


The Importance of Social Support and Coercion to Risk of Impulsivity and Juvenile Offending


Crime & Delinquency
2017, Vol. 63(14) 1838–1860
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DOI: 10.1177/001128716675360
journals.sagepub.com/home/cad



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Abstract

The current study provides a comprehensive test of differential social support and coercion (DSSC) theory of crime as proposed by Colvin, Cullen, and Vander Ven. DSSC suggests that social interactions are either coercive or supportive in nature and that these interactions figure prominently into the development of self-control and delinquent behavior. Data drawn from the Evaluation of the Gang Resistance Education and Training (GREAT) assess four DSSC research hypotheses.



Keywords

support, coercion, strain, adolescent offending, juvenile delinquency

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Differential social support and coercion (DSSC) theory is an emerging concept in criminology that connects several important theories—most notably general strain (Agnew, 1992) and self-control theories (Gottfredson & Hirschi, 1990)—while further developing aspects of the relationship between criminal behavior and various types of social support and coercive elements of society. At the core, differential support and coercion builds upon the strain tradition in criminology as it explores potential macro- and micro-level social processes important to the development of criminal behavior. Drawing on Merton's (1938) anomie strain theory, which argues that stress or strain encourages individuals to commit criminal or delinquent behaviors, DSSC further explores negative coercive elements in society.

Merton argued that individuals unable to obtain wealth through legitimate means could turn to criminal opportunities to achieve their goals (Merton, 1938). Building on earlier versions of strain theory, Agnew (1992) extended Merton's work with general strain theory (GST). In particular, Agnew expanded the sources of strain to include three categories of social-psychological strain: (a) the failure to achieve positively valued goals, (b) the possible or actual loss of positively valued stimuli, and (c) the presentation of noxious stimuli. Experiencing any of these conditions could create anger or frustration that, in return, leads to criminal or deviant behaviors. Put together, individuals are more likely to commit criminal or deviant behaviors when experiencing negative emotions, particularly when he or she perceives the treatment as unjust (Agnew, 2006).

GST posits that negative interpersonal relationships can lead a person to criminal behavior. According to Agnew, the greater the strain, the greater the chances for crime because negative emotions produce pressure for corrective action. In essence, individuals feel pressure from strain and want to respond. Four situational factors can increase the likelihood that strain will prompt criminal behaviors: (a) the strain is seen as unjust, (b) strain is high in magnitude, (c) the strain is caused by or associated with low self-control, and (d) the strain creates pressure or provides incentive to engage in criminal behavior. However, the availability of other goals and individual coping resources may reduce or diminish the risk of criminal adaptation (Agnew, 1992, 2001, 2006). Over the past two decades, a considerable body of empirical research supports the basic propositions of strain theories (Agnew, Brezina, Wright, & Cullen, 2002; Broidy, 2001; Capowich, Mazerolle, & Piquero, 2001; Hoffmann & Miller, 1998; Paternoster & Mazerolle, 1994). Similar to strain, additional studies found that involvement in crime and delinquency is heightened with elevated levels of anger and frustration (Brezina, 1998; Leeper Piquero & Sealock, 2000; Mazerolle, Piquero, & Capowich, 2003).

Differential Support and Coercion Theory

In development of DSSC, Colvin, Cullen, and Vander Ven (2002) refined existing theory on social support, coercion, and strain in an attempt to account for chronic criminal behavior and, to a certain degree, poor mental health. For the theory, coercion is described as “a force that compels or intimidates an individual to act because of fear or anxiety” (Colvin et al., 2002, p. 19). The theory holds that coercive interactions can be employed consistently or erratically and that individuals who receive consistent coercion will develop strong self-directed anger, high externalized self-control, and attenuated social bonds. Although likely to have minimal legal difficulties, these individuals may suffer persistent mental health problems (Colvin et al., 2002). Consistent coercion might be rare and the authors note that total institutions such as prisons or social contexts such as patriarchal households may, perhaps, produce these conditions.

