

Risk and Protective Factors for Adolescent Delinquency*

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Abstract : The purpose of this study was to investigate the association of protective and risk factors with adolescent delinquency. Using nationally representative data from the National Longitudinal Study of Adolescent Health (Add Health) project, the delinquency level and the influence of individual characteristics, dyadic relationships in the family, school and peer variables on adolescent delinquency were examined by gender. Boys and girls differed in delinquency level with boys showing significantly higher delinquency than girls. The relative influence of protective and risk factors in individual, familial, peer, and school contexts differed by gender as well. More diverse variables influenced the delinquency level of girls than that of boys.

Key Words : Adolescent, delinquency, risk factors, protective factors, gender differences

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I. INTRODUCTION

The term “delinquency” refers to a vast array of illegal activities including violence, theft, and drug-related offenses (Siegel & Senna, 1988). Accordingly, adolescent delinquency can refer to a single act of shoplifting or chronic and serious offenses that youth commit. This definition is similar to that of ‘juvenile delinquency’, which is legally defined as ‘an act committed by a minor (an individual who falls under a statutory age limit, in most states either 17 or 18) who violates the penal code of government with authority over the area in which the act occurred’.

In the U.S. the number of delinquent adolescents has increased for the past 10 years; in fact, over 1.5 million adolescents have been annually convicted in juvenile courts since 1990 (Snyder, Finnegan, Kang, Poole, Stahl, & Wan, 2001). In addition to the quantitative significance in society, adolescent delinquency is harmful to the adolescents themselves. A legal offense record can affect the adolescent socially and professionally. Also, adolescents’ delinquent behavior tends to stabilize and recur. In other words, those who commit delinquent behavior at an early age tend to do so again at a later age (Leblanc, 1993; Snyder & Sickmund, 1999). It is, therefore, important to investigate risk and protective factors for adolescent delinquency to develop prevention and intervention strategies in academic, familial, and policy settings.

Many cross-sectional and longitudinal studies of adolescent delinquency indicate that various contextual factors from the individual level to the larger socio-cultural level influence adolescent delinquency. However, the findings from adolescent delinquency research have been limited in a few ways. First, as Barnes and Farrell (1995) have pointed out, few studies have used nationally representative samples; thus, their findings lack generality. Second, although systemic and multi-dimensional approach is essential in adolescent delinquency, studies that have examined the factors associated with adolescent delinquency (Garner & Stein, 1998; Jessor, Bos, Vanderryn, Costa, & Turbin, 1995; Rowe & Flannery, 1994) have included only a few domains of risk and protective factors.

Guided by a systems approach to adolescent delinquency (Bartol & Bartol, 1989), this study, using a nationally representative sample in the U.S., examined the protective and risk

factors in individual, familial, peer, and school contexts on adolescent delinquency. The first purpose of this study was to examine adolescent delinquency levels by gender. The second purpose of this study was to simultaneously identify risk and protective factors in association with adolescents' delinquency level while giving consideration to individual characteristics, familial characteristics, and extra-familial characteristics. The findings of this study will help understand U.S. adolescents' delinquency and can provide basic information and guidelines for studies on Korean adolescents' delinquency.

II. RISK AND PROTECTIVE FACTORS ASSOCIATED WITH ADOLESCENT DELINQUENCY

Rutter (1987) has suggested that protective factors and risk factors should be treated as conceptually distinct rather than as opposite ends of a single dimension, and that this view is now predominant in adolescent delinquency research (Jessor *et al.*, 1995). Accordingly, protective factors can be conceptualized as decreasing the likelihood of engaging in delinquent behavior through direct personal controls against its occurrence (e.g., self-esteem and thoughtful decision making), through close relationship with parents, and through successful school adaptation. In contrast, risk factors are conceptualized as increasing the likelihood of engaging in delinquent behavior, through direct instigation of problem behaviors (risk behavior), through overwhelming involvement with peers, and through failed school adaptation.

