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An Application of General Strain Theory
to Korean Adolescents: A Test of the Relation between
Negative Stimuli at School and Delinquency

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Jung-Mi Kim

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**An Application of General Strain Theory to Korean Adolescents: A Test of the
Relation between Negative Stimuli at School and Delinquency**

By

Jung-Mi Kim

A THESIS

Submitted to

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ABSTRACT

An Application of General Strain Theory to Korean Adolescents: A Test of the Relation between Negative Stimuli at School and Delinquency

By

Jung-Mi Kim

This study is designed to test theory to explain the phenomenon of delinquency in South Korea. To better understand the causation of delinquency, this study will examine the relationship of students' negative experiences related to school with their delinquent behavior. Based on the general strain theory (GST), this study focuses on the higher-education oriented school culture as a major source of strain on youths in Korean society. Hypotheses will be tested with data collected by the Korean National Institute of Criminology (KIC) from a city-wide sample of adolescents. To collect this data, the KIC conducted a survey of 1919 middle and high school students in 40 classes within 20 schools that were located in the Seoul area.

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To Him

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CHAPTER 1

INTRODUCTION

In the United States, juvenile crime and delinquency has constantly been a public concern, and has received a great deal of research and media attention in recent years. A rising amount of crime and violence in the United States has caught youth in its expanding wake. Youth are intimately acquainted with violence as both perpetrators and victims. Crime statistics show that youth are responsible for approximately 29 percent of all crime (FBI, 1992).

Similarly, in Korea incidents of juvenile crime and delinquency primarily by middle and high school students have become increasingly common, and there have been traumatic impacts on victims (Kim & Kim, 1996). In addition, as juvenile crime and delinquency become more serious, several tragic incidents have happened recently in Korea.

For instances, three students in Seoul were sentenced to up to two years in juvenile jail for burning a classmate with cigarettes and jabbing him with sharp objects. The tormentors said they were just having fun with the victim because he looked "timid" in gym class (Boo & Kim, 2000). More recently in 2000, a 16 years old teenaged boy in Seoul committed suicide. He was one of the academically distinguished students and a famous swimmer in his middle school, but when he moved up to a new high school, he was faced with a problematic situation. Several boys started to bully him, and then they were joined by other classmates. They repeatedly extorted money and forced him to carry their school bags. They told police that they picked on him because of his high grades and his

“excellence” (Han, 2000). Without doubt this is a crime not only against a person, but also a threat overall to youths in Korea.

The Korean Institute for Youth Development found that in the past five years juvenile crime and minor type of delinquency has constantly increased, and more than 60 percent of cases were committed by students (KIYD, 2001). In addition, Korean national police agency statistics show that more than 70 percent of drug offenses were committed by youths (Korean national police agency, 1998).

Although much effort has been invested in keeping youths safe and in explaining delinquency in Korea, the amount of juvenile delinquency is still increasing. The basic question, “why do youths commit delinquent behaviors?” is still under investigation by academics and practitioners alike. However, so far, unfortunately there is a lack of empirical cumulated knowledge on delinquency in Korea. To better understand the causation of delinquency in contemporary Korea, general strain theory, which explains that school related strain could be a major cause of delinquency, will be applied in this study, and a previously collected nation-wide data set will be analyzed to provide evidence of a causal relationship between strain and delinquency. In addition, since there has been a lack of academic research on the problems of youth in Korea, this study will make a contribution to the accumulation of knowledge to further understand possible reasons for Korean youths’ violent and other delinquent behaviors.

CHAPTER 2

LITERATURE REVIEW

I. Delinquent Youths in Korea and Current Circumstances

According to statistics released by the Department of Education in Korea, delinquency, including physical and verbal aggression has increased this year by 17 percent over last year (Korean Times, 2000). In addition, the Seoul Family Court surveyed 2,900 middle and high school students, and the results indicate that 50 percent of the boys and 39 percent of the girls had suffered extortion, beatings, and other form of violence (Kim & Park, 1996). These results show that more youths become exposed to violence as both perpetrators and victims. Additionally, experts say violent victimization goes unreported because students fear retaliation, or believe their parents are either not interested or too busy to care (Kim & Noh, 1996). More than half of the victims reported they never told parents, teachers, or the police about their victimization.

A series of suicides by young students due to delinquency victimization prompted experts to take emergency measures, but no effective remedies are in sight because juvenile delinquency is very deeply rooted and rampant. It is beyond juvenile experts' capability to solve the problem alone, since a solution would require coordinated efforts among schools, parents, and professionals focused on juvenile problems, and government authorities.

However, delinquency is not the only negative feature of school life. As the major factor causing delinquency, Korean experts point out the breakdown in the school function (Han, 2000). Criticisms are that in the Korean school system

rules are too strict, pressure to succeed is enormous, and the emphasis on rote learning for testing is such that schools are commonly referred to as an “exam hell” (Han, 2000).

Most middle and high schools in Korea bring together a large numbers of students. They are concentrated in the same place for a great amount of time a day, and are placed in situations where they compete against each other to achieve their goals; they are compelled by both parents and teachers to aspire to the top ranked university. The university entrance exam, therefore, determines one's future. A fraction of those in the top 1 percentile will go to the top ranked universities, considered the pinnacle of Korea's university hierarchy. Getting into the top ranked schools gives youths the best shot at getting into a top company or ministry. There are always more students applying to the university than there are places available for them. More money, therefore, is spent on private tutoring and exam institutions than on public education. These school conditions could present an aversive situation to some youth who are low in their level of school attachment. The pressure might push some students to feel a great deal of strain, and respond to strain by committing delinquent behavior.

Clearly, the system favors people who are good at rote memorization and exam taking. Although some universities have started to base their admissions partly on abstracts, like volunteer work and extra-curricular activities, instead of just exam results, it has just put an extra burden on the youth -- youths still need to spend many hours a day studying. Moreover, the high cost of tutoring means the system is still not really egalitarian; poorer families just cannot afford to keep

their children in the race.

In this context, the excessive expectations for higher education in Korean society and the inability of educational institutions to deal with the societal and cultural expectations of higher education may have resulted in increasing levels of stress of school life. In other words, high levels of parental pressure, frustration, and strain on youth may produce the competitive setting of the Korean educational system. Under these conditions, youths who perform poorly and those from a low socioeconomic status could marginalize themselves in school, and become more likely to be committed to delinquent behavior than others who are outstanding academically and from the middle class.

In summary, experience of negative stimuli related to school could push some youth towards delinquency, and the excessive pressure to do well on exams and the difficulties that youths may have in school are possible explanations that why some youths exhibit violent and other forms of delinquency. In the next section, a more specific theoretical application of strain theory to this study will be discussed.

II. Theoretical Background

Criminologists and politicians have argued that delinquency could be explained by several factors including the effects of mass media violence, an increase in gangs, the breakdown of the family paradigm, and other possible sources of delinquency. These explanations are reflected in the several dominant theories of delinquency. For example, differential association /social learning

theory, assumes that youths learn to engage in delinquency from others such as the criminal family, delinquent friends, and the violent mass media (Vold, Bernard, & Snipes, 1998). The differential and social learning explanations of delinquency have proved their relevance through a great amount of empirical research. These explanations, however, may not be generalizable to all societies, specifically to Korea, where there is extreme emphasis on the importance of higher education. In contrast, strain theory may apply to Korean society. According to this theory, when people fail to achieve desired goals by legitimate means, they might become upset and some of them might respond with deviant behavior.

1. Overview of Strain Theory

The classical strain theorists argue that delinquency results from inability of individuals to achieve positively valued goals through legitimate channels (Merton, 1938; Cohen, 1955). In the core assumption of strain theory, individuals focus on the achievement of monetary success or on middle-class values. When they are unable to achieve the goals by legitimate means, however, they may turn to illegitimate means in frustration from strain (Cohen, 1955).

The classic strain theory, however, has been criticized for its narrow conceptualization of strain (e.g., Agnew, 1985). While strain theories were criticized as having a limited role in explanations of delinquency, Agnew (1985) developed a revised version of strain theory, which is referred to “general strain theory” (hereafter referred to as GST). While the classical strain theorists argued that individuals try to achieve monetary success or middle-class status, the

general strain theorists argued that youths are not only concerned about the future goals of monetary success or middle-class status, but are also concerned about the achievement of more immediate goals such as good grades, popularity with the opposite sex, and maintaining good peer relationships (Elliot and Voss, 1985).

2. The Basic Idea of GST

The core idea of the GST is that delinquency can occur in response to noxious circumstances and situations as the result of pressure (Agnew, 1985). Instead of the narrow conception of strain of classical theorists mentioned in the previous section, general strain theorists develop and expand the range of situations and circumstances that produce strain. As a result, for instance, Agnew identifies three major types of strain, which were not identified in the traditional strain theory. In particular, strain occurs when (1) others remove positively valued stimuli that youth possess, (2) youths fail to achieve positively valued goals, or (3) juveniles are presented with negatively valued stimuli. The first type of strain is derived from the loss of positive stimuli, including such things as the divorce of parents, or the death of a parent, or loss of a boyfriend or girlfriend. The second type of strain involves individuals' failure to achieve positively valued goals. Next, the presentation of negative stimuli might include various sources of strain, such as an assortment of stressful life events, dissatisfaction with school life, and negative relationships with parents, teachers and others (Agnew, 1992). The above types of strain, according to Agnew (1987), have a cumulative effect on

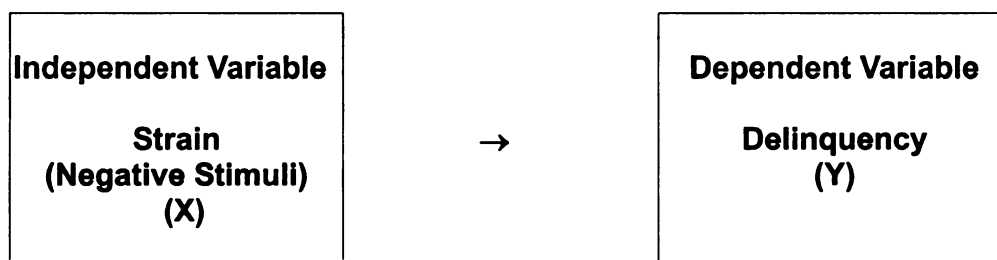
delinquency. However, the third type of strain for which youths feel negative stimuli from the environment would be a primary concern of this study, since it seems especially applicable to the Korean school context.

Agnew (1992) and his colleagues have argued that strain may result from exposure to painful situations in which negative stimuli occurs. Similarly, related psychological research found that exposure to various types of aversive stimuli may lead to aggression (Elliott, 1989). Agnew argued that delinquency is related to such aversive stimuli as unfair or inconsistent discipline, and adverse or negative school experiences (1985). In particular, youths are often placed in aversive situations from which they cannot legally escape. In this circumstance youths may try to escape from the situation. However, effort to avoid sources of negative stimuli may be blocked. This blockage of pain-avoidance behavior frustrates the youths and may lead to illegal attempts to escape such as drug use or anger-based delinquency (Agnew, 1992). Similarly, other proponents of GST argue that individuals who feel more negative stimuli will be strongly motivated to avoid the aversive situation and some of them may respond with deviance (Piquero and Sealock, 2000). Youths who find school aversive, for example, may try to transfer to another school, or they may illegally skip school or engage in delinquent behaviors.

In addition, one of the distinguishing features of youths is that they lack power and are often compelled to remain in situations where they experience aversive stimuli (Agnew, 1992). They are compelled to go to a certain school, to interact with the same group of peers, and live with their family in a certain

neighborhood. If any of these contexts are aversive, there is little the youth can do legally to escape. Most adults, in contrast, have many legal choices of escape available, such as divorce, quitting one's job, or moving to another neighborhood (Agnew, 1992). In this connection, youths located in adverse environments may turn to certain behaviors, such as delinquent behaviors, to alleviate their stress that stems from the aversive environment.

Figure1. Model of This Study



Since this study will focus primarily on school related strain, several variables which measure negative stimuli related to school will be considered. Because of the interest in negative stimuli in the school and also because of limitations of the available data, the full GST model will not be tested. Figure 1 shows the model to be tested in the proposed study. This figure explains that when youths find negative stimuli in the environment where they are located, they may feel strain, which is positively related to delinquency. The theory has suggested that particularly the youths who lack positive help seeking behaviors may turn to delinquency. This study's emphasis on school-related strain seems to be appropriate because of the problems of violence and the societal emphasis on higher education in the Korean schools. Even though this study cannot test the

full model that is suggested by strain theory, it can still make a contribution to theory by showing the strength of the relationship between one type of strain, negative stimuli in Korean schools, and delinquency.

3. School as a major source of Strain (Negative Stimuli)

General strain theory suggests that some individuals are more likely to engage in delinquent activities, both within school and outside of school, because they experience more strain and are more likely to respond to strain with delinquency (Farnworth, & Leiber, 1989). Related studies suggest that individuals are more likely to engage in delinquent activities when they experience the following types of strain: child abuse or neglect, criminal victimization, negative relationships with teachers and peers, and a wide range of stressful life events such as the dissatisfaction with school life, and changing schools (Agnew, 1992).

