Prev Sci (2007) 8:115–124
DOI 10.1007/s11121-006-0062-1

ORIGINAL PAPER

Gender Similarities and Differences in the Association Between Risk and Protective Factors and Self-Reported Serious Delinquency

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Published online: 17 January 2007

Abstract Boys consistently report higher rates of serious offending during late adolescence than do girls, yet research is mixed regarding the ways in which males and females may differentially experience risk and protection in their families, schools, peer groups, and as individuals. This article examines gender differences in 22 psychosocial risk and protective factors associated with serious delinquency. Based on self-reported information from 7,829 10th-grade students completing the Communities That Care Youth Survey, all psychosocial factors were significantly related to serious delinquency for both sexes. For 12 of the 22 factors, the strength of the association was significantly greater for males, and, for 18 factors, boys reported higher levels of risk exposure and lower levels of protection than did girls. Together, these findings suggest that boys' greater involvement in serious delinquency is due to the combination of experiencing more risk and less protection than girls and the greater association of these predictors with serious delinquency for boys compared to girls. Implications for prevention programming are discussed.

Keywords Gender and crime · Prevention science · Risk and protective factors · Delinquency

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Prevention science postulates that risk and protective factors present in children's lives influence the extent to which they are likely to engage in serious delinquency and violence (Hawkins et al., 2000; Lipsey & Derzon, 1998; Wiebush, Baird, Kinsberg, & Onek, 1995). When present, risk factors increase the likelihood of offending, and protective factors reduce or moderate this likelihood. Although risk and protective factors have been identified as including individual characteristics, as well as peer, school, family, and neighborhood experiences, few investigations have comprehensively examined the extent to which these factors may vary by gender. This lack of knowledge is surprising, given the large gender disparity in serious offending, sometimes called the "gender gap" in offending. It is clear from official statistics and self-report data that a larger proportion of males than females commit serious offenses (Chesney-Lind, 1997; Elliott, 1994; Greenfeld & Snell, 1999; Snyder, 2003).

Because males commit most serious delinquency, many theories of crime have focused on male offending, and criminological investigations often include only male participants (Chesney-Lind, 1997; Daly & Chesney-Lind, 1988). In addition, many studies include gender only as a control variable, examine gender differences in only a few risk or protective factors, or do not have sufficient numbers of females and males to adequately detect gender differences if present. The lack of attention to gender differences in the development of criminality is an important gap in the prevention of problem behaviors. Prevention programs that target risk and protective factors will not be equally effective for females and males if these influences are not similarly related to delinquency for both sexes. Likewise, gender-specific prevention strategies can only be developed if the predictors of offending are known for both sexes.

Prior research aimed at identifying gender differences in predictors of offending has tended to focus on family influences, likely due to assumptions that girls spend more time at home than do boys and are more concerned with family relationships (Canter, 1982). In support of this hypothesis, Farrington and Painter (2003) and Blitstein et al. (2005) reported that, in general, family risk and protective factors more strongly predicted female than male offending. Likewise, evidence suggests that girls' lesser involvement in delinquency stems from closer parental monitoring and supervision (Bottcher, 1995), and from more involvement in family activities and greater belief in the importance of family (Canter, 1982). Other investigations, however, showed that lack of bonding to family members, single-parent status, and family strain were more likely to lead to offending for boys compared with girls (Canter, 1982; Moffitt, Caspi, Rutter, & Silva, 2001; Piquero & Sealock, 2004). Still other studies have reported significant associations for both sexes between offending and family risk factors such as parent criminality, family conflict, child abuse and neglect, and poor parental monitoring and supervision (Farrington & Painter, 2003; Fergusson & Horwood, 2002; Loeber & Stouthamer-Loeber, 1986; Moffitt et al., 2001; Rowe, Vazsonyi, & Flannery, 1995; Widom, 1989).

Gender differences in school-related risk and protective factors have received less attention. Academic failure and low grades have been found to predict criminal behavior for both sexes (Blum, Ireland, & Blum, 2003; Resnick, Ireland, & Borowsky, 2004; Rowe et al., 1995), but boys generally report lower academic achievement than do girls (Liu & Kaplan, 1999; Rowe et al., 1995).

Regarding peer influences, several studies have found that exposure to delinquent peers increases the likelihood of offending regardless of sex (Hawkins et al., 1998; Moffitt et al., 2001; Rowe et al., 1995; Smith & Paternoster, 1987). Other investigations demonstrated higher levels of exposure to delinquent peers for males compared to females (Liu & Kaplan, 1999; Mazerolle, 1998; Mears, Ploeger, & Warr, 1998), and a stronger influence of delinquent peers on criminal involvement of males (Mears et al., 1998).