In a systems approach, various traits and characteristics of adolescents' individual and larger environments are examined (Bartol & Bartol, 1989). Studies of adolescent delinquency that make use of a systems approach mostly agree on risk and protective factors for adolescent delinquency. First, at the individual level, most results consistently find that individual traits such as poor self-esteem and emotional distress are key factors predicting adolescent delinquency (Jessor *et al.*, 1995; Lau & Chan, 1997; Levy, 1997). Additionally, risk taking behaviors, such as drinking, smoking, and drug use, are known to increase the likelihood of engaging in more serious delinquent behavior (Garnier & Stein, 1998).

At the familial level, the parent-child relationship in terms of adolescent-parent bonding (Pederson, 1994), parental support and control (Barnes & Farrel, 1995), mother-child attachment (Garnier & Stein, 1998), and maternal and parental affection (Rowe & Flannery, 1994) is reported to be a protective factor against adolescent delinquent behaviors.

At the extra-familial level, too much involvement in peer relationships (Bendor & Losel, 1997; Jessor *et al.*, 1995; Rowe & Flannery, 1994; Kupersmidt & Coie, 1990) and school failure (Garnier & Stein, 1998; Kasen, Cohen, & Brook, 1998) are considered risk factors for adolescent behavior, whereas school adjustment (Kupersmidt & Coie, 1990) is considered a protective factor.

Regarding the relative relationship of these different domains with adolescent delinquency, however, the results are less consistent. Some studies emphasize familial context (Mac, 1996; Lau & Chan, 1997; Leblanc *et. al.*, 1998; Pedersen, 1994; Warr, 1993), suggesting the direct influence of parental support or control. Another avenue of studies has found that peer orientation and peer relationships have a stronger association with delinquent behavior and mediate the impact of familial variables (Aseltine, 1995; Cashwell & Vacc, 1996; Kupersmidt, 1990; Rowe & Flannery, 1994).

The importance of familial context, especially of parental influence, is supported by several studies. In a study using data from the National Youth Survey (Warr, 1993), the amount of time adolescents spent with their families significantly reduced negative peer influence. Also, in a study of 103 delinquent adolescents and a matched non-delinquent control group, parental involvement was one of the main differences between the two groups (Mak, 1996). Significantly, non-delinquent adolescents perceived their parents as overprotective. Moreover, the perceptions of both mothers and fathers significantly predicted male and female delinquency status. Using a nationally representative sample of 669 adolescents and their families, Barnes and Farrell (1992) studied the effects of parenting practices on the development of adolescent drinking, delinquency, and other problem behaviors. The findings confirmed that parental support and monitoring were important predictors of adolescent outcomes even after accounting for critical demographic and other familial factors.

In another line of research, however, peer and school contexts are more emphasized. For instance, Rowe and Flannery (1994) found that peer relationship was a key factor in

explaining adolescent delinquency. In a study examining the influence of parents and peers on adolescent delinquency, Aseltine (1995) showed that parental supervision and attachment were weakly related to subsequent delinquency and that peers were indeed the primary influence on adolescents' risk behavior. Cashwell and Vacc (1996) also stated that, rather than parental behavior, family cohesion was the salient issue in adolescent delinquent behavior, particularly mediated by involvement with peers. These results emphasize the importance of peer influence on adolescent delinquency.

These different results may come from the lack of attention to sampling issues. Few studies have used a nationally representative sample (Barnes & Farrell, 1992; Warr, 1993). Also, the examination of a limited domain of related factors may have caused different results. Therefore, a study using a nationally representative sample and systems approach will contribute to the understanding of risk and protective factors for adolescent delinquency.

III. METHODS

1. Sample

The public use data set of the National Longitudinal Study of Adolescent Health (Add Health) provided the study sample consisting of 2054 adolescents (960 boys and 1093 girls) and their parents. The Add Health project is a study designed to assess the health and health-related behaviors of U.S. adolescents (Bearman, Jones, & Udry, 1997). The guiding purpose of this project was to enable researchers from multiple disciplines to assess a variety of behavioral, relational, and environmental/contextual factors influencing the health status of adolescents across physical and mental domains. A nationally representative sample of high schools and feeder institutions was selected from an original sampling frame consisting of all high schools in the United States. The public use data set from which the current study is based consists of 50% of the core sample from Add Health plus 50% of the over-sampled, well-educated black sample within the original sample set.

