qualitatively different, although related, phenomena” (Colvin, et al., 2002, p. 26). These claims are the focus of the current study.

As discussed in Chapter 2, social supports occur at both the micro and macro levels of society and can be defined as the delivery, or perceived delivery, of assistance in meeting an individual’s instrumental and/or expressive needs (Cullen, 1994; Lin, 1986). Coercion, on the
other hand, occurs when individuals are compelled or intimidated to act in a particular manner due to the fear or anxiety that it creates (Colvin, 2000; Etzioni, 1970). Coercion can involve the actual or threatened removal of social supports (Colvin, 2000) and also has both micro and macro level sources.

The crux of DCSS theory is based upon both the levels of coercion and social support and the consistency with which they are delivered. Colvin et al (2002) hypothesize that social support and coercion are each delivered on either a consistent or erratic basis and that this degree of consistency then leads to the production (or non-production) of “a differential set of social psychological outcomes” that are more (or less) conducive to offending. Colvin (2000, p. 49) acknowledges that consistent coercion is very difficult to apply, however, as “extraordinary measures are usually required to consistently monitor behavior in order to deliver coercion on a consistent basis for rule violations.” Colvin (2000) argues, then, that in most situations of control, coercion will generally be delivered erratically, thus the most significant element of coercion that contributes to offending is its extent (Unnever, et al., 2004). The current study examines the differential levels of coercion and social support and their relationships with offending.

**Social-psychological deficits**

In his Differential Coercion Theory, Colvin (2000) argues that coercion may not necessarily directly cause criminal behavior, but that it may do so through social-psychological deficits that previous theories of criminality (explained above) have linked to involvement in criminal behavior, including: strain in the form of anger; weak, alienated social bonds; external
locus of control; low self-control; and low self-efficacy. Individuals who are exposed to great amounts of coercion are at greater risk to developing these deficits and having them reinforced (Baron, 2009). These deficits, then, are believed to encourage offending and previous research has demonstrated support for this effect. For example, Baron (2009) found that anger, low self-control, coercive modeling, and coercive ideation all mediate the effect of coercion on violent offending. Unnever et al (2004) found similar results in their study, reporting meaningful mediation effects of parental and school social bonds and coercive ideation on the relationship between coercion and various types of offending. In their study, anger was highly correlated with coercive ideation and gained significance when coercive ideation was taken out of the model.

The two studies referred to above (Baron, 2009; Unnever, et al., 2004) that have actually tested the effect of coercive ideation also identified issues in its measurement. The current study attempts to address these issues by focusing on an alternative concept, that of low self-efficacy. Coercive ideation is similar to Fleisher’s (1995) defensive worldview concept and Athens’ (1992) concept of belligerency and occurs when “an individual comes to view the world as an all-encompassing experience of coercion that can only be overcome through coercion” (Colvin, 2000, p. 50). Colvin (2000) argues that individuals who experience erratic coercion will start to believe that using coercion is a way to overcome this coercive environment (coercive ideation) and this then leads to offending.

In the current study, it is argued that low self-efficacy, while not a direct proxy for coercive ideation, is a more appropriate variable to be tested as a mediator between coercion and offending. More specifically, it is argued that testing the effects of coercive ideation on offending is not necessary, as it is the psychological deficit (i.e. low self-efficacy) that is the actual
explanatory variable responsible for mediating the relationship between coercion and crime. Therefore, the current study tests the effect of one social-psychological deficit: low self-efficacy.

The importance of the role of self-efficacy is further highlighted by Benight and Bandura (2004, p. 1131):

Among the mechanisms of human agency, none is more central or pervasive than people’s beliefs in their efficacy to manage their own functioning and to exercise control over events that affect their lives. A sense of personal efficacy is the foundation of human agency…Self efficacy beliefs regulate human functioning through cognitive, motivational, affective, and decisional processes…Belief in one’s capability to exercise some measure of control in the face of taxing stressors promotes resilience to them.

As introduced above, self-efficacy can be conceptualized as the confidence one has in being able to affect events or create successful outcomes (Bandura, 1977). Previous researchers have operationalized self-efficacy as the opposite of powerlessness (Newcomb & Harlow, 1986), as well as the ability to “do anything [one] set[s] [his] mind to” and being “responsible for [one’s] own successes” (Hagan & McCarthy, 1997). By testing the mediating effect of low self-efficacy on the relationship between coercion and offending, the current study intends to offer a more comprehensive explanation of the relationship between coercion and crime.
Chapter 4: Review of the Literature

This chapter presents previous literature related to the relationships addressed in the research questions put forward in Chapter 1. Again, these questions are: (1) What are the implications of experiencing coercion in multiple settings in terms of participation in violent crime? (2) What is the role of self-efficacy in the relationship between coercion and participation in violent crime? (3) What is the role of social support as it relates to coercion, self-efficacy, and participation in violent crime? The literature review is then followed by an explanation of the buffering effect of social support and, finally, the research hypotheses tested in this study.

Coercion and crime

Coercion has been broadly defined above as a force that causes an individual to act in a particular way because of the fear or anxiety that it creates. These forces may come directly from other individuals (interpersonal coercion), or may come from circumstances or arrangements outside of the control of individuals (impersonal coercion). Most of the studies that have investigated the effects of these two forms of coercion then have independently investigated the effects of harsh parenting, victimization, and community levels of violence on a variety of forms of antisocial behavior. Recent meta-analyses investigated the relationship between corporal punishment and negative behaviors and demonstrated mixed results. For example, in her analysis of almost ninety studies, Gershoff (2002) found that corporal punishment is associated with negative behaviors such as aggression and antisocial behavior, however, this examination focused on associations and not causality. In their analysis of thirty-five studies, though, Paolucci and Violato (2004) reported only a slight increase in risk for emotional or behavioral problems in children who experienced corporal punishment. Additionally, although their study sample size
was quite small (7), Horn, Joseph, and Cheng (2004), found mixed results in their investigation into the effects of corporal punishment among young African-Americans. One of the biggest issues that stands out in many of the studies that have addressed the relationship between corporal punishment and behavioral problems in children is that most studies did not simultaneously control for the effects of emotional or verbal abuse which may explain some of the inconsistencies in results (Evans, Simons, & Simons, 2012).

**Mediating role of self-efficacy**

While the relationship between victimization and psychological distress is well established, much of the research in criminology surrounding the mediating effects of social psychological deficits has involved tests of General Strain Theory (GST). Unfortunately, few of these studies have looked at the effects of other deficits besides anger. In one of the few studies to do so, Aseltine, Gore, and Gordon (2000) found significant mediating effects of both anger and anxiety on the relationship between negative life events and conflict with family members and adolescent deviance. Additionally, Ostrowsky and Messner (2005) identified depression as a significant mediator in the relationship between victimization and commission of violent crimes in young adulthood, while Piquero and Sealock (2000) found that strain from physical and emotional abuse was related to interpersonal aggression and this relationship was weakly mediated by anger, but not by depression. Further research has demonstrated that witnessing violence in the community contributed to anxiety, depression, and anger (Rosenthal, 2000), in addition to aggressiveness and personal use of violence (Cleary, 2000; Moses, 1999; Patchin, Huebner, McCluskey, Varano, & Bynum, 2006).
While a majority of the tests of the effects of negative affect have investigated the mediating effects of anger, the role of self-efficacy and self-perceptions in the relationship between negative life experiences and maladaptive behavioral and emotional outcomes has also been investigated, particularly in the context of child maltreatment. Many of the studies have been cross-sectional, however, there is still support for an association between maltreatment and negative perceptions of self (Appleyard, Yang, & Runyan, 2010; Bolger, Patterson, & Lupersmidt, 1998; Egeland, Sroufe, & Erickson, 1983), as well as for increased risks for aggression and acting out in individuals who have been maltreated (Appleyard, et al., 2010; Dodge, Pettit, Bates, & Valente, 1995; E. Milling Kinard, 1980).

**Social support and crime**

Much of the recent research surrounding the relationship between social support and crime has investigated the macro-level context of social support, including the effects of welfare spending and "general relief" (Chamlin, Cochran, & Lowenkamp, 2002; Pratt & Cullen, 2005; Pratt & Godsey, 2003; Worrall, 2005, 2009). There is a vast literature in criminology of studies that have looked at the negative effects of peer influences, however, studies of the individual-level protective effects of social support are also present in the literature. Most of these studies have investigated the relationships between social support and reentry and recidivism (Hipp, Petersilia, & Turner, 2010; Hipp & Yates, 2009; Holtfreter, Reisig, & Morash, 2004; Orrick et al., 2011), or between social support and victimization (Davidson & Demaray, 2007; Demaray & Malecki, 2003; Kochenderfer-Ladd & Skinner, 2002; Rigby, 2000). Research on interpersonal forms of social support has found that youth with family support showed lower amounts of
cigarette, alcohol, and marijuana use (Reininger, Perez, Flores, Chen, & Rahbar, 2012; Resnick, 2000), as well as lower odds of risky sexual behavior (Markham et al., 2010) and aggression (Oman, Vesely, & Aspy, 2010). Interestingly, a couple of studies have also demonstrated lower levels of bullying perpetration for individuals with relatively higher levels of friend support (Holt & Espelage, 2007; Kendrick, Jutengren, & Stattin, 2012; Malcolm, Rex-Lear, & Waldrip, 2006).

**Main effects of social support**

Even though it is almost thirty years old, in perhaps the most widely-cited meta-review of the social support literature, Cohen and Wills (1985) summarize two different processes through which social support can have a positive effect on well-being. The first model, known as the main-effect model, proposes that social support provides individuals with a sense of self-worth, as well as a sense of stability in their lives (Cohen & Wills, 1985), while the second model, known as the buffering model, posits that support is related to well-being primarily for those individuals under stress. Basically, it is believed that the support “buffers” the individuals from the potentially harmful effects of stress. The buffering hypothesis, as it is referred to, is discussed in more detail below, but deals with the interaction between social support and other variables (i.e. stress, physiological response, or behavioral adaptation). A “pure main effect” is defined as one in which there is a main effect of social support, but no evidence of an interaction effect.

Direct, or main, effects of social support on crime and delinquency were discussed in the previous section, and partially because of the many different forms that have been identified, social support has also been associated with a variety of other outcome measures including

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3Although not a scientific search per se, the terms “buffering effect and social support” and “buffering and social support” were searched on Google Scholar with the Cohen & Wills article having been cited by 7,434 sources while the next highest result had been cited by 1,834 sources.
academic performance, self-worth, self-confidence (Gaylord-Harden, Ragsdale, Mandara, Richards, & Petersen, 2007; Kerpelman, Eryigit, & Stephens, 2008; McMahon, Felix, & Nagarajan, 2011; Paxton, Robinson, Shah, & Schoeny, 2004), as well as with various social psychological deficits including depression and anxiety (Garnefski, 2000; Hill, Levermore, Twait, & Jones, 1996; J. E. Johnson et al., 2011; Stice, Ragan, & Randall, 2004; M. A. Zimmerman, Ramirez-Valles, Zapert, & Maton, 2000). It is also pertinent to mention that because of its research foundations in epidemiology and mental health fields addressed earlier in the paper, much of the early research done on social support investigated its relationship with well-being. Cohen and Wills (1985) report evidence to support the main effect model primarily when social support is measured as integration within a social network as opposed to being measured as an individual’s perception of available interpersonal resources. Studies that use this latter operationalization tended to more often demonstrate support for the buffering hypothesis (Cohen & Wills, 1985).

**Moderating role of social support**

The buffering hypothesis maintains that social support is associated with well-being primarily for those individuals who are dealing with stress (Cohen & Wills, 1985) as those individuals may perceive that others may be able to provide resources to assist them in their coping. Similarly, individuals’ perceived control (or efficacy) can also influence their coping reactions by buffering stress. Folkman and Lazarus (1985) differentiate between problem- and emotion-focused coping, explaining that problem-focused coping is aimed at changing the stressor, while emotion-focused coping assists one in dealing with his emotional reactions to the stressor. In their transactional stress theory, Lazarus and Folkman (1984) suggest that social
support may actually influence individuals’ appraisals of stressful encounters that result in this coping. For example, Humphreys, Mankowski, Moos, and Finney (1999) found that social support has been found to promote positive coping in response to stress. Additionally, multiple researchers have hypothesized that social support acts as a moderator in the relationship between stressful life events and self-confidence (Freeman & Rees, 2010; Lakey & Cohen, 2000; Rees & Freeman, 2007). In fact, in their study examining the relationship between stressors, perceived social support, and self-confidence, Freeman and Rees (2010) found support for both a direct effect and stress-buffering explanations.

