



Protective factors against juvenile delinquency: Exploring gender with a nationally representative sample of youth

Lin Liu^{*}, Susan L. Miller

Department of Sociology and Criminal Justice, University of Delaware, Newark, DE, USA

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ABSTRACT

Youth's social bonds' with conventional social institutions (e.g., family and school) and parental management of youth's leisure time represent two dimensions of suppressants against juvenile delinquency. Using Multivariate regression, this paper assesses these two dimensions of factors simultaneously on youth's aggressive and non-aggressive delinquency, and examines if their effects are gender sensitive. Findings suggest that girls have significantly lower involvement in both aggressive and non-aggressive delinquency than boys. However, girls are disproportionately involved in non-aggressive delinquency. Parental monitoring protects boys and girls distinctively on aggressive delinquency; this factor has a more pronounced inhibitory effect on girls' aggressive behavior. This study elucidates that there is a gendered pattern in adolescent delinquency, and that gender moderates the effect of some protective factor.

1. Introduction

There is widespread belief that the risk of delinquency is not uniformly distributed among youth. Sociologists and criminologists have recognized that youth who have strong attachment to parents and high commitment to school are less likely to engage in delinquency (Chapple et al., 2005; Hirschi, 1969; Kroher and Tobias, 2015). At the same time, parental supervision functions as another dimension of protective factor against youth's delinquent behaviors (Cohen and Felson, 1979; Hagan, 1989; Rankin and Wells, 1990). These two dimensions of "buffers against delinquency" are derived from two theoretical perspectives: social control theory (Hirschi, 1969) and routine activities theory (Cohen and Felson, 1979). Social control theory proposes that youth who are emotionally attached to parents and aspire to have educational and career attainment are less likely to engage in deviant behaviors. This is because that the involvement in delinquency may disappoint their parents (Hart and Mueller, 2013; Hay, 2001; Hirschi, 1969) and undermine the path toward educational and career success (Onder and Yilmaz, 2012; Simons et al., 2005; Unnever et al., 2003). Routine activities theory, in contrast, focuses on the more direct and instrumental control on youth—the supervision on youth. This theory contends that adolescents who have too much idle time and less guardians' supervision will be prone to engage in risky behaviors (Cohen and Felson, 1979; Collins et al., 1987; Felson, 2006; Osgood et al., 1996; Wight et al., 2009).

What is missing from the past studies is the use of a single data set to compare the effects of the rival factors from these two perspectives. Additionally, despite the ubiquitous gender gap in crime rates, studies have rarely quantitatively examined whether boys and girls engage disparately in different types of delinquency (for an exception, see Junger-Tas et al., 2004). From a gender and crime prism, girls are more likely to engage in non-aggressive delinquency such as minor property crimes (Campbell and Lee, 1990; Gelfus,

^{*} Corresponding author.

E-mail addresses: lindyliu@udel.edu (L. Liu), smiller@udel.edu (S.L. Miller).

1993; Steffensmeier and Allan, 1996) and marijuana use (Johnson et al., 2015; Smith and Paternoster, 1987). In contrast, violence and aggressive delinquency are less often observed among girls because they are likely to dampen their femininity.

The third literature void lies in assessing how the intersection of gender and protective factors affects distinct types of delinquency committed by youth. It is possible that the effect of a protective factor is contingent on both gender and the type of delinquency that is investigated. For example, according to routine activities theory, the presence of guardians (e.g., police patrolling on the street, teachers sitting in the classroom) is a delinquency inhibitory factor (Felson, 1998; 2006; Cohen and Felson, 1979). In the context of youth life, parental monitoring is one of the primary sources of guardianship (Osgood et al., 1996). At the same time, the effect of parental monitoring may be gender sensitive. The gendered socialization begins in childhood, and boys and girls receive different parental monitoring (Gilligan, 1982; Mears et al., 1998; Risman, 1998; Steffensmeier and Allan, 1996; West and Zimmerman, 1987). Numerous qualitative studies demonstrate that delinquent girls, due to the hegemonic gendered socialization in the U.S. social context, are under tighter parental supervision (Campbell and Lee, 1990; Gilfus, 1993). However, a relatively thin line of research *quantitatively* examines the disparate crime-inhibitory effect of parental supervision on boys and girls. There has been a handful of studies quantifying the gendered effects of protective factors against delinquency; nonetheless, the majority of them use European samples (Wong et al., 2010; Zahn et al., 2010).

This research aims to address the aforementioned literature gaps and disentangles the interplay of gender and protective factors against juvenile delinquency. Specifically, we investigate if boys and girls show disparity in their engagement in different types of delinquency (aggressive v. non-aggressive). We also examine whether parental monitoring as well as youths' bonds with family and school exhibit divergent influences on boys and girls in terms of inhibiting delinquency. It should be noted that other factors outside our research interest also play a role in delinquency, such as neighborhood and community factors (Brooks-Gunn et al., 1997; Mayer and Jencks, 1989) and school disciplinary policy (McCord et al., 2000; Skiba and Noam, 2001). Our main research interest in this paper, the effects of social bonds and parental supervision across gender, does not negate the effects of protective factors from other perspectives.

Three research questions lead the study:

- (1) Is there a gendered pattern in youth involvement in aggressive and non-aggressive delinquency?
- (2) When analyzed in the same model, do social bonds with parents and school, commitment to education, and parental monitoring exhibit significant effects on delinquency simultaneously?
- (3) Do parental monitoring and attachment to parents have the gendered effects in terms of inhibiting delinquency?

2. Literature review

2.1. Social bonding and juvenile delinquency

Hirschi's *Causes of Delinquency* (1969) is a benchmark for research in youth delinquency; it offers a social-bond perspective to explain youth involvement in deviance. A youth is less likely to engage in delinquency if he or she is bonded to the society and properly socialized—internalizing the conventional values and norms, holding conventional aspirations of success, and developing attachment to parents. Conformity is achieved through this proper socialization, and those who fail to develop pro-social bonds are at a higher risk of delinquency.