The theory argues individuals disciplined in a coercive, but erratic manner will tend to develop strong anger directed toward others, low self-control, and weak alienated social bonds. In this way, the theory attempts to account for low self-control as envisioned by Gottfredson and Hirschi (1990). Erratically disciplined children become self-centered, pursue pleasure, and fail to develop self-control that mediates criminal impulses (Gottfredson & Hirschi, 1990). The degrees to which parents recognize and reprimand deviant behavior correspond to the child’s capacity to self-regulate behaviors (Gottfredson & Hirschi, 1990; Grasmick, Tittle, Bursik, & Arneklev, 1993; Hay, 2001; Vazsonyi & Crosswhite, 2004), and erratic coercion may aggravate or generate low self-control. This integrates support and coercion theory with self-control, which remains one of the most tested and supported criminological theories to date (Pratt & Cullen, 2000). In addition, if coercion is erratic, arbitrary, or unjust, it will heighten outward directed anger (Agnew, 2001, 2006; Spohn & Kurtz, 2011), thus increasing the risk of involvement in violent and predatory behavior (Colvin et al., 2002). Accordingly, those facing erratic coercion will develop deficits that may lead to chronic offending.

Colvin et al. (2002) further differentiate interpersonal and impersonal forms of coercion. Impersonal coercion relates to negative structural elements within the broader macro-level construction of society and more or less corresponds to Merton’s original version of strain theory. This particular form of coercion may have implications for broader societal behavior and also criminal justice practices of law enforcement and corrections. Interpersonal coercion is most applicable to family relations and other micro-social processes, and involves intimidation or threatening personal relationships intended to force compliance. The authors believe that coercive interpersonal relationships are probably the most aversive form and likely

result in anger on the victim's part. This is particularly true if the individual perceives the treatment as unwarranted (Colvin et al., 2002). This line of reasoning is consistent with aspects of Agnew's (2006) strain theory as he suggests that strains seen as "unjust" are more likely to result in delinquency than strain perceived as just.

Colvin et al. (2002) described social supports to include "the delivery (or perceived delivery) of assistance from communities, social networks, and confiding partners in meeting the instrumental and expressive needs of individuals" (p. 20). Expressive social supports include sources of emotional support and confirmation of an individual's importance and worth. Instrumental social support includes a wide range of items from material needs and financial backing to informal guidance and connection to pro-social networks within society. Both expressive and instrumental forms of support can originate from informal sources such as friends and family or larger social structures such as formal networks and social institutions (Colvin et al., 2002).

Social supports can be erratic or consistent in nature. The delivery of erratic support "means that an individual cannot depend on receiving assistance from others or from social institutions" (Colvin et al., 2002, p. 25). These individuals may not be strained or feel duress, but they must fend for themselves without appropriate encouragement and may feel disconnected to communities. Individuals lacking pro-social forms of support may seek out support from criminal associates, role models, and illegitimate social networks in a manner consistent with aspects of differential association (Colvin et al., 2002). According to the theory, erratic social supports will generally result in low self-control, moderate anger, and intermediate social bonds. These individuals may engage in criminal behavior, and depending on the access to illegitimate social supports offered by criminals, they may continue with disorganized criminal action or skilled and organized crime. Individuals who receive consistent support will have low anger, highly internalized self-control, and strong social bonds. These individuals are likely to display few criminal behaviors and possess higher levels of pro-social beliefs (Colvin et al., 2002). Although support and coercion are inversely related, they are not simply "polar opposites," but rather substantively different experiences that form four ideal types of control and support as a theoretical continuum (for a detailed diagram of this typology, see Colvin et al., 2002, p. 26).

Criticisms and Empirical Test

Pointed critiques and a dearth of empirical validation leave DSSC theory's place in criminology unsettled. Alexander and Bernard (2002) argued that Colvin and others fail to appropriately define ways to empirically test the theory, and these authors further believe that DSSC is not an integrated

theory of criminality and more aptly represents a specific version of strain theory. While acknowledging the contributions and similarities to strain theory, Unnever, Colvin, and Cullen (2004) outright reject beliefs that support coercion theory fits uniquely within the strain paradigm, and argue that it integrates a number of criminological theories and more specifically defines coercion, as opposed to the innumerable forms of strain currently found in the literature (Unnever et al., 2004).

Although peer-reviewed tests of the differential support and coercion theory remain limited, a certain degree of empirical validation rests in test of foundation principles, particularly those within the strain tradition (Agnew, 2006; Agnew et al., 2002; Brody, 2001; Hoffmann & Miller, 1998; Spohn & Kurtz, 2011) and studies documenting the important influence of social support (Jones, Cauffman, & Piquero, 2007; Kim & Pridemore, 2005; Pratt & Godsey, 2002). Although still limited, the last decade included a number of important tests of DSSC theory.