This study suggests four categories of strain in the school: (1) general dissatisfaction with school, (2) negative teacher relationships, (3) low grades, and (4) negative peer relationships (e.g., Agnew, 1992). In recent research, theorists suggest that individuals who experience these types of strain are more likely to engage in delinquency (e.g., Agnew, 1992).

(1) School Dissatisfaction

Many students experience a general type of strain at school. They find school boring and a “waste of time,” partly because they have trouble understanding what is going on in class and keeping up with school-work (Agnew,

1987). They have little involvement in school activities, and they would rather be elsewhere. In sum, Agnew's research (1987) suggests that youths who are not involved in productive school performance and are generally dissatisfied with school activities may feel stress in their school life, and these negative stimuli may lead some of them to turn to delinquent behavior.

(2) Negative Teacher Relationships

Agnew (1992) suggests that negative relations with teachers are positively related to delinquency. In school settings, teachers could present students with negative stimuli. One study found that delinquency was more likely to occur among students who reported that their teachers often lost their tempers, made negative comments, and talked down to students (Agnew, 1987).

(3) Low Grades

Students might become upset when they receive poor grades, and research suggests that the receipt of poor grades is an important source of strain and delinquency in certain cases (Farnworth et al., 1989). Some criminologists also suggest that the impact of academic stressors is great among students, who have a large gap between educational aspirations and actual achievement (Fitzpatrick, 1999).

(4) Negative peer relationships

Schools, particularly middle schools and high schools, usually bring

together large numbers of students. These students have different interests and personalities, and they do not have much experience coping with difficult situations. Nevertheless, they are concentrated in the same space for several hours a day, and they are often placed in situations where they compete against one another for such things as good grades and status in the adolescent world. It is not surprising that many of students get into conflicts with other classmates; they sometimes treat each other in an extremely competitive manner.

One common example of the negative peer relations in school is “bullying,” which occurs when a person is exposed repeatedly to negative acts (Olweus, 1991). Negative peer relations such as bullying could be a major source of strain, and one of the few studies of this suggests that such problems increase the likelihood of delinquency (Brezina, 1997). In this connection, many of the students who had committed delinquent activity at school were in part motivated by the fact that they had been bullied by others, or had experienced other interpersonal problems with peers. Although the majority of students do not react to peer problems in such an extreme manner, negative peer relationships could be one positive influence on delinquency (Brezina, 1997). Surprisingly, criminologists, however, have not devoted much of their attention to the impact of such problems on delinquency.

4. Other Sources of Strain - Loss of Positively Valued Stimuli and Failure to Achieve Positively Valued Goals

(1) Strain as the loss of positively valued stimuli

As indicated in the previous section, strain occurs when youths lose positively valued stimuli. A psychological literature on aggression and stress suggest that youth who have experienced life events involving the loss of positively valued stimuli were more likely to turn to delinquent behavior.

Numerous examples of such loss can be found in the inventories of stressful life events. For example, one recent study of adolescent stress employed a life events list that focuses on such items as the loss of a boyfriend/girlfriend, moving to a new school district, the divorce or separation of parents, and suspension from school (Williams, & Uchiyama, 1989). In this connection, the actual or anticipated loss of positively valued stimuli may lead to delinquency as the youth tries to prevent the loss of the positive stimuli, retrieve the loss stimuli or obtain substitute stimuli, seek revenge against those responsible for the loss, or manage the negative effect caused by the loss by taking illicit drugs.

Although the primary focus of the proposed study is on negative stimuli in the school, one important measure of loss of positively valued stimuli will be considered. Loss of one parent living in the home (single parent/both parents) will be considered as a control variable so that it is possible to see whether negative stimuli related to school explains more variation in delinquency than it does, and also so that it is possible to see whether the relationship of negative stimuli in the school is spurious due to parental status.

(2) Strain as the Failure to achieve positively valued goals

General strain theorists in criminology argue that adolescent strain results when youths fail to achieve positively valued goals (ideal goals) (Agnew, 1986). The justice literature also suggests that the failure to achieve such expectation may lead to such emotions as anger, dissatisfaction, disappointment, and unhappiness – that is, all the emotions customarily associated with strain (Agnew, 1988). The available data to be used for the present research does not include a complete measure of gaps between goals and achievement of those goals. However, it does include a measure of grades, which could be assumed to indicate some gap between educational aspirations and achievement. However, it is recognized that the absence of a direct measure of aspirations, is a limitation in the proposed research.

III. The Korean Context and Strain Theory

General strain theorists argue that strain occurs when youth experience negative emotions as a result of extreme pressure to achieve positively valued goals (Agnew, 1992). Youth who are pressed to achieve certain goals, but do not have legitimate means, may react to the gap between expectations and achievements with deviant behaviors. As a good example, when there is a gap between parental expectations and actual achievement of youth, this situation might be a source of strain. In this sense, external pressure would refer to pressure caused from others around youths. Similarly, internal pressure refers to pressure that stems from self-expectation about achievement in this proposal.

Obviously, external parental pressure for academic achievement and the internally felt burden of study could be a source of negative stimuli. It is possible that the extreme emphasis on academics that is part of middle and high school culture in Korea is manifested in both very high parental expectations for academic achievement (external pressure) and students' very high expectations for themselves (internal pressure), and that these pressures become major sources of strain in for adolescents in Korean society.

In this section, the historical background for the Korean cultural emphasis on educational achievement will be presented. Then, higher education oriented school culture, as a major source of strain in Korean society, will be addressed.

1. The Emphasis on Higher Education: The Confucianism Explanation

The Korean cultural emphasis on higher education stems from a traditional philosophy based on Confucian values (Lee, 1999). Originating from the teaching of Confucius, Confucianism was introduced from China in the same period as Buddhism, about 1000 years ago during the Three Kingdoms period of Korea. By the time of the Choson Dynasty (1392 – 1910), Confucian thought became the ruling ideology of the nation as well as the heart of the educational system (Lee, 1999) Throughout the time of the Choson Dynasty, Confucianist values were highly developed, and internalized by the people. These ideals, however, have been exaggerated and distorted in contemporary beliefs about higher education.

Confucianist values have a positive influence as the spiritual pillar of the

today's Korean society, but the results of widespread distorted beliefs about education may at the same time have negative results in current Korean society (Lee, 1999). Most upper class (Yang-ban: the highest social class in old Korean society) respected education as a one of greatest Confucianism values, but even they thought education should be limited to the upper class.

On the other hand, people thought that physical activities including labor should be carried out by people in the lower class (Sang-min: the lowest social class in old Korean society) (Lee, 1999). Currently however the belief is that higher education should be the goal of every person, and there is a singular emphasis on all youths preparing themselves for the same top universities.

2. External and Internal Pressure from Parents and Self-Expectation - as Negative Stimuli

In part as a result of Confucian values, contemporary Koreans put great stock in a college education. It is the most important factor in deciding one's career. Another reason for such a focus on education is the devotion of Korean parents to their children. Many parents expect that their children will achieve the success that they dreamed of, but were unable to achieve. When there is a gap between parental expectations and actual achievement of adolescents, this situation might be a source of strain, which leads adolescents to turn to delinquency.

Youths who grow up in the Korean social environment where there is so much emphasis on higher education may themselves place great value on higher

education. In this proposal, internal pressure refers to pressure that is caused by high self-expectations about achievement during middle and high school due to the importance of gaining admission to highly ranked universities or colleges.

3. Parent's socioeconomic status and negative stimuli

As mentioned in a previous section, socioeconomic status of parents could cause negative stimuli to youths in Korean schools. In a Korean study regarding school violence, Kim found that one of major causes of one form of delinquency, bullying among youths, was poverty (Kim et al., 1996). Specifically, the high cost of private tutoring means that poor families cannot afford to give extra tutoring to their children. Youths from poor families, then, may feel they are discriminated by their peer or by teachers because of their parents' low socio-economic status. In addition, since Korean society has been open to the Western culture, one of the dominant ideologies the Korean culture has is capitalism. The basic criticism on the establishment of capitalism in Korea is that contemporary Korean culture places too much emphasis on monetary power of the individual rather than an individual's personality and aptitude (Kim et al., 1996). Consequently, youths who are lower than others in socioeconomic status could be poorly treated and could marginalize themselves in school, and become more likely to be committed to delinquent behavior than others who are from the middle class.

Figure2. Independent and Dependent Variables

Independent Variables	Dependent Variables
<div>Strain -Negative Stimuli</div> <ol style="list-style-type: none"> 1. School dissatisfaction (X_1) 2. Negative teacher relationship (X_2) 3. Grade (X_3) 4. Negative peer relationship (X_4) 5. Internal (X_5) 6. External Pressure (X_6) 7. Parental Socioeconomic status (X_7) 	<div>Delinquency</div> <ul style="list-style-type: none"> - General delinquency - Minor delinquency e.g. smoking, alcohol use, shop lifting etc. - Serious delinquency e.g. drug use, robbery, vandalism, gang activity etc.

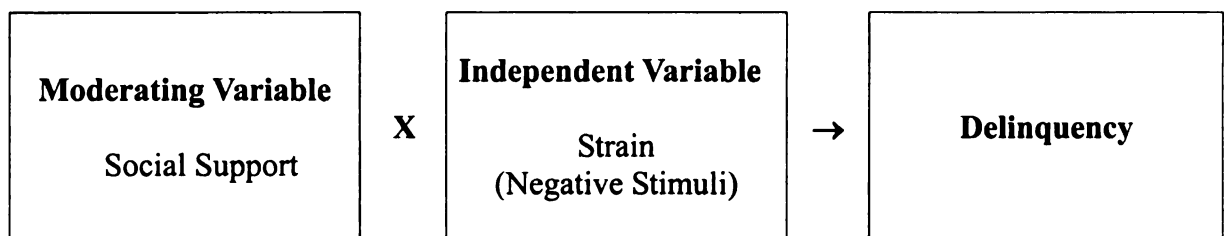
IV. Moderating Variables

Several studies suggest that when they feel strain from various sources, some youths respond with delinquent behavior. The majority of students, however, do not react in such an extreme manner. It is difficult to explain why a few students go to such extremes when nondelinquent responses are also possible. Although there are wide ranges of factors affecting a person's methods for coping with strain and their disposition to delinquency, this study has limitations in of the variables included in the available data set. Thus, level of conventional social support and gender will be employed as moderating variables that might influence the connection of school related strain to delinquency.

1. Social Support: Positive Adaptation to Strain (Seeking Help)

Leone, (2000) and his colleagues suggest that individuals with high level of conventional social support such as strong family bond are more resistant to stress. He also found that social support is significantly related to delinquency because it helps youths to resist strain. Youths with conventional social supports, then, should be better able to respond to objective strains in a nondelinquent manner. GST predicts differential responses to strain for individuals varying in their level of social support regarding deviant behavior. In this view, individuals with strong conventional social support would be less likely to respond to strain with delinquency than individuals with weak social support (Leone, 2000). Figure 3 shows how the moderating variables, social support, would be incorporated into the model for testing GST.

Figure3. Moderating Variables – Help Seeking Behavior

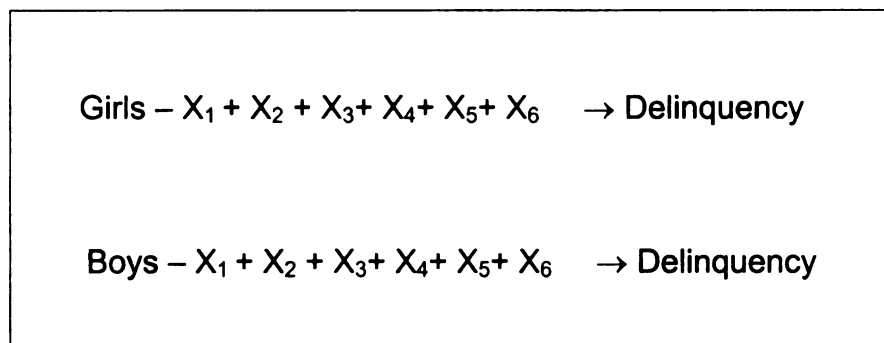


2. Gender Differences in Delinquency

Despite an increase in research on general strain theory, very little empirical analysis has investigated the potential differences between males and females. GST offers a useful framework for assessing similarities and differences in the risks and processes leading males and females to delinquency. GST

related research has shown that there are many differences between males and female on the various coping responses they employ in the face of strain. For example, it is possible that males engage in more delinquency than females because females cope with stress and strain better or differently than males (Mazerolle. 1998). As another example, males may engage in violent delinquent acts at a higher rate because of factors related to gender stereotypes, physical size (Felson, 1996), socialization to social norms, and differences in self-control (Gottfredson and Hirschi, 1990). Looking at the effects of gender on delinquency both directly and through its effect on other independent variables in the model can contribute to the development of theory to explain delinquency. Also, considering gender as a moderating variable, that affects the existence and strength of relationships of independent variables to delinquency can contribute to theory development. Figure 4 shows how gender would be incorporated into the model to compare the effect of various independent variables for girls and for boys.

Figure4. Moderating Variables – Gender Difference



CHAPTER 3

RESEARCH METHODS

I. Data Collection Procedure and Sample

1. Data Collection Procedure

This data were gathered for the research, “A study on violence around the school”, funded by the Korean Institute of Criminology. The survey was conducted from June 12, 1996 to June 28, 1996. The study subjects included 920 middle school students and 999 high school students in Seoul, South Korea.