The role of social support as a protective factor against negative consequences (both emotional and behavioral) of victimization has also been explored, specifically in response to child maltreatment and family violence. The research has demonstrated the significant value of social support from both intra- and extra-familial sources (Kashani & Allan, 1997; E Milling Kinard, 1995; McCloskey, Figueredo, & Koss, 1995; Wolin & Wolin, 1993). Other research has investigated the buffering effect of social support on the relationship between trauma and actual violent behavior (Maschi, 2006; Tremblay, Hebert, & Piche, 1999; Windle, 1992) and found similar protective effects. A moderating effect of social support on the relationship between community violence exposure and depression and anxiety in youths has also been established in previous research (Hammack, Richards, Luo, Edlynn, & Roy, 2004; Kliewer, Lepore, Oskin, & Johnson, 1998). Additionally, research has identified social support as a protective factor in the relationship between children witnessing intimate partner violence and various outcomes such as depression, poor self-control, and other externalizing problems (El-Sheikh & Elmore-Staton, 2004; Formoso, Gonzales, & Aiken, 2000; Kennedy, Bybee, Sullivan, & Greeson, 2010).
While each of the studies referred to above identified support for the buffering effect of social support, other studies have reported no buffering, or mixed results based upon the type of support used as well as the outcome measure that was investigated. For example, McMahon et al. (2011) found support for the main effect of social support on self-worth, but no buffering effect. In a similar study, Paxton et al. (2004) also found a direct effect of social support on self-worth, but no buffering effect on the relationship between exposure to community violence and self-worth. Finally, in their investigation of the relationship between dating victimization and psychological well-being, Salazar, Wingood, DiClemente, Lang, and Harrington (2004) found that social support did not moderate the relationship, it mediated it.

**The buffering effect**

In hopes to better explain the overall relationship between coercion, social support, self-efficacy, and crime, this study incorporates models described in the stress literature. As referred to above, Cohen and Wills (1985) summarize two different processes through which they hypothesize social support can have a positive effect on well-being. The main-effect model proposes that social support provides individuals with a sense of self-worth, as well as a sense of stability in their lives (Cohen & Wills, 1985). The buffering model posits that support is related to well-being primarily for those individuals under stress. Basically, it is believed that the support “buffers” the individuals from the potentially harmful effects of stress. It has been demonstrated that individuals who feel supported may alter their appraisals and emotional responses (Thoits, 1995) and/or utilize more effective coping models in dealing with stress (DeLongis & Holtzman, 2005; Holtzman, Newth, & DeLongis, 2004). Much of the research in the stress literature, however, suggests that *social support will have its greatest effect on those*
individuals that are actually under stress. This is what is called a “pure buffering effect” (Cohen & Wills, 1985).

Within the buffering model, the stress literature identifies two different points at which social support can interrupt the causal link between stressful events and illness. These points are labeled A and B in Figure 2.

*Figure 2 about here*

At point A, social support may diminish or actually prevent an appraisal of an event being stressful by intervening between the event itself and the reaction. An individual’s perception of support from others can actually redefine the potential for stress during the appraisal process and/or build up one’s perceived ability to cope with the situation, essentially averting an event being appraised as stressful (Cohen & Wills, 1985). At point B, social support may reduce the effects of a stress appraisal either by weakening the actual reaction or by having a direct effect on the physiological processes themselves (Cohen & Wills, 1985).

The current study applies this model to the relationship between coercion, social support, self-efficacy and crime in order to examine the causal mechanisms at work. Figure 3 (below) illustrates Figure 2 transformed to demonstrate the proposed causal link between coercion and criminal behavior, including the two points at which social support may have a buffering effect in this relationship.

*Figure 3 about here*

Points C and D in Figure 3 relate to points A and B, respectively, in Figure 2. The first point at which social support may act as a buffer in the coercion – crime relationship (point C) is by interacting with coercion to produce a moderating effect. Similar to Point A in the stress model
discussed above, social support is believed to interact with coercion by providing the resources to allow the individual to “redefine the potential for harm posed by a situation and/or bolster one’s perceived ability to cope with imposed demands” (Cohen & Wills, 1985, p. 312). The second point at which social support may act as a buffer in Figure 3 is by interacting with self-efficacy (point D). In this relationship, social support may reduce or eliminate the effects of low self-efficacy that leads to the use of criminal behavior as a coping mechanism. Finally, the direct, main-effect model has already been introduced. A “pure main effect” is defined as one in which there is a main effect of social support, but no evidence of an interaction effect.

**Hypotheses**

In order to investigate the three research questions put forth above, the current study tests the following five hypotheses:

**DIRECT EFFECTS**

H1: *Individuals who experience high levels of coercion are more likely to engage in violent criminal activity than individuals who experience low levels of coercion.*

H2: *Individuals who experience high levels of social support are less likely to engage in violent criminal activity than individuals who experience low levels of social support.*

**MEDIATING EFFECTS**

H3: *The relationship between coercion and participation in violent behavior is (partially) mediated by self-efficacy.*
MODERATING (BUFFERING) EFFECTS

H₄: Individuals who experience high levels of coercion and social supports in their lives will demonstrate higher levels of self-efficacy than those individuals who experience coercion and do not have appropriate levels of social support in place.

H₅: Individuals with low levels of self-efficacy and high levels of social support will be less likely to participate in violent acts than those individuals with low self-efficacy and low levels of social supports.

It is possible that the results may demonstrate a combined main and interaction effect in which individuals who have low levels of social support differ significantly from individuals with higher levels of social support under low levels of coercion with even greater differences under high levels of coercion (Cohen & Wills, 1985). So, the full model to be tested is shown below (Figure 4), including the hypotheses just discussed.

Figure 4 about here
Chapter 5: Methodology

This chapter briefly describes the Project on Human Development as well as a few benefits of Structural Equation Modeling. The variables used in the analyses are then described and operationalized. Once again, to briefly summarize the research hypotheses, Hypotheses 1 and 2 test the independent direct effects of coercion and social support, respectively, on participation in violent crime. Hypothesis 3 tests the mediating effect of self-efficacy on the relationship between coercion and violent crime, while Hypotheses 4 and 5 test the moderating effects of social support on the coercion and self-efficacy relationship (Hypothesis 4) and on the self-efficacy and violent crime relationship (Hypothesis 5).

Data

Data from the Project on Human Development in Chicago Neighborhoods (PHDCN) were used to assess the role of social support in the relationship between coercion, self-efficacy, and crime. The PHDCN is an interdisciplinary study that investigates the varying effects of individual, family, school, and neighborhood factors on childhood development. Although the PHDCN is made up of multiple components, this study relies upon one section in particular: the Longitudinal Cohort Study (LCS).

The overall sampling design of the PHDCN relied upon a multistage sampling plan to assess potential influences of neighborhood factors on individuals. In the first step, Chicago’s 847 census tracts were combined into 343 neighborhood clusters (NCs), which averaged about 8,000 people apiece. The NCs were considerably smaller than the 77 traditional community areas
of Chicago, which averaged about 40,000 people each. These NCs were generated based upon geographic adjacency and internal homogeneity regarding race/ethnicity, family structure, and socioeconomic status. Of these 343 NCs, 80 were then selected for more intensive study. Block groups were then randomly selected from each of these 80 NCs, and about 40,000 households were screened. From these households, subjects within six months of the following birthday ages were identified for inclusion in the LCS: 0, 3, 6, 9, 12, 15, and 18 years. This resulted in 8,347 eligible participants. Primary caregivers of the eligible children and adolescents were also recruited for participation. The LCS consists of three waves of data, covering approximately seven years. The average time between interviews was two to three years with Wave I being conducted between 1994 and 1997, Wave II between 1997 and 1999, and Wave III between 2000 and 2001. Individuals within six months of their 9th, 12th, and 15th birthdays were included in the current study and data were taken from all three waves. Individual-level reports of criminal behavior were drawn from Wave III, while predictor variables were taken from both Wave I and Wave II (see below for variable-specific references).

The three cohorts used in this study accounted for almost 38% (3,166) of the 8,347 eligible participants. Of these 3,166 individuals, 1,566 participated in all three waves of interviews, an overall response rate of just over 49%. The sample in this study is made up of 568 individuals from cohort 9, 548 individuals from cohort 12, and 450 individuals from cohort 15. Demographic information is displayed below in Table 6.
Structural Equation Modeling (SEM)

As was discussed earlier, based upon its complexity and a lack of relevant, comprehensive datasets, DCSS theory has not been fully tested. In fact, only a handful of studies (Athens, 1992; Baron, 2009; Fleisher, 1995; Unnever, et al., 2004) could be located that actually set out to test the theory or its predecessor, differential coercion theory. The positive results from these studies, however, demonstrate the need for further investigation into the theory, and more specifically, how to account for its complexity. In order to do so, the current study utilizes structural equation modeling (SEM) to confirm some of the \textit{a priori} specifications of DCSS theory, as well as to examine additional models constructed based upon the potential multi-faceted role of social support in the stress literature.

Some of the most commonly referred to benefits of SEM include the ability to control for measurement error in latent variables as well as the simultaneous estimation of multiple models. Although there are multiple SEM software packages available, MPlus was selected for use due to its ability to handle a count dependent variable, as well as ordinal and nominal-level variables. Additionally, MPlus can bootstrap standard errors and confidence intervals and has several options for estimating models with missing data. Before getting into further specifics regarding the actual analytic approach below, the next section describes the measurement of the variables included in the analyses.
Dependent Variable

Self-reported Offending (Wave III)

In keeping in line with much current research (Brezina, Tekin, & Topalli, 2009; McGloin, Schreck, Stewart, & Ousey, 2011; E. A. Stewart & Simons, 2010; G. Zimmerman & Messner, 2011), the current study utilizes self-report measures of violent behavior as the dependent variable. The Self Report of Offending (Earls, Brooks-Gunn, Raudenbush, & Sampson, 2002c) was administered to all Longitudinal Cohort Study participants and each respondent was asked to report whether or not he/she committed various types of violent crimes in the year leading up to the Wave III interview. Responses for violent crimes were summed to form the violent crime scale and the items included in this summative scale are identified in Table 1.

Table 1 about here

Multiple-item, self-report measures have been widely used in criminology as they are generally assumed to be more valid and reliable than raw counts from official sources. As is the case with most measures of crime and deviance, though, multiple-item scales do not tie in well with the assumptions of normality required for multiple regression. When looking at Table 2, it should become clear that because a large majority of the cases (almost 92%) were either zero or one crimes, the distributions were highly skewed. Because the modal response is zero, the simple summative scale for measures of violent crime is limited, discrete, and positively skewed. The large number of zero scores also causes the error variance to be heterogeneous (Osgood, Finken, & McMorris, 2002).

Table 2 about here
Additionally, one of the biggest critiques of using summatively-scaled measures of offending is that they tend to emphasize affirmative responses regarding participation in less serious offenses as the scales give greater weight to the more frequent, less serious offenses due to their tendency to contribute larger means and variances (Hindelang, Hirschi, & Weis, 1979, 1981; Huizinga & Elliott, 1986). So while least squares methods may still be robust to violations of their assumptions, use of a transformation technique is appropriate in order to eliminate the potential of out-of-range predicted values. The current study utilizes Poisson-based regressions in order to account for the aforementioned violations of OLS assumptions. These approaches are explained in more detail in the Analytical Approach section, below.

**Independent Variables**

**Coercion (Wave I)**

As has already been described, coercion can be defined as any force that compels an individual to act due to the fear or anxiety that it creates (Colvin, 2000) and can emerge from both impersonal as well as interpersonal sources. The current study relies upon the breadth of the PHDCN data to include measures that represent these various sources of coercion. This is consistent with prior studies (Baron, 2009; Unnever, et al., 2004) that have included measures to investigate the multiple sources of coercion.

Consistent with other findings in the trauma and stress literatures, Colvin (2000) argues that coercion has multiple sources, including the family, peers, criminal justice, as well as at the

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4 The scale used in this study appears to be no different than previous research in that the less serious offenses of “hitting someone with whom the offender did not live” and “throwing objects at people” are the most frequently reported behaviors. However, Colvin (2000) clearly states that his theory attempts to explain “predatory criminality” which the current author believes justifies the equal weighting/inclusiveness of each of the seven indicators as they can each be identified as a predatory act.
broader, macro-level. It is within these different settings that individuals are thought to differ in the degree to which they actually experience coercion, although individuals who experience coercion in one setting tend to face coercion in each setting into which they move. Therefore, it is believed that individuals who experience coercion in one setting also tend to experience coercion in other settings (Bandura, 1977; Colvin & Pauly, 1983; Josephson & Proulx, 2008; Ludwig & Pittman, 1999).