According to Hirschi, there are four elements in the formation of social bond. Attachment corresponds to the affective ties that youth form to significant others. Youth who develop emotional ties with parents refrain from breaking rules so as to not disappoint or hurt the feelings of their parents. Commitment is related to the aspiration of going to college and attaining a high-status job. Youth who are committed to these goals of life are less likely to engage in delinquent acts. The third element is involvement, the participation in conventional activities. Doing homework, for example, is viewed as a conventional activity and an antecedent to educational and career success. Belief is the last element. It refers to the acceptance of the moral norms and values in the society (Hirschi, 1969: 203). When youth have not adequately internalized the social rules, they are less rule-bound thus more likely to be delinquent (Hirschi, 1969: 26).

In his social control theory, Hirschi (1969) identifies that attachment is one of the most salient crime buffers for youth. Adolescents have needs for support, intimacy and interpersonal relationships; the people that youth feel close to exhibit noticeable influence in various aspects of their lives. When youth have close ties to parents, teachers and mentors in school, they are willing to live up to the expectations of these pro-social others and refrain from committing deviant behaviors. Regarding the empirical tests on the association between youth's social bonds and delinquency, numerous studies find a negative relationship between delinquency and the bonds with family and school in both cross-sectional (e.g., Achenbach et al., 1995; Hawkins, 1997; Jessor et al., 1995) and longitudinal research (Allen and Moore, 1997; Chassin et al., 1993; Smith and Paternoster, 1987).

Youth can also develop close ties to delinquent peers (Akers, 2000). Those less connected to parents and school do not perceive the support and intimacy available from parents or teachers; facing a void in their needs for interpersonal relationships, they may satisfy these needs through unconventional ways—associating with deviant peer groups. When a youth socializes with and develops attachment to peers who commit criminal behavior and view said behavior favorably, justifiable or desirable, he or she conforms to these values and peers' expectations. Indeed, one of the critiques some scholars maintain regarding Hirschi's social control theory is that it fails to differentiate the disparate influence of different social bonds (Akers, 2000; Boman et al., 2012; Giordano et al., 1986; Warr, 2002). Attachment to conventional peers decreases the risk of delinquency, whereas attachment to deviant peers increases this risk (Akers, 2000). Numerous empirical studies demonstrate support on the positive relationship between delinquency and attachment

to delinquent peers (Haynie, 2001; Haynie and Osgood, 2005; Kreager et al., 2011; Krohn, 1999). Several longitudinal studies confirm the causal path from adolescents' *desire* to live up to deviant peers' expectations toward delinquency (Rebellon, 2006; Paternoster et al., 2013).

2.2. Direct/instrumental control and juvenile delinquency

In his theory, Hirschi (1969) also discusses the effect of direct control—parental management and monitoring. He contends that since most delinquent acts require little time, the amount of time a child spends with parents would probably be only a *minor* factor in delinquency prevention (Hirschi, 1969: 88). He also contends that a child who is attached to parents may voluntarily spend more time in parents' presence (Hirschi, 1969: 88). Therefore, according to Hirschi's proposition, once social bond is controlled, parental monitoring should exert a null effect on youth delinquency.

However, researchers who focus on the situational factors of delinquency (e.g., police patrol and teachers' proctoring exams) do not agree with this argument. They underscore that parenting can influence youth delinquency through an adequate amount of supervision—a type of direct control (Rankin and Wells, 1990) or instrumental control (Hagan, 1989). The concept of direct control is mainly derived from routine activities theory (Cohen and Felson, 1979; Osgood et al., 1996). This theory maintains that delinquency is the product of the intersection of suitable targets and the absence of guardians (Cohen and Felson, 1979). For example, a large amount of valuable gems put on the sidewalk of a street with no guardians around is a criminogenic situation.

To apply routine activities theory in the context of youth life, youth delinquency is a result of inadequate parental monitoring. Parental supervision and monitoring functions as the presence of guardians that prevents delinquency. Parents can set a strict time table for their children's leisure, moderate who they hang out with and the places they can go. Scholars from this perspective maintain that youth whose activities are *unbounded* in terms of time and space are exposed to increased opportunities for crime and deviance (Cohen and Felson, 1979; Felson, 2006; Hindelang et al., 1978). The absence of authority figures and weak parental monitoring breed delinquency because they diminish conventional responses to punish misbehaviors (Baumrind, 1997; Hagan, 1989; Osgood et al., 1996). Empirically, under the routine activities framework, studies find that parental monitoring inhibits delinquency *net of* the effects of social bonds (Osgood et al., 1996; Sweeten et al., 2013) and delinquent peer association (Simons et al., 2005; Wright and Cullen, 2001).

This study embarks on comparing and contrasting the two domains of control that protect youth from delinquency—bonds with parents and school, and parental supervision—*across gender*. The simultaneous examination of these two dimensions of control is not without theoretical grounding. Tittle proposes the feasibility of integrating social bond-based control and direct supervision as two dimensions of protective factors against crime from an angle of "control balance" (Tittle, 1995, 2004). In his control balance theory, he conceptualizes control from a comprehensive perspective. Control can be abstract—such as the control one party exerts on the other party in a power-imbalanced relationship (Tittle, 1995). Control can also take on a more tangible form such as the monitoring from a supervisor in work venue (Tittle, 1995). Tittle (1995) contends that control imbalances—either control deficit or control surplus—constitute a major cause of crime and delinquency. When people exercise more control than they are subject to, they experience control surplus. On the contrary, when people are subject to more control than they exercise, they experience control deficit. Control deficits are associated with deviance featured by directly confrontational actions such as assault, while control surpluses are more likely to be related to autonomous forms of deviance such as corporate price-fixing (Tittle, 2004). When the amount of control people can exercise is equal to the amount of control they are subject to, they experience control balance thus having little risk of crime (Tittle, 1995). Control balance theory receives a thin line of empirical test due to the dearth of data for a proper empirical test. As Tittle notes, measurements of control balance ratios do not exist in secondary data archives (Tittle, 1995). Testing his control balance theory is beyond the scope of this study; nonetheless, this theory provides insights and grounding for simultaneously testing the influences of social bond-based control and parents' direct control on youth delinquency.