Individual risk and protective factors, such as intelligence and belief in the moral order, have been associated with delinquency for both females and males (Fergusson & Horwood, 2002; Resnick et al., 2004). However, some research indicates that boys are more likely than girls to experience cognitive deficits (Moffitt et al., 2001), rebelliousness (Rowe et al., 1995), and lack of conventional values (Liu & Kaplan, 1999). In addition, Heimer (1995) reported that having attitudes favorable to delinquency more strongly predicted violence for boys than girls.

In summary, the extent to which gender differences exist in the relationships between risk and protective factors and serious offending is unclear. It is uncertain if the gender gap in serious offending is due to the fact that females and males are differentially influenced by risk and protective factors, which suggests a gender difference in the etiology of offending, or if the gender gap is due to differences in the levels of exposure to risk and protective factors. This study uses a large school-based sample of adolescents to examine these issues, specifically:

1. Are the same risk and protective factors associated with serious delinquency for males and females?
2. Does the strength of the association between risk and protective factors and serious delinquency vary by gender?
3. Do males and females report different levels of exposure to risk and protective factors in their families, school, and peer groups, and as individuals?
4. To what extent do gender differences in levels of exposure to risk and protective factors mediate the relationship between gender and serious delinquency?

To our knowledge, only one prior study (Liu & Kaplan, 1999) has addressed the fourth research question. It is important to address this question to determine if gender differences in levels of exposure to risk or protection are of sufficient magnitude to explain the observed differences in levels of serious offending between males and females.

Methods

Participants

Data were obtained from 10th-grade students in 2002 using the Communities That Care Youth Survey (Arthur, Hawkins, Pollard, Catalano, & Baglioni, 2002). The survey was delivered in public schools in 41 communities as part of the Diffusion Project, a descriptive study of the diffusion of science-based prevention programming. Surveys were administered during one classroom period and ensured the anonymity and confidentiality of students' responses. Screening criteria were used to guard against dishonest or biased answers and included student reports of how honest they were in completing the survey, use of a fictitious drug, and inconsistencies in patterns of reported substance use and delinquency. Using these criteria, 5.1% of the students were excluded from the analyses.

Analyses were based on 2002 data from students in 40 communities in seven states.[1] According to the 2000 U.S. Census, communities ranged in size from 1,578 to 106,221 residents, with an average population of 18,275 residents, and an average juvenile (aged 10 to 17) population of 2,126 juveniles per community. Based on school enrollment

[1] Data from 10th graders was available from only 40 of the 41 communities in 2002.

figures, the average participation rate in the survey was 66% across communities. The sample included 3,986 girls and 3,843 boys, with an average age of 15.6 years. About 79.4% of the students described themselves as Caucasian, 8.0% as Hispanic, 4.1% as African American, 2.5% as Asian, 2.2% as Native American, and 3.8% as from another ethnic background.

Measures

Risk and protective factor scales

The Communities That Care Youth Survey measures 30 risk and protective factors and self-reported rates of substance use and delinquency. The survey was developed on a large sample of adolescent, public school students (Arthur et al., 2002). Analyses on an independent sample indicated that, with minor modifications, the scales had strong measurement properties and were invariant across ethnicity (African American, Asian American, Latino, Native American, and European American) and sex (Arthur et al., 2002; Glaser, Van Horn, Arthur, Hawkins, & Catalano, 2005), indicating that the survey measures these factors equally well across different racial/ethnic groups and for boys and girls. The development of the survey and the psychometric properties and criterion validity of the scales are reported in detail elsewhere (Arthur et al., 2002; Glaser et al., 2005).

The current analyses are based on 22 risk and protective factor scales measuring family, school, peer, and individual experiences. Each measure is composed of two to eight questions generally answered on a four-point scale, and reliability coefficients ranged from .66 to .91 for this sample. Table 1 lists the number of items, reliability coefficients, and a sample question for each scale; a full list of survey items is available from the last author.

Serious delinquency

Tenth-grade students reported past-year participation in eight indicators of serious delinquency: being arrested, carrying a handgun, taking a handgun to school, attacking someone with the intent to harm them, stealing a motor vehicle, selling illegal drugs, being suspended or expelled from school, and being drunk or high at school. Students reported the number of times in the past year they committed each act, using eight response choices (never, 1–2 times, 3–5 times, 6–9 times, 10–19 times, 20–29 times, 30–39 times, and 40+ times). Because very few respondents indicated 10 or more occurrences, all responses over 9 were recoded to the 6–9 category. Very few girls reported having taken a handgun to school, so this item was recoded as a binary variable for both sexes.

Gender differences in the frequency of offending were evident, with males reporting more delinquency than girls for each of the eight indicators (see Table 2). About twice as many males as females reported engaging in most delinquent acts at least once or twice, although similar numbers reported being drunk or high at school. Overall, the frequencies indicated that there was adequate variation for both females and males on all items to continue the analysis.