More specifically, this study examined the effects of three sources of coercion. *Familial coercion* was assessed by combining items from the Family Environment Scale. The original Family Environment Scale incorporated ten sub-scales in order to investigate both the “interpersonal relationships and the overall social environment within the family.” The FES as adapted by the PHDCN Longitudinal Cohort Study consisted of only three scales to evaluate family functioning (Control, Conflict, and Moral-Religiosity), and the current study only utilized indicators from the Control and Conflict scales. Confirmatory (CFA) factor analysis was used in MPlus to identify eight indicators (see Table 3 below) that loaded onto one familial coercion factor\(^5\). While the Cronbach’s alpha of .657 approaches the widely-accepted .700 cutoff for scale-reliability, the factor does represent conflict and control (coercion) that primary caregivers described in the interpersonal relationships and structures in their families.

*Peer coercion* is the second source of coercion to be included in the study. This measure was taken from the Child Behavior Checklist which asks the primary caregiver to describe

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\(^5\) An initial CFA model was run in MPlus with 12 indicators; however, four indicators had minimal relative loading values on the Familial Coercion factor. After further investigation, the four indicators were taken out of further analyses as they addressed whether or not rules were in place in the household and the researcher decided their presence does not necessarily indicate coercion. Additionally, Cronbach’s alpha increased once these four indicators were removed.
whether or not items describe the subjects “now or within the past six months” on a three-
response scale including “not true”; “somewhat true”; and “very true”. Indicators include
whether or not the primary caregiver believes the subject gets along with other kids, feels others
are out to get him/her, gets in many fights, gets teased a lot, and is liked by other kids. The
Cronbach’s alpha for these five items was .691 and confirmatory factor analysis was once again
used in MPlus to verify that all five indicators loaded onto one factor. The model was significant
with all five indicators demonstrating loadings of .675 or higher on the peer coercion factor.

Finally, environmental coercion was constructed from four indicators from the Exposure
to Violence instrument. Respondents were simply asked whether or not they were afraid of
violence at school, in their neighborhood, in front of their homes, and in their apartment
building/house. Cronbach’s alpha for these four items was .656, and once again, confirmatory
factor analysis was completed in MPlus, with all four indicators’ loadings being significant on
the environmental coercion factor. The items are included to represent a broader, more
encompassing environment of coercion in which individuals may find themselves living. It
should be noted that both school and neighborhood coercion were originally included as separate
types of coercion, however, due to the high correlations and loadings associated with the
indicators of each, they were combined to form one environmental coercion factor.

Table 3 about here

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6 Indicators of whether or not the respondents actually witnessed violence in school and their neighborhoods within
the past year were also originally included in the measure of environmental coercion. When crosstabulations were
run to investigate the relationship between witnessing violence and fearing it, however, it became apparent that not
everyone that witnessed violence feared it in these areas. This result, as well as the concept of coercion being based
upon fear or anxiety, led the researcher to not include the indicators of witnessing violence in the final models.
While each type of coercion could have an independent hypothesized effect on the rest of the model to be tested, the current study is concerned with an overarching coercive environment in which individuals may find themselves. Therefore, a second-order confirmatory factor analysis was run in MPlus to test the fit of the measurement model shown in below in Figure 5. This model investigates the loadings of the indicators just described above on the four different types of coercion (familial, peer, school and neighborhood), and then the loadings of these four factors on one overall coercion factor. Results of this second-order CFA are discussed in the Analytic Approach section below.

Figure 5 about here

Social Support (Wave I)

Because of its complexity, social support has been both conceptualized and operationalized in a variety of ways in prior research, many times leading to conflicting results (Vaux, 1988). Similar to coercion, however, the argument has been made that social supports can occur at both the micro- and macro-levels of society. Additionally, it has been argued that social support is not simply either a static personal characteristic nor environmental condition, but involves a dynamic process of transaction between the person and his support network that takes place in a particular ecological context (Vaux, 1988). The current study conceptualizes social support as an individual’s perception that, if needed, he has the necessary social resources to assist him to address both instrumental and/or expressive issues. Prior research has demonstrated that the perception that one has available supports waiting to assist him is just as, if not more, important than actual support (Freeman & Rees, 2010; Rees & Freeman, 2007; Wethington &
Kessler, 1986). According to Cohen and Wills (1985, p. 312), “the perception that others can and will provide necessary resources may redefine the potential for harm posed by a situation and/or bolster one’s perceived ability to cope with imposed demands.”

The current study utilized the Provision of Social Relations (PSR) in order to address individual-level social support perceived to be available from subjects’ families and peers. The PSR was specifically designed for the PHDCN to assess support received by subjects (Earls et al, 2002a; 2002b). More specifically, it was created to evaluate subjects’ relationships with family members and friends in order to assess the type and amount of social support received. Eleven items from this instrument were used to assess the subjects’ perceptions of available social supports; five indicators of support from family and six indicators of support from friends. The specific indicators and Cronbach’s alphas for each type of support can be found in Table 4 below. When all indicators are included in the same scale, not surprisingly, the α does increase to .712. A second-order confirmatory factor analysis was run using the eleven indicators as well as the two components of the instrument referred to as Friend and Family social supports. The results from the actual analysis are discussed in the Analytic Approach section.

Table 4 about here

Self-efficacy (Wave II)

It has already been argued that self-efficacy, or control beliefs, is an important aspect of human motivation, well-being, and accomplishments (Bandura, 1977, 1986, 2006) that may be affected by social support. Although much of the prior research on self-efficacy has involved performance of particular tasks, especially academic performance, various researchers
(Raudenbush, Johnson, & Sampson, 2003; G. Zimmerman, 2009) have suggested investigating self-efficacy across domains in order to better understand the origins of self-beliefs and their interconnections. Therefore in an effort to address this broader conceptualization, the current study utilized the Things I Can Do If I Try instrument from Wave 2 of the PHDCN Longitudinal Cohort Study. The instrument is a self-efficacy survey designed for children and was developed specifically for the PHDCN in order to assess efficacy in multiple domains (Earls et al, 2002d). The specific items used in this study are listed in Table 5. These five items were selected for inclusion in the current study because they all inquire about the subjects’ beliefs in different types of control in their lives and when simply summed the Cronbach’s alpha of the scale is .629. Confirmatory factor analysis was performed in MPlus and the model showed a strong fit to the data and all indicator loadings were significant.

Table 5 about here

Control variables

In addition to the primary independent variables being tested, the analyses also controlled for individuals’ gender, cohort membership, race/ethnicity, and family socioeconomic status. While prior research (Baron, 2009; Unnever, et al., 2004) found similar control variables to be significant direct predictors of crime, only gender remained significant when the social-psychological variables were included in the model. Because of the established relationships between these variables and crime, the inclusion of these control variables is justified.

Table 6 (below) provides the descriptive statistics for the variables included in the analyses. It should be noted that the statistics included for the independent variables are based upon the simple summation of the respondents’ scores for relevant questions and not the factor
scores computed in the actual analyses. Additionally, the family socioeconomic status variable was created by summing the z-scores for each of the indicators (level of education, employment status, and household income) in order to create a single measure of family socioeconomic status.

Table 6 about here

Missing Data/Attrition

Although there are minimal numbers of missing values for the dependent variable there are a few predictor variables that have some larger amounts of missing values (see Table 6 above). Similar to other structural equation modeling software, Mplus addresses this issue by using a full information maximum likelihood estimation (FIML) which has been shown to produce unbiased estimates and standard errors as long as the data are missing at random (MAR). As is further explained below, Mplus uses a maximum likelihood estimation with robust standard errors (MLR) that has the ability to account for missing data, as well as non-normality in an approach that mirrors Yuan and Bentler’s (2000) scaled test statistic ($T^2_2$).

It should be noted, that while FIML uses all of the information that is available to it in order to estimate parameters, missing data are not allowed for observed covariates in Mplus as technically, they are not part of the model itself (L. K. Muthen & Muthen, 1998-2012). Therefore, while there were 1,566 individuals in cohorts 9, 12, and 15 who participated in all three waves of interviews, data were missing on indicators of the family socio-economic scale.

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7For a more detailed explanation of regarding FIML estimation, the reader is referred to Little and Rubin (2002).
for 200 cases. These cases were then listwise deleted in structural models that were run in Mplus, bringing the actual number of cases for these analyses to 1,366.

Finally, the current study used data from three different waves and just over half of the individuals in these three cohorts dropped out of the study before completing all three waves of interviews. This could have potentially introduced selection bias as well as issues with internal and external validity. In order to address issues tied to individuals dropping out in between waves, an attrition analysis was run. More specifically, the analysis examined similarities and differences between individuals who completed surveys at all three waves and those who are missing at one or more waves. A dichotomous variable representing dropout or continuation was created for both Wave II and Wave III and correlations between these variables and independent and dependent variables were run to test for potential relationships between attrition and variables that could present some type of selection bias into the analyses. None of the correlations involving either of the attrition variables were large enough to suggest that the results of the study are biased based upon sample attrition.
Chapter 6: Analytic approach

Because structural equation modeling incorporates both measurement models as well as path analyses, this chapter will be broken up into two sections. In the first section, the results from the confirmatory factor analyses (measurement models) mentioned in the previous section are reported and discussed, while the second section presents the specific causal models (structural models) used to test the primary hypotheses of the study.

Measurement Models

Unless otherwise specified, weighted least squares with mean and variance corrections estimation (WLSMV) was run in Mplus version 7 for measurement models due to the fact that all indicators were categorical and traditional maximum likelihood approaches tend to be biased when using non-continuous indicators (Brown, 2006). Prior research has also demonstrated that the WLSMV estimator yields accurate test statistics, parameter estimates, and standard errors (Flora & Curran, 2004; B. O. Muthen & Kaplan, 1992), as well as more precise factor loadings and better model fit when the number of categories is low (Beauducel & Herzberg, 2006). It should be noted that while using the WLSMV estimator, degrees of freedom are calculated from the sample data as opposed to being calculated based on model parameters when using maximum likelihood (more information on the formula used to estimate the degrees of freedom can be found in Muthen & Muthen (1998-2012)). This still then allows for a Chi-Square Test of Model Fit in order to assess how well the hypothesized model describes the sample data. Because of
several well-known non-normal distributions\(^8\), alternate indices of fit have been developed and are also commonly reported.

Alternative model fit indices tend to be categorized as either incremental or absolute indices (Byrne, 2012) and it is common for researchers to report both types of indices in addition to the Chi-Square test to best assess the actual fit of a model. Basically, incremental indices tend to measure how much better proportionately a hypothesized model fits when compared to a more restricted, baseline model (Hu & Bentler, 1999), while absolute indices examine how well an \(a priori\) model replicates the sample data. The most common incremental indices are the Comparative Fix index (CFI) and the Tucker-Lewis index (TLI), while the Root Mean Square Error of Approximation (RMSEA) is a commonly reported absolute model fit index.

The primary distinction between the CFI and TLI indices is that the values of the CFI are normed while the TLI is a non-normed index. The TLI index also includes a penalty function for models that are overly complex. In both indices, however, values close to 1.0 are indicative of a well-fitting model. On the other hand, as its name implies, the RMSEA accounts for the error of approximation in the population while fitting the model to the population covariance matrix if it were actually available (Browne & Cudeck, 1993). Readers are referred to Bentler (1990) for additional information on CFI indices, Tucker and Lewis (1973) regarding the TLI, and Browne and Cudeck (1993) for more details on the RMSEA.

**Coercion**

As was described in the preceding section, because it is hypothesized that some underlying general construct of coercion actually affects each type of coercion as well as each of

\(^8\) For a more in-depth explanation of the more prominent issues with \(\chi^2\) please refer to Brown (2006), Hu and Bentler (1999), and MacCallum, Browne, and Sugawara (1996) to name a few.
their indicators, a second-order CFA model was run. The original second-order measurement model for coercion was broken into four, not three, factors, with school and neighborhood coercion each being an independent factor (as opposed to one environmental factor). When the model was run in MPlus, however, the model modification indices consistently suggested correlations between the school and neighborhood coercion indicator that led to a better fit to the data. Therefore the school and neighborhood factors were combined into one environmental factor that accounted for respondents’ fear of violence in the particular settings identified above. The overall coercion factor has a Cronbach’s alpha of .69 and the final measurement model including standardized loadings for the overall coercion factor is shown in Figure 6.

*Figure 6 about here*

The WLSMV $\chi^2_{(117)}$ value of 333.712 is robust, meaning that the hypothesized model closely fits the sample data. Additionally, at 0.959, the Comparative Fit Index (CFI) and at 0.953, the Tucker-Lewis Index (TLI) each exceed the conventionally accepted criteria of 0.95, further demonstrating excellent fit, while the Root Mean Square Error of Approximation (RMSEA) of 0.034 is lower than the conventionally accepted criteria of 0.05, further confirming a fit.