2.3. Gender roles and juvenile delinquency

Upon a review of the types of control, one may wonder whether control operates differently or has differential implications for boys and girls. In other words, girls and boys may experience different familial processes, pay divergent attention to their bonds with parents, and experience disparate supervision. Biological sex *per se* is believed to play only a small part, if any, in accounting for the sex difference in crime (e.g., Jensen and Eve, 1976), though recently some studies promote a biosocial explanation of the gender gap in crime (Beaver and Nedelec, 2015; Fagan, 2014). Instead, the most common explanation stresses gender socialization that entails adherence to traditional masculine and feminine roles, the former being more conducive to criminal involvement (Adler, 1975; Campbell, 1993; Chapelle et al., 2005; Messerschmidt, 1986; Rosenfield, 1980). In addition, from the perspective of a gendered process of affective bonding (Gilligan, 1982; Steffensmeier and Allan, 1996), relationships with others play a more pronounced role in girls' lives.

We would like to illustrate three specific prisms to illuminate the connection between gender socialization and the gendered disparity of delinquency. First, from early childhood, parents tend to monitor and control girls and boys in different ways, which result in girls' and boys' different levels of delinquency. Most parents are inclined to keep girls under stricter supervision, whereas boys are allowed slightly more freedom; girls develop submissiveness and acquiescence to authority whereas boys tend to resist and rebel against monitoring (Heimer and De Coster, 1999; Mears et al., 1998; Steffensmeier and Allan, 1996). Moreover, girls' transgressions are more likely to be recognized and punished, and boys' misbehavior is often overlooked (Gottfredson and Hirschi, 1990). Punishment for delinquent behavior further deters girls from delinquency and reinforces their submissiveness and respect for rules. Therefore,

gendered childrearing patterns, especially the disparate parental monitoring of girls and boys, may shed light on the gender gap in juvenile delinquency.

Second, boys and girls have disparate sensitivity to these protective factors against delinquency. Gender as a structure is created, maintained, and differentially experienced within the family; protective factors against juvenile delinquency such as parental monitoring operate differently on and have different importance to boys and girls (Gilligan, 1982; Risman, 1998; Steffensmeier and Allan, 1996). From the gender-role socialization perspective, girls go through a socialization process that prepares them for the domestic-centered position of nurturing children and the family; girls in general have stronger desires for interpersonal closeness (Chesney-Lind and Shelden, 2013; Gilligan, 1982; Liu et al., 2019; Thoits, 1991). From the rational-cultural theoretical perspective, girls' life stress, social support and wellbeing are all molded by relationships in their lives (Broidy and Agnew, 1997; Bylington, 1997; Windle, 1992). Relationships—and the life experiences within these relationships—are a central focus in the lives of girls and women (Belknap and Holding, 2006; Covington, 2008; Liu et al., 2019). Therefore, compared to boys, girls who are closely attached to parents may be more likely to refrain themselves from delinquency, because delinquency will cause tension in and undermine their relationships with parents. Meanwhile, girls also tend to care about parents' feelings and positively respond to the time and effort parents invest in supervising and monitoring their activities (Gilligan, 1982; Steffensmeier and Allan, 1996). When being mistreated, boys tend to externalize blame and react aggressively (Campbell, 1993), while girls blame themselves instead of venting anger against the abuser so as not to jeopardize their valued relationships (Broidy and Agnew, 1997).

Third, girls and boys have different levels of motivations to commit crime and delinquency. A large body of literature on gender identity indicates that conventional expectations on female identity reflect characteristics such as warmth, nurturance, submissiveness and compassion (Bem, 1974; Gilligan, 1982; Liu and Miller, 2019; Liu et al., 2019; Messerschmidt, 1986). For example, according to Bem Sex-Role Inventory (BSRI) that measures individual traits, submissiveness and passivity are associated with femininity (Bem, 1974). In contrast, the socially constructed male role involves traits such as dominance, assertiveness, adventurous and independence (Messerschmidt, 1986), which manifests elevated levels of aggressiveness and acting-out in male behaviors. When there are certain behaviors deemed appropriate for girls and others for boys, society punishes those violating gender norms (Chesney-Lind and Shelden, 2013; Schaffner, 1999). To live up to their expected gender identity, boys have a higher drive to be rebellious, violent and aggressive because criminality and masculinity are linked (Messerschmidt, 1986).

Empirically, a wide array of studies have found that boys demonstrate higher rates of juvenile delinquency than girls (Canter, 1982; Colten and Marsh, 1984; Kling et al., 2005; Puzanchera and Robson, 2014), and this disparity is particularly salient in aggressive delinquency such as teen dating violence (e.g., Reyes et al., 2016) and assault (e.g., Caldwell et al., 2002). Studies also show fluctuations in this gender gap across crime categories (Jones et al., 2014; Houghton et al., 2013). For example, compared to girls, boys engage more frequently in violent and public crimes such as serious physical fights, graffiti, vandalism and gang group fighting (Chapple et al., 2005; Chui and Chan, 2016). Additionally, numerous studies discover that girls' delinquency is preceded by frictions in interpersonal relationships, such as tension with their mothers (Covington, 2008; Foley, 2008; Garcia and Lane, 2010). However, there is limited exploration into whether parenting factors affect boys' and girls' delinquency differently (for an exception, see Botchkovar and Broidy, 2013), and no study has been conducted that tests the parenting protective factors' influence on different delinquency types for boys and girls. It seems reasonable to infer from the gender socialization perspective that girls and boys engage in aggressive and non-aggressive delinquency at different levels, and attachment to parents and parental monitoring may inhibit boys' and girls' involvement in the two types of delinquency differently.