In an attempt to apply coercion and social support to an organizational setting, Colvin (2007) explored the theory in relationship to historical behavioral practices of the Penitentiary of New Mexico. He argues that during certain periods of time, the practices of the prison were, in essence, a test of differential support and coercion theory. For example, from 1956 to 1967, the institution employed consistent coercion resulting in limited violent behavior, but demoralized inmates. In contrast, he argues that from 1968 to 1972, the organization experienced low violence and pro-social behavior among inmates because of the consistent support employed during this period. During other time frames, the prison's practices were erratically supportive or coercive with varied outcomes, which are in line with the theory's tenants. Although this research offers a point of support for the theory, it is difficult to generalize from this specific setting and broader social situations (Colvin, 2007).

In a more empirical test, Unnever et al. (2004) find general support for the link between different forms of coercion and criminal behavior among a sample of middle school students. These researchers tested the influence of parental, peer, school, and neighborhood coercion on criminal behavior. They found all but peer coercion statistically significant and linked to offending, even when controlling for a number of social-psychological deficits and other controls. The parental coercion measure was clearly linked to delinquent offending in this research and included parental threats and abuse. The authors argue that the results "offered fairly consistent support" (p. 257) for differential support and coercion theory.

More recently, DSSC theory has received fairly consistent empirical support across multiple research populations. For example, Baron (2009a) tested the theory with a sample of street youths residing in Toronto, Canada, and

found coercion was positively correlated with violent offending. More specific, he found that physical abuse, street victimization, being incarcerated, and being unemployed (all types of coercion) were related to violent offending. In another study of homeless youths, Baron (2015) provided evidence that social support decreases criminal behavior by reducing anger and increasing self-control. This study also showed that coercion increases anger, lowered self-control, and serves as a catalyst to seek illegitimate social support. A study by Kurtz, Linnemann, and Green (2014) analyzed data from the *National Survey of Adolescents* and found that interpersonal coercion (physical child maltreatment) predicted delinquency and violent offending, whereas social support reduced the odds of offending. Finally, Zavala and Kurtz (2016) analyzed data from a sample of police officers and found that coercive forces predicted officer's perpetration of intimate partner violence. However, their measures of social support were not significant in their paper.

Despite the modest expansion of research on DSSC, additional research is warranted and this article endeavors to test multiple aspects of the theory. DSSC suggests that various forms of coercion should decrease social control and increase risk of many forms of delinquent behavior. Inversely, social supports should increase social control and decrease involvement in criminal behavior. Based on previous studies of DSSC, we test the following four hypotheses in the current study.

Hypothesis 1: Higher levels of coercion will associate with higher impulsivity (lower self-control) among a sample of eighth-grade students.

Hypothesis 2: Higher levels of coercion will associate with increased odds of self-reported violent behavior among a sample of eighth-grade students.

Hypothesis 3: Higher levels of social support will associate with lower impulsivity (higher self-control) among a sample of eighth-grade students.

Hypothesis 4: Higher levels of social support will associate with decreased odds of self-reported violent behavior among a sample of eighth-grade students.

Method

Data

Data for the current study were obtained from the *Evaluation of the Gang Resistance Education and Training (GREAT) Program in the United States, 1995-1999* (see Esbensen & Winfree, 1998). The "GREAT" program was established to educate youth about gang involvement and to reduce gang activity among program participants. The survey employed a multisite/

multistate cross-sectional design completed during the spring of 1995. Survey respondents consisted of eighth-grade students and the primary investigators selected cities and research sites to maximize geographic and demographic diversity. In total, 11 cities were chosen to conduct the survey: Torrance, California; Pocatello, Idaho; Providence, Rhode Island; Will County, Illinois; Orlando, Florida; Milwaukee, Wisconsin; Kansas City, Missouri; Philadelphia, Pennsylvania; Phoenix, Arizona; Omaha, Nebraska; and Las Cruces, New Mexico. The data are open to academic use and accessible for downloading at the Inter-University Consortium for Political and Social Research (ICPSR) website and some elements of the data are frequently used by published scholars to explore crime prevention, educational programs, gang violence, and general criminal behavior (Agnew et al., 2011; Childs, Sullivan, & Gullede, 2010; Esbensen & Osgood, 1999; Turanovic & Pratt, 2013; Watkins & Melde, 2007).