All factor loadings, including both first- and second-order are statistically significant at the .05 level, however, further discussion is required to address the weak loadings for the three indicators of familial coercion in bold (FE10, FE18, & FE19), as well as that of the

---

9 Although in the truest sense, this then become an exploratory model, CFA procedures continued to be used once the school coercion indicator was merged with the neighborhood indicators into an overall environmental coercion factor. The final model (Appendix X – Figure 2) demonstrated a better fit to the data based upon comparisons of the Chi-Square Test of Model Fit (886.515 df=118 decrease to 287.532 df=116), the Root Mean Square Error of Approximation (.065 decrease to .031), and the CFI goodness-of-fit statistics (.855 increase to .968).
environmental factor on the overall coercion measure (0.161). The three indicators of familial coercion with weak loadings ask whether or not “family members often lose their tempers” (FE10), whether or not “everyone has an equal say in family decisions” (FE18), and whether or not family members attempt to “smooth things over and keep the peace” if there is a disagreement. (FE19). The author argues although the relationship between the indicators and the familial coercion factor appear to be a bit weak, these indicators do conform to the definition of coercion provided by Colvin (a force that compels an individual to act in a particular manner because of the fear or anxiety it creates), in that they describe characteristics that if answered in the negative can be interpreted as contributing to a coercive familial environment. While the inclusion of these three indicators can be theoretically justified, the very weak loading (.161) of the environmental factor on the coercion latent variable is of greater concern.

Again, researchers (Colvin, 2000; Decker & Van Winkle, 1996) have argued that pressures from impersonal forces, such as a violent environment in the neighborhood and/or school, can contribute to an indirect experience of coercion and threat, therefore it was hypothesized that the four indicators of fear of violence at school, in the neighborhood, in front of the home, and in the apartment building/house would form an environmental coercion factor that would then contribute to the overall coercion variable. As mentioned above, the environmental coercion factor, though, only has a loading of 0.161 on the overall coercion variable. This suggests that while the four indicators all had strong loadings on what was labeled an environmental coercion factor, when combined with familial and peer factors of coercion, it appears that it is actually measuring something closer to fear of violence or perception of the environment. This should not deflect from the fact that this still may be a cause of coercion,
albeit it an indirect one as identified by Colvin & colleagues (2000; Unnever, et al., 2004). It should be clear from the second-order factor model of coercion, then, that this first-order factor is measuring something distinct from that of the first-order familial and peer coercion factors. Because of this fact, the second-order coercion factor used in structural models only included familial and peer coercion.

**Social Support**

The measurement model for social support was also a second-order factor model, with indicators loading on two first-order factors identified as family and friend social support. Cronbach’s alpha for the eleven indicators of social support is .71 and results from the second-order measurement model including all standardized loadings can be seen in Figure 7 below.

*Figure 7 about here*

Once again because of the categorical nature of the indicators, WLSMV was used and the $\chi^2_{(43)}$ value of 118.772 is quite robust. Additionally, the Comparative Fit Index (CFI) of 0.979 and the Tucker-Lewis Index (TLI) of .973 each exceed the conventionally accepted criteria of 0.95, further demonstrating a strong fit of the model to the data. Finally, the Root Mean Square Error of Approximation (RMSEA) of 0.034 is lower than the conventionally accepted criteria of 0.05, further confirming a fit. In addition to the confirmation of a strong fit of the model to the data, the loading of each individual indicator is significant, as is that of the familial and friend factors on the latent variable of social support.
**Self-efficacy**

Confirmatory factor analysis was run in order to test the model that the five indicators identified in Table 5 all load on a single construct identified as self-efficacy. WLSMV was used and the $\chi^2$ value of 33.321 is robust. The CFI value of 0.974 exceeds the criterion of 0.95 and the TLI value of 0.949 is also consistent with this cutoff criterion. Finally, while the RMSEA value of 0.06 is just over the criterion of 0.05, when taken in consideration with the other indices demonstrates a strong fit of the factor analysis model. The standardized loadings and their standard errors are shown below in TABLE 7.

*Table 7 about here*

**Violent Crime**

Because of the dichotomous nature of the indicators of violent crime, a summative scale was created to be used as the dependent variable. Therefore there is no measurement model involving the dependent variable.

**Structural Models**

Because of the non-normal distributions of the latent variable scores, MLR, or maximum likelihood estimation with robust standard errors was used in estimating all structural models. MLR adjusts the model $\chi^2$ as well as the model standard errors. The model fit statistics are adjusted based upon an estimated scaling factor, while the standard errors are adjusted using the Huber-White “sandwich” estimator. As mentioned above, MLR is also a type of FIML that also has the ability to account for data that are missing at random.
Zero-order correlations

Before structural models were run, zero-order correlations were calculated in order to assess the potential strength and direction of the relationships between variables to be included in the models. Table 8 presents the correlations between the factors calculated for coercion, social support and self-efficacy, as well as three control variables, and the violence scale. While the magnitudes of the correlations are quite weak for many of the relationships, the directions of the relationships with the dependent variable are as hypothesized except for that between violence and friend social support, which is positive, although extremely small. Additionally, the correlations between social support and violent crime and self-efficacy and violent crime are not significant, but once again, the direction of the relationships is in the hypothesized direction. The structural models below further clarified the relationships between variables as well as testing the research hypotheses.

Table 8 about here

Negative binomial regression

As stated above, because the dependent variable is a summed scale based upon count data, the structural models used to test the research hypotheses were all run using Poisson-based regressions. Very simply, these models allow the researcher to link explanatory variables to the count dependent variable (Osgood, 2000). More specifically, three primary issues may develop when using OLS regression to analyze count data.

First, when data are positively skewed, the distribution of their error term is also positively skewed. This violates the OLS assumption that the residuals will be normally distributed (Lewis-Beck, 1980). Second, OLS regression assumes homoscedasticity, or a common variance among the distributions of the errors at various values of the predictors (Fox,
1991). When the variance of the residuals is not constant, heteroscedasticity leads to biased errors and thus biased significance tests when using OLS (Long, 1997). The final issue with using OLS regression to analyze count data is that there is the potential for model-based predicted values to be negative, when by definition, count data can only take on non-negative integer values.

Poisson-based regressions are a form of generalized linear models (GLiMs). These types of analyses allow predicted outcomes to be transformed in order to attempt to linearize a potentially non-linear relationship between the independent and dependent variables. They do so through a special transformation function called the link function that allows the predicted scores to be in a different metric than those of the predictors. In Poisson-based regressions, the predicted scores are the natural logarithms of counts, while the observed scores are simply counts (Coxe, West, & Aiken, 2009). Furthermore, Poisson-based regressions are based upon the use of the Poisson distribution which only takes on a probability value for non-negative integers, fitting well to the specifications of count data.

The Poisson distribution is positively skewed and a variable with a Poisson distribution has the probability density of

$$ P(y|\lambda) = \frac{e^{-\lambda} \lambda^y}{y!} $$

where $\lambda$ is the rate parameter, or expected count. If we allow $E(y) = \lambda$, Poisson regression can then be modeled as

$$ (2) \ln \lambda = b_0 + b_1X_1 + b_2X_2 + \cdots + b_pX_p. $$
It should be clear from this equation that the relationship between the predictors and the predicted score is linear, as in OLS regression, however, the predicted score is not actually a count, but is the natural logarithm of the count. Similarly then, the interpretation of regression coefficients is in terms of the natural log of $\lambda$. This interpretation is further explained below in the discussion of the actual models.

Perhaps the most important characteristic of the Poisson distribution, though, is the assumption of equidispersion, or that the distribution’s variance is equal to its mean. This assumption is not typically supported in real data (Atkins & Gallop, 2007; Liu & Cela, 2008; Walters, 2007), though, as often the variance is greater than the mean, a condition known as overdispersion. This is a somewhat common occurrence when dealing with counts of crime data as, depending upon the population being studied, a majority of individuals tend not to have ever participated in criminal activity, leading to a larger amount of zeros than can be accounted for by a traditional Poisson model. In such cases, overdispersion tends to lead to higher Type I errors by underestimating the standard errors of the predicted slopes (Osgood, 2000). There are a few ways in which to deal with overdispersion, including adjusting the Poisson regression to allow for larger standard errors, as well as using a negative binomial distribution. While adjusting to allow for larger standard errors may address the issue of overdispersion, it also tends to make finding statistical significance more difficult (Huang & Cornell, 2012). On the other hand, negative binomial regression includes an error term in the regression to account for unexplained differences between observations, essentially assuming that $\lambda$ may vary between cases. Basically, this transforms Equation (2) above to
It should be noted that this in no way changes the interpretation of the coefficients themselves (Gardener, Mulvey, & Shaw, 1995; Long, 1997).

It should also be noted that in cases where there appears to be an excessive number of zeros in the data, zero-inflated negative binomial regression should also be considered (Lachenbruch, 2002). In zero-inflated models, it is assumed that there are potential groups involved in the count data. First, there are those cases that are always zero, in this study, individuals who have never committed any of the acts in question. In addition to these individuals, though, there may be individuals who have responded that they have not committed the acts within the past year, but would still be predicted to have committed them based upon the predictors. In a zero-inflated model, both groups are taken into consideration by the inclusion of two models. The first model is a simple probability model that predicts membership in the group based upon a set of predictors. The second model is a negative binomial model that predicts the number of violent offenses an individual participated in, which may have been zero for the one year prior to being surveyed (Atkins & Gallop, 2007; Lachenbruch, 2002).

**Direct effect models**

The first set of regression analyses run were those that investigated the direct, independent effects of social support and coercion on violent crime. To reiterate, each model presented below was run in Mplus version 7 using MLR estimation. Once again, because of the extremely skewed distribution of the dependent variable (violent offenses scale), negative
Binomial regression models were used to estimate the models in order to address the previously mentioned issues surrounding overdispersion. Like other statistical packages, Mplus automatically estimates a dispersion parameter (the natural log of $\alpha$, or the dispersion coefficient) that is tested to be significantly different from zero. If the dispersion parameter is equal to zero, the model is probably better estimated using Poisson regression, however, if the dispersion parameter is greater than zero, overdispersion can be assumed and negative binomial regression is appropriate (Long, 1997). In order to take into account the fact that some of the individuals that scored a zero on the violent acts scale may actually be members of two different types of groups, both negative binomial and zero-inflated negative binomial models were run for each of the direct effect models.

Table 9 presents the comparison of Akaike’s Information Criteria (AIC) which is used to assess model fit of competing non-nested models. Although the AIC scores for the zero-inflated negative binomial regressions are both lower when compared to the negative binomial models for each direct effect model, the negative binomial models were preferred for two primary reasons. First, the coefficients in the logistic regression aspect of the zero-inflated models were not statistically significant. Second, while the AIC scores for the zero-inflated models were smaller, the differences were relatively quite small. When taken into consideration with the fact that the negative binomial had a similar fit with fewer parameters being estimated, the negative binomial regression is more economical, per se, and is therefore the preferred model for both direct effects models.

Table 9 about here
After each of the independent models was run, a second step model was run to include both coercion and social support in the same model. In the next step, self-efficacy was added to the model as an additional direct effect on violent crime, and the final step included the interaction between coercion and social support as a predictor of violent crime. The results of these analyses are displayed in Table 10. The dispersion parameter, or $\alpha$, is greater than zero and statistically significant for each model, supporting the use of negative binomial regression based upon the presence of overdispersion.

Table 10 about here

Of note here is that the independent direct effect of coercion is significant and a one-unit increase in the factor score predicts a 32% increase in the count of violent crime. Additionally, although it is not statistically significant at the .05 level, the independent direct effect of social support on the violent behaviors scale does indicate a negative relationship between social support and the scale and predicts a 14% decrease in count of violent offenses per unit increase in the social support factor. The control factors of gender, ethnicity, and cohort show extremely consistent significant effects on the dependent variable across each of the regression models (thus, they are only displayed in Table 10 once).

Not surprisingly, the results of the model that included both coercion and social support displayed no significant differences from the independent models, with coercion still having a significant, positive effect on the likelihood of committing violent acts and social support having a non-significant, negative impact. When self-efficacy is added in Model 3, coercion continues to have a significant effect and self-efficacy has a significant, negative effect on the probability of committing violent acts. Finally, in the fourth model, the interaction between coercion and social
support was added as an additional direct effect and was not significant. In this final model, self-efficacy still had a negative effect on the probability of committing additional violent acts, however, the effect was now not significant at the 0.05 level. Coercion was still a significant predictor of increased counts of violent acts.