Delinquency was then modeled as a latent variable and scaled so that males and females had the same variation, which allowed effect sizes to be compared across groups. Two measurement models were tested. The first postulated one factor, serious delinquency, as the source of all eight indicators; the second postulated two factors, property offenses and violent offenses. The two models were tested using confirmatory factor analyses with males and females combined. Excepting the chi-square statistic, the first model fit the data quite well ($\chi^2 = 662.12$ ($df = 16$), TLI = .984, RMSEA = .071). The second model fit slightly better ($\chi^2 = 572.54$ ($df = 15$), TLI = .986, RMSEA = .068), and the χ^2 difference test was significant, $\chi^2 = 86.40$ ($df = 1$). Though the second model had significantly better fit, the absolute differences in fit were quite small. Further, examinations of the second model parameters showed that the correlation of the two factors was .945, suggesting that they were very highly collinear and did not truly measure different constructs. These results, and the fact that the one-factor model showed no residuals greater than $\pm .20$ and only two greater than $\pm .10$, suggested that a one-factor model of serious delinquency provided an adequate fit to the data.

The last stage of the measurement analysis assessed possible differences between males and females in the delinquency indicators of the one-factor model using multigroup analyses. We first tested for configural invariance (Vandenberg & Lance, 2000) using a model in which the indicators of serious delinquency were the same for males and females, but no other parameters were constrained. This model fit the data reasonably well ($\chi^2 = 521.85$ ($df = 28$), TLI = .985, RMSEA = .067). The second model constrained factor loadings and item thresholds to be equal across groups. This model also fit quite well ($\chi^2 = 402.39$ ($df = 23$), TLI = .986, RMSEA = .065).

Finally, differences between males and females in the structure of delinquency were tested using a MIMIC model (Muthén, 1989) in which delinquency was regressed on sex. Residuals and modification indices suggested possible measurement differences between males and females for three indicators: carrying a gun, being drunk or high at school, and taking a gun to school. Based on a series of models evaluating each of these differences in turn, we selected the model in which measurement differences in the residuals for carrying a gun and being drunk or high at school were allowed. Carrying a gun was an indicator of less severe delinquency

Table 1 Independent variables assessed using the Communities That Care Youth Survey

Protective and risk factor scale	Number of items (reliability)	Sample item
Family		
Prosocial opportunities	3 (.78)	My parents give me lots of chances to do fun things with them
Attachment to mom	3 (.88)	Do you feel very close to your mother?
Attachment to dad	3 (.91)	Do you share your thoughts and feelings with your father?
Rewards for behavior	2 (.88)	My parents notice when I am doing a good job and let me know about it
Family conflict	3 (.76)	People in my family have serious arguments
Pro-delinquency	3 (.78)	How wrong do your parents feel it would be for you to: pick a fight with someone?
Pro-substance use	3 (.82)	How wrong do your parents feel it would be for you to: smoke marijuana?
Family management	8 (.82)	The rules in my family are clear
School		
Prosocial opportunities	5 (.68)	In my school, students have lots of chances to help decide things like class activities and rules
Rewards for behavior	4 (.72)	My teachers notice when I am doing a good job and let me know about it
Academic failure	2 (.74)	Putting them all together, what were your grades like last year?
Low commitment	7 (.81)	How often do you feel that the school work you are assigned is meaningful and important?
Individual/peer		
Moral beliefs	4 (.70)	I think sometimes it's okay to cheat at school
Social skills	4 (.66)	You are at a party at someone's house, and one of your friends offers you a drink containing alcohol. What would you say or do?
Pro-delinquency	5 (.82)	How wrong do you think it is for someone your age to: attack someone with the idea of seriously hurting them?
Pro-substance use	4 (.86)	How wrong do you think it is for someone your age to: smoke cigarettes?
Drug use not risky	4 (.78)	How much do you think people risk harming themselves (physically or in other ways) if they: try marijuana once or twice?
Rebelliousness	3 (.74)	I ignore rules that get in my way
Sensation seeking	3 (.83)	How many times have you done the following things: done what feels good no matter what?
Peer drug use	4 (.84)	Think of your four best friends (the friends you feel closest to). In the past year, how many of your best friends have: tried beer, wine or hard liquor when their parents didn't know about it?
Peer delinquency	6 (.85)	Think of your four best friends (the friends you feel closest to). In the past year, how many of your best friends have: stolen or tried to steal a motor vehicle such as a car or motorcycle?
Rewards for delinquency	4 (.78)	What are the chances you would be seen as cool if you: began drinking alcoholic beverages regularly, that is, at least once or twice a month?