Sample

Esbensen's research team distributed self-administrated questionnaires to eighth graders with appropriate parental consent at schools in the GREAT program. Only the schools in the selected cities that offered the GREAT program in the previous 2 years were selected for the survey and the program was administered during the school year of 1993-1994 during respondents' seventh-grade year. In 1995, the survey was circulated to students on a specific school day and the sample includes all eighth-grade students in attendance that day. This sampling technique yielded 5,935 eighth-grade students encompassing 315 classrooms in 42 different middle schools, and the attendance rates on the survey day varied from a low of 75% to a high of 93%.

Measures

For this study, we utilize several sets of variables drawn from the GREAT data set including demographic characteristics/common control variables, interpersonal coercion and victimization, self-control impulsivity, measures of family social support, and self-reported violent behavior. The research design employs comparative cross-tabulations and quantitative analysis with these variable groupings.

Demographic and control variables. For the analysis, a number of demographic and control variables were constructed from existing data. To examine the influence of gender, a dummy variable was created for *males* and, therefore, girls serve as the reference category. *Age* is measured as a continuous variable ranging from 12 to 17, although it must be noted that the sampling

procedure limited to only eighth graders restricted the range for this variable and roughly 90% of respondents were either aged 13 or 14 years ($M = 13.82$ years). Race was coded using dummy variables for the represented groups. In the current analyses, Caucasian serve as the reference group for all regression models and *African Americans* and *Hispanics* are included as unique variables.

Coercion. Interpersonal coercion represents one of the most applicable micro-social process envisioned by the theory and involves intimidation or threatening behavior intended to force control. This form of coercion is probably the most aversive and likely to result in anger on the victim's part (Colvin et al., 2002). Although the broader theory posits multiple forms of coercion including many structural elements, we are only testing interpersonal aspects of coercion. Thus, our research focus pivots from structural version of coercion in a similar fashion to the way Agnew's GST focuses more on negative interpersonal relationships or micro-level sources of noxious stimuli than Merton's more structural version of strain (Agnew, 1992). The coercive variables included in the current study examine victimization and the perceptions of interpersonal coercion at school.

The *victimization* variable captures whether the respondent has ever been the victim of a violent crime and was constructed from the following three questions: "Have you ever been hit by someone trying to hurt you?" "Had someone use a weapon or force to get money or things from you?" and "Been attacked by someone with a weapon or by someone trying to seriously hurt or kill you?" The victimization variable was constructed by combining these questions and coding responses as 1 for a "yes" to any of these questions and 0 for "no" to all the questions. *School coercion* is an indexed variable constructed from responses to five statements. Respondents were asked the level of agreement with the following five statements: "There are a lot of fights between different groups at my school," "Students beat up teachers," "There is a lot of racial conflict between students at my school," "There is a lot of pressure to join gangs at my school," and "There are gang fights at my school." Participants were allowed to answer on a 5-point, Likert-type, ordinal scale with answers ranging from *strongly disagree* to *strongly agree*. Reliability analysis revealed a Cronbach's alpha of .654 and indicated that removing any variable from the index would not significantly increase or decrease the alpha level. Scores range from 5 to 25 on this index, with higher scores indicating a more coercive school environment.

Delinquent peers. To measure delinquent peers, respondents were asked how many of their current friends committed various criminal/deviant acts. This indexed variable was constructed from the following items that asked how

many of their current friends “skipped school without an excuse”; “lied, disobeyed, or talked back to adults such as parents, teachers, or others”; “purposely damaged or destroyed property that did not belong to them”; “stolen something worth less than US\$50.00”; “stolen something worth more than US\$50.00”; “gone into or tried to go to a building to steal something”; “stolen or tried to steal a motor vehicle”; “hit someone with the idea of hurting them”; “attacked someone with a weapon”; “used a weapon or force to get money or things from people”; “sold marijuana”; “sold illegal drugs such as heroin, cocaine, crack or LSD”; “used tobacco products”; “used alcohol”; “used marijuana”; “used other illegal drugs such as heroin, cocaine, crack or LSD.” The possible responses were on the following ordinal scale: 1) = *none of them*; 2) = *few of them*, 3) = *half of them*, 4) = *most of them*, and 5) = *all of them*. A reliability analysis revealed a Cronbach’s alpha of .94 and that removing any of the variables from the index would not significantly increase the alpha. Scores range from 16 to 80, with higher scores indicating peers with more significant involvement in delinquent behaviors.