When using structural equation modeling, it is common protocol to discuss a model’s fit as well as the parameter estimates. As discussed above in the section on measurement models, chi-square test statistics as well as the aforementioned CFI and TLI and RMSEA indices are ordinarily used in order to assess how well the hypothesized model describes the sample data. Because the structural models use MLR estimation, however, these fit indices are not available in Mplus, it is therefore suggested to use the log-likelihood in order to calculate a chi-square difference test. This is possible because the models just explained are nested; so one can calculate a test statistic (TRd) that is a scaled chi-square statistic (Satorra & Bentler, 2010) in order to assess the effects of the restrictions placed on the null model when compared to the alternative model. The equation for calculating this statistic is as follows:

\[
(4) \quad TRd = -2 \frac{L_0 - L_1}{cd} \quad df = p_1 - p_0
\]

where

\[
(5) \quad cd = \frac{p_0 * c_0 - p_1 * c_1}{p_0 - p_1}
\]

and

- \( L_0 \) = log-likelihood for the null model
- \( L_1 \) = log-likelihood for the alternative model
- \( c_0 \) = scaling correction factor for the null model
- \( c_1 \) = scaling correction factor for the alternative model
- \( p_0 \) = number of parameters estimated in the null model
- \( p_1 \) = number of parameters estimated in the alternative model
The test statistics for each of the models compared to the null model are also included in Table 10. A significant test statistic suggests that the model with more free parameters is a better fit to the data than the null model that contains fixed parameters. The fact that the test statistic is significant for each model in which an additional variable is added can be interpreted as each alternative model being a better fit to the data than when the added parameters were constrained to zero in previous models.

**Mediation Models**

Colvin (2000) argues that coercion may indirectly cause criminal behavior through the effects of social-psychological deficits including low self-efficacy. Therefore, the next step in the analyses investigated the potential partial mediating effect of self-efficacy on the relationship between coercion and violent crime (Figure 8). Traditionally, testing for mediation effects followed four steps (Bandura, 1992); however, more recent approaches have utilized bootstrap methodology to investigate the variability of estimates of indirect effects in mediation models (Bandura, 1977; Ludwig & Pittman, 1999).

*Figure 8 about here*

Basically, it is assumed that the total effect of coercion (c) is equal to the direct effect (c') plus the indirect effect (a*b), or again from Figure 8:

\[ (6) \quad c = c' + ab \]

By using bootstrapping, the researcher can account for the fact that the distribution of the estimates of a*b tend to be positively skewed, affecting the confidence intervals, and thus the statistical power of the test of the null hypothesis that a*b = 0 (Josephson & Proulx, 2008). Bootstrapping in Mplus allows for the empirical generation of a sampling distribution of the
indirect effect, including confidence intervals (Preacher & Hayes, 2004), which in this model produced an estimate of the indirect effect of 0.006, as well as 95% confidence intervals that actually included 0.000 as an estimate, essentially supporting the null hypothesis that no significant indirect effect exists.

The mediating hypothesis was also tested using the Sobel (1982) test as recommended by MacKinnon et al (2002). The Sobel test, although a bit conservative, provides a standard error for the $a*b$ interaction from which a $z$ score can be calculated to test its significance. The $a$ and $b$ paths were estimated using multiple regression models and the results are shown below in Figure 9. Because the calculated $z$ ratio does not exceed the critical value of 1.96, the Sobel test also supported the null hypothesis that the mediating effect is not different from zero in the population, confirming the results from the bootstrapping approach$^{10}$. The lack of mediating effect does not influence the potential moderating effect of social support; however, it simply establishes that the hypothesized overall model does not fit the data and further exploration is needed in order to explain the potential relationships between these variables. These post hoc analyses are explained in more detail in the sections that follow.

*Figure 9 about here*

**Moderation Models**

In order to test Hypothesis 4, a baseline model was first run in Mplus. This model tests the simple effects of coercion and social support on self-efficacy and included the gender, ethnicity, family SES, and cohort control variables, as well as the latent coercion and social

$^{10}$ The same analyses were run to investigate the potential mediating effect of self-efficacy on the relationship between social support and violent crime, while controlling for coercion, and the researcher was again unable to reject the null hypothesis that the indirect effect was significantly different from zero.
support variables. The interaction between social support and self-efficacy was then introduced into the second model with their means set to zero in order to center the latent variables.

Table 11 presents the results from these models as well as the calculated TRd test statistic in order to assess which model better fits the data. The results from these analyses indicate that the interaction between social support and coercion does not have a significant effect on self-efficacy, nor is the alternative model a better fit to these data than is the null model that constrains the interaction to zero. It does demonstrate that social support is a very strong predictor of self-efficacy though, which is consistent with the results from the constrained model.

Table 11 about here

Hypothesis 5 was tested using the same approach just described. A baseline model was run testing the simple effects of self-efficacy and social support on violent crime while controlling for gender, ethnicity, family SES, and cohort membership. The interaction between social support and self-efficacy was then introduced in the second model, while social support and self-efficacy were standardized with their means set to zero and their standard deviations set to one.

Table 12 displays the results from these models as well as the calculated TRd test statistic which is used to assess which model better fits the data. The results show both the direct effect of self-efficacy and the interaction term to be significant predictors of violent crime; for every unit increase in self-efficacy, the violent crime count is expected to decrease by just over 24%, while the interaction term predicts a 30% decrease in the violent crime count. Additionally, the TRd test statistic verifies that the model that includes the interaction term is a better fit to the data.

Table 12 about here
Because the interaction between social support and self-efficacy was a significant predictor, simple slopes analyses were run to further investigate how variations in social support\(^{11}\) actually affected the relationship between self-efficacy and violent crime. The results of these analyses can be seen in Figure 10.

*Figure 10 about here*

Figure 10 demonstrates that high levels of social support actually magnify the effect of self-efficacy on violent crime. That is, as the coefficient for the direct effect of self-efficacy on violent crime demonstrates, self-efficacy has a negative effect on the violent crime count; however, when higher levels of social support are interacted with higher levels of self-efficacy, this effect is stronger than when lower levels of social support are interacted with higher levels of self-efficacy.

**Full Model**

Finally, although the null hypothesis for a mediating effect of self-efficacy could not be rejected, the full model was still tested in order to see if the moderating effects of social support on coercion and self-efficacy influenced the \(a\) and \(b\) paths from Figure 8 when the entire model was run simultaneously. Again, the full model being tested is seen below.

*Figure 11 about here*

Statistically, the model tests both the direct effect of coercion on violent crime \((c_1)\), as well as the conditional indirect effect of coercion on violent crime through self-efficacy \((a_1 + a_2W) \ast (b_1 + b_2W)\) where \(W\) was set to the mean of social support and \(+/-\) 1 standard deviation from the mean.  

\(^{11}\) In running the simple slopes analyses, social support was mean-split into low and high social support.
This is equivalent to the indirect effect being conditional upon social support at both points C and D identified in the buffering model in Figure 3 discussed above.

Results from running this model are displayed in Figure 12. The results from running the full model do not differ from those of the independent models addressed above. There is still a significant direct effect of coercion on violent crime, as well as a moderating effect of social support on the relationship between self-efficacy and violent crime. Additionally, social support has a significant, positive effect on self-efficacy and self-efficacy has a significant, negative effect on the violent crime count. Finally, the correlation between the coercion and social support latent variables is significant and negative. The indirect effect of coercion on violent crime through self-efficacy still cannot be differentiated from zero based upon the confidence intervals created through bootstrapping, even while controlling for the potential buffering effects of social support.

*Figure 12 about here*

**Post hoc Analyses - Moderated Mediation**

Due to the lack of the mediating effect of self-efficacy addressed above, post-hoc analyses were run in order to further investigate the relationship between coercion, self-efficacy, and violent crime. Moderated mediation can be more simply described as a type of *conditional indirect effect* (Preacher, Rucker, & Hayes, 2007), or the extent that an indirect effect is affected by a moderator. Preacher, Rucker, and Hayes (2007) identify five potential models describing the various ways that a moderator might affect a mediating relationship. The current study tests three
of these models in order to further investigate potential conditional indirect effects of self-efficacy on violent crime and further elucidate the relationship between coercion, social support, self-efficacy, and violent crime.

*Model 1 – Coercion is also the moderator*

Model 1 (below) was run investigated the potential interaction effect between coercion and self-efficacy. In exploring the actual relationship between coercion, self-efficacy and violent crime, the argument can be made that if self-efficacy does not mediate the relationship between coercion and crime, perhaps it moderates it, or even conditionally mediates it. The moderating hypothesis is simply another example of the buffering hypothesis; that is, higher levels of self-efficacy could potentially act as a buffer or coping mechanism to higher levels of coercion. Or put more simply, individuals who have high levels of self-efficacy may believe that they have too much potential to allow themselves to react to coercive environments in a violent manner. This model translates into two regression equations:

\[
(7) \quad M = a_0 + a_1 X + r
\]

and

\[
(8) \quad Y = b_0 + c' X + (b_1 + b_2 X)M + r
\]

where \(M\) is the value of self-efficacy and \((b_1 + b_2 X)M\) defines the conditional effect of coercion on the relationship between violent crime and self-efficacy (Preacher, et al., 2007, p. 196). This model was run in Mplus using bootstrapping with code based upon Preacher et al’s (2007) Model 1 and the indirect effect of \(a_1 \cdot (b_1 + b_2 X)\) at the mean of coercion and +/- 1sd could not

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12 For ease of reference and consistency with the literature, the models tested in this *post hoc* section are designated in parallel to the models described in Preacher, Rucker, and Hayes (2007).
be distinguished from zero based upon the confidence intervals that were created. Nor was the coefficient of the interaction term significant, implying that self-efficacy does not have a conditional indirect effect on violent crime based upon levels of coercion.

Figure 13 about here

Model 2 – The a path is moderated by social support

In Model 2 (see below), it is hypothesized that the \( a \) path, or the path between coercion and self-efficacy is moderated by social support. Interestingly, this model can be used to investigate a mediated moderation effect as well as a moderated mediated effect depending upon which parameter in the model is emphasized. Because the *post hoc* analyses are being used to further investigate the hypothesized mediating effect of self-efficacy, the current study relies upon Model 2 to test whether or not mediation exists for different levels of social support. Edwards and Lambert (2007) refer to this as “first stage moderation” due to the fact that it applies to the first path of the indirect effect of coercion on violent crime. The lack of the mediation effect described earlier could potentially be a zero sum of self-efficacy’s effects at different levels of the interaction between coercion and social support. Once again, code from Preacher et al (2007) was used to test both the direct effect of the interaction between coercion and social support \( (c'3) \) as well as the conditional indirect effect of coercion on violent crime through self-efficacy \( (b1 \ast (a1 + a3W)) \), where \( W \) was set to the mean of social support and +/- 1 \( sd \). Similar to the results for Model 1, the direct effect of the interaction term was not significant, nor were the indirect effects indistinguishable from 0.

Figure 14 about here
Model 3 – The b path is moderated by social support

Model 3 suggests that the b path (effect of self-efficacy on violent crime) may be moderated by social support. This can be interpreted as the relationship between self-efficacy and violent crime being contingent upon different levels of social support. These effects than may interact with the a path to demonstrate an indirect effect of coercion on violent crime. Therefore, the mediating effect of self-efficacy on the relationship between coercion and violent crime may be dependent upon the multiplicative levels of self-efficacy and social support, not just upon levels of self-efficacy as has been demonstrated to be indistinguishable from zero above. It is hypothesized that the positive effect of social support will be higher for those individuals with low levels of self-efficacy.

Analyses were run in Mplus based upon code from Preacher et al (2007), and the direct interactive effects of self-efficacy and social support on violent crime were tested \( b_3 \) in the same model as the mediating effect of self-efficacy, estimating the indirect effect of coercion on violent crime through the social support-buffered self-efficacy \( a_1 \*(b_1+b_3V) \) where \( V \) is the level of social support. The interaction term was found to be significant \( b_3 = -0.127; p = 0.003 \), so the model was rerun with the means of self-efficacy and social support factor scores held at zero, centering the factor scores around zero. The model also estimated three parameters created to calculate the indirect effect paths \( a_1 \*(b_1+b_3V) \) when \( V \) was set to zero as well as +/- one standard deviation from the mean. Confidence intervals were produced for these three parameters, all of which included zero, indicating that the null hypothesis \( a * b \neq 0 \) cannot be rejected and there is once again a lack of support for the mediating effect of self-efficacy, even when being moderated by social support.
Post hoc Analyses – The role of self-efficacy

The results of the tests for mediation, including those just discussed involving potential moderated mediation, clearly demonstrate a lack of a mediating or partially mediating effect of self-efficacy on the relationship between coercion and violent crime for these data. Therefore, in order to further identify the role of self-efficacy in these relationships, two additional models were tested in Mplus. First, self-efficacy was entered into the model as an additional outcome variable. That is, instead of talking about self-efficacy in terms of being related to violent crime, Model 4 predicts that coercion and social support, as well their interaction also predict levels of self-efficacy independent of violent crime.