The first stage of the Add Health study involved the administration of in-school surveys

to students across a final sample of 134 schools varying in size from less than 100 to over 3000 students. The surveys covered issues relevant to adolescent health, behavioral habits, peer relationships, and the parental/familial environment. The second stage of data collection consisted of an in-home interview of adolescents selected randomly from the original in-school set. Especially sensitive topics were queried via headphones, and participants provided their responses via a laptop computer. This reduced the likelihood of parental or interviewer effects on responses.

A parent of the adolescent (usually the mother) completed a parent questionnaire. Several topics of interest were in these questionnaires, including questions about the parent's perceived relationship with the adolescent. Adolescents in the 6th through the 12th grade and their parents entered in Wave 1 of Add Health were included in the present study.

In terms of the study sample, the average age of the adolescents was 15.9, with a range of 12.4 to 20.0. A majority of the adolescents was either European American (72.6 %) or African American. (14.5 %). The average household size was 4.6. Most of the parents who participated in the research were females (93.2 %), and they were mostly the biological mothers of the adolescents (91.9 %). Because the study required that the adolescents report on their relationship with both father and mother, most of the adolescents lived with both parents. The parents' age ranged from 27 to 77 years and averaged out at 41.6. Around one third (31.1 %) of the parents had completed a college or higher level of education. The mean household income was \$58,710, median household income \$50,000. Mean income per capita was \$14,107, and the median income per capita was \$11,000.

2. Measures

Key variables pertaining to delinquency, individual characteristics, parent-child relationships, and extra-familial characteristics were identified and used to construct scales representing their respective domains. After identifying individual items for each scale, all items were evaluated for directionality. A recoding of values was performed so that all item scores reflected a similar direction.

The dependent variable, *delinquency level*, was measured using 15 items from the home

interview questionnaire that addressed delinquency. These questions asked how frequently the adolescent had engaged in the following activities during the past 12 months: a) painted graffiti or signs on someone else's property or in a public place; b) deliberately damaged property that did not belong to him/her; c) (purposefully) lied to his/her parents or guardians about where s/he had been or whom s/he was with; d) took something from a store without paying for it; e) got into a serious physical fight; f) hurt someone badly enough to need bandages or care from a doctor or nurse; g) ran away from home; h) drove a car without its owner's permission; i) stole something worth more than \$50; j) went into a house or building to steal something; k) used or threatened to use a weapon to get something from someone; l) sold marijuana or other drugs; m) stole something worth less than \$50; n) took part in a fight where a group of his/her friends was against another group; and o) acted loud, rowdy, or unruly in a public place. Each question was answered on a scale ranging from 0 (Never) to 3 (5 times or more). The possible range of the scale was 0 to 45.

Independent variables were created in four categories: control, individual characteristics, parent-child relationships, and extra-familial characteristics. *Control variables* included *income per capita*, age, and *gender* of the adolescents. Income per capita was calculated by dividing the annual family income by the household size.

The *individual characteristics category* was composed of self-esteem, thoughtful decision making, and risk behavior. *Self-esteem*, a protective factor that assesses adolescent's positive self-concept, was measured by nine items from the school survey questionnaire. The questions asked how strongly the adolescent agreed or disagreed with each of the following statements: a) I am well coordinated; b) I have a lot of good qualities; c) I am physically fit; d) I have a lot to be proud of; e) I like myself just the way I am; f) I feel like I am doing everything just right; g) I feel socially accepted; h) I feel loved and wanted; and i) I feel socially accepted. Each item was answered on a scale from 1 (strongly disagree) to 5 (strongly agree), with a possible scale range of 9 to 45.

Thoughtful decision making, a protective factor that assesses the degree to which adolescents make careful and cautious decisions, was measured by four items from the home interview questionnaire. These items were as follows: a) when you have a problem to solve, one of the first things you do is get as many facts about the problem as possible; b)

when you are attempting to find a solution to a problem, you usually try to think of as many different ways to approach the problem as possible; c) when making decisions, you generally use a systematic method for judging and comparing alternatives; and d) after carrying out a solution to a problem, you usually try to analyze what went right and what went wrong. Responses were measured on a scale from 1 (strongly agree) to 5 (strongly disagree), with a possible range from 4 to 20.