Specifically, the researchers divided Seoul into 5 areas based on geographical locations (north, south, east, west, and middle). Each area contains 4 or 5 municipal districts. Based on the population of each area, the researchers, then, randomly selected 5 boy’s middle schools, 5 girl’s middle schools, 4 boy’s general high schools, 4 girl’s general high schools, 1 boy’s business high school and 1 girl’s business high school. Finally, the survey was conducted in 40 classes of the 20 schools, that is, in two classes in each of the 20 schools.

2. Sample

The total number of the middle school students was 920 (484 male students and 436 female students) (See Table 1). The total number of general high school students was 794 (387 male students and 407 female students), and the total number of business high school students was 205 (108 male students and 97 female students).

Table 1. Distribution of the subject per types of school

	middle	High school			Total
		general	business	subtotal	
Male	484(25.2)	387(20.2)	108(5.6)	495(25.8)	979(51.0)
female	436(22.7)	407(21.2)	97(5.1)	504(26.3)	940(49.0)
total	920(47.9)	794(79.5)	205(20.5)	999(52.1)	1,919(100)

II. Hypotheses

This study was designed to examine the relationship between an aversive school environment and delinquent behavior. Several hypotheses will be tested.

Hypothesis 1: Dissatisfaction with school life is positively related to delinquent behavior.

Hypothesis 2: Negative relationship with teachers is positively related to delinquent behavior.

Hypothesis 3: Low grades are positively related to delinquent behavior.

Hypothesis 4: Negative relationship with peer is positively related to delinquent behavior.

Hypothesis 5: Internal and external pressures are positively related to delinquent behavior.

Hypothesis 6: Parental socioeconomic class is negatively related to delinquent behavior.

Hypothesis 7: The interaction of conventional social support with indicators of strain (dissatisfaction with school, negative relations with teachers, low grades,

negative relationships with peers, pressure to achieve in school, and parental socio economic status) is related to delinquent behavior.

Hypothesis 8: Gender moderates the relationships of independent variables (dissatisfaction with school, negative relations with teachers, low grades, negative relationships with peers, pressure to achieve in school, and parental socio economic status) to delinquent behavior.

III. Operationalized Variables

1. Independent Variables

The Independent variables in this study are divided into the following seven categories: (1) School dissatisfaction, (2) negative teacher relationships, (3) low grades, (4) negative peer relationships, (5) internal and external pressure to achieve academically, and (6) parental socioeconomic status.

(1) School dissatisfaction

School dissatisfaction (X_1) is the 'Level of interest in school'. In order to measure school dissatisfaction, three items are employed: 1) I am not interested in school life or study in school; 2) I feel alienation from school including teacher and classmates; and 3) I think going school is waste of time. Responses for these variables are: disagree=1, some what disagree=2, neutral =3, mostly agree= 4, agree= 5.

(2) Negative Teacher Relationships

Another independent variable (X_2) is negative relationship with teacher. To measure this variable, the three items are: 1) I have been neglected by teachers because of poor grade, 2) I have been beaten by teachers, 3) I have experienced sexual victimization by a teacher including sexual harassment. Possible responses to items are: never in the past year = 1, one or two times= 2, three or four times= 3, or more than four times= 4.

(3) Low Grades

The measure of grades (X_3) will be agreement with the item, 'I usually receive good grades (above 10%)'. Possible responses are: disagree=1, somewhat disagree=2, neutral =3, mostly agree= 4, agree= 5.

(4) Negative peer relationships

To measure the relationship with peer in school (X_4), three items were employed: 1) I have experience of bullying in school, 2) I have experience of physical victimization by peers, 3) I have experience of sexual victimization by peers including sexual harassment. Possible responses to items are: never in the past year = 1, one or two times= 2, three or four times= 3, or more than four times= 4.

(5) Internal and External Pressure to achieve academically

To measure the internal pressure, the question 'Gaining admission of

college or university is important to me and my future' was employed. The question used to measure external pressure was 'My mother wants me to receive good grade for every exam.' Possible responses to the items are: disagree=1, some what disagree=2, neutral =3, mostly agree= 4, agree= 5.

(6) Parental socioeconomic status

Parental socioeconomic status was measured by monthly income and type of occupation of parents. The range of monthly income was 1) less than 500,000 Won (less than \$400), 2) between 500,000 Won and 1,000,000 Won (\$ 400 – \$800), 3) between 1,000,000 Won and 1500,000 Won (\$ 800 –\$1200), 4) between 1,500,000Won -2,000,000 Won (\$1200- \$ 1600), 5) between 2,000,000Won -3,000,000 Won (\$1600- \$2400), 6) above 3,000,000 Won (\$ above 2400). Secondly, type of occupations consists 6 categories: professionals, managers, office workers, sales person, factory or construction worker, and farmer or fishman.

2. Dependent Variable

Self-reports of the following were used to measure delinquent behavior:

- Drinking in a pub or bar.
- Cheating on exam
- Absence without permission
- Run away
- Activities in delinquent informal circles

- Drinking alcohol
- Smoking
- Drug use including toxic glue, profane gas
- Sexual intercourse
- Shop lifting
- Robbery
- Vandalism
- Gang fight
- Threatening classmate to get money

The possible responses to these items were never in the past year, one or two times, three or four times, or more than four times.

3. Moderating Variables: Social support

Moderating variable will be included in the multivariate model. The variables, social support from parents and siblings is used as moderating variables. The measure of conventional social support was agreement with the items: 'I am not satisfied in relationships with parents.' and 'I am not satisfied in relationships with siblings.'

IV. Data Analysis Procedure

At the beginning of the data analysis, descriptive statistics will be obtained on all variables in this study to show the demographic characteristics of students, and the means and the variances or the frequencies for variables.

When more than one item is expected to be part of a scale, reliability analysis will be conducted, and appropriate decisions will be made about which items to include in each scale.

The research hypotheses will be tested by using correlation and regression analyses. Correlations will be used to test for linear relationship between the independent variables and the dependent variable. Finally, to test the main hypotheses, multivariate regression method will be used. The reason for use of regression is that the variables, which used in this study are at least ordinal level. The .05 alpha level is the criterion for significance level in analysis. The Statistical Package for the Social Science (SPSS) is used to analyze the data.

CHAPTER 4

DATA ANALYSIS AND FINDINGS

I. Reliability / Factor Analysis and Scales

1. Independent Variables

Reliability and Factor analysis were used to develop several scales. For all scales, reliability coefficients were calculated to determine if individual items formed a reliable scale.

The alpha level for school dissatisfaction indicates that the school dissatisfaction scale has weak reliability ($\alpha = .56$). A school dissatisfaction scale was formed by adding together response values for three items.

Unfortunately, one indicator of negative teacher relations, a question about sexual harassment, was only used with girls, and it decreased the reliability for the scale. Thus, it was treated as a separate item in the model tested with just girls. The alpha statistics for the remaining items on negative teacher relations was low, but acceptable (.60). Thus, these two items were combined into a scale.

Similarly, the sexual harassment by peers was only used with girls, and it decreased the reliability for the scale. Thus, it was treated as a separate item in the model tested with just girls. The remaining two items, bullying and physical victimization, produced a scale with the low reliability of .48. However, since the level of alpha is unacceptably low, all of these items were treated as separate variables.

The alpha level for the dissatisfaction with family scale is acceptable

($\alpha=.79$). Based on the reliability coefficient, item dissatisfaction with parents and dissatisfaction with siblings were computed into a scale.

Table 2. Reliability Coefficients for Scales Used

Subscales of Negative Strain	Number of Items	Alpha
School dissatisfaction	3	.56
Negative teacher relation	2	.60
Dissatisfaction with family	2	.79

Based on the above reliability test results, three categories of items were combined into scales. Table 3 summarized the items used in each scale. Also included is an explanation of what the scale measures.

Table 3. Scales Used / Variable Names

School Dissatisfaction Scale (3-15: 3=very satisfied, 15=not at all satisfied)

Interested in school
Alienation
Going to school is a waste of time

Negative Teacher Relation Scale (0-6: 0=very positive relation, 6=very negative relation)

Neglecting
Beating

Dissatisfaction with Family Scale (2-10: 2=very satisfied, 10=not at all satisfied)

Dissatisfaction w/ parents
Dissatisfaction w/ siblings

In addition, for this investigation, several other independent variables were formed from the existing data. To measure social status of parents, two variables, 'FJOB' and 'MJOB' were used to create the variable, 'STATUS', in the following way: if father's job status is greater than or equal to mother's job status, 'STATUS' was equal to 'FJOB'; and if mother's job status is greater than father's job status, 'STATUS' was equal to 'MJOB'. If there is only one parent in the home, that person's job status was used to indicate STATUS.

The variable 'FAMILY (Living with)' which measures whether a student is living with either biological parents or step / single parent, was recoded into a dummy variables, 'RBOTH'. The dummy variables was created for 'living with both biological parent', and has two categories, no=0 and yes=1.

2. Dependent Variable

Factor analysis is used to determine whether a set of items measures one or more concept, and also to determine which items should be combined together into a scale. Since the number of delinquency items is very extensive (14 items), to reduce the number of observed variables to a smaller number of latent variables, identified as factors, factor analysis was employed. For the factor analysis of delinquency items, promax-rotation was used, because types of delinquency are likely to be correlated. Table 3 summarized the results of the factor analysis on the 14 items. Factor 1 in Table 4 contains items related to minor delinquency items: drinking in a pub or bar, cheating on exam, absence without permission, drinking alcohol, smoking, shoplifting. Factor 2, referred to as

serious delinquency, contains: run away, activities in delinquent informal circles, drug use including toxic glue and propane gas, sexual intercourse, robbery, vandalism, gang fight and threatening a classmate to get money.

Table 4. Factor Scores for Delinquency Items Based on Promax-Rotated Two-Factor Solution

Items	Factor loading	
	1	2
Drinking in a pub or bar	.82	.45
Cheating on exam	.50	.33
Absence without permission	.65	.57
Run away	.39	.52
Activities in delinquent informal circles	.22	.43
Drinking alcohol	.81	.36
Smoking	.77	.52
Drug use including toxic glue, propane gas	.23	.42
Sexual intercourse	.43	.51
Shop lifting	.52	.43
Robbery	.14	.42
Vandalism	.35	.50
Gang fight	.46	.61
Threatening classmate to get money	.41	.58

Note. Boldface indicates highest factor loadings.

Table 5 summarizes the reliability test results for the delinquency scales. The alpha level for the general delinquency scale is acceptable ($\alpha = .84$). Based on the reliability coefficient, a scale, 'general delinquency'; was formed. In addition, the factor analysis results formed delinquency items into two sub-scales, minor delinquency scale and serious delinquency scale. The reliability coefficient for each scale was .83 and .72, which both are acceptable.

Table 5. Reliability Coefficients for Delinquency Scales Used (Alpha)

Scale	Alpha
General Delinquency Scale	
Including all items of delinquency	
Standardized item Alpha	.84
Minor Delinquency Scale	
Drinking in a pub or bar.	.78
Cheating on exam	.82
Absence without permission	.81
Drinking alcohol	.78
Smoking	.78
Shop lifting	.82
Standardized item Alpha	.83
Serious Delinquency Scale	
Run away	.66
Activities in delinquent informal circles	.68
Drug use including toxic glue, profane gas	.68
Sexual intercourse	.67
Robbery	.69
Vandalism	.67
Gang fight	.64
Threatening classmate to get money	.65
Standardized item Alpha	.72

Based on the reliability and factor analysis, three new delinquency scales were created. Table 6 summarized the variables used in each delinquency scale. Also included is an explanation of what the scale measures.

Table 6. Scales Used / Variable Names

General Delinquency Scale (0-42: 0 = non-delinquent, 42 = extreme delinquent)

Drinking in a pub or bar.
Cheating on exam
Absence without permission
Run away
Activities in delinquent informal circles
Drinking alcohol
Smoking
Drug use including toxic glue, profane gas
Sexual intercourse
Shop lifting
Robbery
Vandalism
Gang fight
Threatening classmate to get money

Minor Delinquency Scale (0-18: 0 = non-delinquent, 18 = extreme delinquent)

Drinking in a pub or bar.
Cheating on exam
Absence without permission
Drinking alcohol
Smoking
Shop lifting

Serious Delinquency Scale (0-24: 0 = non-delinquent, 24 = extreme delinquent)

Run away
Activities in delinquent informal circles
Drug use including toxic glue, profane gas
Sexual intercourse
Robbery
Vandalism
Gang fight
Threatening classmate to get money

II. Univariate Analysis

1. Demographic Characteristics of Sample

Table 2 shows a description of the sample used in this study. There are more male respondents (51.0% of the total cases) than female respondents (49.0% of the total cases), and there are no missing values for this variable. The sample consists of 920 (47.9% of the total cases) middle school students and 999 (52.1% of the total cases) high school students (see table2).

The majority of the students (91.7% of the total cases) live with biological parents, and 8.3 percent of students live with stepparents or single parent (see Table 2). Most students (55.7% of the total cases) report that their family monthly income ranges from 1,500,000 Won (\$1200) to 3,000,000Won (\$ 2400), and students who belong to a higher income family – above 3,000,000 Won (above \$2400) – comprise 14.7 percent of the total students, while students who belong to a lower income family – less than 1,500,000 Won (\$1200) – were 29.6 percent of the total students (see table2).