Social support variables. Four variables were constructed to examine family-related structure, social supports, and supervision. The survey asked respondents whether they were currently living with their mother only, father only, with their biological parents, or other. The influence of family structure is explored in regression models using the *intact family* variable, and it was dichotomously coded with living with both biological parents as one and all other responses as zero.

Several questions assessed the level of expressive and emotional social support from parents, and two unique indexed variables were constructed from these items. Expressive social supports include sources of emotional support and confirmation of an individual’s importance and worth. Respondents answered six ordinal scaled measures that independently assessed beliefs about support and attachment to their mother/mother figure and father/father figure. These six measures included “can talk to mother/father about anything,” “mother/father trusts you,” “mother/father knows your friends,” “mother/father understands you,” “can ask for mother/father advice,” and “mother/father praises me.” Responses to each question utilized an ordinal scale from 1 to 7, with lower scores indicating less support and levels and higher scores indicative of greater social support. The *mother’s support* index scores range from 6 to 42 with higher scores indicating higher support. A reliability analysis revealed a Cronbach’s alpha of .844 for this variable. Likewise, the *father’s support* variable was constructed from the scaled responses measuring the degree of father’s support. The range for this variable is from 6 to 42 and the Cronbach’s alpha for this index is .883. Reliability analyses indicated that removing any of the variables from either index would not significantly increase or decrease the alpha.

Supervision represents the final support variable examined in the current research, and this indexed variable is constructed by four questions that assess the degree of informal parenting. The four original measures included “When I go someplace, I leave a note for my parents or call them to tell them where I am”; “My parents know where I am when I am not at home or at school”; “I know how to get in touch with my parents if they are not at home”; and “My parents know who I am with if I am not at home.” Participants responded on a 5-point, Likert-type, ordinal scale with answers ranging from *strongly disagree* to *strongly agree*. Responses range from 5 to 20 on this index, with higher scores indicating greater levels of supervision. Reliability analysis generated a Cronbach’s alpha of .732 and also indicated that removing any variable from the index would not significantly increase or decrease the alpha.

Impulsivity/social control. Gottfredson and Hirschi (1990) did not originally specify how to quantify self-control and, thus, measurement of the concept is mostly left to researchers, and perhaps no criminological theory has generated more debate about measurement than self-control (Delisi, Hochstetler, & Murphy, 2003; Grasmick et al., 1993; Higgins, 2007; Hirschi & Gottfredson, 1993; Longshore, Stein, & Turner, 1998; Longshore, Turner, & Stein, 1996; Marcus, 2003, 2004; Nofziger, 2008; Piquero & Rosay, 1998; Ward, Gibson, Boman, & Leite, 2010). The current research assesses impulsivity and risk-taking behavior using measures derived from Grasmick et al. (1993) and numerous studies demonstrated that the index is a valid and reliable measure (Arneklev et al., 1999; Longshore et al., 1996; Piquero & Rosay, 1998; Piquero & Tibbetts, 1996). The Grasmick index remains perhaps the most widely utilized measure of self-control (Pratt & Cullen, 2000), but some criticized the index for exclusively focusing on attitudinal measures and failing to capture behavioral dimensions of self-control (Marcus, 2003, 2004). However, it should be noted that other criminologists reject behavioral measures of self-control, believing such measures are tautological in nature because they mostly assess criminal or deviant acts themselves (Akers, 1991). The debate regarding the most appropriate measure of self-control will surely continue (see Ward et al., 2010).

In the current research, the *impulsivity/self-control* variable was constructed from responses to the following eight questions: “I often act on the spur of the moment without stopping to think.” “I don’t devote much thought and effort to preparing for the future.” “I often do whatever brings me pleasure here and now, even at the cost of some distant goal.” “I’m more concerned with what happens to me in the short run than in the long run.” “I like to test myself every now and then by doing something a little risky.” “Sometimes I will take a risk just for the fun of it.” “I sometimes find it exciting to do things for which I might get in trouble.” “Excitement and adventure are more important to me

than security.” Respondents answered using a 5-point, Likert-type, ordinal scale with answers ranging from *strongly disagree* to *strongly agree*. Scores on the index range from 8 to 40, with higher scores on the measure indicating higher impulsivity and, thus, lower self-control. Reliability analysis generated a Cronbach’s alpha of .800 and removing any variable from the index would not significantly increase or decrease the alpha.