Risk behavior, a risk factor that assesses any deviant behavior that can lead to more serious anti-social or problem behavior was measured by eight items from the school survey questionnaire and one item from the home interview questionnaire. Respondents were asked if during the past 12 months they had: a) smoked cigarettes; b) drank beer, wine, or liquor; c) been drunk; d) raced on a bike, on a skateboard or roller blades, or in a boat or car; e) done something dangerous because s/he was dared to; f) ever lied to his/her parents or guardians about anything; g) ever spent the night away from home without permission, h) ever skipped or went to school late without an excuse. The sum of "yes" responses for these questions were used to measure risk behavior. The possible range was from 0 to 8.

The *parent-child relationship category* included the adolescents' reported closeness with mother and father, and the parents' reported closeness with the adolescent as protective factors. *Closeness with mother and father* was separately measured by the adolescents' responses to three items each about the father and mother from the home interview questionnaire. The questions were as follows: a) How close does the adolescent feel to his/her mother/father? b) How much the adolescent thinks s/he cares about him/her? and c) Overall, how much s/he is satisfied with his/her relationship with his/her mother/father? Each item was answered on a scale from 1 (strongly disagree) to 5 (strongly agree), with the possible range of the scale from 3 to 15.

Closeness with adolescent was measured by the parents' answers to five items on the parent survey questionnaire. These questions asked parents how much they agreed or disagreed with the following statements: a) you get along well with the adolescent; b) the adolescent and you make decisions about his/her life together; c) you just do not understand him/her; d) you feel you can really trust him/her; and e) overall, you are satisfied with your relationship with him/her. Each item was answered on a scale from 1 (strongly disagree) to

5 (strongly agree). The negative item was reverse coded to represent the closeness with the adolescent, and the possible range of the scale was 5 to 25.

The *extra-familial characteristics category* included involvement with friends, trouble at school, school adaptation, and school deviance. *Involvement* with friends was considered as a risk factor and measured by 50 items from the in-home interview. Each unit of five items asked which activities the adolescent had shared with his/her friends during the past seven days. They included: a) going to the friend's house; b) meeting the friend after school to hang out or go somewhere; c) spending time during the weekend; d) talking about a problem; and e) talking on the telephone. Adolescents answered these questions with regard to a total of 10 friends: five male friends and five female friends. The numbers of "yes" responses to the questions were summed and divided by the number of the friends about whom the adolescent had provided information. The higher the score, the higher involvement in activities with friends.

Trouble at school, a risk factor that assesses the problems and difficulties the adolescent experiences in school, was measured by four items from the school survey questionnaire. The questions asked how often since the beginning of the school year the adolescent had had trouble a) getting along with teachers; b) paying attention in school; c) getting homework done; and d) getting along with other students. Each item was answered on a scale from 0 (never) to 4 (every day); high scores reflected more trouble at school.

School adaptation, a protective factor that assesses the adolescent's successful adjustment in school life, was measured by six items from the school survey questionnaire. The questions asked how strongly the adolescent agreed or disagreed with each of the following statements: a) I feel close to people at this school; b) I feel like I am part of this school; c) I am happy to be at this school; d) The teachers at this school treat students fairly; and e) I feel safe in my school. Each item was answered on a scale ranging from 1 (strongly disagree) to 5 (strongly agree), with high scores reflecting higher adaptation to school life.

School deviance, a risk factor that assesses the degree adolescent fail to school life and academic achievement, was measured by four items from the in-home interview data. The questions asked whether the adolescent had ever a) skipped school for a full day without an excuse; b) repeated a grade or been held back a grade; c) received an out-of-school

suspension from school; and d) ever been expelled from school. "Yes" responses to the four questions were summed.

3. Analysis

Adolescent delinquency level was tested by gender using an independent sample t-test. Pearson's correlation was calculated to test the multicollinearity between independent variables. All the correlations among dependent variables were moderate. Therefore, all selected independent variables were used in the hierarchical regression analyses. Correlations, means, standard deviations, ranges, and reliability for all study variables are presented in Table 1.