3. Methods

3.1. Data

The data for this analysis were drawn from the National Longitudinal Study of Adolescent Health (Add Health), a nationally representative, probability-based survey examining a broad range of health-related attitudes and behaviors of American adolescents who were in grades seven through twelve between September 1994 and April 1995 (Udry, 2003). Three waves of data have been collected thus far. The first round of interviews was conducted in 1994 when approximately 90,000 youths completed self-report surveys at school (i.e., the Wave 1 in-school interview). Adolescents were asked questions about their family life, their social life, and their involvement in different activities. To gain more detailed information about some of the respondents, 20,745 adolescents, along with 17,700 of their primary caregivers (usually their mother), were re-interviewed at their home (i.e., the Wave 1 in-home interview). A wide range of questions was asked during the Wave 1 in-home interviews concerning delinquent involvement, relationship with parents, and school performance.

The present study used the public-use data of wave1 ADD Health, which included the sample of 6504 adolescents. We excluded 128 participants who either refused to answer or were not enrolled in school at the year of the survey, because one of our research interests was to examine how young students' social bonds with their school protected them from delinquency. In this analysis, cases with missing values were dropped. With the exclusion of cases with missing data, the final sample consists of 2087 participants. This size of the sample provides abundant statistical power for the current analysis. Sensitivity examination confirmed there was no significant difference regarding the mean and standard deviation of the variables from the participants included and excluded in the study.

3.2. Measures

3.2.1. Dependent variables

Aggressive delinquency. The level of aggressive delinquency involvement was assessed with four questions from section 31, a section tapping into respondents' aggressive delinquent behaviors. The first three items asked adolescents during the past 12 months how often they had engaged in a variety of aggressive delinquent acts: getting into a serious physical fight, pulling a knife/gun on someone, and shooting or stabbing someone. The responses were on a three-level Likert-scale that ranged from zero (not at all) to two (more than once). The fourth item asked the frequency the respondents carried a weapon to school during the past 30 days. The responses were in a Likert-scale ranging from zero (zero day) to four (six or more days). We used confirmatory factor analysis (hereafter CFA) to verify the unidimensionality of *aggressive delinquency*. There was only one eigenvalue bigger than one and all of the four items loaded relatively strongly onto this factor (Appendix). This indicated the four items all represented a single latent factor. We used standardized factor scores to extract the aggressive-delinquency composite value, which took into consideration the strength each item was related to the factor.

Although past youth delinquency studies generally categorize weapon carrying as a type of aggressive delinquency (e.g., Piquero and Sealock, 2004), we took into consideration the possibility that carrying a weapon can be fear driven rather than a result from the propensity toward aggression. This consideration was based on the current trend that school safety issue emerges as a primary source of stress in youth life (Lyons, 2005). Out of this consideration, we conducted a post hoc analysis to examine if our research findings would change had we excluded the item of weapon carrying in the construction of aggressive delinquency. The results from the post hoc analysis showed that the research findings would not change.

Non-aggressive delinquency. Non-aggressive delinquency was constructed based on four questions asking the respondents how often they had engaged in a variety of non-aggressive delinquent acts: lying to parents about whereabouts, shoplifting, stealing something less than 50 dollars, and stealing something more than 50 dollars. The responses were in Likert-scale from zero (not at all) to three (five or more times). CFA results confirmed the unidimensionality of the items; all of the items loaded relatively strongly onto the composite of non-aggressive delinquency (Appendix). Standardized factor scores were used to create the value of aggressive-delinquency composite. One may argue that substance abuse could be considered as a non-aggressive delinquency. However, according to numerous empirical studies, substance abuse could either be a non-aggressive delinquency such as smoking pot in a house party (Mustaine and Tewksbury, 2004; Stoduto et al., 1998), or aggressive delinquency such as group drinking and fighting (Dawkins, 1997; Levine and Kozak, 1979; Reid et al., 2007). The questions on substance abuse from this data do not offer information on the context in which substance use took place; thus, we did not include the substance use items into non-aggressive delinquency.

3.2.2. Independent variables

Gender. This variable represented the gender identity respondents reported during the interview. It was with binary responses of one (male) and two (female).

Attachment to parents. Four items assessed attachment to parents. Two questions asked how close the respondent felt to his/her mother and father, and the other two questions asked how much his/her father and mother cared about her/him. The answers ranged from one (not at all) to five (very much). From the results of an exploratory factor analysis (EFA), these four items did not load onto one latent factor. Although they did not statistically load together, they jointly measured the theoretical concept of *attachment to parents*. From social control theory, these items should jointly explain youth delinquency. We summed up subjects' responses of the four items to create *attachment to parents*.¹ For this variable, if a respondent was only attached to one parent and the attachment was weak, he or she would have a low score. In contrast, if a respondent was attached to both parents and the attachment was strong, he or she would have a high score.

School attachment. School attachment was assessed with four items asking if respondents agreed with the statements: (1) I feel close to people at school, (2) I am happy to be at school, (3) the teachers at school treat students fairly, and (4) I feel like I am part of school. Answers ranged from one (strongly agree) to five (strongly disagree). We reverse-coded them so that a higher value indicated a higher level of school attachment. CFA results confirmed the unidimensionality of *attachment to parents* (Appendix).

Attachment to delinquent peers. Attachment to delinquent peers was assessed using three items asking of the three best friends a respondent had, how many smoked at least one cigarette a day, drank alcohol at least once a month, and used marijuana at least once a month. Responses ranged from zero (no friends) to three (all of the three friends). Scholars have utilized different ways to measure a respondent's involvement with delinquent peers. Some measure the number of delinquent peers a respondent has (Thornberry et al., 1994), some measure the time length a respondent spends with them (Osgood and Anderson, 2004), and some measure the severity of deviant behaviors one's peers engage in (Agnew, 1991). The questions on deviant peers in this study tapped into both the number of deviant peers they had as well as the closeness respondents felt to their peers. CFA results verified the unidimensionality of the items and factor scores were used to create the composite value of *attachment to delinquent peers* (Appendix).