Note. Risk factors are presented in *italics*; protective factors are not.

Table 2 Percent of females and males reporting serious delinquent acts

	Females ($N = 3986$)				Males ($N = 3843$)			
Item	Never	1–2 times	3–5 times	6+ times	Never	1–2 times	3–5 times	6+ times
Prior arrest	93.7%	4.8%	0.7%	0.9%	87.6%	7.0%	1.6%	3.9%
Carry a gun	98.3	0.8	0.3	0.6	89.6	3.3	1.5	5.6
Take a gun to school	99.2	0.8	*	*	95.1	4.9	*	*
Attack someone	88.8	7.4	1.4	2.5	78.8	11.5	2.8	6.9
Car theft	96.2	2.2	0.6	0.9	91.6	3.4	0.9	4.1
Sell drugs	94.1	2.4	1.4	2.1	83.9	4.7	2.8	8.5
Suspension	93.1	5.8	0.6	0.5	84.2	9.7	2.5	3.6
Drunk/high at school	80.3	8.3	2.9	8.5	74.1	8.2	3.7	14.0

Note. "Taking a gun to school" was recoded into a binary variable because of the very small numbers of females reporting this act.

for males compared to females, and being drunk or high at school was an indicator of less severe delinquency for females. We utilized this model for all subsequent analyses.

Analyses

The four research questions were answered using two statistical models run separately for each of the 22 risk and protective factors. All analyses were run in Mplus version 3.1 (Muthén & Muthén, 2004) using polychoric correlations for all ordinal variables and Full Information Maximum Likelihood estimation to address missing data (Graham, Cumsille, & Elek-Fisk, 2003; Wothke, 2000). Although this study used a nested design (sampling individuals from within communities), analyses did not account for the nesting because all of the variables were individual-level variables, and the community-level intra class correlation coefficients (ICCs) for the predictors and outcome were all under .07 (Hawkins, 2004). The effect of clustering on individual-level relationships with ICCs under .10 is typically quite small and expected to have little impact on either parameter estimates or standard errors (Muthén, 1994).

Gender differences in the relationships between risk and protective factors and serious delinquency were tested using multigroup structural equation models. As indicated in Fig. 1 by lower case letters, most measurement errors, all factor