Table 13 shows the results from Model 4. As would be expected, there are not too many differences in this model when compared to predicting violent crime and self-efficacy in independent models. Coercion, being male, and being African-American compared to Hispanic all predict higher probabilities of participating in additional violent behavior, while being a member of Cohort 9 predicts lower probability of additional participation in violent crime when compared to being part of Cohort 15. Additionally, social support, family socioeconomic status, and being African-American compared to Hispanic all predict higher levels of self-efficacy per unit increase.

Second, a multiple-step multiple mediator model was run in order to test the potential that the relationship between coercion and violent crime is actually mediated by both social support and
self-efficacy (see Model 5). The overall effect is made up of the sum of the direct effect of coercion on crime as well as three specific indirect effects:

\[ c = c' + a_1b_1 + a_2b_2 + a_3b_2 \]

The results of this model once again demonstrated a lack of indirect effects through self-efficacy, even while including social support as an additional potential mediator in the same model. None of the three specific direct effects \((a_1b_1, a_2b_2, a_3b_2)\) could be distinguished from zero, failing to allow the null hypothesis to be rejected. Consistent with all prior analyses, though, coercion was a statistically significant predictor of violent crime \((b = .093, p = 0.013)\), while social support was a statistically significant predictor of self-efficacy \((b = .509, p = 0.000)\).

*Figure 17 about here*
Chapter 7: Discussion

Although it has been well-received as an integrated theory, perhaps the biggest criticism of Differential Coercion and Social Support Theory is its complexity that, when combined with the lack of relevant, comprehensive datasets that allow its testing, has led to a general inability to be empirically tested. In fact, very few studies have specifically investigated the role of coercion and social psychological deficits in explaining crime and none of these have actually included social support either as a direct effect or a buffering variable. The current study sought to clarify the role of social support as it relates to coercion, self-efficacy and violent crime as put forward by DCSS Theory. An improved understanding of these relationships assists in clarifying the roles of the theoretical frameworks included in DCSS Theory, as well as strengthens support for the use of specific policy responses to violent crime.

Once again, the current study attempted to answer three research questions in order to better explain these relationships: (1) What are the implications of experiencing coercion in multiple settings for participation in violent crime? (2) What is the role of self-efficacy in the relationship between coercion and violent crime? (3) What is the role of social support as it relates to coercion, self-efficacy, and violent crime? Analyses demonstrated that coercion not only has an independent, statistically significant positive effect on violent crime, but that the direct effect of coercion on violent crime was statistically significant in each model predicting violent crime. Self-efficacy was then entered into the model to investigate if it partially mediated the effect of coercion on violent crime. The results indicated that it does not. Multiple post-hoc analyses were also run in order to see if perhaps the mediating effect was conditional on social
support. None of these additional tests demonstrated any type of mediating effect of self-efficacy on the relationship between coercion and violent crime.

The role of social support was investigated by testing both the direct and buffering effects of social support. The direct effect of social support on violent crime was not significant, nor was the moderating effect of social support on the relationship between coercion and self-efficacy. However, the direct effect of social support on self-efficacy was significant and positive indicating that higher levels of social support predicted higher levels of self-efficacy. Additionally, the direct effect of self-efficacy on violent crime was found to be significant and negative, with higher levels of self-efficacy predicting lower levels of violent crime. Lastly, the interaction of social support and self-efficacy was a significant predictor of violent crime. Simple slope analyses revealed social support to have a magnifying effect, meaning that higher levels of social support increased the effects of higher levels of self-efficacy in decreasing violent crime. These results contrast with the hypothesized buffering effect that higher levels of social support would have a greater impact on individuals with low levels of self-efficacy. The significant effects just discussed are shown in Figure 18.

*Figure 18 about here*

Although the final analyses only included two sources of coercion (familial and peer) the study does demonstrate the theoretical importance of attempting to include a comprehensive profile of the coercive experiences of juveniles. One of the primary tenets of DCSS Theory states that individuals may find themselves being coerced in multiple environments which could eventually lead them to be caught in a “vicious” cycle. According to Colvin et al (2002), it is these individuals then who are most likely to be involved in predatory criminal behavior. This
finding also demonstrates specific support for the incorporation of multiple theoretical explanations of violent crime incorporated into DCSS Theory.

For example, Patterson argues that children who experience coercion within the family tend to learn poor social skills and antisocial behavior through their coercive experiences. The children then model this behavior by using coercion themselves to deal with adverse situations in both family and non-family environments. Those individuals who experience this coercion process within the family at an early age tend to be at greater risk of becoming life-course persisters and become involved in more serious forms of criminal behavior (Moffitt, 1997). Finally, Bandura (1986) and Gottfredson and Hirschi (1990) argue that poor parenting (including the use of erratic coercion) is a primary source for low self-control which is then continually reinforced through coercive, external controls in other environments as well (Nagin & Paternoster, 2000). Based upon their theoretical relevance, this further demonstrates the importance of including additional social psychological deficits in future research that investigates the relationship between coercion and crime.

In addition to lending support to its integrated approach, the findings also have more specific implications for each of the four main constituent theories that comprise DCSS: General strain theory, general theory of crime, social support theory, and social control theory. In general strain theory, Agnew and colleagues (1985; 1996) have made the claim that coercive interpersonal relationships such as those addressed by the current study are likely to produce negative emotions in the form of anger which then predisposes individuals to predatory criminal behavior. Prior research (Aseltine, et al., 2000; Mazerolle, Piquero, & Capowich, 2003) has found strong support for the link between strain, anger, and violent crime. The current study,
though, found no support for a mediating effect of self-efficacy on the relationship between coercion and violent crime. The null effect could potentially be explained by the suggestion that emotions other than anger may actually inhibit aggression toward others and actually encourage more self-directed deviance self as drug use (Ganem, 2010). Future research should therefore investigate the role of anger in the relationship between coercion and violent crime, as well as the role of self-efficacy in the relationship between coercion and other forms of crime besides violence.

The results of this study also raise interesting questions about the role of self-control in DCSS. Gottfredson and Hirsch (1990) argue that self-control is a fairly consistent personality trait that is established in early childhood through effective parenting. In Differential Coercion Theory, Colvin (2000) claims that coercive discipline tends to be more erratic, causing individuals to lose the ability to predict whether or not (and, if so, when) they will be punished. This influences them to believe that they have no control over what happens to them and can then lead to a lack of incentive for learning self-control. Theoretically, this suggests that coercion (in the family at least) leads to lower levels of self-control, which causes individuals to act more impulsively. Therefore, future research should include a measure of self-control as a mediating variable in the coercion and violent crime relationship. Additionally, Colvin (2000) makes the argument that individuals with low self-control may actually invite higher levels of external control, basically creating a cycle that than assists in sustaining lower levels of self-control.

Again, the findings show that higher levels of self-efficacy predict lower levels of violent crime, and that this effect is stronger at higher levels of social support than lower levels of social support. Theoretically, these findings do not demonstrate support for the buffering effect of
social support as hypothesized, nor does the null effect of the interaction between coercion and social support on self-efficacy. In fact, the significant interaction effect of social support and self-efficacy actually contradicts the buffering hypothesis in that social support actually has its greatest effect on those individuals that have higher levels of self-efficacy. The current research actually demonstrates a magnifying effect of social support. The buffering hypothesis clearly states that social support will have a greater effect on those individuals that have lower levels of self-efficacy. Or, more specifically, it was believed that the support would “buffer” the individuals from the harmful effects of having low self-efficacy in terms of using violent crime as a potential coping mechanism. This is not supported in the current study.

Further research should address the potential that the moderating effect of social support (buffering versus magnifying) differs based upon the specific type of social psychological deficit that is being investigated. Much of the stress literature suggests that support needs actually vary by the type of stressor being investigated (Cohen & Wills, 1985), so it makes sense that this would hold true for social psychological deficits as well. Extant literature has also suggested that the type of effect (direct versus moderating) may also vary with the conceptualizations of social support. The fact that a moderating effect is present is consistent with the stress literature that has conceptualized social support as expressive rather than instrumental. Studies that have conceptualized social support as instrumental or have focused primarily on social networks tend to demonstrate a direct effect of social support because it is argued that integration in a social network does not necessarily involve more legitimate means of coping, perhaps there is simply a greater feeling of stability in one’s life (Cohen & Wills, 1985).
Finally, in social control theory, Hirschi (1969) clearly identifies attachments as emotional ties to others and states that attachments to parents are the strongest element of the social bond. He does not talk about the particular details, though, that lead to variations in the strength of the bonds between individuals. Colvin and Pauly (1983), on the other hand, argue that the bonds between individuals stem from various forms of control relations, and when those relations are perceived as coercive, the bonds between individuals tend to be weak at best. The current study does not include a measure that specifically looks at the strength of bonds between individuals, however, based upon Hirschi’s definition of attachments, it is not completely inappropriate to make a connection between respondents’ levels of expressive support used in the current study and their attachments to family and friends. Even by looking at the social bond through this perspective, however, the results from the current study do not specifically test the effects of coercion on levels of social control beyond its bivariate correlation with social support in the full model (which was statistically significant, negative, and weak to moderate in strength). Continuing in this vein, the results from the study could suggest that there may be a direct positive relationship between an individuals’ attachment to others and their levels of self-efficacy. Future research should include additional elements of the social bond (i.e. commitment, involvement, beliefs) in order to more appropriately test the role of social control in the relationship of coercion, social support, self-efficacy, and crime.

In terms of programming, the results suggest that when exploring ways to decrease individuals’ involvement in violent crime, programs, policies, and other responses should focus on the combined effects of social support and self-efficacy for maximum effect, rather than on one or the other independently. Additionally, the results suggest that responses should focus on
positive predictors of individuals’ perceptions of success like self-efficacy and social support, rather than focusing on coercion that they may be experiencing. Programs like Big Brothers / Big Sisters and other similar mentoring programs appear to be ideal responses to reduce participation in violent crime based upon the results of this study. These programs begin with the formation of social relationships between individuals which hopefully mature over time to be based upon trust, friendship, and other forms of expressive social support. The results from the current study predict that this support then leads the mentee (and mentor, for that matter) to gain higher levels of self-efficacy, which when then combined with the continued social supports, predicts a shift away from participation in violent crime. Future research should also investigate the potential magnifying effect of social support on the relationship between self-efficacy and other deviant outcomes known to be used as coping mechanisms, such as drug and/or alcohol use.

Finally, because self-efficacy was found to be a significant predictor of violent crime, future research is needed to further explore the intricacies of this relationship due to the role self-efficacy may play in affecting individuals’ motivation. Theoretical discussions of self-efficacy include aspects of individuals’ decision-making that are based upon perceptions of control (Bandura, 1992) and this concept of individuals’ control over their own decisions (agency) is well documented in much of the criminological literature, especially that involving desistance.

More specifically, much of the desistance literature talks about the importance of viewing desistance as a process and not a single event. By investigating the causal mechanisms hypothesized by DCSS Theory described above, the current study has demonstrated that social support and self-efficacy may both be instrumental factors in the desistance process. Researchers have discussed the importance of cognitive transformations, hooks for change, agency, and/or
self-determination (Giordano et al, 2002; Maruna, 2001, Laub & Sampson, 2003; Cullen, 1994) and it is believed that social support may be an important factor in giving individuals the legitimate resources they need in order to transform their identities and potentially gain self-efficacy to believe they can succeed later in life. While the current study shows no effect of self-efficacy on the coercion/violent crime relationship; the direct, independent effect of social support on self-efficacy, as well as that of self-efficacy on violent crime, each describes additional pathways involving these variables that warrant further investigation. And while social support may not directly predict involvement in serious crime, researchers should be interested in the idea that social support predicts higher levels of self-efficacy which can then affect behavioral decisions that individuals make, including participation in violent crime.

**Study Limitations**

While the current study improves upon past tests of differential coercion theory, it is not without its own limitations. First, although Colvin (2000) claims that multiple social-psychological deficits are the product of coercion, the current study only utilizes a single social-psychological deficit: low self-efficacy. It was believed that self-efficacy could be used in place of coercive ideation in order to better understand the effects of coercion on offending. Although previous studies investigating differential coercion theory found support for anger and self-control as social-psychological deficits that mediate the relationship between coercion and offending (Baron, 2009; Unnever, et al., 2004), the relationship between these elements and crime are already well-established in criminology and were thought to have potentially clouded the effects of self-efficacy. Because the current study has demonstrated the lack of mediating effect for self-efficacy, future research should further investigate the potential moderating role of
social support on other mediating variables on the coercion/violent crime relationship. Additionally, it has been argued that self-efficacy is only relevant for specific tasks and not to be used to describe broader capabilities. While the lack of effect in the current study does not directly test this definition of self-efficacy, it has demonstrated that the longer-term control beliefs do not mediate the relationship between coercion and violent crime in these data.