¹ During his Richmond study in 1969, Hirschi used attachment to mother as the main variable to explain youth delinquency (Hirschi, 1969, p.93, p. 100). This practice should be perceived via a lens of the social context: During the 1960s, a large portion of women were housewives who focused on tasks in the domestic sphere such as nurturing children (Andersen, 1975; Isenberg and Belisle, 2005). However, the current social context is drastically different from that during the 1960s. Considering the increasing blurriness in the division of labor between mother and father in a household in the current time (Bittman and Pixley, 1997; Casper and Bianchi, 2002; Gerson, 2002), it causes bias to only use the items for mother as a proxy for youth's attachment to the family.

Commitment to education. As social control theory maintains, commitment to education explains youth delinquency. A high commitment to education is proposed to inhibit delinquency (Hirschi, 1969; Hirschi and Hindelang, 1977). Following past practice (Cullen et al., 1997; Hirschi and Hindelang, 1977), we used academic performance to represent commitment to education. This variable was constructed based on four items assessing the grades of respondents in English or language arts, mathematics, history or social studies, and science. Responses ranged from one (A) to four (D or lower). We reverse coded them so that a higher value represents a higher level of performance in the respective class in school. CFA results verified the unidimensionality of the items, and we used the standardized factor scores to create the composite value of *commitment to education* (Appendix). Besides bonding to parents and school, another delinquency-inhibitor from social bond theory is belief—youth's acceptance of the moral norms and values in the society (Hirschi, 1969). However, there was no item tapping into this concept from the data; accessing its effect on delinquency is beyond the scope of this study.

Parental monitoring. Parental monitoring was assessed using seven items that asked if parents let respondents decide the following: what time to be home on weekend nights, what time go to bed on week nights, which people to hang around with, what to wear, what to eat, how much television to watch, and which television programs to watch. The answers were dichotomized as zero (no) and one (yes). We reverse coded them so that a higher score indicated a higher level of parental monitoring on these life aspects of the youth. The construct of this composite was verified by CFA and factor scores were used to create the value of the composite (Appendix).

Age. We included age as a control variable. It was respondents' self-reported age during the interview. Table 1 reports the descriptive statistics for all variables used in this analysis. The sample size was 2,087, in which there were 47% girls and 53% boys. The average age of the sample was 15. We provided the means of model predictors by gender. We did not find a drastic difference in the level of parental monitoring that boys and girls received. Meanwhile, boys and girls had more or less comparable strength of bonds with family and school. However, there was a conspicuous gap between boys' and girls' involvement in delinquency. Boys engaged in both aggressive and non-aggressive delinquency to a more serious degree; on a standardized scale of aggressive and non-aggressive delinquency (with the mean around zero and standard deviation around one), girls had a .17 and .9 unit lower score in aggressive and non-aggressive delinquency scale than boys, respectively. Table 2 illustrates the matrix of two-variable correlations among all independent variables. The highest correlation between two independent variables (school attachment and attachment to delinquent peers) was 0.20, multicollinearity was not an issue in this analysis. The variance inflation factors (VIFs) confirmed that. The highest value was 1.20, much lower than the generally accepted limit of 10 (Neter et al., 1996), confirming that multicollinearity was not a concern.

3.2.3. Analytic strategy

We used multivariate linear regressions to analyze the main effects and the gendered effects of protective factors against aggressive and non-aggressive delinquency. Multivariate modeling has its unique advantage: While examining the predictor's effect on the outcome variables, it offers a better control of the *Type I error* rate and takes into account of the correlation between the two outcome variables as well (Johnson and Wichern, 2014). Our analysis involved two steps. We first examined the main effects of the risk and protective factors for delinquency in a multivariate linear regression, and then in another regression, we created interaction terms of *gender*parental attachment* as well as *gender*parental monitoring* to examine their influences. During the creation of interaction terms, we followed the technique used by Jaccard et al. (1990) and mean-centered the raw scores of the component factors of parental attachment and monitoring. This practice was for the purpose of avoiding multicollinearity caused by ill-conditioning.

4. Results

Model 1 from Table 3 demonstrates the results for the main effects of protective and risk factors on two outcome variables using multivariate linear regression. Female respondents were the reference group for the categorical variable of gender. We found a gender gap in delinquency. For both delinquency types, boys had a significantly higher level of involvement than girls ($b = .16$ for aggressive delinquency and $b = 0.08$ for non-aggressive delinquency). Regarding protective factors, parental monitoring inhibited both

Table 1
Descriptive statistics (N = 2, 087).

Variables	Percentages ^a	Mean ^b	Mean by Gender	Std. Dev.	Min	Max
Dependent variables						
Aggressive delinquency		−0.10	Male = 0.00 Female = −.0.17	0.82	−0.38	9.74
Non-aggressive delinquency		−0.06	Male = −0.02 Female = −.0.11	0.91	−0.61	5.51
Independent variables						
Gender (male)	53%					
Attachment to parents		0.03	Male = 20.08 Female = 19.90	0.95	−7.07	0.68
School attachment		0.16	Male = 0.14 Female = 0.06	0.93	−3.42	1.78
Attachment to delinquent peers		−0.13	Male = −0.04 Female = −.0.14	0.92	−0.94	2.55
Parental monitoring		0	Male = 0.07 Female = −.0.08	0.95	−1.04	3.52
Commitment to education		0.11	Male = −0.13 Female = 0.11	0.97	−2.51	1.43
Control variables						
Age		15.29	Male = 15.41 Female = 15.18	1.73	11	19

^a The entry represents the percentages of male respondents in the categorical variable of gender.

^b The means of composite values that are extracted from the standardized factor scores of items.

Table 2

Pearson correlation matrix of main predictors and two outcome variables.

Variables	Aggressive delinquency	Non-Aggressive delinquency	Attachment to parents	School attachment	Attachment to delinquent peers	Parental monitoring
Aggressive delinquency	1.00					
Non-Aggressive delinquency	0.47	1.00				
Attachment to parents	0.03	0.00	1.00			
School attachment	−0.20	−0.19	0.02	1.00		
Attachment to delinquent peers	0.25	0.33	0.03	−0.20	1.00	
Parental monitoring	−0.08	−0.07	−0.10	0.09	−0.11	1.00

Table 3

Multivariate analysis results on two types of delinquency.