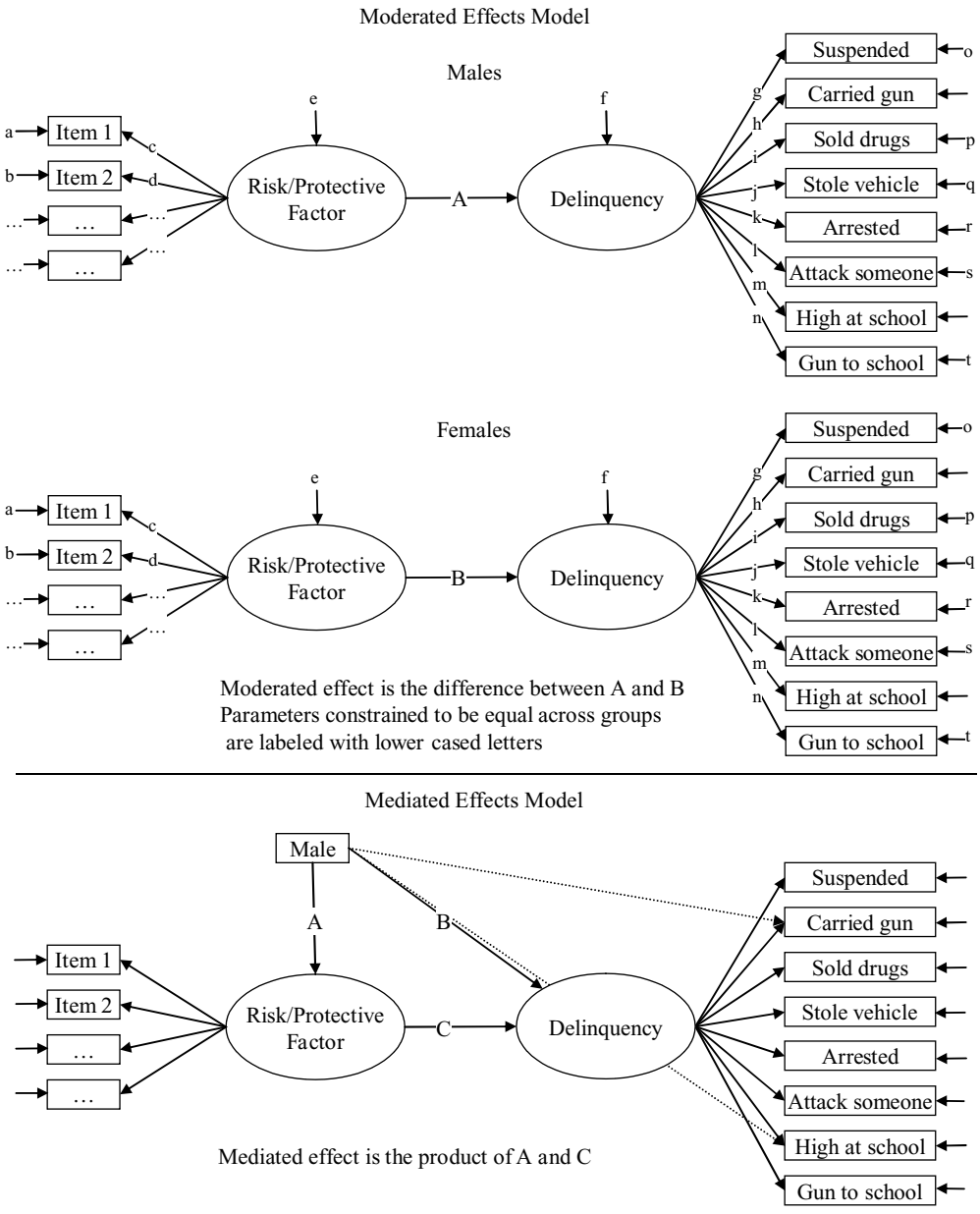

Fig. 1 Mediated and moderated effects models

loadings, and all factor variances were constrained to be the same in each group for all models. The first research question, whether each risk or protective factor was related to delinquency for males and females, was assessed by testing whether paths A and B in Fig. 1 were significantly different from zero. Gender differences in the strength of association between risk and protective factors and serious delinquency (Research Question 2) were assessed by computing the chi-square difference between the constrained and unconstrained model. The former held constant the effect of each risk or protective factor on delinquency (paths A and B), while the latter allowed the effect to vary between males and females. We then compared the critical value of the chi-square distribution with one degree of freedom. The correlation and R-squared value for all relationships was computed to allow assessment of the magnitude of any differences found. These measures of effect sizes came from the unconstrained models. Standardized parameter estimates were reported using a common measure of variance for the two groups so that the differences in magnitude between groups could be compared.

The third and fourth research questions were answered by a mediation model with the MIMIC specification. Gender differences in exposure to risk and protective factors (Research Question 3) were assessed as the direct effect of gender on each factor (path A in Fig. 1). The direct effect of gender on delinquency net of any differences due to the level of exposure to the risk or protective factors was also included in the model (path B). The fourth research question, whether risk and protective factors mediated the relationship between gender and serious delinquency, was assessed as the indirect effect of gender on delinquency operating through the factor, estimated as the product of path A and path C. The standard error of the effect was obtained using the delta estimator in Mplus.

Results

The results in Table 3 indicate that all of the 22 factors examined were significantly related to serious delinquency for both genders. For girls and boys, all of the protective factors were associated with lesser involvement in serious offending, while all of the risk factors were associated with increased serious delinquency. For both genders, the largest relationships were found for individual and peer factors. In

Table 3 The relationship between risk and protective factors and serious delinquency, by sex

Protective and *risk* factor	Females				Males				Sex difference
	Beta	SE	*r*	R^2	Beta	SE	*r*	R^2	x^2
Family									
Prosocial opportunities	**−0.354**	(.033)	−0.316	0.100	**−0.372**	(.033)	−0.331	0.110	0.20
Attachment to mom	**−0.086**	(.010)	−0.249	0.062	**−0.111**	(.010)	−0.316	0.100	4.58
Attachment to dad	**−0.118**	(.016)	−0.183	0.033	**−0.184**	(.017)	−0.280	0.078	**9.39**
Rewards for behavior	**−0.145**	(.027)	−0.280	0.078	**−0.153**	(.027)	−0.295	0.087	0.20
Family conflict	**0.195**	(.020)	0.302	0.091	**0.216**	(.019)	0.330	0.109	0.75
Pro-delinquency	**0.257**	(.022)	0.486	0.236	**0.456**	(.031)	0.702	0.493	**49.42**
Pro-substance use	**0.353**	(.026)	0.501	0.251	**0.606**	(.035)	0.705	0.497	**50.37**
Family management	**0.503**	(.039)	0.393	0.154	**0.542**	(.038)	0.418	0.175	0.65
School									
Prosocial opportunities	**−0.582**	(.056)	−0.329	0.108	**−0.798**	(.062)	−0.431	0.186	**8.52**
Rewards for behavior	**−0.277**	(.027)	−0.283	0.080	**−0.349**	(.027)	−0.348	0.121	4.31
Academic failure	**0.172**	(.040)	0.415	0.172	**0.193**	(.045)	0.457	0.209	2.30
Low commitment	**0.418**	(.030)	0.395	0.156	**0.487**	(.033)	0.447	0.200	3.29
Individual/peer									
Moral beliefs	**−0.534**	(.034)	−0.601	0.361	**−0.657**	(.037)	−0.680	0.462	**10.08**
Social skills	**−0.769**	(.047)	−0.688	0.473	**−1.127**	(.063)	−0.811	0.658	**32.11**
Pro-delinquency	**0.456**	(.031)	0.591	0.349	**0.612**	(.034)	0.701	0.491	**21.31**
Pro-substance use	**0.356**	(.021)	0.576	0.332	**0.459**	(.024)	0.673	0.453	**16.65**
Drug use not risky	**0.381**	(.026)	0.500	0.250	**0.386**	(.025)	0.504	0.254	0.03
Rebelliousness	**0.686**	(.041)	0.555	0.308	**0.825**	(.046)	0.626	0.392	**7.49**
Sensation seeking	**0.536**	(.033)	0.499	0.249	**0.518**	(.031)	0.486	0.236	0.22
Peer drug use	**0.385**	(.023)	0.583	0.340	**0.481**	(.025)	0.667	0.445	**12.29**
Peer delinquency	**0.659**	(.039)	0.744	0.554	**0.907**	(.045)	0.838	0.702	**24.01**
Rewards for delinquency	**0.335**	(.030)	0.343	0.118	**0.684**	(.039)	0.598	0.358	**65.92**