Second, the conceptualization and operationalization of key independent variables, specifically social support and self-efficacy, may be called into question. Social support has been measured in such a variety of ways that researchers began calling it a “metaconstruct” (Vaux, 1988). Prior research (Cohen & Wills, 1985) has demonstrated the varying effects of differing operationalizations of social support (integration in a network vs. perception of available personal resources) in terms of direct and buffering hypotheses. While the current study does not include immersion or size of respondents’ networks, future studies might incorporate a combination of both the size of an individual’s network, as well as their perception of available support in order to more fully address the effects of social support. Along these lines, the current study does not account for the characteristics of the individuals being relied upon as a source of social support. More specifically, an individual may believe that he has supports available to him, however, this says nothing about these supports potentially coming from individuals who may be involved in crime themselves. So while an individual may demonstrate high levels of support, he may actually induce higher levels of criminal activity rather than provide a buffering effect. Future studies may attempt to account for this by including measures of peer involvement in crime.
It has also been argued that self-efficacy is only relevant for specific tasks and not to be used to describe broader capabilities. However, as described in Chapter 2, the relationship between self-efficacy and broader control beliefs has been established in the literature, justifying its inclusion in this form. Finally, Colvin et al (2002) argue that individuals may find themselves ensconced in environments that tend to have multiple sources of coercion, including neighborhood. The current study did attempt to include school and neighborhood sources of coercion, however, it was discovered that the variables indicated something besides coercion based upon factor loadings. Future research should include measures of environmental coercion, including macro-level variables in order to better understand its effects on the relationships being studied.

Third, one of the primary elements of differential social support and coercion theory is the consistency with which both coercion and social support are delivered. As has already been mentioned, the current study does not address this part of the theory, instead it assumes that coercion is generally delivered in an erratic manner, while delivery of social support tends to be more consistent. In order to more accurately test DCSS Theory, future studies should attempt to include measures that test the consistency of both coercion and social support. The PHDCN dataset does not include social support variables for Wave II preventing the current study to properly test this aspect of the theory.

Fourth, although longitudinal data were used in an attempt to demonstrate temporal ordering among the variables, the actual length of time within and between waves of data collection can be viewed as a potential limitation. More specifically, data for Wave I were collected between 1994-1997, Wave II between 1997-1999, and Wave III between 2000-2001.
Since measures of both coercion and social support were taken from Wave I, self-efficacy from Wave II, and violent crime from Wave III, multiple years passed in between the actual measurement of the indicators of these variables. This is problematic in that DCSS Theory does not specifically address the time-frame during which the effects of coercion, social support and social psychological deficits are thought to affect one another and participation in violent crime. Perhaps the effects of the predictor variables are more immediate in terms of influencing individuals’ actions rather than a potential longer-term buildup. Unfortunately, the current study cannot address these issues and the results can only be interpreted in terms of these (relatively) longer-term effects. Additionally, it is widely accepted that young individuals significantly develop both physically and emotionally during the age that is the focus of the current research. Without specifically controlling for these developmental changes over such an extended period, it cannot be assumed that they are not a potential threat to internal validity.

Fifth, Colvin’s (2000) primary concern was explaining “chronic criminality” over the life course and the current study simply investigates offending at one point in individuals’ lives. However, the current study does include more serious offenses and attempts to take into account their rare occurrence. Furthermore, Colvin et al (2002) do focus on predatory offenses comparable to those used in the current study. Future research may look into less serious crimes, or more “acting out” behaviors. Perhaps the buffering effect of social support is only effective for crimes of particular seriousness. Along these lines, future research might use the current models to also test property crime as the outcome variable, as well as explore potential gender differences in the effects of social support on various outcome measures.
Finally, the breadth of the PHDCN dataset allows for the future inclusion of neighborhood level variables in order to test the multi-level effects of coercion and social support, especially at a time when neighborhood level effects are an integral aspect of theoretical paradigms.

**Concluding remarks**

While much research has demonstrated support for various, independent explanations of crime, theory-building has advanced in hopes to more comprehensively understand the causes of crime. Thus, there has been a recent influx of integrated theories into the field of criminology in an attempt to better understand why some individuals participate in crime, why some do not, and why others cease to do so. In their Differential Coercion and Social Support Theory, Colvin et al (2002) attempt to explain the relationship between coercion, social support, and crime by utilizing aspects from various theoretical perspectives including social control theory, the General Theory of Crime, social support theory, as well as General Strain Theory. Basically, it has been hypothesized that coercion causes crime while social support prevents it. It is also hypothesized that coercion causes crime through the presence of a variety of social psychological deficits including anger, low self-control, external locus of control, and low self-efficacy.

The theory and its predecessor (Differential Coercion Theory) have been very well received; however, they have been difficult to test due to their complexity “and the fact that most existing data sets do not contain information on the whole variety of causal factors outlined in the perspective” (Baron, 2009, p. 240). Alexander and Bernard (2002) argue that the theory, while “intuitively appealing,” contains variables that are difficult to conceptualize and operationalize, making it quite challenging to adequately test. In fact, a search in the literature
revealed only three studies that attempted to test any parts of the theory itself. The current study set out to test the relationship between coercion, social support, self-efficacy, and violent crime as put forward in Differential Coercion and Social Support theory by using longitudinal data from the large-scale, interdisciplinary Project on Human Development in Chicago Neighborhoods (PHDCN). Even though many of the hypothesized effects failed to exist, a blueprint has been developed for future analyses. These analyses can be expanded to include additional forms of coercion and social support, as well as to test a variety of social psychological deficits, as well as various forms of crime and delinquency.
Works Cited


Kennedy, A. C., Bybee, D., Sullivan, C. M., & Greeson, M. (2010). The impact of family and community violence on children's depression trajectories: Examining the interactions of


Causes of Conduct Disorder and Serious Juvenile Delinquency. New York: Guilford Press.


Figures & Tables

Figure 1: Three distinct forms of beliefs

Source: Skinner, 1995
Figure 2 – Points of social support intervention (stressful events and illness)

Source: (Cohen & Wills, 1985)
Figure 3 - Points of social support intervention (coercion and crime)

Coercion

Low Self-efficacy

SOCIAL SUPPORT
May prevent low self-efficacy

SOCIAL SUPPORT
May result in reappraisal, inhibition of maladjustive responses, or facilitation of adjustive counter responses

Crime / delinquency
Figure 4: Full model
Figure 5: Hypothesized 2nd Order Coercion Measurement Model
**It should be noted that factor-loading estimates for categorical variables are based upon the squared standardized factor loadings and can be interpreted as the proportion of the variance in the underlying latent aspect of the indicator that can be explained by the factor of the hypothesized model.
Figure 7: Final 2nd Order Social Support Measurement Model
Figure 8: Hypothesized mediating effect of self-efficacy
Figure 9: Sobel Test for the mediating effect of self-efficacy

Indirect effect = $a \times b = 0.028$
Figure 10: Simple Slopes Analyses

The graph illustrates the relationship between self-efficacy and the probability of violent crime. The x-axis represents the level of self-efficacy, ranging from low to high, while the y-axis represents the probability of violent crime, ranging from 0 to 0.3. Two lines are depicted: one for low self-efficacy (solid line) and another for high self-efficacy (dotted line). The graph shows a downward trend, indicating a decrease in the probability of violent crime as self-efficacy increases.
Figure 11: The Full Model
Figure 12: Results from the full model

**=p<0.01; *=p<0.05
Figure 13: Model 1 – Coercion is also the moderator

-0.056**

Self-efficacy

ns

Coercion

ns

0.141**

Violent Crime
Figure 14: Model 2 – The $a$ path is moderated by social support
Figure 15: Model 3 – The b path is moderated by social support

Coercion → Self-efficacy
Coercion → Violent Crime
Social Support → Violent Crime
Self-efficacy → Violent Crime
Violent Crime → self*ss

Self-efficacy: ns
Violent Crime: -.270**
Coercion: .275**
Social Support: ns
Violent Crime: -.363**
Figure 16: Model 4 – Self-efficacy as an additional outcome measure

- **Social Support** → **Self-efficacy**: 0.241**
- **Coercion** → **Self-efficacy**: ns
- **Coercion** → **Violent Crime**: 0.302**

*ns* indicates non-significant relationship.** Indicates significance at the 0.01 level.
Figure 17: Multiple-step multiple mediator model
Figure 18: Significant results from the full model

![Diagram showing relationships between variables with significant path coefficients.]

- Social Support → Self-efficacy: 0.338*
- Coercion → Violent Crime: 0.323**
- SE x SS → Violent Crime: 0.235**
- Social Support → Coercion: 0.411**
<table>
<thead>
<tr>
<th>Table 1: Indicators of Violent Crime</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hit someone with whom you did not live with the idea of hurting them</td>
</tr>
<tr>
<td>Thrown objects such as bottles or rocks at people</td>
</tr>
<tr>
<td>Ever carried a hidden weapon</td>
</tr>
<tr>
<td>Ever maliciously set a fire</td>
</tr>
<tr>
<td>Ever snatched a purse/picked a pocket</td>
</tr>
<tr>
<td>Ever attacked with a weapon</td>
</tr>
<tr>
<td>Ever used a weapon to rob someone</td>
</tr>
<tr>
<td>Ever been in a gang fight</td>
</tr>
</tbody>
</table>
Table 2: Distribution of Violence Scale

<table>
<thead>
<tr>
<th># of Violent</th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1191</td>
<td>76.9</td>
</tr>
<tr>
<td>1</td>
<td>231</td>
<td>14.9</td>
</tr>
<tr>
<td>2</td>
<td>80</td>
<td>5.2</td>
</tr>
<tr>
<td>3</td>
<td>31</td>
<td>2.0</td>
</tr>
<tr>
<td>4</td>
<td>8</td>
<td>0.5</td>
</tr>
<tr>
<td>5</td>
<td>6</td>
<td>0.4</td>
</tr>
<tr>
<td>6</td>
<td>1</td>
<td>0.1</td>
</tr>
<tr>
<td>TOTAL</td>
<td>1548</td>
<td>100</td>
</tr>
</tbody>
</table>
### Table 3: Indicators of Coercion

**Familial**  \( \alpha = .657 \)

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FE1</td>
<td>We fight a lot in our family</td>
</tr>
<tr>
<td>FE7</td>
<td>Family members sometimes get so angry they throw things</td>
</tr>
<tr>
<td>FE10</td>
<td>Family members often lose their tempers</td>
</tr>
<tr>
<td>FE13</td>
<td>Family members often criticize each other</td>
</tr>
<tr>
<td>FE16</td>
<td>Family members sometimes hit each other</td>
</tr>
<tr>
<td>FE18</td>
<td>Everyone does not have an equal say in family decisions</td>
</tr>
<tr>
<td>FE19</td>
<td>If there's a disagreement in our family, we do not try very hard to smooth things over and keep the peace</td>
</tr>
<tr>
<td>FE22</td>
<td>Family members often try to one-up or out-do each other</td>
</tr>
</tbody>
</table>

**Peer (The subject...)**  \( \alpha = .691 \)

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CC25</td>
<td>Does not get along with other kids</td>
</tr>
<tr>
<td>CC34</td>
<td>Feels others are out to get him</td>
</tr>
<tr>
<td>CC37</td>
<td>Gets in many fights</td>
</tr>
<tr>
<td>CC38</td>
<td>Gets teased a lot</td>
</tr>
<tr>
<td>CC48</td>
<td>Is not liked by other kids</td>
</tr>
</tbody>
</table>

**Environmental**  \( \alpha = .656 \)

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>EB1</td>
<td>Are you afraid of violence in your neighborhood?</td>
</tr>
<tr>
<td>EB2</td>
<td>Are you afraid of violence in front of your home?</td>
</tr>
<tr>
<td>EB3</td>
<td>Are you afraid of violence at school?</td>
</tr>
<tr>
<td>EB4</td>
<td>Are you afraid of violence in your apartment building/house?</td>
</tr>
</tbody>
</table>
Table 4: Indicators of Social Support

**Support from Friends**  \( \alpha = .679 \)
- With friends I am able to completely relax
- My friends would take time to talk about problems
- I share the same approach to life as friends
- I know friends enjoy doing things with me
- I have at least 1 friend I could tell anything to
- I feel very close to some friends

**Support from Family**  \( \alpha = .533 \)
- My family has confidence in me
- My family helps me find solutions to my problems
- I know my family will always stand by me
- I know family will always be there for me
- My family tells me they think I'm valuable
Table 5: Indicators of Self-efficacy