	Model 1: Aggressive Delinquency	Model 1: Non-aggressive Delinquency	Model 2: Aggressive Delinquency	Model 2: Non-aggressive Delinquency	Parallelism Test When Two Slopes of a Variable in Model 2 are Both Significant
Parameters	Estimate ^a	Estimate	Estimate	Estimate	
Gender (Male)	0.16*** ^b (0.02)	0.08** (0.03)	0.17 ** (0.02)	0.08** (0.03)	P = 0.001 ^c
Attachment to parents	0.00 (0.00)	−0.01** (0.00)	0.01 (0.00)	−0.02** (0.00)	
School attachment	−0.10*** (0.01)	−0.10*** (0.01)	−0.10*** (0.01)	−0.10*** (0.01)	P = .91
Attachment to delinquent peers	0.14*** (0.01)	0.27*** (0.02)	0.14*** (0.01)	0.27*** (0.02)	P < .0001
Parental monitoring	−0.05*** (0.01)	−0.06** (0.02)	0.01 (0.02)	−0.08** (0.03)	
Commitment to education	−0.04*** (0.01)	−0.02 (0.01)	−0.05*** (0.01)	−0.02 (0.01)	
Attachment to parents* Gender (Male)	−	−	−0.01 (0.01)	0.01 (0.01)	
Parental monitoring* Gender (Male)	−	−	−0.12*** (0.03)	0.04 (0.04)	
Age	−0.03*** (0.01)	−0.03*** (0.01)	−0.03*** (0.01)	−0.03*** (0.01)	P = .19

^b * $p < .05$, ** $p < .01$, *** $p < .001$.^a Entries are coefficients from multivariate linear regression, with standard errors in parentheses.^c Hotelling-Lawley Trace test results.

aggressive and non-aggressive delinquency. One unit increase in parental monitoring was associated with a 0.05 and 0.06 unit drop in aggressive and non-aggressive delinquency, respectively. In contrast, parental attachment only worked as a direct buffer for non-aggressive delinquency; one unit increase in parental attachment was associated with a miniscule .01 unit drop in non-aggressive delinquency. Those who weakly bonded with school but strongly bonded with delinquent peers had a significantly higher level of engagement in both aggressive and non-aggressive delinquency. Specifically, a one unit increase in the bond with school was associated with a .1 unit drop in both types of delinquency, while a one unit increase in the attachment to deviant peers was associated with a .14 and .27 unit increase in aggressive and non-aggressive delinquency, respectively. Regarding the effect commitment to education, it inhibited aggressive delinquency. A one unit increase in school grade was associated with a 0.04 decrease in aggressive delinquency; however, it did not exhibit a significant inhibitory influence on non-aggressive delinquency. Lastly, we found a significant effect of the control variable of age. Those who were older had lower involvement in both types of delinquency.

Proceeding to Model 2 in Table 3, we would like to first present the effects of the interaction terms between gender and two parental factors. Out of the two interaction terms, *parental monitoring*gender* demonstrated a significant effect on aggressive delinquency. Girls received an amplified effect of parental monitoring. Taking into consideration of both the slope of gender and this interaction term, boys not only had a 0.17 unit higher level of aggressive delinquency than girls, but also benefited less from parental monitoring—every one unit increase in parental monitoring resulted in less decrease in aggressive delinquency for boys by .12 unit. This indicates that parental monitoring's effect on delinquency was contingent on gender as well as the type of delinquency.

Switching to the effects of other variables in Model 2, we observed a similar picture to the results observed in Model 1. Boys demonstrated a significant higher involvement in both types of delinquency. At the same time, those who were younger, weakly bonded with school, strongly bonded with delinquent peers had a significantly higher engagement of aggressive and non-aggressive delinquency. Parental attachment only protected youth from non-aggressive delinquency while commitment to education, in contrast, only inhibited aggressive but not non-aggressive delinquency.

We noticed that the gender gap for aggressive delinquency, represented by the beta of gender in the model, was particularly large. Boys had a .17-unit higher level of aggressive delinquency compared to girls, while for non-aggressive delinquency, boys' engagement was higher than girls by 0.08 unit. The Hotelling-Lawley Trace test showed that the disparity in these two effect sizes was significant. Boys, while engage more in both delinquency types, displayed a particularly high engagement in aggressive behaviors. In other words,

girls, while engage less in both delinquency types, had a particularly lower engagement in aggressive behaviors. Some other predictors also had distinct coefficient sizes over the two types of delinquency. We conducted the parallelism test of slope with Hotelling-Lawley Trace on protective and risk variables that were found to have both significant effects on two types of delinquency. We found that though the slopes of school attachment demonstrated different effect sizes for the two outcome variables, the difference was not statistically significant; school attachment prevented youth from aggressive and non-aggressive delinquency indistinctively. In contrast, the slopes of attachment to delinquent peers on two types of delinquency were significantly different; this factor exhibited a more pronounced influence on non-aggressive delinquency.

5. Discussion

Although our understanding of juvenile delinquency is greatly advanced by studies illustrating the effects of parental monitoring (Osgood et al., 1996; Rankin and Wells, 1990), delinquent peer association (Akers and Jennings, 2009), and bonds with school and parents (Hirschi, 1969; Onder and Yilmaz, 2012), there are unresolved issues. This study addresses the literature voids by examining the strength of these protective factors *simultaneously* and testing how these factors work differently for boys and girls on aggressive and non-aggressive delinquency.

First, our results generally support but add some nuance to the social bond-based control. Stronger bonds with school and weak bonds with delinquent peers are associated with lower levels of both aggressive and non-aggressive delinquency. However, attachment to parents only effectively inhibits non-aggressive delinquency. This complicates the crux of social control theory (Hirschi, 1969) that parental attachment protects youth from delinquent behaviors regardless of types. It is possible that aggression is an issue associated with a myriad of dimensions of factors in youth life such as neighborhood safety issue, bullying in school, and so forth; thus, family bonds cannot effectively explain youth aggressive behaviors.