Note. Risk factors are presented in *italics*; protective factors are not. Parameters in **BOLD** are significant at $p < .01$.

particular, social skills were strongly related to less delinquency, while rebelliousness, sensation seeking, and having delinquent peers were all associated with higher levels of serious delinquency. In other domains, poor family management and having opportunities for prosocial involvement at school were also strongly related (the first positively, and the second negatively) to serious delinquency for girls and boys.

The second research question examined whether or not differential involvement in offending for boys and girls could be explained by differential strength in the relationship of risk and protective factors with serious delinquency. Based on chi-square difference tests, the relationships were stronger for males than females for 12 of the 22 variables examined (see the last column of Table 3). No significant gender differences in the strength of the relationships were found for 10 of the 22 associations, and there was no case in which the associations between a risk or protective factor and delinquency was stronger for females than for males.

When gender differences were evidenced, risk factors had a stronger *positive* association with serious delinquency for males compared to females, while protective factors had a stronger *negative* relationship with delinquency. For example, favorable attitudes toward delinquency or drug use were more strongly related to increased delinquency for young men compared to women, while having good social skills had a greater protective effect against delinquency for males. The size of the gender differences was not meaningfully large in most cases, however. The chi-square values and differences in variance explained (R^2) indicated that the largest gender differences were observed between serious delinquency and parental attitudes favorable to delinquency and drugs, social skills, and peer rewards for delinquency (see Table 3).

The third research question explored another possible source of the gender disparity in serious delinquency—differential levels of exposure to risk and protective factors. The first column of Table 4 identifies differences between males and females in mean levels of exposure to the factors; the beta weight is the extent to which the mean for males deviates from that of females. For 18 of the 22 factors, boys reported significantly higher levels of exposure to risk factors and significantly lower levels of protection than did girls. In the school domain, for example, boys reported greater academic failure, lower commitment to school, and fewer opportunities and rewards for prosocial involvement than did girls. For the remaining four cases, males reported significantly greater levels of attachment to fathers and significantly lower levels of family conflict than did girls. No significant level differences were found for exposure to peer drug use or peer rewards for delinquency. When gender differences were found, the effect sizes were generally modest, with the largest differences for individual factors such as belief in the moral order, favorable attitudes regarding delinquency, and high sensation seeking.

As shown in the second column of Table 4, all of the risk and protective factors were significantly related to serious delinquency in the expected directions. The indirect effect of gender on delinquency (Research Question 4) is shown in the third column as the product of the regression weights in the first and second columns. In 20 of 22 cases, gender differences in levels of exposure to risk and protective factors were related to gender differences in self-reported offending. For 18 factors, higher levels of risk and lower levels of protection reported by males were associated with higher levels of serious delinquency among males compared with females. In the other two cases (attachment to fathers and family conflict), greater protection and less risk reported by males led to less involvement in delinquency for boys compared to girls.

Though statistically significant, effect sizes were generally modest, indicating that gender differences in levels of exposure to all of these factors accounted for moderate differences between males and females in levels of delinquency. For example, the effect size for belief in the moral order (.315) indicated that males were .315 standard deviations higher than females in delinquency due to experiencing lower levels of this protective factor. In all cases, the relationship between gender and serious delinquency was only partially mediated by gender differences in levels of exposure to risk and protection. As shown in the last column of Table 4, gender was significantly, directly related to serious delinquency, with males more likely to report offending, even con trolling for gender differences in levels of exposure to risk and protection.