Some kids feel they... $\alpha = .629$
Have control over their own future
Can make their life better
Can become successful
Can go far in the world
Can make themselves happy in the future
Table 6: Descriptive Statistics of Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>SD</th>
<th>Range</th>
<th>Missing</th>
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<tr>
<td>Dependent Variable</td>
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<td></td>
</tr>
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<td>Violent (Wave III)</td>
<td>0.37</td>
<td>0.79</td>
<td>0-5</td>
<td>18</td>
</tr>
<tr>
<td>Independent Variables</td>
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<tr>
<td><strong>Coercion (Wave I)</strong></td>
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<td></td>
</tr>
<tr>
<td>Familial</td>
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<td>1.020</td>
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<td>School</td>
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<td>0-1</td>
<td>44</td>
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<tr>
<td><strong>Social Support (Wave I)</strong></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Family</td>
<td>13.91</td>
<td>1.56</td>
<td>5-15</td>
<td>15</td>
</tr>
<tr>
<td>Friend</td>
<td>14.72</td>
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<td>6-18</td>
<td>15</td>
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<tr>
<td><strong>Self-efficacy (Wave II)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Things I Can Do</td>
<td>17.54</td>
<td>2.37</td>
<td>5-20</td>
<td>6</td>
</tr>
<tr>
<td>Control Variables</td>
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<td></td>
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<tr>
<td>Respondent</td>
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<td></td>
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<td>Gender (% Female)</td>
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<td>Hispanic</td>
<td>43.6</td>
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<td>African-American</td>
<td>35.8</td>
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<tr>
<td>White</td>
<td>16.9</td>
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</tr>
<tr>
<td>Other</td>
<td>3.7</td>
<td></td>
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</tr>
<tr>
<td>Primary Caregiver</td>
<td></td>
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<tr>
<td>Highest Level of Education</td>
<td>(%)</td>
<td></td>
<td></td>
<td>105</td>
</tr>
<tr>
<td>&lt; High School</td>
<td>20.9</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Some High School</td>
<td>18.7</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Finished High School</td>
<td>14.6</td>
<td></td>
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</tr>
<tr>
<td>Some &gt; High School</td>
<td>34.4</td>
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</tr>
<tr>
<td>Bachelor's Degree or &gt;</td>
<td>11.5</td>
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</tr>
<tr>
<td>Employment Status</td>
<td>(%)</td>
<td></td>
<td></td>
<td>38</td>
</tr>
<tr>
<td>Unemployed &gt;5 yrs</td>
<td>20.8</td>
<td></td>
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</tr>
<tr>
<td>Unemployed &lt;5 yrs</td>
<td>14.2</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Currently employed</td>
<td>65</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Total Household Income (last year)</td>
<td>(%)</td>
<td></td>
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<tr>
<td>&lt;$10,000</td>
<td>16.7</td>
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<td>$10,000-19,999</td>
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<td>$20,000-29,999</td>
<td>18.4</td>
<td></td>
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<td>$30,000-39,999</td>
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<td>$40,000-59,999</td>
<td>17.9</td>
<td></td>
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<tr>
<td>&gt;$60,000</td>
<td>16.1</td>
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Table 7: Loadings of Self-efficacy Indicators

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Loading</th>
<th>s.e.</th>
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<tbody>
<tr>
<td>Control over future</td>
<td>0.358</td>
<td>0.033</td>
</tr>
<tr>
<td>Can become successful</td>
<td>0.736</td>
<td>0.030</td>
</tr>
<tr>
<td>Can go far in the world</td>
<td>0.701</td>
<td>0.029</td>
</tr>
<tr>
<td>Can make self happy in the future</td>
<td>0.630</td>
<td>0.039</td>
</tr>
<tr>
<td>Can make life better</td>
<td>0.572</td>
<td>0.031</td>
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</table>
Table 8: Zero-order Correlations

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<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
<th>15</th>
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<tbody>
<tr>
<td>1. Coercion</td>
<td>1</td>
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<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Peer Coercion</td>
<td>.934**</td>
<td>1</td>
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</tr>
<tr>
<td>3. Familial Coercion</td>
<td>.857**</td>
<td>.615**</td>
<td>1</td>
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<td></td>
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<td></td>
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<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>4. Environmental Coercion</td>
<td>.126**</td>
<td>.147**</td>
<td>.065*</td>
<td>1</td>
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</tr>
<tr>
<td>5. Social Support</td>
<td>-.177**</td>
<td>-.185**</td>
<td>-.124**</td>
<td>-.137**</td>
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<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Friend Social Support</td>
<td>-.134**</td>
<td>-.149**</td>
<td>-.081**</td>
<td>-.153**</td>
<td>.854**</td>
<td>1</td>
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</tr>
<tr>
<td>7. Family Social Support</td>
<td>-.178**</td>
<td>-.180**</td>
<td>-.133**</td>
<td>-.109**</td>
<td>.951**</td>
<td>.650**</td>
<td>1</td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>8. Self-efficacy</td>
<td>-.076**</td>
<td>-.088*</td>
<td>-.041</td>
<td>-.196**</td>
<td>.238**</td>
<td>.157**</td>
<td>.254**</td>
<td>1</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Gender</td>
<td>.035</td>
<td>.051*</td>
<td>.003</td>
<td>-.048</td>
<td>-.058*</td>
<td>-.102**</td>
<td>-.024</td>
<td>-.059*</td>
<td>1</td>
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<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>10. Hispanic</td>
<td>-.153**</td>
<td>-.131**</td>
<td>-.147**</td>
<td>.171**</td>
<td>-.011</td>
<td>-.017</td>
<td>-.006</td>
<td>-.080**</td>
<td>.011</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Black</td>
<td>.140**</td>
<td>.131**</td>
<td>.119**</td>
<td>-.033</td>
<td>-.048</td>
<td>-.061*</td>
<td>-.034</td>
<td>-.039 *</td>
<td>-.670**</td>
<td>1</td>
<td></td>
<td></td>
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<tr>
<td>12. White</td>
<td>.028</td>
<td>.014</td>
<td>.041</td>
<td>-.184**</td>
<td>.095**</td>
<td>.125**</td>
<td>.065*</td>
<td>.062*</td>
<td>.020</td>
<td>-.400**</td>
<td>-.309**</td>
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</tr>
<tr>
<td>13. Other</td>
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<td>-.008</td>
<td>.011</td>
<td>-.015</td>
<td>-.031</td>
<td>-.040</td>
<td>-.022</td>
<td>.005</td>
<td>.031</td>
<td>-.186**</td>
<td>-.144**</td>
<td>-.086**</td>
<td>1</td>
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<td></td>
</tr>
<tr>
<td>14. Family SES</td>
<td>-.026</td>
<td>-.022</td>
<td>-.026</td>
<td>-.191**</td>
<td>.098**</td>
<td>.068*</td>
<td>.102**</td>
<td>.109**</td>
<td>.011</td>
<td>-.356**</td>
<td>.078**</td>
<td>.328**</td>
<td>.086**</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>15. Violent Crime</td>
<td>.107**</td>
<td>.109**</td>
<td>.079**</td>
<td>.011</td>
<td>-.038</td>
<td>.001</td>
<td>-.062*</td>
<td>-.044</td>
<td>-.170**</td>
<td>-.101**</td>
<td>.155**</td>
<td>-.059*</td>
<td>-.010</td>
<td>-.041</td>
<td>1</td>
</tr>
</tbody>
</table>

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).
Table 9: Comparison of Akaike’s Information Criterion scores among direct effect models

<table>
<thead>
<tr>
<th>Regression model</th>
<th>Log likelihood</th>
<th>AIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social Support - Negative binomial</td>
<td>-10912</td>
<td>21912</td>
</tr>
<tr>
<td>Social Support - Zero-inflated NB</td>
<td>-10899</td>
<td>21890</td>
</tr>
<tr>
<td>Coercion - Negative binomial</td>
<td>-9002</td>
<td>18089</td>
</tr>
<tr>
<td>Coercion - Zero-inflated NB</td>
<td>-8993</td>
<td>18074</td>
</tr>
</tbody>
</table>
Table 10: Negative Binomial Results for Direct Effects

<table>
<thead>
<tr>
<th>MODEL 1 - Independent effects</th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>b</td>
<td>se</td>
<td>b/se</td>
<td>exp(b)</td>
<td>Dispersion</td>
<td>TRd</td>
</tr>
<tr>
<td>Coercion</td>
<td>0.28**</td>
<td>0.09</td>
<td>3.19</td>
<td>1.32</td>
<td>1.31</td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>0.87**</td>
<td>0.12</td>
<td>7.43</td>
<td>2.38</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Family SES</td>
<td>-0.06</td>
<td>0.04</td>
<td>1.45</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ethnicity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Black</td>
<td>0.73**</td>
<td>0.13</td>
<td>5.71</td>
<td>2.07</td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>-0.08</td>
<td>0.20</td>
<td>-0.37</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>0.16</td>
<td>0.33</td>
<td>0.55</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cohort</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age 9</td>
<td>-0.45**</td>
<td>0.15</td>
<td>-3.19</td>
<td>0.64</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age 12</td>
<td>-0.04</td>
<td>0.14</td>
<td>-0.25</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social Support</td>
<td>-0.15</td>
<td>0.09</td>
<td>-1.71</td>
<td>0.86</td>
<td>1.40</td>
<td></td>
</tr>
</tbody>
</table>

MODEL 2

Coercion                      | 0.27** | 0.10 | 2.66 | 1.32 | 1.30 |  |
Social Support                -0.05 | 0.10 | -0.52 |  |

MODEL 3

Coercion                      | 0.27** | 0.10 | 2.66 | 1.31 | 1.27 |  |
Social Support                0.03 | 0.12 | 0.24 |  |
Self-efficacy                -0.21* | 0.11 | -2.02 | 0.81 |  |

MODEL 4

Coercion                      | 0.32** | 0.10 | 3.08 | 1.37 | 1.19 |  |
Social Support                -0.05 | 0.12 | -0.40 |  |
Self-efficacy                -0.18 | 0.10 | -1.77 |  |
Coer x SS                     0.20 | 0.12 | 1.64 |  |

Dependent variable: Violent crime scale

** = p<0.01, * = p<.05
Table 11: Regression results – Moderating effect of social support on coercion / self-efficacy

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<tr>
<th></th>
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<th>se</th>
<th>b/se</th>
<th>TRd</th>
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<tbody>
<tr>
<td><strong>Model 1</strong></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Coercion</td>
<td>0.02</td>
<td>0.06</td>
<td>0.39</td>
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<td>Social Support</td>
<td>0.45**</td>
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<td>7.59</td>
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<td>Gender</td>
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<td>0.07</td>
<td>-1.63</td>
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<td>Family SES</td>
<td>0.05**</td>
<td>0.02</td>
<td>2.20</td>
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<td>Ethnicity</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Black</td>
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</tr>
<tr>
<td>White</td>
<td>0.19</td>
<td>0.12</td>
<td>1.65</td>
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</tr>
<tr>
<td>Other</td>
<td>0.14</td>
<td>0.17</td>
<td>0.83</td>
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<tr>
<td>Cohort</td>
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<td></td>
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</tr>
<tr>
<td>Age 9</td>
<td>-0.16</td>
<td>0.10</td>
<td>-1.49</td>
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<tr>
<td>Age 12</td>
<td>0.10</td>
<td>0.10</td>
<td>0.96</td>
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<td><strong>Model 2</strong></td>
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<td>0.00</td>
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<td>Coercion</td>
<td>0.01</td>
<td>0.06</td>
<td>0.16</td>
<td></td>
</tr>
<tr>
<td>Social Support</td>
<td>0.45**</td>
<td>0.06</td>
<td>7.63</td>
<td></td>
</tr>
<tr>
<td>Coer x SS</td>
<td>-0.03</td>
<td>0.05</td>
<td>-0.68</td>
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</table>

Dependent variable: Self-efficacy latent variable

** = p<0.01, * = p<.05
<table>
<thead>
<tr>
<th></th>
<th>$b$</th>
<th>se</th>
<th>$b/se$</th>
<th>exp($b$)</th>
<th>Dispersion</th>
<th>TRd</th>
</tr>
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<td>1.351</td>
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<td>-2.02</td>
<td>0.81</td>
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<td>0.11</td>
<td>-0.73</td>
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<td>0.05</td>
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</tr>
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<td>0.14</td>
<td>-3.10</td>
<td>0.64</td>
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<td></td>
</tr>
<tr>
<td>Age 12</td>
<td>-0.02</td>
<td>0.15</td>
<td>-0.14</td>
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<td></td>
</tr>
</tbody>
</table>

| **Model 2**          |       |     |        |          |            | 1.191|
| Self-efficacy        | -.28**| 0.10| -2.79  | 0.76     |            |     |
| Social Support       | -0.14 | 0.10| -1.42  |          |            |     |
| Self x SS            | -.35**| 0.13| -2.68  | 0.70     |            |     |

Dependent variable: Violent Crime Scale

** = p<0.01, * = p<.05
Table 13: Regression results for Model 4

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<th>$b/se$</th>
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<td>0.101</td>
<td>-0.924</td>
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<td>0.137</td>
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<td>0.117</td>
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** = $p<0.01$, * = $p<.05$