Table2 shows types of occupation of parents, which would reflect social status of parents. As described in the table, 26.8 percent of students reported that the type of occupation of their father or mother is professional, or manager – medical doctor, pharmacist, lawyer, professor, researcher, school teacher, journalist, writer, engineer, pilot, chief executive officer, and high-ranked public official such as police officer or military personnel. The majority of students (63.8%) reported that the type of occupation of their father or mother is office workers, or sales person – public official, bank teller, self-employed (number of

employer are less than 5), real estate agent, security, driver, janitor, delivery person, etc. Finally, 9.5 percent of students reported that the type of occupation of their father or mother is factory worker or construction worker, or farmer, or fisherman (e.g., Kim, et al., 1996).

Table 7. Demographic Characteristics of sample (N=1919)

	n	(%)
Sex		
Male	979	51.0
Female	940	49.0
Type of school		
Middle school	920	47.9
High School	999	52.1
Parents Social Status		
Parents monthly income* (1 – 6)		
Less than \$400	29	1.5
\$400 - \$800	119	6.2
\$800 - \$1200	391	20.4
\$1200 - \$1600	530	27.6
\$1600 - \$2400	485	25.3
More than \$2400	267	13.9
Parents' job status scale (1 – 6)		
Professionals	245	12.8
Managers	239	12.5
Office workers	576	30.0
Sales	576	30.0
Factory or construction workers	157	8.2
Farmer or fisherman	15	.8
Social Support		
Living with		
Both parents	1755	91.7
A parent and step parent / single parent	159	8.3
/ no parent		

* Korean Won is calculated based on the money exchange rate (1.00\$ = 1,300 Won).

2. General Characteristics of Sample

The general characteristics of students are depicted in Table 8. The table includes the mean scores for school dissatisfaction, negative teacher relations, grades and negative peer relations. The mean for the school dissatisfaction (3 – 15) is 6.37 and the mean of the grades (1 – 5) is 2.98. Both variables seem to be normally distributed around the means. However, the negative teacher relations measures and negative peer relations measures seem to be skewed toward the left of each mean. The internal and external pressure variables seem to be normally distributed around the means (3.98 and 3.89 respectively). The dissatisfaction with family scale and the delinquency measures seem to be left skewed in their distributions.

Table 8. General Characteristics of Sample (N=1919)

	Mean	St. D.
School Satisfaction Scale (3 – 15)	6.37	2.49
Negative Teacher Relation		
Teacher relation scale (0 – 6)	.80	1.42
Sexual harassment (0 – 3)	.13	.46
Grades (1 – 5)	2.98	1.19
Negative Peer Relation		
Bullying (0 – 3)	.39	.76
Physical victimization (0 – 3)	.38	.79
Sexual harassment (0 – 3)	.09	.41
Internal Pressure		
Importance of college admission (1 – 5)	3.98	1.17
External Pressure		
Parents want good grade (1 – 5)	3.89	1.24
Social Support		
Dissatisfaction with Family Scale (2-10)	2.66	1.29
Delinquency		
General delinquency scale (0 – 42)	5.08	5.84
Minor delinquency scale (0 – 18)	4.25	4.50
Serious delinquency scale (0 – 24)	.83	1.96

III. Bivariate Analysis

Correlations were computed between independent variables (school dissatisfaction, negative teacher relations, grade, negative peer relations, internal/external pressure, parents social status and social support) and dependent variables (general delinquency, minor delinquency and serious delinquency).

1. School Dissatisfaction and Delinquency

Table 9 shows that there is a significant correlation between school dissatisfaction and delinquency. When Pearson's r is calculated for 1) school dissatisfaction and general delinquency; 2) school dissatisfaction and minor delinquency; and 3) school dissatisfaction and serious delinquency, its value was .338, .338 and .225 respectively. Thus, there is positive linear relationship between school dissatisfaction and each type of delinquency (general, minor and serious). Also important is that these results are statistically significant at the .01 level.

2. Negative Teacher Relations and Delinquency

As table 9 summarized, there are significant relationships between 1) negative teacher relation scale and general / minor / serious delinquency; and 2) sexual harassment and general / minor / serious delinquency. In the table 9, Pearson's r value shows that the correlations between each independent variable and each dependent variable are positive in direction. These relationships are

statistically significant at the significance level of .01.

3. Grades and Delinquency

Table 9 shows that there is a significant correlation between grades and delinquency. When Pearson's r is calculated for 1) grade and general delinquency; 2) grade and minor delinquency; and 3) grade and serious delinquency, its value was .178, .171 and .142 respectively, reflecting that there is positive linear relationship between grade and each types of delinquency (general, minor and serious). Again, the results are statistically significant at the .01 level.

4. Negative Peer Relations and Delinquency

Table 9 shows the correlation between negative peer relation measures and delinquency. Based on the result, there is a positive correlation between (for girls) sexual harassment and general / minor / serious delinquency. The relationship is statistically significant at the significance level of .01. However, there are no significant correlations between bullying and general / minor / serious delinquency ($p=.29$ / $p=.39$ / $p=.13$), and between physical victimization and general / minor / serious delinquency ($p=.10$ / $p=.10$ / $p=.19$). Also Table 8 shows that the Pearson's r is value for 1) the bullying and general / minor / serious delinquency, were near 0 ($r=.01$, $r=.01$ and $r=.03$), and for 2) physical victimization and general / minor / serious delinquency, were near 0 ($r=.04$, $r=.04$ and $r=.03$). The low correlations and the lack of significance suggest that these independent and dependent variables are not related.

5. Internal pressure and Delinquency

Table 9 shows that there is a significant correlation between internal pressure and delinquency. When Pearson's r is calculated for 1) internal pressure and general delinquency; 2) internal pressure and minor delinquency; and 3) internal pressure and serious delinquency, its value was $-.14$, $-.12$ and $-.15$. There is a negative linear relationship between internal pressure and each type of delinquency (general, minor and serious), and the correlations are statistically significant at the $.01$ level.

6. External pressure and Delinquency

Table 9 shows that there is a significant correlation between external pressure and delinquency. The Pearson's r values for 1) external pressure and general delinquency; 2) external pressure and minor delinquency; and 3) external pressure and serious delinquency, were $-.17$, $-.16$ and $-.13$. This results shows that there is negative linear relationship between external pressure and delinquency (general, minor and serious), at the $.01$ level of significance.

7. Parents' Social Status and Delinquency

To measure the parents' social status, two variables (income and parents' job status) were employed. As shows in the table 9, there are significant correlations between income and delinquency (general / minor / serious). The Pearson's r values for 1) income and general delinquency; 2) income and minor delinquency; and 3) income and serious delinquency, were $.08$, $.08$ and $.05$.

There are slightly positive linear relationships between income and delinquency (general, minor and serious). The level of significance of these correlations were .01 level (for general and minor delinquency) and .05 level (for serious delinquency).

For the parent's job status, the results indicate that correlations between 1) parents' job status and general delinquency; and 2) parents' job status and minor delinquency, are statistically significant at the .05 and .01 level. However, there is no significant correlation between the parents' job status and serious delinquency. Pearson's r values support that there are positive correlation between 1) parents' job status and general delinquency ($r=.07$); and 2) parents' job status and minor delinquency ($r=.08$).

8. Social Support and Delinquency

Social support was measured by two variables, dissatisfaction with family scale and living with both parents. Table 8 shows that there are significant correlations between dissatisfaction with family scale and each type of delinquency, at the .01 levels. The Pearson's values for each correlation were .23, .21 and .20. The results indicate that there are positive relationships between dissatisfaction with family scale and each levels of delinquency (general, minor and serious).

For the living with both parents variable, the results indicate that there are no significant correlation between living with both parents and general / minor / serious delinquency ($p=.05$, $p=.06$, $p=.08$).

Table 9. Correlation

	General Delinquency	Minor Delinquency	Serious Delinquency
School dissatisfaction	.338**	.338**	.225**
Negative teacher relation			
Negative teacher relation scale	.381**	.376**	.270**
Sexual harassment	.194**	.184**	.164**
Grades	.178**	.171**	.142**
Negative peer relation			
Bullying	.018	.010	.039
Physical Victimization	.043	.042	.030
Sexual harassment	.135**	.129**	.108**
Internal Pressure			
Importance of college admission	-.143**	-.124**	-.155**
External Pressure			
Parents want good grade	-.173**	-.167**	-.135**
Parents social status			
Parents monthly income	.085**	.085**	.058*
Parents' job status	.079*	.082**	.044
Social support			
Dissatisfaction with family	.231**	.214**	.208**
Living with both parents	-.056	-.052	-.048

* Correlation is significant at the .05 level (1-tailed).

** Correlation is significant at the .01 level (1-tailed).

Consequently, most independent variables were significantly related to delinquency. The school dissatisfaction and the negative teacher relations both were most strongly correlated to the delinquency among correlated independent variables. However, bullying, physical victimization by peers and living with both parents seemed to be not significantly related to any levels of delinquency. In addition, minor and serious delinquency seemed to have different correlations with the independent variable, parents' job status. In turn, the parents' job status was significantly related to general and minor delinquency, but not significantly related to serious delinquency. Overall, correlation statistics shows that none of

correlations in this data are exceptionally strong, but correlations of delinquency with 1) school dissatisfaction and general / minor delinquency; and 2) negative teacher relations and general / minor delinquency are moderate.

IV. Multivariate Analysis

Before starting the regression analysis, to check distributions of the skewed variables (see Table 8) and regression assumptions, scatterplots were generated and examined. As the results show (see Appendix A), there seem to be straight linear relationships between the left skewed independent variables and the dependent variables. Since the OLS regression is robust enough to handle the skewed data, the regression analysis was used in this analysis.

In addition, to investigate whether there is problem with multicollinearity among independent variables, the correlation matrix was employed (see APPENDIX 2). The correlation matrix shows that the intercorrelations among independent variables are very high. However, collinearity diagnostics statistics revealed that there are not problems with multicollinearity among independent variables, because of high tolerance and low VIF vales.

1. Multivariate Model Regression ¹

(1) Regression Model for General Delinquency

Table 10 presents the results of the multivariate regression analysis of delinquency on the independent variables. As the table shows, school dissatisfaction ($p=.000$), negative teacher relations ($p=.000$), low grades ($p=.000$), low family income ($p=.007$) and dissatisfaction with family relations ($p=.002$) were positively related to general delinquency. However, sex, bullying experiences ($p=.001$), physical victimization ($p=.042$) and living with both

¹ Collinearity diagnostics analysis was conducted to investigate whether there is problem with multicollinearity in multivariate regression analysis. The collinearity diagnostics statistics revealed that there are not problems with multicollinearity in multivariate regression analysis.

parents ($p = .017$) were negatively related to general delinquency. In turn, students who have many bullying experiences and physical victimization were less likely to commit delinquency, and students who live with both parents were less likely to commit delinquency.

Internal and external pressure for school success, and parents' job status were not significantly related to the general delinquency. Moreover, the entire model explains 25% ($R^2 = .25$) of the variation in general delinquency.

(2) Regression Model for Minor / Serious Delinquency

Similar to the above results, school dissatisfaction, negative teacher relation, low income, and dissatisfaction with family relations were positively related to both minor and serious delinquency, while bullying is negatively related to both minor and serious delinquency. However, when dependent variable was divided into minor and serious delinquency, other results were moderated.

Minor delinquency - Table 10 presents a positive relationship between low grade and minor delinquency ($p = .000$), and a negative significant relationship between physical victimization and minor delinquency ($p = .023$), and between living with both parents and minor delinquency ($p = .009$). In turn, students who have low grade were less likely to commit minor delinquency. Also, students who are frequently victimized physically and who are living with both biological parents were less likely to commit minor delinquency. In addition, the entire model explains 24% ($R^2 = .24$) of the variation in minor delinquency.

Serious delinquency - Interestingly, internal pressure, which measures

importance of college admission, was negatively related to serious delinquency ($p = .006$). In other words, students who believe that gaining college admission is important were less likely to commit delinquency. Also, the entire model explains 16% ($R^2 = .16$) of the variation in serious delinquency.

Table 10. Regression Analysis results

	General delinquency		Minor delinquency		Serious delinquency	
	B	Beta	B	Beta	B	Beta
Sex	-.16	-.14**	1.64	-.12**	-.52	-.13**
School dissatisfaction	.54	.23**	.38	.22**	.14	.18**
Negative teacher relation	1.17	.28**	.88	.28**	.28	.21**
Grades	.38	.07**	.31	.08**	.06	.05
Negative peer relation						
Bullying	-.52	-.07**	-.33	-.05**	-.19	-.07**
Physical victimization	-.33	-.04*	-.29	-.02*	-.04	-.01
Internal Pressure						
Importance of college admission	-.17	-.03	-.06	-.01	-.11	-.06*
External Pressure						
Parents want good grade	-.14	-.03	-.13	-.03	-.01	-.00
Parents social status						
Parents monthly income	.29	.06**	.18	.05*	.11	.06*
Parents' job status	.10	.02	.13	.03	-.02	-.01
Social support						
Dissatisfaction with family	.35	.07*	.23	.06*	.12	.07**
Living with both parents	-1.01	-.04*	-.89	-.05*	-.12	-.01
Constant	-1.52		-.67		-.85	
R^2	.25		.23		.15	

* $p < .05$, ** $p < .01$

Overall, school related items, including school dissatisfaction, negative teacher relations, and experiences of bullying, were significantly related to all types of delinquency (general / minor / serious). In addition, although there are two variables (income and job status), which measure parents' socio-economic status, delinquency was related to monthly income rather than parents' job status. Moreover, dissatisfaction with family was significantly related to all types of delinquency (general, minor and serious). However, living with parents was not significantly related to delinquency when the type of delinquency is serious. In this context, emotional attachment to family could be more important than whether students are living with both parents.