It should be noted that in his later work on self-control theory, Hirschi redefines self-control and presents it as somewhat an interchangeable concept with social control (Hirschi, 2004). He re-conceptualizes self-control as the capacity to consider both contemporaneous and long-term *consequence* and *cost* of a behavior (Hirschi, 2004). Social bond is proposed to be a cost of crime that inhibits criminal acts. In this way, he integrates social control and self-control as a new concept to explain delinquency. To test the effect of the re-deux version of social control and self-control is beyond the scope of this study. We may perceive the null effect of parental attachment on youth aggressive acts under the consideration of both the emerging school and neighborhood safety issue in youth life as well as the Hirschi's recent revision of his theory. Future studies may benefit from incorporating the literature of victimology (Aceves and Cookston, 2007) and psychology (Fagan and Sachs Wise, 2000; Macmillan, 2001) to investigate youth aggression.

Second, our results also provide some support to the second theoretical perspective of instrumental control. Both non-aggressive and aggressive delinquency are inhibited by parental monitoring, a type of direct and instrumental control. This echoes the proposition from routine activities theory that the absence of authority's supervision causes crime and delinquency (Cohen and Felson, 1979; Osgood et al., 1996; Rankin and Wells, 1990). This effect still holds when social bonds (commitment to education and bonds with parents and school) are controlled in the model, indicating routine activities theory may provide complementary insights to social bond theory in explaining crime and delinquency. There is a possibility that these two veins of protective factors against delinquency interact with each other; youth who have developed strong attachment to parents may be more receptive to their parents monitoring. Future studies can benefit from investigating the interplay between attachment to parents and parental monitoring in terms of inhibiting youth delinquency.

Third, results from this study indicate not only is there a gendered pattern in youth involvement in different types of delinquency, but also a gendered effect of parental monitoring on delinquency. We would like to illustrate how our quantitative findings relate to the three prisms to examine gender socialization and the gender gap in delinquency that are illustrated in the literature review section. Regarding the disparate motivation to engage in delinquency, our findings support the gendered qualitative narratives that girls and boys go through different socialization processes where girls conform to more docile and submissive scripts while boys are expected to be rebellious and aggressive (Campbell, 1993; Messerschmidt, 1986; Rosenfield, 1980). Due to the gendered social expectations, girls refrain from being delinquent, especially outwardly aggressive and violent acts, for the fear of comprising her feminine identity (Gilligan, 1982; Kagan, 1964; Schaffner, 1999; Thoits, 1991). Our analysis results illustrate that girls have lower involvement in both types of delinquency while boys are more intensively involved in delinquency. In addition, girls are particularly less involved in aggressive-delinquency, echoing the socially constructed docile and submissive scripts for girls.

At the same time, our findings illustrate the divergent sensitivity girls and boys have toward parental monitoring. Although from the descriptive statistics, there is no drastic difference in the amount of parental monitoring boys and girls receive (Table 1), girls are *more sensitive* to the effect of parenting monitoring. Every one unit of parenting monitoring produces an amplified effect on girls in terms of inhibiting aggressive delinquency. This indicates that girls are more receptive to parental supervision. The gendered socialization fosters an orientation of relationship-centeredness for girls (Broidy and Agnew, 1997; Gilligan, 1982; Mears et al., 1998; Steffensmeier and Allan, 1996). Girls care more about parents' feelings and are more reluctant to damage their relationships with parents due to rule violations. What's more, aggressive delinquency puts girls at a higher risk of being discovered and reported (Chesney-Lind and Shelden, 2013; Schaffner, 1999). Therefore, girls refrain from aggressive delinquency lest compromising their relationships in family.

Bridging the social control and gender socialization perspectives, we hypothesized that girls should have stronger attachment to parents and that parents have tighter supervision on girls. However, our analysis yields little empirical support for these propositions. This result, though apparently perplexing, is not without explanation. Since the 1970s, the division of gender roles has become less

strict and there has been increasing popularity of egalitarian attitudes about gender. Influenced by the gender equality movement, parents and teachers in school may avoid socializing boys and girls differently with regard to control.² Girls may receive equivalent autonomy as boys do and are no longer disproportionately exposed to the “docile and relationship-centered” feminine scripts. Given this social context, it is not surprising that we found little gender-differentiated parental monitoring, and that girls and boys have equivalent levels of attachment to parents. Upon a review of past studies on gender-differentiated parenting by year, we found that studies conducted before 1990s mainly discovered tighter parental monitoring on girls than boys (e.g., [Margolin and Patterson, 1975](#); [Fagot and Hagan, 1985](#)) while those conducted after the 1990s were more likely to find no differential parental supervision on boys and girls (e.g., [Inglehart and Norris, 2003](#); [Endendijk et al., 2016](#)).

Although this study has made a genuine contribution to the existing literature, a few limitations should be noted. First, the data used in the current study is cross-sectional in nature; the results cannot be used to draw causal order between the predictors and outcome variables. For example, poor attachment to parents may happen after the respondents become seriously delinquent. As [Thornberry et al. \(1991\)](#) elucidate, delinquency leads to weakened bonds between the youth and parents, and this attenuation of bond in turn increases subsequent delinquency. Future studies should use longitudinal analysis such as cross-lagged model to examine the causal relationship between delinquency and protective factors through the gender socialization lens. Second, we concede that youth at the highest risk of delinquency may not be captured in the current sample. The survey data are collected from youth in school; at-risk youth such as those who are truant and run away from home may not be represented by this sample. Third, similar to other data sets that collected self-reported information, there might be reliability and validity issues regarding the respondents’ self-reported delinquent behaviors. Future studies should collect data from multiple informants. For example, by comparing the information from self-reports, peers’ reports and family members’ reports, researchers can better assess the accuracy of respondents’ report about their pro-social bonds and delinquent behaviors ([Achenbach et al., 1995](#)).