Violent behavior. The current research uses the *violent behavior* variable to gauge delinquent conduct, and this binary variable was constructed from affirmative responses to a subset of violent offending questions in the original survey. The survey items for violent offending are as follows: “hit someone with the idea of hurting them, attacked someone with a weapon, used a weapon or force to get money or things from people, been involved in gang fights, shot at someone because you were told to by someone else.” Affirmative responses to any of these violent crimes are coded as 1 for “yes” and “no” responses are coded as 0.

Analytic Strategy

The chief analytical strategy includes cross-tabulations and multivariate analysis to test key aspects of support and coercion theory on both self-control and violent behavior. DSSC theory posits that levels of support and coercion influence both self-control and delinquency. As such, the current research utilizes impulsivity/self-control as both a dependent variable in an ordinary least squares (OLS) regression model and as an independent variable in a logistic regression for violent behavior.¹ We utilize logistic regression analysis for the violent acts variable as it is the most appropriate analytic technique given the binary nature of this variable.² The primary goal of the logistic regression model was to determine whether support, interpersonal coercion, and self-control, controlling for demographic and control variables, influence the odds of respondents reporting violent behavior. In regard to variable measurement and distribution, the independent and control variables can take any level of measurement, and logistic regression has no assumptions regarding normal distribution variables.

Findings



Table 1. Relationship Between Self-Reported Violence, Parental Support, and Self-Control.

Violent behavior	Impulsivity/self-control			Mother's support			Father's support		
	M	n	SD	M	n	SD	M	n	SD
No reported violence	21.66	2,424	5.52	31.05	2,496	7.45	28.44	2,289	8.90
Hit someone	25.17***	2,909	5.64	27.57***	2,993	8.12	25.36***	2,741	9.51
Gang fight	27.19***	1,058	5.46	26.37***	1,081	8.85	24.34***	976	10.10
Attack with weapon	27.45***	759	5.56	25.55***	779	8.63	23.64***	696	10.34
Armed robbery	28.60***	329	5.77	24.02***	333	9.21	23.28***	306	10.56
Shot at someone	28.26***	280	6.01	25.04***	274	9.88	23.09***	255	10.79
All forms of violence	30.58***	117	5.99	22.28***	111	9.89	20.72***	105	10.60