2. Two-way Interaction Analysis between Independent Variables and Social Support Variables

(1) Two-way interaction with the dissatisfaction with family relation

To investigate effects of the moderating variables, which are social support variables, two-way interaction analysis was conducted. Figure 5 present the equation of the restricted multivariate analysis. By employing a moderating variable, which is the dissatisfaction with family relation, the equation of the two-way interaction was derived (see Figure 6).

Figure 5. The equation of the restricted multivariate analysis

$$Y (\text{Delinquency}) = a + b_1 \text{School dissatisfaction} + b_2 \text{Negative teacher relations} + b_3 \text{Grades} + b_4 \text{Bullying} + b_5 \text{Physical victimization} + b_6 \text{Internal pressure} + b_7 \text{External pressure} + b_8 \text{Income} + b_9 \text{Status} + b_{10} \text{Dissatisfaction with family relations} + b_{11} \text{Living with both parents} + e$$

Figure 6. The equation of the two-way interaction analysis between the independent variables and the dissatisfaction with family.

$$Y (\text{Serious Delinquency}) = a + b_1 \text{School dissatisfaction} + b_2 \text{Negative teacher relations} + b_3 \text{Grades} + b_4 \text{Bullying} + b_5 \text{Physical victimization} + b_6 \text{Internal pressure} + b_7 \text{External pressure} + b_8 \text{Income} + b_9 \text{Status} + b_{10} \text{Living with both parents} + b_{11} \text{IDWFRSD} + b_{12} \text{IDWFRNT} + b_{13} \text{IDWFRGRAD} + b_{14} \text{IDWFNP1} + b_{15} \text{IDWFNP2} + b_{16} \text{IDWFIP} + b_{17} \text{IDWFEP} + b_{18} \text{IDWFINCO} + b_{19} \text{IDWFSTAT} + e$$

* In the above equations, each interaction variables were created by following way:

IDWFRSD = Dissatisfaction with family relations * School dissatisfaction

IDWFRNT= Dissatisfaction with family relations * b₂Negative teacher relations

IDWFRGRAD = Dissatisfaction with family relations * Grades

IDWFNP1 = Dissatisfaction with family relations * Bullying

IDWFNP2 = Dissatisfaction with family relations * Physical victimization

IDWFIP = Dissatisfaction with family relations * Internal pressure

IDWFEP = Dissatisfaction with family relations * External pressure

IDWFINCO = Dissatisfaction with family relations * Family Income

IDWFSTAT= Dissatisfaction with family relations * Status

As Table 11 indicates, there are two significant interactions between the independent variables and dissatisfaction with family relations. The moderating effect of the dissatisfaction with family relations, however, exists only when serious delinquency is considered. Specifically, the effect of the grade variable on the serious delinquency changes as dissatisfaction with family relation varies. As dissatisfaction with family relations increases, the net effect of the grade on the

serious delinquency increases. In addition, the effect of external pressure on serious delinquency changes with variation in dissatisfaction with family relations. As dissatisfaction with family relation increases, the net effect of the external pressure on serious delinquency decreases. Moreover, the entire model explains 17% ($R^2 = .17$) of the variation in serious delinquency when the model includes dissatisfaction with family relations.

Table 11. Multivariable analysis for two-way interactions between the independent variables and the dissatisfaction with family relation (N=1919)

	General delinquency		Minor delinquency		Serious delinquency	
	B	Beta	B	Beta	B	Beta
School dissatisfaction	.63	.27**	.48	.27**	.15	.04**
Negative teacher relation	1.37	.34**	1.10	.35**	.27	.20**
Grades	.28	.06	.37	.10*	-.09	-.05
Negative peer relation						
Bullying	-.15	-.02	-.09	-.02	-.06	-.02
Physical victimization	-.29	-.04	-.32	-.06	.04	.01
Internal Pressure	-.14	-.03	.04	.01	-.17	-.10
External Pressure	.18	.04	.03	.01	.15	.09
Parents social status						
Parents monthly income	.14	.03	.10	.03	.03	.02
Parents' job status	.16	.03	.06	.02	.10	.06
Social support						
Dissatisfaction with family	.83	.18	.80	.23	.03	.02
Living with both parents	-1.19	-.05*	-.99	-.06**	-.20	-.03
Two-way interactions of the dissatisfaction of family relation (DWF) with:						
School dissatisfaction	-.05	-.11	-.04	-.13	-.01	-.04
Negative teacher relation	-.07	-.06	-.07	-.08	.01	.02
Grades	.07	.07	-.00	-.00	.07	.20*
Negative peer relation						
Bullying	-.15	-.06	-.11	-.06	-.05	-.06
Physical victimization	.06	.03	.06	.04	.00	.00
Internal Pressure	-.03	-.03	-.05	-.06	.02	.05
External Pressure	-.13	-.12	-.07	-.08	-.06	-.17*
Parents social status						
Parents monthly income	.06	.06	.03	.04	.03	.08
Parents' job status	-.03	-.03	.02	.02	-.05	-.14
Constant	-2.81		-2.19		-.62	
R ²	.26		.24		.17	

* p < .05 ** p < .01

(2) Two-way interaction with living with both parents

By the same token, to investigate the effect of the moderating variable, which is the living with both parents, two-way interaction analysis was conducted. The equation of the two-way interaction between the living with both parents and the independent variables was derived (see Figure 7).

Figure 7. The equation of the two-way interaction analysis between the independent variables and the living with both parents.

$$Y (\text{Serious Delinquency}) = a + b_1 \text{School dissatisfaction} + b_2 \text{Negative teacher relations} + b_3 \text{Grades} + b_4 \text{Bulling} + b_5 \text{Physical victimization} + b_6 \text{Internal pressure} + b_7 \text{External pressure} + b_8 \text{Income} + b_9 \text{Status} + b_{10} \text{Dissatisfaction with family relations} + b_{11} \text{IRBRSD} + b_{12} \text{IRBRNT} + b_{13} \text{IRBGRAD} + b_{14} \text{IRBNP1} + b_{15} \text{IRBNP2} + b_{16} \text{IRBIP} + b_{17} \text{IRBEP} + b_{18} \text{IRBINCO} + b_{19} \text{IRBSTAT} + e$$

* In the above equations, each interaction variables were created by following way:

IRBRSD = Living with both parents * School dissatisfaction

IRBRNT= Living with both parents * b₂Negative teacher relations

IRBGRAD = Living with both parents * Grades

IRBNP1 = Living with both parents * Bulling

IRBNP2 = Living with both parents * Physical victimization

IRBIP = Living with both parents * Internal pressure

IRBEP = Living with both parents * External pressure

IRBINCO = Living with both parents * Family Income

IRBSTAT= Living with both parents * Status

As Table 12 indicates, there is only one significant interaction between the independent variables and living with both parents. The moderating effect of living with both parents exists only for serious delinquency. Specifically, the effect of grades on serious delinquency varies depending on whether the youth is living with both parents. When students live with both biological parents, the net effect of grades on serious delinquency decreases. Moreover, the entire model explains 17% ($R^2 = .17$) of the variation in serious delinquency when moderating for dissatisfaction with family relations.

Table 12. Multivariable analysis for two-way interactions between the independent variables and the Living with both parents (N=1919)

	General delinquency		Minor delinquency		Serious delinquency	
	B	Beta	B	Beta	B	Beta
School dissatisfaction	.50	.21*	.37	.21*	.13	.16
Negative teacher relation	1.24	.30**	.79	.25**	.45	.32**
Grades	-.21	-.04	.02	.00	-.22	-.13
Negative peer relation						
Bullying	.18	.02	.08	.01	.10	.04
Physical victimization	-.39	-.05	-.14	-.02	-.26	-.10
Internal Pressure	.07	.02	-.14	-.04	.21	.12
External Pressure	.35	.08	.36	.10	-.01	-.00
Parents social status						
Parents monthly income	.16	.03	.10	.03	.06	.03
Parents' job status	.64	.13	.65	.17	-.00	-.00
Social support						
Dissatisfaction with family	.32	.07**	.21	.06**	.11	.07**
Living with both parents	2.01	.09	1.54	.09	.47	.06
Two-way interactions of the living with both parents (RBOTh) with:						
School dissatisfaction	.01	.01	.00	.00	.01	.07
Negative teacher relation	-.04	-.01	.13	.04	-.16	-.11
Grade	.71	.17	.38	.12	.34	.24*
Negative peer relation						
Bullying	-.79	-.10	-.47	-.08	-.32	-.12
Physical victimization	.30	.04	-.00	-.00	.30	.12
Internal Pressure	-.30	-.08	.05	.02	-.35	-.27
External Pressure	-.55	-.15	-.53	-.19	-.01	-.01
Parents social status						
Parents monthly income	.14	.04	.09	.03	.05	.04
Parents' job status	-.61	-.15	-.57	-.18	-.03	-.02
Constant	-4.60		-3.14		-1.45	
R ²	.26		.24		.17	

* p < .05 ** p < .01

(3) Significance of the interactions

To test the significance of the interactions and the additional increment in explained variance in serious delinquency, the F test for the comparison between the restricted model and the full model was employed. The equation for the F test

and the result are as follows:

$$F = \frac{(R_F^2 - R_R^2)/(K_F - K_R)}{(1 - R_F^2)/(N - K_F - 1)} = \frac{(.17 - .16)/(20 - 12)}{(1 - .17)/(1919 - 20 - 1)} = 2.86$$

where K_F is the number of independent variables in the full model, K_R is the number of independent variables in the restricted model, and N is the number of cases. As the coefficient of determination for both the restricted and full model regression shows (see Table 10, 11, and 12), the full model explains more of the variation in the serious delinquency than the restricted model. Specifically, the full model explains 17 % of the variation in the serious delinquency, whereas 16% of the variation in the serious delinquency can be explained by the restricted model. In addition, this increase (1%) in the explained variation is statistically significant, because the significance value of the F (2.86) is less than .05, where the numerator degree of freedom is 8, and the denominator degree of freedom is 1898.

(4) The nature of the interactions

Figure 8 shows the nature of the interaction effects of dissatisfaction with family relations by grades on serious delinquency. For youth with both low grades and low level of dissatisfaction with family relations, the mean score for serious delinquency is .52. The mean for serious delinquency increases (from .52 to .68) when dissatisfaction with family relations increases, but grades are held constant in the low range. By the same token, the mean for serious delinquency increases

(from .52 to .80) when grades increase, but dissatisfaction with family relations remains low. For youth with both high dissatisfaction with family relations and high grades, the mean for serious delinquency increases dramatically (.52 to 1.32). The combination of high grades and a high level of dissatisfaction with family relations are most strongly related to serious delinquency.

Figure 8. Nature of interaction: Grades & Dissatisfaction with family relation

		Dissatisfaction with family relation	
		Low	High
Grades	Low	.52	.68
	High	.80	1.32

Figure 9 shows the nature of the interaction effects for dissatisfaction with family relation and external pressure on serious delinquency. For youth with high dissatisfaction with family relation but low external pressure, the mean for serious delinquency increases (from 1.10 to 1.61). As the external pressure increases, however, the mean for serious delinquency decreases by half (from 1.10 to .55) when dissatisfaction with family relations remains low. When both dissatisfaction with family relations and the external pressure increase, the mean for serious

delinquency decreases slightly. The combination that is most strongly related to serious delinquency is high dissatisfaction with family and low external pressure.

Figure 9. Nature of Interaction: External Pressure & Dissatisfaction with family relations

		Dissatisfaction with family relation	
		Low	High
External Pressure	Low	1.10	1.61
	High	.55	.88

Lastly, Figure 10 shows the nature of the interaction effects of living with both parents and grades on serious delinquency. When students do not live with both biological parents and have low grades, the mean for serious delinquency is 1.03. When the students live with a single or step parent rather than both biological parents and have high grades, the mean for serious delinquency increases slightly. This combination is most strongly related to serious delinquency in this figure, but the difference between 1.03 and 1.08 is too small to consider important. When students live with both biological parents and have low grades, the mean for serious delinquency is lower than any other

combination. Interestingly, when the students living with both parents have high grades, the mean for serious delinquency increases (from .52 to .96). Regardless of whether a youth's grade is low or high, not living with both parents is related to high delinquency. However, when youths live with both parents, if their grades are high, they tend to exhibit higher delinquency than when their grades are low.

Figure 10. Nature of Interaction: Grade & Living with both Parents

		Living with both parents	
		No	Yes
Grades	Low	1.03	.52
	High	1.08	.96

3. Multivariate Model for Each Gender Group – Subgroup Analysis

To study possible interaction effects of gender with the independent variables, subgroup analysis was employed and conducted. Since the male students were not asked to answer the questions about “sexual harassment”, and since only the female students answered the questions, the subgroup analysis is most appropriate for the interaction analysis.