Discussion

Based on self-reported information from nearly 8,000 10th-grade students, this study found that males were nearly twice as likely as females to engage in serious delinquent activities. Analyses examined whether or not this gender gap in offending was explained by differences in the etiology of offending for males and females (i.e., differences in the relationships between risk and protective factors and serious delinquency) or differences in the levels of risk and protection exposure across gender. For 12 of the 22 assessed factors, the strength of the relationship between the risk or protective factor and serious delinquency was stronger for boys than girls. In addition, males were more likely than females to experience higher levels of risk and lower levels of protection for 18 of the 22 factors. These differences in exposure partially mediated the relationship between gender and serious delinquency, as the greater risk and lower protection was associated with greater involvement in self-reported serious delinquency for males compared to females.

No gender differences in levels of exposure were found for exposure to peer drug use and peer rewards for delinquency. In two other cases, girls reported either higher risk

Table 4 Mediating effects of risk and protective factors on the relationship between sex and serious delinquency

Protective and *risk* factor	Effect of sex on R&P			Effect of R&P on delinquency			Indirect effect of sex on delinquency			Effect of sex (male) on delinquency		
	Beta	SE	ES	Beta	SE	ES	Beta	SE	ES	Beta	SE	ES
Family												
Prosocial opportunities	**−0.045**	0.020	−0.062	**−0.341**	0.020	−0.313	**0.015**	0.007	0.020	**0.429**	0.026	0.542
Attachment to mom	**−0.226**	0.025	−0.237	**−0.235**	0.014	−0.283	**0.053**	0.007	0.067	**0.391**	0.026	0.494
Attachment to dad	**0.115**	0.022	0.131	**−0.211**	0.015	−0.233	**−0.024**	0.005	−0.031	**0.469**	0.026	0.592
Rewards for behavior	**−0.055**	0.024	−0.060	**−0.242**	0.016	−0.281	**0.013**	0.006	0.017	**0.432**	0.026	0.545
Family conflict	**−0.150**	0.024	−0.171	**0.277**	0.015	0.308	**−0.042**	0.007	−0.053	**0.484**	0.026	0.613
Pro-delinquency	**0.325**	0.027	0.362	**0.531**	0.017	0.608	**0.173**	0.016	0.220	**0.268**	0.025	0.341
Pro-substance use	**0.143**	0.025	0.172	**0.571**	0.017	0.599	**0.081**	0.014	0.103	**0.363**	0.025	0.459
Family management	**0.198**	0.017	0.290	**0.459**	0.020	0.397	**0.091**	0.009	0.115	**0.354**	0.026	0.448
School												
Prosocial opportunities	**−0.110**	0.015	−0.198	**−0.536**	0.028	−0.373	**0.059**	0.008	0.074	**0.388**	0.026	0.488
Rewards for behavior	**−0.110**	0.020	−0.144	**−0.318**	0.017	−0.308	**0.035**	0.006	0.045	**0.408**	0.026	0.518
Academic failure	**0.273**	0.025	0.285	**0.361**	0.017	0.427	**0.099**	0.010	0.122	**0.356**	0.026	0.439
Low commitment	**0.193**	0.019	0.260	**0.432**	0.017	0.407	**0.083**	0.009	0.106	**0.359**	0.025	0.457
Individual/peer												
Moral beliefs	**−0.403**	0.021	−0.497	**−0.616**	0.017	−0.635	**0.249**	0.014	0.315	**0.193**	0.024	0.245
Social skills	**−0.240**	0.020	−0.344	**−0.806**	0.024	−0.713	**0.193**	0.017	0.245	**0.247**	0.025	0.314
Pro-delinquency	**0.357**	0.022	0.438	**0.614**	0.016	0.645	**0.219**	0.015	0.283	**0.216**	0.023	0.279
Pro-substance use	**0.131**	0.022	0.150	**0.547**	0.014	0.610	**0.072**	0.012	0.092	**0.364**	0.023	0.465
Drug use not risky	**0.263**	0.021	0.309	**0.452**	0.016	0.487	**0.119**	0.011	0.150	**0.324**	0.025	0.409
Rebelliousness	**0.144**	0.018	0.212	**0.666**	0.019	0.574	**0.096**	0.012	0.122	**0.347**	0.024	0.438
Sensation seeking	**0.377**	0.018	0.497	**0.494**	0.017	0.484	**0.187**	0.011	0.241	**0.248**	0.025	0.320
Peer drug use	0.030	0.021	0.034	**0.558**	0.014	0.606	0.017	0.012	0.021	**0.425**	0.024	0.535
Peer delinquency	**0.298**	0.022	0.379	**0.788**	0.017	0.771	**0.235**	0.018	0.292	**0.217**	0.022	0.270
Rewards for delinquency	−0.009	0.019	−0.013	**0.512**	0.017	0.479	−0.005	0.010	−0.006	**0.441**	0.025	0.567

Note. Risk factors are presented in *italics*; protective factors are not. Parameters in **BOLD** are significant at $p < .01$.