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

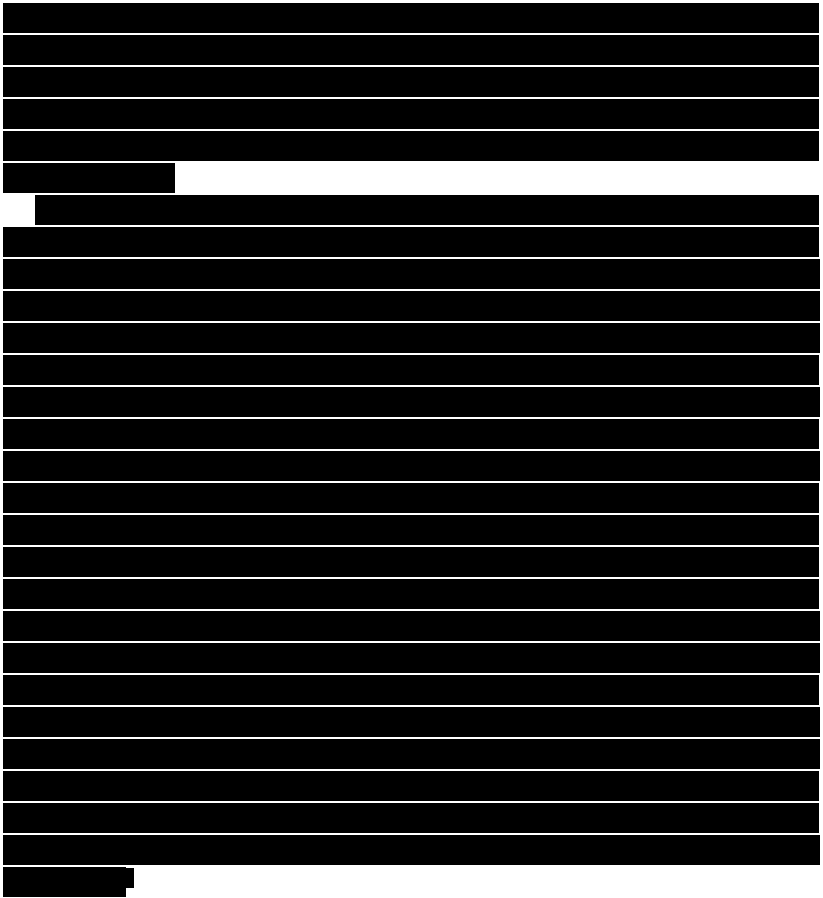


Table 2. OLS Regression Analysis for Impulsivity/Self-Control Level.

Variables	<i>b</i>	<i>SE</i>	β
Male	0.621	.158	.053***
Age	0.190	.124	.020
African American	-1.196	.201	-.083***
Hispanic	-0.011	.205	.001
Delinquent peers	0.187	.011	.260***
Victimization	0.723	.252	.039**
School coercion	0.182	.023	.108***
Intact family	-0.500	.177	-.038**
Mother's support	-0.103	.012	-.139***
Father's support	-0.041	.009	-.065***
Parental supervision	-0.339	.028	-.184***
<i>F</i> significance	.000		
Adjusted R^2	.305		

Note. OLS = ordinary least squares.

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



[REDACTED]

[REDACTED]

[REDACTED]

Table 3. Logistic Regression for Violent Behavior.

Variables	<i>b</i>	<i>SE</i>	Wald	OR
Male	0.383	.074	26.758	1.466***
Age	0.022	.060	0.127	1.022
African American	0.433	.097	19.911	1.541***
Hispanic	-0.170	.098	3.041	0.844
Delinquent peers	0.113	.007	243.81	1.119***
Victimization	1.170	.158	54.693	3.223***
School coercion	0.012	.011	1.165	1.012
Impulsivity/self-control	0.049	.007	46.203	1.050***
Intact family	-0.111	.085	1.717	0.895*
Mother's support	-0.015	.006	6.773	0.985**
Father's support	-0.008	.005	2.672	0.992**
Parental supervision	-0.028	.014	3.961	0.972*

Note. *n* = 4,317. Nagelkerke R^2 = .314. OR = odds ratio.

p* < .05. *p* < .01. ****p* < .001.



Discussion and Limitations

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

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[REDACTED]

[REDACTED]

[REDACTED]

Limitations

[REDACTED]

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

Notes

1. To assess model stability and the influence of potential variable correlations, a number of important statistics are evaluated. The mother's support and father's support variables have a bivariate correlation of .473, and this is theoretically

- consistent with these variables. To further assess model stability and regression assumptions in the ordinary least squares (OLS) model, the variation inflation index (VIF) and tolerance statistics are calculated. The VIF statistics for all variables in the OLS model are below 2.0 and a tolerance statistics are above .20, further indication that collinearity is not a problem in these regression models. Furthermore, the indexed social control dependent variable appears to have a normal distribution and the skewness statistic is only $-.124$ (for detailed descriptions of regression assumptions and diagnostic test, see Fox, 1991; McClendon, 1994).
2. Logistic regression assumptions do not require normal distributions of independent variables; however, variables cannot be highly correlated with each other because it may influence model estimation. In the current study, no independent or control variables in the models display high bivariate correlation beyond the two parental support variables previously noted. A supplementary model tested parental support as one variable by combining the two indexes, but outputs displayed no important difference in model outcomes. Given both theoretical and practical beliefs that parental support can vary by parent, we maintained these as discrete independent variables. Logistic models also require large sample sizes, particularly when testing multiple independent and control variables, and assume independence in observations. For a detailed discussion of logistic regression assumptions, see Hosmer and Lemeshow (2000) and Menard (1995).
 3. Many caution over-interpreting the importance of statistical significance of t test with larger sample sizes because even minor mean differences are likely to reach significance; however, the current mean differences are also meaningful in magnitude given the construction of these variables.

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