(1) Sub-group Regression Model for General Delinquency

Table 13 presents the results of the multivariate regression analysis separately for each gender. As the table indicates, in both female and male group, school dissatisfaction and negative teacher relation were significantly related to general delinquency.

Sexual harassment by teacher was significantly related to general delinquency among girls. More specifically, girls who ever experienced sexual harassment by teacher were .63 times ($B=.63$) more likely to engage in general delinquency than girls who never experienced sexual harassment by a teacher. (Since the original data does not ask boys about sexual harassment, the relationship between sexual harassment and delinquency could not analyzed in this study.) Similarly, parent’s monthly income was significantly related to general delinquency among girls. According to the results presented in table 13, girls who belong to a high-income family were more likely to engage in delinquency. Also, relationship with family was more important to girls than boys. Girls who are not satisfied with their relationship with family were more likely to engage in delinquency than girls who are satisfied. In other words, emotional attachment is

more important than whom girls are living with.

Finally, the results show that boys who receive good grade are more likely to engage in general delinquency than others. In addition, boys who had experienced bullying were less likely to engage in delinquency. Moreover, the regression model for girls explains 27% ($R^2 = .27$) of the variation in general delinquency, while the regression model for boys explains 22% ($R^2 = .22$) of the variation in general delinquency.

Table 13. Subgroup Regression analysis results for General Delinquency

	Female		Male	
	B	Beta	B	Beta
School dissatisfaction	.36	.18**	.62	.24**
Negative teacher relation				
Negative teacher relation	1.19	.27**	1.07	.27**
Sexual harassment	.63	.06*	-	-
Grade	.23	.05	.37	.06*
Negative peer relation				
Bullying	-.37	-.05	-.57	.07*
Physical Victimization	-.40	-.04	-.34	-.05
Sexual harassment	.42	.03	-	-
Internal Pressure				
Importance of college admission	-.23	-.05	-.14	-.02
External Pressure				
Parents want good grade	-.18	-.04	-.11	-.02
Parents social status				
Parents monthly income	.42	.10**	.17	.03
Parents' job status	.21	.05	.00	.00
Social support				
Dissatisfaction with family scale	.50	.12**	.25	.05
Living with both parents	-.95	-.04	-1.00	-.04
R^2	.27		.22	

* $p < .05$

** $p < .01$

(2) Sub-group Regression Model for Minor Delinquency

As Table 14 indicates, compared to Table 13, the results of the multiple regression analysis for minor delinquency for each gender group do not differ from the results of the previous analysis. Specifically, like the results of the analysis for the general delinquency, school dissatisfaction and negative teacher relations were significantly related to both boys' and girls' minor delinquency.

For boys, as described above grades was a significant factors related to minor delinquency. Physical victimization was also significantly related to boys' delinquency. Boys, who had more experiences in physical victimization, were less likely to engaged in delinquency. Otherwise, bullying, parents' monthly income and the dissatisfaction with family scale were significantly related to girls' delinquency. In case of bullying, girls who had more experiences in bullying were less likely to engaged in delinquency. In addition, the regression model for girls explains 26% ($R^2 = .26$) of the variation in minor delinquency, while the regression model for boys explains 20% ($R^2 = .20$) of the variation in minor delinquency.

Table 14. Sub-group Regression analysis results for Minor Delinquency

	Female		Male	
	B	Beta	B	Beta
School dissatisfaction	.31	.19**	.40	.21**
Negative teacher relation				
Negative teacher relation	.98	.27**	.79	.27**
Sexual harassment	.42	.05	-	-
Grade	.17	.05	.33	.08*
Negative peer relation				
Bullying	-.37	.06*	-.28	-.05
Physical Victimization	-.30	-.04	-.33	-.06*
Sexual harassment	.30	.03	-	-
Internal Pressure				
Importance of college admission	-.10	-.03	-.03	-.00
External Pressure				
Parents want good grade	-.17	-.05	-.10	-.02
Parents social status				
Parents monthly income	.33	.10**	.02	.00
Parents' job status	.18	.05	.05	.01
Social support				
Dissatisfaction with family scale	.35	.11**	.16	.04
Living with both parents	-.75	-.04	-.94	-.05
R ²	.26		.20	

* p < .05, ** p < .01

(3) Sub-group Regression Model for Serious Delinquency

As Table 15 indicates, compared to Table 13 -14, the results of the multiple regression analysis for serious delinquency for each gender group do not differ from the results of the previous analysis. Specifically, like the results of the analysis for the general and minor delinquency, school dissatisfaction and negative teacher relation were significantly related to both boys' and girls' serious delinquency. However, parents' monthly income became significant among boys. In turn, boys who belong to a high-income family were more likely to engage in delinquency. Similarly, grades were not significantly related to the boys' serious

delinquency.

For girls, sexual harassment by teacher, parents' monthly income and dissatisfaction with family were still significantly related to serious delinquency. In addition, importance of college admission was significantly related to girls' serious delinquency. Girls who believe that gaining college admission is important were less likely to engage in serious delinquency. The full models for both girls and boys explains 15% ($R^2 = .15$) of the variation in serious delinquency.

Table 15. Sub-group Regression analysis results for Serious Delinquency

	Female		Male	
	B	Beta	B	Beta
School dissatisfaction	.05	.08*	.22	.22**
Negative teacher relation				
Negative teacher relation	.20	.17**	.28	.19**
Sexual harassment	.21	.07*	-	-
Grade	.06	.05	.04	.01
Negative peer relation				
Bullying	-.01	-.00	-.29	-.10*
Physical Victimization	-.10	-.04	-.01	-.00
Sexual harassment	.12	.03	-	-
Internal Pressure				
Importance of college admission	-.12	-.11*	-.10	-.05
External Pressure				
Parents want good grade	-.01	-.00	-.00	-.00
Parents social status				
Parents monthly income	.09	.08*	.15	.07*
Parents' job status	.02	.02	-.05	-.02
Social support				
Dissatisfaction with family scale	.14	.14**	.09	.04
Living with both parents	-.20	-.04	-.06	-.00
R^2	.15		.15	

* $p < .05$

** $p < .01$

4. Two-way Interaction Analysis between Independent Variables and Social Support Variables for Each Gender Group

(1) Two-way interaction with the dissatisfaction with family relation

To investigate moderating effects of the social support variables in the subgroup analysis, two-way interaction analysis was conducted. As Table 16 and Table 17 indicate, five significant interactions were found in the female group and one significant interaction was found in the male group. More specifically, the interaction between negative teacher relations and dissatisfaction with family relations is significantly related to serious delinquency for the female group. The interaction between sexual harassment by teachers and dissatisfaction with family relations is significantly related to all measures of delinquency for girls. The interaction between external pressure and dissatisfaction with family relations is significantly related to serious delinquency for the female group. Finally, for the male group, only the grades and dissatisfaction with family relations interact significantly, affecting serious delinquency.

Table 16. Multivariable analysis for two-way interactions of the dissatisfaction with family relation in the female subgroup analysis (N=940)

	General delinquency		Minor delinquency		Serious delinquency	
	B	Beta	B	Beta	B	Beta
School dissatisfaction scale	.48	.24**	.41	.25**	.07	.14
Negative teacher relation						
Negative teacher relation scale	1.19	.28**	1.17	.33**	.02	.02
Sexual harassment by teachers	3.41	.33**	2.31	.27**	1.10	.41**
Grade	.31	.07	.34	.10	-.03	-.03
Negative peer relation						
Bullying	.41	.06	.20	.04	.21	.11
Physical victimization	-.79	-.09	-.68	-.09	-.11	-.05
Sexual harassment	-.27	-.02	-.52	-.06	.25	.08
Internal Pressure	-.45	-.11	-.24	-.07	-.20	-.19*
External Pressure	.45	.11	.27	.08	.20	.19
Parents social status						
Parents monthly income	.11	.03	.14	.04	-.02	-.02
Parents' job status	.17	.04	.14	.04	.04	.03
Social support						
Dissatisfaction with family scale	1.19	.30	1.03	.32	.16	.15
Two-way interactions of the dissatisfaction of family relation (DWF) with:						
School dissatisfaction scale	-.04	-.10	-.03	-.10	-.01	-.09
Negative teacher relation scale	.02	.02	-.04	-.05	.07	.22*
Sexual harassment by teachers	-.98	-.31**	-.66	-.25**	-.32	-.39**
Grade	-.02	-.02	-.06	-.07	.04	.15
Negative peer relation						
Bullying	-.29	-.13	-.21	-.11	-.08	-.12
Physical victimization	.12	.05	.11	.05	.01	.01
Sexual harassment	.26	.07	.30	.10	-.05	-.05
Internal Pressure	.09	.11	.06	.08	.04	.16
External Pressure	-.23	-.27	-.16	-.22	-.07	-.33*
Parents social status						
Parents monthly income	.11	.12	.07	.09	.04	.18
Parents' job status	.01	.01	.02	.02	-.01	-.02
Constant		-3.82		-3.27		-.55
R2		.28		.27		.18

* p < .05 ** p < .01

Table 17. Multivariable analysis for two-way interactions of the dissatisfaction with family relation in the male subgroup analysis (N=979)

	General delinquency		Minor delinquency		Serious delinquency	
	B	Beta	B	Beta	B	Beta
School dissatisfaction scale	.77	.30**	.52	.28**	.25	.25**
Negative teacher relation						
Negative teacher relation	1.09	.28**	.84	.29**	.25	.17*
scale						
Grade	-.07	-.01	.19	.05	-.26	-.12
Negative peer relation						
Bullying	-.40	-.05	-.20	-.04	-.20	-.07
Physical victimization	-.58	-.09	-.56	-.11	-.02	-.01
Internal Pressure	.05	.01	.20	.05	-.15	-.07
External Pressure	.15	.03	-.01	-.00	.16	.09
Parents social status						
Parents monthly income	.40	.07	.21	.05	.19	.09
Parents' job status	.27	.05	.08	.02	.20	.10
Social support						
Dissatisfaction with family	1.21	.25	.10	.28	.24	.13
scale						
Two-way interactions of the dissatisfaction of family relation (DWF) with:						
School dissatisfaction scale	-.04	-.09	-.03	-.11	-.01	-.04
Negative teacher relation						
Negative teacher relation	.01	.01	-.01	-.01	.02	.04
scale						
Grade	.20	.18	.07	.09	.13	.30*
Negative peer relation						
Bullying	-.08	-.04	-.05	-.03	-.04	-.04
Physical victimization	.09	.04	.08	.06	.00	.00
Internal Pressure	-.07	-.06	-.08	-.11	.01	.04
External Pressure	-.10	-.08	-.03	-.04	-.06	-.13
Parents social status						
Parents monthly income	-.10	-.11	-.09	-.12	-.02	-.05
Parents' job status	-.11	-.09	-.01	-.01	-.10	-.22
Constant	-3.12		-1.76		-1.36	
R2	.22		.19		.16	

* p < .05 ** p < .01

(2) The nature of the Interactions

Table 18 shows the nature of the interaction effects that were found in the previous multivariate interaction analysis for each gender group. For female students with low negative teacher relation and low level of dissatisfaction with family relations, the mean score for the serious delinquency is .17. When both relationships with teachers and family become worse, the mean of the serious delinquency increases dramatically (1.22).

By the same token, for female students, as the frequency of the sexual harassment by teachers and the dissatisfaction with family relations increase, the means for all of the general, minor and serious delinquency increase dramatically (8.07, 6.86 and 1.21 respectively). In addition, the combination of low external pressure and high dissatisfaction with family relations are most strongly related to serious delinquency.

For male students with low grades and low dissatisfaction with family relations, the mean for serious delinquency is .99. However, when both grades and dissatisfaction with family relations increase, the mean for serious delinquency increases to 1.51. Thus, the combination of high grades and high level of dissatisfaction with family relations is most strongly related to serious delinquency for male students.

Table 18. Nature of Interaction: Dissatisfaction with family relation in each gender group

			Dissatisfaction with family relation	
			Low	High
Female	Negative teacher relation scale in Serious Delinquency	Low	.17	.60
		High	.68	1.22
	Sexual harassment by teachers in General Delinquency	Low	2.81	5.20
		High	5.71	8.07
	Sexual harassment by teachers in Minor Delinquency	Low	2.55	4.45
		High	4.97	6.86
	Sexual harassment by teachers in Serious Delinquency	Low	.26	.75
		High	.74	1.21
Male	External pressure in Serious Delinquency	Low	.60	1.25
		High	.20	.60
	Grades in Serious Delinquency	Low	.99	1.07
		High	1.09	1.51

(3) Two-way interaction with living with both parents

As Table 19 and Table 20 indicate, four significant interactions were found only in the female group. More specifically, the interactions between the negative teacher relations and living with both parents are significant in the general and minor delinquency for the female group. The interaction between the sexual harassment by teachers and living with both parents is significantly connected to serious delinquency for girls. The interaction between sexual harassment by peers and living with both parents is significantly related to girls' minor delinquency.