(family conflict) or lower protection (attachment to father). Family conflict measured respondents' reports of frequent arguments and family communication problems, and it may be that females are more sensitive to these issues than are boys, and/or that they spend more time at home than boys at this age and are more likely to be exposed to family conflict. Strong attachment represented students who felt close to parents and shared their thoughts and feelings with them. Given the respondents' age (15 to 16 years), it is not surprising that girls reported being closer to their mothers and boys reported being closer to their fathers on the attachment scales.

Overall, the results suggest that boys' greater involvement in serious delinquency is due to the combination of their higher exposure to risk and lower exposure to protection, and to the stronger association between some of these factors and delinquency among boys. The results are similar to those in the Dunedin, New Zealand birth cohort study (Moffitt et al., 2001) and the Arizona Sibling Study (Rowe et al., 1995). These studies found relatively few gender differences in the strength of the relationships between risk and protective factors and delinquency, and somewhat larger differences in levels of exposure, with boys indicating more risk and less protection. The present study expands upon prior work by including additional measures of empirically-derived risk and protective factors, and by using a larger, more diverse sample, thereby increasing confidence in the generalizability of the results.

Though the current findings suggest some gender differences in both the etiology of offending and the levels of risk and protection experienced by adolescents, such effects should not be overstated. Importantly, all of the risk and protective factors measured were significantly related to serious delinquency for both boys and girls. In about half the cases, no significant gender differences in the magnitude of these relationships were demonstrated, which is notable given that the large sample increased the ability to detect significant differences. When gender differences were found, the effects were generally modest. Overall, the results demonstrate much gender similarity in the ways in which predictors of serious delinquency operate, which is consistent with findings from prevention science (Hawkins et al., 1998).

It is also possible that the current study underestimated gender differences, as we were unable to measure some factors hypothesized to be more strongly related to female than male offending. For example, victimization and low socioeconomic status were not examined, though each has been posited as an important predictor of female crime (Arnold, 1990; Belknap, 2001; Chesney-Lind, 1997; Fagan, 2001; Richie, 1996). It may also be that males and females differentially experience or react to the same risk and protective factors (Cernkovich & Giordano, 1987; Daly & Chesney-Lind, 1988; Miller & White, 2003), but the survey data could not measure these potential qualitative differences.

We acknowledge that the study's reliance on cross-sectional data limits causal inferences. Without longitudinal data, we cannot determine temporal ordering of the variables, nor assess gender differences in individual pathways to serious offending. In addition, the relationships between indicators and the dependent variable were examined independently of one another. We felt this was an important first step, given that few studies have explored potential gender differences for a large, empirically-derived array of factors. Nonetheless, further work is needed to analyze the combined effects of risk and protective factors on serious delinquency, as well as the combined effect of both exposure to and influence of risk and protective factors. Additional studies are also needed to determine if these findings generalize to other age groups.

The findings have several implications for the prevention of serious delinquency. Given that both girls and boys reported engaging in serious delinquent acts with some frequency, that the 22 examined risk and protective factors were significantly related to serious delinquency for both genders, and that these predictors often operated in similar ways for boys and girls, it is important that both groups receive prevention services. That is, the data support the use of prevention programs that reduce risk, enhance protection, and lessen the likelihood of serious delinquency for both females and males.

While implementation of prevention programs should help prevent the development of criminal careers for both boys and girls, the results also suggest that such programs may have differential effectiveness by gender. Given that boys generally reported higher levels of risk and lower levels of protection compared to girls, and that about half the factors were more strongly related to serious delinquency for males, it is possible that boys would experience greater reductions in delinquent behaviors as a result of participation in prevention programs. Conversely, it is also plausible that the predictors of delinquency will be more difficult to change for boys compared to girls. Thus, it is important that program evaluations explore potential gender differences in program participation, responsiveness, and effects for males and females.

Acknowledgements This work was supported by research grants from the National Institute on Drug Abuse (R01 DA10768-01A1), and (R01 DA015183-01A1) with co-funding from the National Cancer Institute, the National Institute on Child Health and Development, the National Institute on Mental Health, and the Center for Substance Abuse Prevention.

An earlier version of this paper was presented at the 2004 Annual Meeting of the American Society of Criminology in Nashville, TN.

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