A hierarchical regression model was used to examine the relative association of protective and risk factors with adolescent delinquency. At the first step, income per capita and the adolescent's age were entered to control for a possible confound. Self-esteem, thoughtful decision making, and risk behavior at the individual level were entered at the next step. At the third step, parent-child relationship variables (adolescent reported closeness with mother, adolescent reported closeness with father, parent reported closeness with the adolescent) were entered. Finally, the peer and school-related variables (involvement with friends, trouble at school, school adaptation, and school deviance) were entered. Hierarchical regression was first performed for the pooled sample of boys and girls to examine the overall influences of the protective and risk factors on adolescent delinquency; then it was separately performed for boys and girls to examine gender differences.

IV. RESULTS

1. Delinquency Level

The t-test showed that boys ($M = 4.42$, $N = 960$) scored significantly higher delinquency levels ($t(df = 1771) = 6.18$, $p < .001$) than girls ($M = 3.16$, $N = 1093$). Based on the gender

Table 1. Correlations, Means, Standard Deviations, Ranges, and Reliability for All Study Variables N=2054

| | 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | 11. | 12. | 13. | 14. |
|---|---------|---------|---------|---------|---------|---------|---------|---------|---------|--------|---------|---------|--------|-----|
| 1. Gender | — | | | | | | | | | | | | | |
| 2. Age | -.06** | — | | | | | | | | | | | | |
| 3. Income per capita | .01 | .03 | — | | | | | | | | | | | |
| 4. Self-esteem | -.14*** | -.10*** | .04 | — | | | | | | | | | | |
| 5. Thoughtful decision making | -.04 | .08** | -.03 | .21*** | — | | | | | | | | | |
| 6. Risk behavior | -.12*** | .16*** | .03 | -.07** | -.03 | — | | | | | | | | |
| 7. Closeness with mother | -.06** | -.11*** | .00 | .28*** | .16*** | -.13*** | — | | | | | | | |
| 8. Closeness with father | -.12*** | -.15*** | .02 | .31*** | .15*** | -.12*** | .44*** | — | | | | | | |
| 9. Closeness with adolescent ⁰ | .01 | -.07** | .07** | .17*** | .78*** | -.08*** | .38*** | .21*** | — | | | | | |
| 10. Involvement with friends | .07** | .23*** | .05* | -.01 | .03 | .14*** | -.05* | -.01 | -.10*** | — | | | | |
| 11. Trouble at school | -.12*** | -.09*** | -.04* | -.15*** | -.06** | .06** | -.08*** | -.07** | -.14*** | -.01 | — | | | |
| 12. School adaptation | -.02 | -.13*** | .04 | .58*** | .15*** | -.08** | .21*** | .21 | .15*** | .02 | -.20*** | — | | |
| 13. School deviance | -.18*** | .24*** | -.07*** | -.14*** | .06** | .07** | -.07** | -.17 | -.15*** | .09*** | .10*** | -.17*** | — | |
| 14. Delinquency level | -.14*** | .03 | .01 | -.15*** | -.14*** | .12*** | -.24*** | -.19*** | -.22*** | .17*** | .18*** | -.20*** | .26*** | — |
| Mean | NA | 15.90 | 141107 | 35.1 | 15.2 | 1.2 | 13.7 | 21.2 | 20.4 | 2.2 | 8.1 | 17.9 | 2.08 | 4.1 |
| SD | NA | 1.65 | 20023 | 6.2 | 2.5 | 1.3 | 1.8 | 3.8 | 2.9 | 1.4 | 4.5 | 4.6 | 6.8 | 5.1 |
| Alpha | NA | NA | NA | .87 | .74 | NA | .73 | .88 | .71 | NA | .84 | .79 | NA | .83 |

Note. Parent report. All others are adolescent report. *p < .05 ** p < .01 *** p < .001

difference shown in the t-test, the hierarchical regression was first conducted for the total study sample and then separately conducted for boys and girls.