Table 19. Multivariable analysis for two-way interactions of the living with both parents in the female subgroup analysis (N=940)

	General delinquency		Minor delinquency		Serious delinquency	
	B	Beta	B	Beta	B	Beta
School dissatisfaction scale	.32	.16	.21	.13	.11	.21
Negative teacher relation						
Negative teacher relation scale	-.17	-.04	-.24	-.07	.07	.06
Sexual harassment by teachers	-1.61	-.16	-.70	-.08	-.91	-.34
Grade	.41	.10	.34	.10	.07	.06
Negative peer relation						
Bullying	-.49	-.07	-.19	-.03	-.29	-.16
Physical victimization	.50	.06	-.11	-.01	.61	.26
Sexual harassment	4.10	.36	4.76	.51*	-.66	-.22
Internal Pressure	-.16	-.03	-.01	-.00	-.11	-.10
External Pressure	-.56	-.14	-.49	-.15	-.07	-.07
Parents social status						
Parents monthly income	.44	.11	.35	.11	.08	.08
Parents' job status	1.11	.26	.87	.25	.24	.21
Social support						
Living with both parents	-.20	-.01	-.56	-.04	.36	.07
Two-way interactions of the living with both parents (RBOH) with:						
School dissatisfaction scale	.16	.09	.19	.14	-.04	-.08
Negative teacher relation scale	1.54	.34*	1.38	.37*	.16	.13
Sexual harassment by teachers	2.43	.23	1.24	.14	1.19	.43*
Grade	-.07	-.02	-.09	-.03	.02	.02
Negative peer relation						
Bullying	.07	.01	-.20	-.03	.28	.14
Physical victimization	-.95	-.10	-.22	-.03	-.73	-.30
Sexual harassment	-3.87	-.33	-4.64	-.48*	.77	.25
Internal Pressure	-.15	-.05	-.12	-.05	-.03	-.03
External Pressure	.38	.12	.31	.12	.08	.10
Parents social status						
Parents monthly income	-.04	-.01	-.03	-.01	-.01	-.01
Parents' job status	-.97	-.27	-.74	-.25	-.23	-.25
Constant		-.96		-.38		-.58
R2		.27		.26		.15

* p < .05 ** p < .01

Table 20. Multivariable analysis for two-way interactions of the living with both parents in the male subgroup analysis (N=979)

	General delinquency		Minor delinquency		Serious delinquency	
	B	Beta	B	Beta	B	Beta
School dissatisfaction scale	.53	.21	.30	.16	.23	.23
Negative teacher relation						
Negative teacher relation	2.02	.51**	1.43	.49**	.60	.40**
scale						
Grade	-.19	-.03	.02	.00	-.20	-.10
Negative peer relation						
Bullying	.65	.09	.51	.09	.14	.05
Physical victimization	-1.06	-.16	-.61	-.12	-.45	-.17
Internal Pressure	.10	.02	-.29	-.07	.39	.19
External Pressure	-.15	-.03	-.08	-.02	-.07	-.04
Parents social status						
Parents monthly income	-.14	-.03	-.14	-.03	-.01	-.00
Parents' job status	.62	.12	.65	.17	-.03	-.01
Social support						
Living with both parents	-1.29	-.06	-1.76	-.10	.46	.05
Two-way interactions of the living with both parents (RBOH) with:						
School dissatisfaction scale	.17	.08	.15	.10	.02	.02
Negative teacher relation						
Negative teacher relation	-.95	-.23	-.63	-.21	-.31	-.20
scale						
Grade	.72	.16	.42	.13	.30	.17
Negative peer relation						
Bullying	-1.34	-.17	-.88	-.15	-.46	-.16
Physical victimization	.78	.11	.31	.06	.47	.18
Internal Pressure	-.26	-.06	.27	.09	-.53	-.34
External Pressure	-.01	-.00	-.07	-.02	.05	.04
Parents social status						
Parents monthly income	.36	.09	.19	.06	.17	.11
Parents' job status	-.65	-.15	-.63	-.19	-.02	-.01
Constant		.90		2.20		-1.30
R2		.22		.20		.16

* p < .05 ** p < .01

(4) The nature of the Interactions

Table 21 shows the nature of the interaction effects for girls. The female students who live with both parents and have low negative teacher relations are least likely to commit general delinquency (mean of general delinquency = 2.75). For female students, the negative teacher relationship slightly more affects general delinquency than living with both parents does (6.19 vs. 4.85). Thus, the combination of the high negative teacher relations and the not living with both parents most characterizes girls highest in general delinquency.

Similarly, negative teacher relationship slightly related to minor delinquency than living with both parents does (5.36 vs. 4.17). The combination of high negative teacher relations and the not living with both parents is most strongly related to minor delinquency for girls (mean score=6.58).

When female students who live with both parents have low frequency of sexual harassment by teachers, they are less likely to commit serious delinquency. Not living with both parents and sexual harassment by teachers are almost equally related to serious delinquency for girls (.92 vs. .97).

Finally, female students who have low frequency of sexual harassment by peers and who live with both parents are least likely to commit minor delinquency. On the other hand, the combination of high sexual harassment by peers and living with a single parent or stepparents are most strongly related to minor delinquency for the female group (mean = 12.00).

Table 21. Nature of Interaction: Living with both parents in each gender group

			Living with both parents	
			No	Yes
Female	Negative teacher relation scale in General Delinquency	Low	4.85	2.75
		High	8.00	6.19
	Negative teacher relation scale in Minor Delinquency	Low	4.17	2.48
		High	6.58	5.36
	Sexual harassmt by teachers in Serious Delinquency	Low	.97	.37
		High	.57	.92
	Sexual harassmt by peers in Minor Delinquency	Low	4.69	3.11
		High	12.00	5.18

CHAPTER 5

DISCUSSION AND CONCLUSION

I. Summary and Discussion

1. Multivariate Analysis

Several important findings emerged from this study. The multivariate analysis revealed that youths who feel negative strain from school dissatisfaction and negative teacher relations are more likely to commit both minor and serious delinquency. These findings are consistent with the results of several other studies that examined negative strain and delinquency (e.g. Agnew 1985; 1992). However, the current study does not support the hypothesis that internal and external pressure related to academic achievement significantly affects delinquency.

This study also found that youths who are living with both biological parents were less likely to commit general and minor delinquency. This finding is consistent with Leone's (2000) finding that youths with strong parents attachment would be less likely to be involved in delinquency. Moreover, this finding also is consistent with another research result that parental monitoring of youth is negatively related to delinquency (Wright & Cullen, 2001). It may be that such monitoring and supervision are not possible when there is only one parent in the home. Thus, living with both parents may decrease the possibility of committing delinquency.

Several other unexpected findings also emerged from this study. As expected, this study revealed that grades, bullying, internal pressure (in serious

delinquency) and parents' income were significantly related to delinquency. However, the relationships of these variables to delinquency were in the opposite direction than what was expected. For example, in hypothesis 3, low grades were expected to be positively related to delinquency. The regression statistics, however, found that the direction of relationship was negative. In turn, students who receive higher grade were more likely to commit delinquency. One of the possible explanations for this unexpected finding is that the grade could be a part of the outcome of parents' socio-economic status. In Korea, a great number of students are having private tutoring outside of schools and private tutoring costs a great amount of money. Those students who have private tutoring will spend most of their free hours studying instead of spending time with their parent(s). Consequently, parents may be satisfied with the students' high grades, but the students may not be satisfied with their relationship with parents. This dissatisfaction with their parents may cause delinquency in general. (See interaction between grades and social support). However, this study does not include variables such as time spent with parents or time spent with tutors. Future research needs to measure such variables to try to figure this out.

Similarly, the present study found that bullying experiences and physical victimization, reflecting negative peer relations were negatively related to both minor and serious delinquency. Why would these experiences be related to low delinquency? Youths who are characterized by unreceptive tendencies to the dominant sub culture tend to emerge as frequent victims of bullying, and as the result, they could be victimized physically (Schwartz, Farver, Chang & Lee-Shin,

2002). In this connection, possibly, one explanation is that there might be some peer pressure on youths to be delinquent, and when they are not, other youths would bully them.

Another study finding is that internal pressure was significantly related to serious delinquency, but the direction of the relationship was opposite to the hypothesis, as internal pressure was negatively related to the serious delinquency. The possible reason for the negative relationship may be a measurement problem. Perhaps this is really a measure of “goals” not of internal pressure. It may not create much stress or strain for youths. Future research must focus on the conceptually accurate meanings of internal pressure.

Finally, this analysis revealed that parent's socio-economic status was positively related to delinquency. Hypothesis 6 assumed that parents' low socioeconomic status might lead students to experience discrimination in current Korean school environment by teacher and peers. In this sense, low income would be a negative strain to students. However, the results suggest that students who belong to high-income families are more likely to commit delinquency. Possibly, high-income students might have resources such as money to get cigarettes and drug, or money to drink alcohol in a bar. This accessibility to delinquent resources might lead students to commit more delinquency. Thus the accessibility to delinquent resources may be more significant than negative strain from parent's social status.

2. Interaction Effects

To investigate interaction effects of moderating variables, dissatisfaction with family relations and living with both parents were employed. Interestingly, interaction effects existed only when serious delinquency is considered. Specifically, the results revealed that when the moderating variable is dissatisfaction with family, there are significant interactions between 1) grade and serious delinquency; 2) external pressure and serious delinquency. Similarly, there is a significant interaction between grade and serious delinquency when living with parents is the moderating variable. When students' grades are high and the level of dissatisfaction with family relations is high, they are most likely to commit serious delinquency. This finding suggests that even though students receive good grades, if they are not emotionally attached to their family, they might be more likely to commit delinquency. Similarly, students who have high levels of dissatisfaction with family relations and low external pressure are most likely to commit serious delinquency. From these findings, a high level of dissatisfaction with family relations was considered to be the most important factor that affects serious delinquency. In addition, students who receive high grades but live with a parent and a stepparent, or single parent were most involved in serious delinquency.

3. Gender Differences

This study compared boys and girls, and found school dissatisfaction and negative teacher relations positively related to general, minor and serious

delinquency in both the boys' and girls' group. However, subgroup analysis for each gender revealed that sexual harassment, income and dissatisfaction with family relations were most strongly related to girl's delinquency. Girls who are not satisfied with family relations were more likely to commit delinquency than girls who are satisfied with the relationship.

This finding suggests that emotional attachment is more important to girls regardless of whether they are living with both parents or not, because dissatisfaction with family relations was significantly related to delinquency, but living with both parents was not related to delinquency for the female group. This finding is consistent with much of the prior delinquency research, which suggested that positive family relations matter more to girls than boys in explaining delinquency (e.g., Anderson, Holmes & Ostresh, 1999).

The results show that boys who receive good grade are more likely to be engaged in minor delinquency than others. Also boys who have many experiences of physical victimization were less likely to commit minor delinquency. Interestingly, income is only related to boys' serious delinquency. Boys who belong to a high-income family were more likely to commit serious delinquency.

II. Limitations and Recommendations

There are several limitations of this research that merit mentioning. First, since the data used in this study has been collected for previous research, this study cannot represent the overall national - wide population of Korean schools. The original data were collected among schools in Seoul, which is the capitol city of South Korea. Therefore, this study focuses only on youths and their delinquent behaviors in the city area. To compare differences on delinquency between city and rural area, wider regional sampling is necessary in future research. Also, since the present study was based on cross-sectional data, a longitudinal study might help to explain more variations in negative stimuli and delinquency over time, and establish time order.

While the primary focus of the present study is on negative stimuli in the school, other important measures of loss of positively valued stimuli and failure to achieve positively valued goals were not considered in this study. The available data to be used for the present research does not include a complete measure of the loss of positively valued stimuli and the failure to achieve positively valued goals. The absence of these measures is considered as another limitation of this study.

Finally, since questions about sexual harassment were only used with girls, no comparison group for sexual harassment was available. As such, the findings can only be generalized to a specific population. In future research, if a comparative sample could have been secured, this explanation might have been clarified.

III. Conclusion and Policy Implications

Generally, it would be acceptable to argue that no society is delinquency free. Numerous studies and practical attempts have been made to address this problem to guard society and to protect the future. Failure to address this existent problem, however, creates an even greater social problem when these youths enter society as adults. In one sense, this study aims to provide a more in-depth understanding of existing delinquency problems in the Korean context. To better understand the causation of delinquency, empirical analysis was conducted based on pre-collected data. The multivariate regression analysis results in this study suggest that negative experiences (negative stimuli) from school environments including teacher and peer cause delinquency among Korean youths, and student's dissatisfaction with school is also significantly associated with delinquency. Moreover, emotional attachment to parents decreases the probability of delinquency.

These research results may provide perspectives for effective interventions into schools and family. One of the major reasons why students experience school related negative strains is because they are not interested in school activities. (This low school attachment was described above as school dissatisfaction). As a result, they do poorly in school, often get into conflicts with teachers and others, and develop a general dislike for school. Normally, school in Korea is focused on higher education, and teacher and parents have excessive expectations for higher education. The pressure might push certain youths to feel a great deal of strain, and respond to strain by committing delinquent behavior. In

this context, school itself must change its educational philosophy in ways that not only focus on academic success but also consider each individual's interest and aptitude. Many of such efforts gradually will reduce school strain. For example, efforts might be made to increase the involvement and experience of success of students at high risk for delinquency.