As policymakers are eager to find ways to prevent juvenile delinquency, our results can point toward useful recommendations for improved preventive programming. First, our findings reveal that parental attachment inhibits non-aggressive delinquency. Attachment to parent is promoted through supportive communications and relationships between youth and their parents. However, with youth’s growing reliance on social media as a way to connect with their peers and socialize, time for family and conversations between parents and their children are shrinking ([Lee and Young-Gil, 2007](#)). Initiatives that develop activities and better channels of communication between youth and their parents may help foster a strong relationship between them. Additionally, our results demonstrate parental monitoring inhibits non-aggressive delinquency and have a gendered effect on aggressive delinquency. It might be useful for policy makers to consider developing parental awareness programs to help them strengthen parental management skills. Given that boys have higher involvement of delinquency and receive decreased effective of parental monitoring, schools should introduce programs that foster greater gender equality. Ideally, primary prevention programs should begin in the K-12 years so that children of both sexes can learn how best to resolve conflict non-violently, improve interpersonal communication skills and challenge masculinity norms that valorize aggression and deviance. This kind of effort has been successful in other arenas such as programs in middle schools that challenge violence-supportive attitudes and norms ([Taylor et al., 2011](#)). Involving parents as well as social institutions such as schools in this endeavor could create a multi-prong approach to protect youth from delinquency.

Appendix

Descriptive Statistics on Responses of Items Used by Gender and Item Loadings.

	Mean among males	Mean among females	Factor loadings
Aggressive delinquency	0.00	−0.17	–
During the past 12 months, how often did you get into a serious physical fight? (the higher score the higher frequency of Aggressive delinquency)	0.59	0.26	0.76
During the past 12 months, how often did you pull a knife/gun on someone?	0.08	0.03	0.94
During the past 12 months, how often did you shoot or stab someone?	0.04	0.01	0.92
During the past month, how often did you carry a weapon to school?	0.17	0.06	0.81
Non-Aggressive delinquency	−0.02	−0.11	–
How often do you lie to parents about whereabouts? (the higher score the higher frequency of non-Aggressive delinquency)	0.90	0.94	0.68
How often do you shoplift?	0.42	0.30	0.89
How often do you steal something less than 50 dollars?	0.08	0.04	0.80
How often do you steal something more than 50 dollars?	0.36	0.24	0.88
Attachment to parents	20.08	19.90	–
How close you feel to your mother? (the higher score the closer the respondent felt to parents)	4.73	4.59	0.10
How close you feel to your father?	4.98	4.92	0.01
How much do your mother care about you? (the higher score the higher level of care the respondent felt from parents)	5.05	5.00	0.97
How much do your father care about you?	5.33	5.39	0.97

(continued on next page)

² This is not to indicate that there is little difference in all aspects of parenting of boys and girls. Parents may not socialize boys and girls differently with regard to control while still encouraging children to participate in gender-typical activities and engage in parental gender talk.

(continued)

	Mean among males	Mean among females	Factor loadings
Attachment to school	0.14	0.06	–
To what extent do you agree the statement? I feel close to people at school (the higher score the higher extent the respondent agreed to the statement)	3.83	3.75	0.79
To what extent do you agree the statement? I am happy to be at school	3.96	3.93	0.82
To what extent do you agree the statement? the teachers at school treat students fairly	3.81	3.71	0.81
To what extent do you agree the statement? I feel like I am part of school.	3.57	3.50	0.61
Attachment to delinquent peers	–0.04	–0.14	–
Of the 3 best friends you have, how many smoked at least 1 cigarette a day? (the higher score the more friends of a respondent used substance)	0.86	0.74	0.82
Of the 3 best friends you have, how many drank alcohol at least once a month?	1.22	1.10	0.86
Of the 3 best friends you have, how many used marijuana at least once a month?	0.67	0.57	0.85
Parental monitoring	0.07	0.08	–
Do your parents let you decide what time to be home on weekend nights? (1 no, 0 yes)	0.55	0.66	0.78
Do your parents let you decide what time go to bed on week nights?	0.08	0.08	0.86
Do your parents let you decide which people to hang around with?	0.02	0.04	0.90
Do your parents let you decide what to wear?	0.13	0.13	0.88
Do your parents let you decide what to eat?	0.18	0.18	0.86
Do your parents let you decide how much television to watch?	0.30	0.29	0.83
Do your parents let you decide which television programs to watch?	0.13	0.13	0.86
Academic performance	–0.13	0.11	–
Your grades in English or language arts (1) D or lower to (4) A	2.74	3.08	0.81
Your grades in mathematics	2.75	2.86	0.73
Your grades in history or social studies	2.90	3.03	0.80
Your grades in science	2.84	2.99	0.79

Appendix B. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.ssresearch.2019.102376>.

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Lin Liu is a doctoral student in Criminology at the University of Delaware. Her research interests revolve around gender and crime, former prisoners' reentry, and the trajectory of offending over life course. She is currently a research assistant in the Center for Drug and Health Studies at the University of Delaware and primarily works on analyzing the data from Delaware Youth Risk Behavior Survey (YRBS) and Delaware School Survey (DSS), two annual surveys that measure the substance use and other risk behaviors among public school students in Delaware. She also evaluates the intervention programs on youth substance use. Lin earned her M.A. in Criminology from the University of Delaware in 2016. Her recent publications can be viewed on *Crime & Delinquency*, *Justice Quarterly*, *Journal of Offender Rehabilitation*, *Sociological Inquiry* and *International Criminal Justice Review*.

Susan L. Miller is a Professor in the Department of Sociology and Criminal Justice at the University of Delaware. Her research interests include gendered violence, justice-involved women, victims' rights, gender and criminal justice policy. She has published numerous articles about the intersection of victimization and offending among IPV survivors including a book, *Victims as offenders: The paradox of women's use of violence in relationships*. Her book, *After the crime: The power of restorative justice dialogues between victims and violent offenders*, won the national 2012 Outstanding Book Award presented by ACJS. Miller's forthcoming book addresses resilience, growth, and self-efficacy of long-term survivors of intimate partner violence and abuse.