2. Relative Influences of Protective and Risk Factors on Adolescent Delinquency

Table 2 depicts overall associations of the protective and risk factors with adolescents' delinquency level. The R² significantly increased at each step, producing a final R² of .21 at the last step. For the pooled sample of boys and girls (gender, age, thoughtful decision making, risk behavior, adolescent reported relationship with mother, parent reported relationship with adolescent, involvement with friends, trouble at school, school adaptation, and school deviance) all influenced delinquency level. School deviance was the most strongly associated variable ($\beta = .19$, $p < .001$). The second most important factor was

Table 2. Hierarchical Regression Model on Adolescents' Delinquency Level N=2054

| Variables | Model 1 | | Model 2 | | Model 3 | | Model 4 | |
|---|------------|---------|------------|---------|------------|---------|------------|---------|
| | B (SE B) | β | B (SE B) | β | B (SE B) | β | B (SE B) | β |
| Income per capita | .00(.04) | .01 | .00(.00) | .01 | .00(.00) | .02 | .00(.00) | .02 |
| Age | -1.25(.20) | -.14*** | -1.49(.20) | -.16*** | -1.55(.19) | -.17*** | -1.40(.19) | -.15*** |
| Gender | .08(.06) | .03 | .03(.06) | .01 | -.05(.06) | -.02 | -.19(.06) | -.07** |
| Self-esteem | | | -.11(.02) | -.14*** | -.06(.02) | -.07** | .00(.02) | .00 |
| Thoughtful decision making | | | -.21(.04) | -.11*** | -.16(.04) | -.09*** | -.15(.04) | -.08*** |
| Risk behavior | | | .43(.08) | .11*** | .32(.08) | .08*** | .21(.08) | .05** |
| Closeness with mother | | | | | -.36(.07) | -.13*** | -.40(.06) | -.15*** |
| Closeness with father | | | | | -.10(.03) | -.08** | -.05(.03) | -.04 |
| Closeness with adolescent ¹⁾ | | | | | -.21(.04) | -.13*** | -.15(.04) | -.09*** |
| Involvement with friends | | | | | | | .53(.07) | .16*** |
| Trouble at school | | | | | | | .09(.02) | .09*** |
| School adaptation | | | | | | | -.10(.03) | -.09** |
| School deviance | | | | | | | .20(.02) | .19*** |
| R ² * 100 | 2.0 | | 7.3 | | 12.9 | | 20.5 | |
| ΔR^2 * 100 | 2.0 | | 5.3*** | | 5.6*** | | 7.6*** | |

Note. Parent report. All others are adolescent report. * $p < .05$ ** $p < .01$ *** $p < .001$

involvement with friends ($\beta = .16, p < .001$). Peer and school contextual levels are the two most predictive variables and appear to indicate that peer relations and the larger context influence adolescent delinquency and are risk factors for delinquent behaviors. Gender was the third strongest predictive variable with the same level of association ($\beta = -.15, p < .001$) as adolescent reported closeness with their mothers ($\beta = -.15, p < .001$). The result that the level of delinquency decreases for girls suggests that gender would be a moderating variable for the dynamics of interaction between the contextual variables. Therefore, the significant effect of gender supports the idea that if the same analysis had been done by gender, the influence of the other variables would have been different.

Table 3 describes the associations of the protective and risk factors with boys' delinquency levels. In the hierarchical regression for boys, the R^2 significantly increased at each step, producing a final R^2 of .19 at the last step. The largest increase of R^2 was observed at the last step when peer and school contextual variables were included ($\Delta R^2 = .12, p < .001$). For boys,