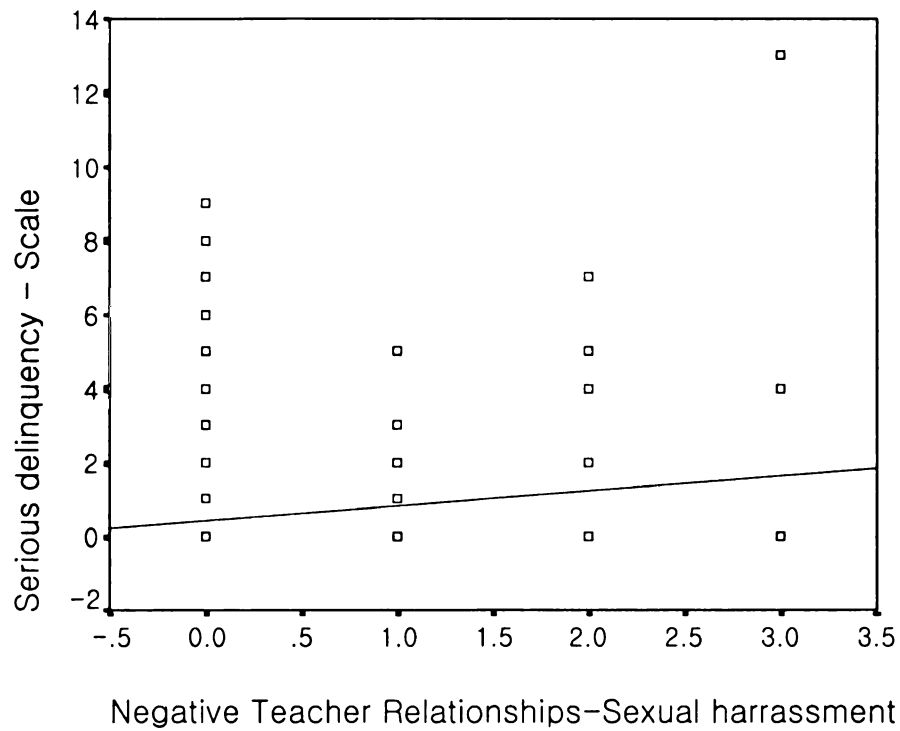
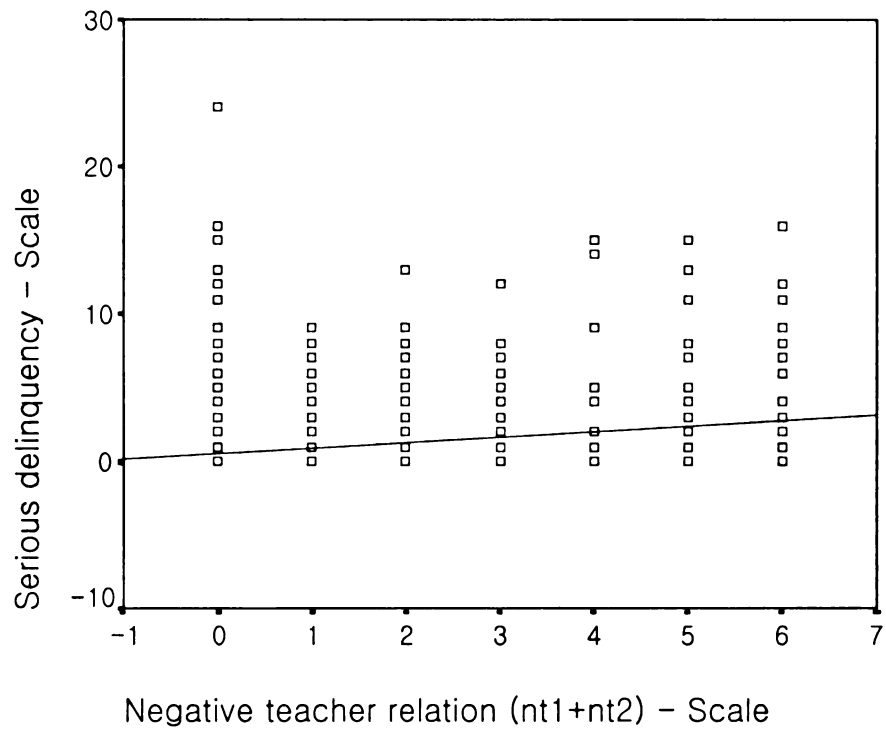
Second, the present study suggests that emotional attachment between youths and parents reduce risk for delinquency. One of the study results, that youth who belong to high-income families are more likely to engage in delinquency, suggests that parents' social support is more important than material wealth. Numerous studies also support that well-monitored youths are less involved in delinquency and other norm-breaking behaviors (Stattin & Kerr, 2000). This finding suggests that parents' effort to build attachments, monitor their youths, and spend time with their youths are important because this form of parenting will keep their youths delinquency free. As mentioned in study limitation, to try to figure this out, future research needs to have more complete measure on such issues.

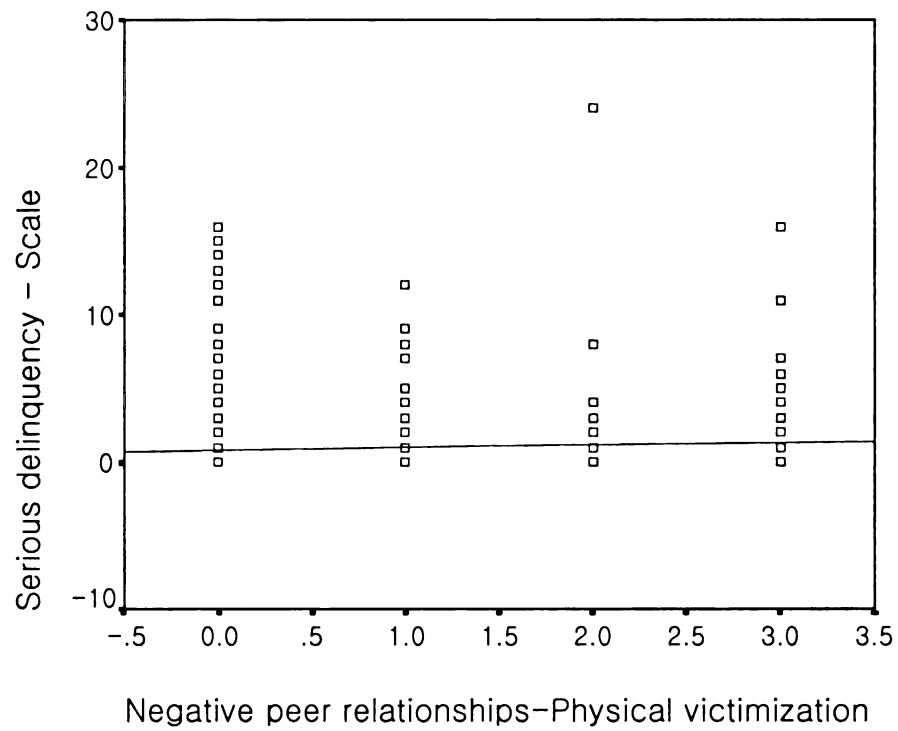
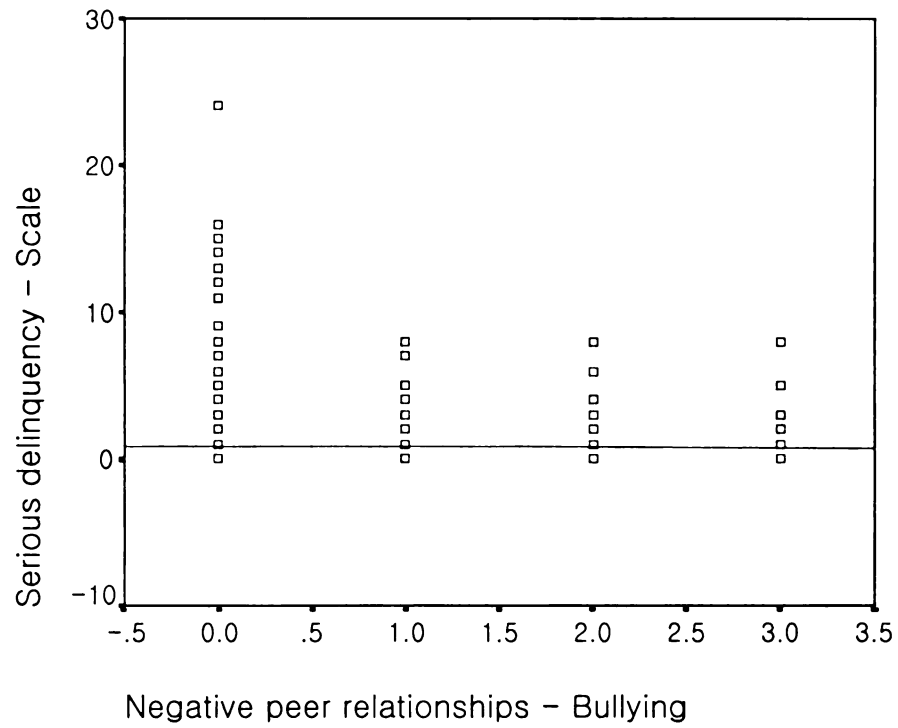
Overall, General Strain Theory is useful in explaining contemporary delinquency problems in Korea. However, any singular theory may not explain all types of behavior. Moreover, any singular effort to keep youth safe may not be successful. An effective solution for delinquency in current school setting in Korea requires coordinated efforts among schools, parents, government authorities and professionals focused on juvenile problems. The schools are a logical place to begin addressing the problem of juvenile delinquency. However, if

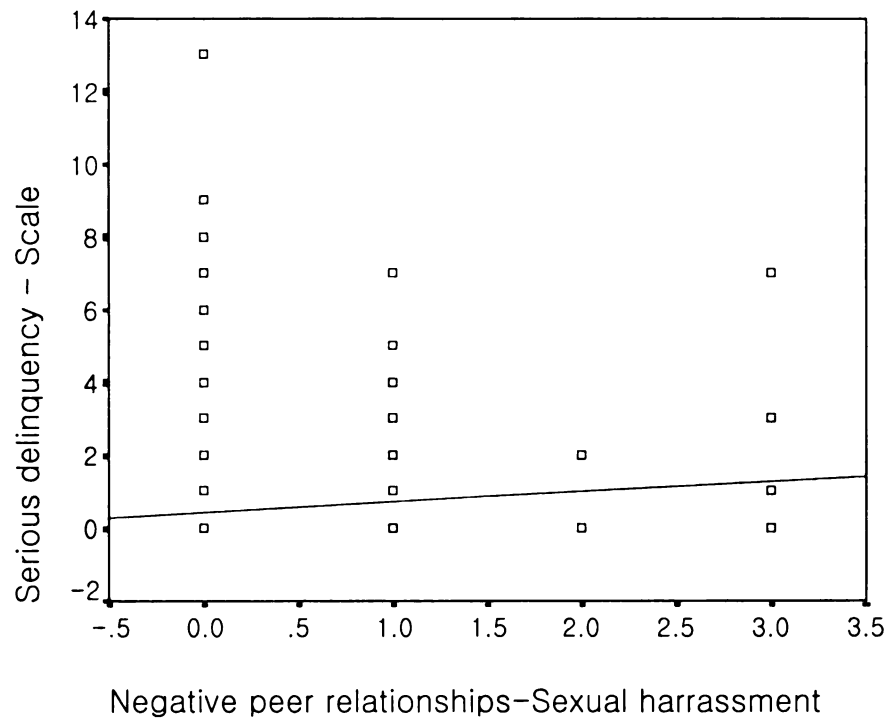
our efforts go no further, there is little hope for the significant long-term improvements that are possible through a more comprehensive attack on the problem.

APPENDICES

Appendix A. Scatterplots







Appendix B. Correlation Matrix for All Independent Variables

Measure	1	2	3	4	5	6	7	8	9	10	11	12	13
1. School dissatisfaction scale	--												
2. Negative teacher relation scale	.23**	--											
3. Sexual harassment by teachers	.15**	.29**	--										
4. Grade	.20**	.18**	.07*	--									
5. Negative peer relation– Bullying	.19**	.11**	.01	.13**	--								
6. Physical victimization by peer	.08**	.19**	.12**	.10**	.19**	--							
7. Sexual harassment by peer	.14**	.22**	.11**	.12**	.10**	.11**	--						
8. Internal pressure	-.14**	-.10**	-.05	-.00	.04	.07*	-.00	--					
9. External pressure	-.26**	-.12**	-.14**	-.06*	-.02	.03	-.02	.59**	--				
10. Parent's income	-.01	.03	.01	.01	-.10**	.03	-.00	.09**	.11**	--			
11. Parent's job status	.06*	.04	.02	.01	-.07*	-.04	-.04	-.10**	-.08*	-.16**	--		
12. Dissatisfaction with family relation	.28**	.13**	.03	.16**	.07*	.10**	.03	-.07*	-.07	-.11**	.04	--	
13. Living with both parents	-.02	-.05	.01	.00	-.03	-.03	.03	.05	.01	.21**	-.11**	-.11**	--

* p < .05 ** p < .01

Note: Collinearity Diagnostic statistics revealed no multicollinearity problem, because of high tolerance and low VIF value

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