Table 3. Hierarchical Regression Model on Delinquency Level for Boys

N=961

| Variables | Model 1 | | Model 2 | | Model 3 | | Model 4 | |
|---|-----------|---------|------------|---------|------------|---------|------------|---------|
| | B (SE B) | β | B (SE B) | β | B (SE B) | β | B (SE B) | β |
| Income per capita | .00 (.00) | .02 | .00 (.00) | .03 | .00 (.00) | .03 | .00 (.00) | .04 |
| Age | .10 (.10) | .03 | .10 (.10) | .03 | .01 (.10) | .003 | -.22 (.10) | -.07* |
| Self-esteem | | | -.10 (.03) | -.08* | -.03 (.03) | -.03 | .01 (.04) | .01 |
| Thoughtful decision making | | | -.25 (.07) | -.12*** | -.20 (.07) | -.10** | -.20 (.06) | -.09** |
| Risk behavior | | | .29 (.14) | .07* | .20 (.14) | .05 | .11 (.13) | .02 |
| Closeness with mother | | | | | -.32 (.13) | -.09* | -.32 (.12) | -.09** |
| Closeness with father | | | | | -.14 (.06) | -.09* | -.10 (.06) | -.06 |
| Closeness with adolescent ¹⁾ | | | | | -.24 (.07) | -.12*** | -.16 (.06) | -.08* |
| Involvement with friends | | | | | | | .70 (.12) | .18*** |
| Trouble at school | | | | | | | .10 (.04) | .08** |
| School adaptation | | | | | | | -.10 (.05) | -.05. |
| School deviance | | | | | | | .31 (.05) | .26*** |
| $R^2 * 100$ | .2 | | 3.4 | | 7.7 | | 19.3 | |
| $\Delta R^2 * 100$ | .2 | | 3.2*** | | 4.4*** | | 11.6*** | |

Note. Parent report. All others are adolescent report. * $p < .05$ ** $p < .01$ *** $p < .001$

the variables that influenced delinquency level were age, thoughtful decision making, adolescent reported closeness with the mother, parent reported closeness with the adolescent, involvement with friends, trouble at school, and school deviance. Risk factors ranked the top two highest associations with delinquency. School deviance had the strongest association with adolescent delinquency ($\beta = .26$, $p < .001$), and involvement with friends was the second strongest factor ($\beta = .18$, $p < .001$). The relationship of protective factors with adolescent delinquency (thoughtful decision making, adolescent reported closeness with mother, parent reported closeness with adolescent) was moderate and similar across variables.

Table 4 shows the associations of the protective and risk factors with girls' delinquency levels. In the hierarchical regression for girls, the R^2 significantly increased at each step, producing a final R^2 of .22 at the last step. In contrast to findings for boys, the largest increase of R^2 was observed at the first step when individual characteristic variables were included ($\Delta R^2 = .10$, $p < .001$). At this step, all the individual characteristic variables (self-esteem,

Table 4. Hierarchical Regression Model on Delinquency Level for Girls N=1093

| Variables | Model 1 | | Model 2 | | Model 3 | | Model 4 | |
|---|------------|---------|------------|---------|------------|---------|------------|---------|
| | B (SE B) | β | B (SE B) | β | B (SE B) | β | B (SE B) | β |
| Income per capita | -.00 (.00) | -.01 | -.00 (.00) | -.01 | .00 (.00) | .01 | .00 (.00) | .01 |
| Age | .06 (.07) | .03 | -.03 (.07) | -.01 | -.11 (.07) | -.05 | -.20 (.07) | -.09** |
| Self-esteem | | | -.15 (.02) | -.21*** | -.09 (.02) | -.12*** | -.02 (.02) | -.03 |
| Thoughtful decision making | | | -.18 (.05) | -.11*** | -.12 (.05) | -.08* | -.10 (.05) | -.06* |
| Risk behavior | | | .54 (.09) | .17*** | .42 (.09) | .13*** | .32 (.09) | .10*** |
| Closeness with mother | | | | | -.38 (.07) | -.18*** | -.42 (.07) | -.20*** |
| Closeness with father | | | | | -.07 (.03) | -.07* | -.03 (.03) | -.03 |
| Closeness with adolescent ¹⁾ | | | | | -.19 (.04) | -.14*** | -.14 (.04) | -.10** |
| Involvement with friends | | | | | | | .38 (.08) | .13*** |
| Trouble at school | | | | | | | .08 (.03) | .09** |
| School adaptation | | | | | | | -.12 (.03) | -.12*** |
| School deviance | | | | | | | .10 (.03) | .11*** |
| $R^2 * 100$ | .1 | | 10.0 | | 17.6 | | 22.3 | |
| $\Delta R^2 * 100$ | .1 | | 9.9*** | | 7.7*** | | 4.7*** | |

Note. Parent report. All others are adolescent report. * $p < .05$ ** $p < .01$ *** $p < .001$

thoughtful decision making, and risk behavior) were significantly associated with girls' delinquency level. The variables that were associated with girls' delinquency levels were different than boys'. In the final regression model, the variables significantly associated with girls' delinquency were age, thoughtful decision making, risk behavior, adolescent reported closeness with mother, parent reported closeness with adolescent, involvement with friends, trouble at school, school adaptation, and school deviance. Overall, girls' delinquency was associated with more variables (9 significant variables) than boys' delinquency (7 significant variables), and more protective factors were associated with girls' delinquency level (5 significant variables) than boys' (4 significant variables).

Unlike boys' delinquency levels, adolescent reported closeness with the mother, a protective factor, has the strongest relationship with girls' delinquency ($\beta = -.20$, $p < .001$). Involvement with friends ($\beta = .13$, $p < .001$) was the next strongest predictor variable for girls. Parent-child relationships in the family as protective factors were related to girls' delinquency level more closely than boys' (adolescent reported closeness with mother, $\beta = -.09$, $p < .01$ for boys, $\beta = -.20$, $p < .001$ for girls; parent reported closeness with adolescent, $\beta = -.08$, $p < .01$ for boys, $\beta = -.10$, $p < .001$ for girls). Peer and school contextual variables had greater influences on boy's delinquency levels (involvement with friends $\beta = .18$, $p < .001$ for boys, $\beta = .13$, $p < .001$ for girls; school deviance, $\beta = .26$, $p < .001$ for boys, $\beta = .11$, $p < .001$ for girls).

V. DISCUSSION

Using a nationally representative sample, this study examined the protective and risk influences of individual, familial, and peer/school contexts on adolescent delinquency by gender. The findings supported gender difference hypotheses. Boys had significantly higher delinquency scores than girls. The relative influences of protective and risk factors in individual, familial, and peer/school context were different by gender as well. More diverse variables influenced girls' delinquency than boys'. Whereas involvement with friends was the most strongly associated variable with boys' delinquency, adolescent reported closeness with mother was the most important variable for girls' delinquency.

The findings of the present study should be interpreted in the context of its limitations. The adolescent sample in the study is not representative of diverse family forms. The adolescents used in the current study are those who live with both parents, and only those adolescents from whom information about their relationships with both father and mother were selected for the hierarchical regression. In addition, missing cases from each variable significantly reduced the final sample size used for the hierarchical regression. In spite of high reliability, the variables constructed for the analyses narrowly represent the theoretical concepts due to the lack of standardized measures in the questionnaire.

Within these limitations, the findings from this investigation highlighted the association of protective and risk factors with adolescents' delinquency level. The findings of the study emphasize that adolescent delinquency can be explained in systems theory and is associated with various domains of adolescents' individual characteristics, parent-child relationships, peer involvement, and school context.

The findings of the present study are mostly consistent with previous studies. First, gender difference in adolescent delinquency is a well known phenomenon (Snyder *et al.*, 2001). However, theoretical explanations about these gender differences have not been sufficient, and several approaches currently coexist (Mears, Ploeger, & Warr, 1998). Future studies will need to specifically focus on gender differences.

In terms of the parent-child relationship, adolescents' relationships with their mothers appeared to serve a more important protective function than did their relationships with their fathers, particularly in delinquency prevention for both boys and girls. This finding is consistent with Pedersen's (1994) findings using Norwegian adolescent samples, in which the father's low care predicted anxiety / depression and mother's low care predicted delinquency.

Unlike previous studies (Jessor *et al.*, 1995; Lau & Chan, 1997; Levy, 1997), however, self-esteem was not a significant predictor for boys and girls in this study. Thoughtful decision making and risk behavior had a stronger association with adolescent delinquency. Considering that adolescents' decision making and risk behavior could be behavioral outcomes (whereas self-esteem is a psychological outcome of adolescents' interaction with family, peer, and school environment, the influence of these systems might be different in psychological and behavioral ways. More investigation is needed to understand the gender

differences in adolescent delinquency and the dynamic process of individual and contextual interactions in the U.S. and Korean adolescents.

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