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**The Dissertation Committee for Soyon Jung certifies that this is the approved version of  
the following dissertation:**

**Understanding Racial-Ethnic Disparities in Internal School Suspension and  
Identifying Compensatory and Protective Factors**

**Committee:**

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**David W. Springer, Supervisor**

---

**Dennis L. Poole, Co-Supervisor**

---

**Robert Crosnoe**

---

**Lori K. Holleran**

---

**Calvin L. Streeter**

**Understanding Racial-Ethnic Disparities in Internal School Suspension and  
Identifying Compensatory and Protective Factors**

by

**Soyon Jung, B.A.; M.A.; M.S.W.**

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**Dedicated to my mom, Sang-Bok Han.**

**Among the numerous wonderful things in my life,  
the greatest is to be born as her daughter**

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**Understanding Racial-Ethnic Disparities in Internal School Suspension and Identifying  
Compensatory and Protective Factors**

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Soyon Jung, Ph.D.

The University of Texas at Austin, 2006

Supervisor: David W. Springer

Co-Supervisor: Dennis L. Poole

This study has four objectives. The first objective is to determine the race-ethnicity effects on internal school suspension. The second objective aims to examine the reasons for racial-ethnic disparities in internal school suspension. Specifically, this objective intends to test directly or indirectly the plausibility of four potential explanations - individual factor explanation, family factor explanation, school factor explanation, and differential treatment explanation. The third objective attempts to identify compensatory and protective factors for school misconduct, the major reason for school discipline including school suspension. The

final objective aims to identify compensatory and protective factors for internal school suspension after adjusting for school misconduct. The data for the current study was drawn from the base year dataset of Education Longitudinal Study of 2002. The primary study subjects are 8,716 high school sophomores composed of Whites (71%), Blacks (13%), and Hispanics (15%). Multilevel logistic regression revealed that Black students were approximately 3 times more likely and Hispanic students were 2 times more likely to receive an internal school suspension compared to White students, after adjusting for gender. The significant effect of being Hispanic on internal school suspension disappeared when individual and family factors were taken into account, supporting the plausibility of individual and family factor explanations. In contrast, the significant effect of being Black was sustained even after controlling for individual, family, and school factors although the magnitude of the effect decreased. Thus, the differential treatment at school needs to be considered an important factor when Black students' vulnerability to internal school suspension is examined. Furthermore, this study identified several compensatory and protective factors for school misconduct as well as internal school suspension. It is particularly noteworthy that academic achievement, parent involvement in school, and academic climate at school were found to have protective effects for Black students' misconduct, and that extracurricular activities and parent involvement in school were found to have protective effects for Hispanic students' misconduct. No factor, however, had protective effects for racial-ethnic minority students with regard to internal school suspension, indicating the advantaged status of White students in school.

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## **I. INTRODUCTION**

### **I.1. Problem Statement: Study Background and Significance**

Since several dreadful incidents of school violence in the late 1980s and early 1990s, school safety has been one of the greatest concerns in American education (Noguera, 1995; U.S. Department of Health and Human Services, 2002). In response to serious school violence, policy makers and educators have made various efforts. Zero tolerance policies were designed to address school violence and improve school safety by mandating automatic school expulsion for serious misbehaviors among students (Skiba & Kneesting, 2001). The meaning of the term "zero tolerance policy" has been expanded and now refers to any school policy that mandates predetermined discipline or punishment measures for certain infractions (Office for Civil Rights, 1998). Under a zero tolerance policy, school suspension and expulsion are frequently used as discipline.

Since school suspension and expulsion do not allow students to participate in normal school activities for a certain period of time, they are often called "school exclusion" (e.g., Hallam & Castle, 2001; Imich, 1994). Numerous scholars and educators regard school exclusion as one of the most severe discipline measures because it deprives students of learning opportunities (Ruck & Wortley, 2001; Williams, 1989). Although many people assume that only extremely aggressive or problematic students receive school suspension or expulsion (Skiba & Kneesting, 2001), the discipline measures are often implemented for somewhat minor offenses, such as failure to complete an assignment, inappropriate dress, disrespect, and truancy as well as severe misbehaviors such as weapon possession and physical fighting (Imich, 1994; Kingery, n.d., Mendez, Knoff, & Ferron, 2001; Skiba & Kneesting, 2001).

School exclusion appears to have two primary goals. One is to discipline students so that they correct or decrease misbehaviors. The other is to create a safe learning environment in school. Yet, little empirical evidence supports the effectiveness of school exclusion (Skiba & Peterson, 1999). Rather, numerous scholars and mental health professionals have warned that school exclusion is often ineffective, and even counterproductive.

The negative impacts of school exclusion include psychological distress and poor mental health outcomes, such as feelings of anger (Costenbader & Markson, 1998), feelings of rejection (DeRidder, 1991), and low self-esteem (Williams, 1979). In addition, school exclusion also contributes to undesirable educational outcomes, such as grade retention (being held back a grade) (Williams, 1979) and school dropout (DeRidder, 1991; Jordan, Lara, McPartland, 1996; Quinn, 1991). Moreover, exclusionary discipline measures often exacerbate current misbehaviors of students. Such measures often leave students unsupervised and, therefore, at an increased chance to associate with deviant individuals (Townsend, 2000; Williams, 1979). Some critics also argue that excluding students from their classroom without an appropriate educational program is a violation of students' rights to education guaranteed by law (Studley, 20020; Troyan, 2003).

Regarding zero tolerance policies, no issue is considered more serious than the racial-ethnic disparities in school exclusion. Over the past several decades, numerous studies have documented disproportionate representations of racial-ethnic groups in school exclusion (Browne, Losen, & Wald, 2001; Costenbader & Markson, 1998; Crosnoe, Johnson, & Elder, 2004; Keleher, 2000; Skiba, Michael, Nardo, & Peterson, 2002; Thornton & Trent, 1988; Wu, Pink, Crain, & Moles, 1982). The common finding is that racial-ethnic minority students, particularly Black students, are overwhelmingly overrepresented in school exclusion whereas White students are significantly underrepresented. In the 1996-1997 school year, for example,

Black students comprised only 17 percent of the enrolled students, but represented 32 percent of suspended students nationwide (Office of Civil Right, 1998). In contrast, White students, who made up 63 percent of the whole student body, represented only 50 percent of suspended students.

It is well established that racial-ethnic minority students have long been disadvantaged in the U.S. educational system (Davis & Jordan, 1994; Garibaldi, 1992; Grant & Williams, 2000; Irvine, 1990). Many students of color have received poor quality education in schools with inadequate resources (Carter, 2000; Grant & Williams, 2000). Moreover, a large educational achievement gap exists between White students and students of color in general (Crawford, 2000; Fox, Connolly, & Snyder, 2005; Garibaldi, 1992; Roscigno, 1998; U.S. Department of Education, 2003a, 2004). If racial-ethnic minority students are excluded from school at a disproportionate rate continuously, it is likely that educational gaps between White students and students of color will be exacerbated and, in the long run, racial stratification in American society will be intensified. In order to minimize the undesirable personal and social outcomes of school exclusion, it is imperative to address the problem properly and immediately.

The first step to solve a problem is to understand the problem, contributory factors, and other relevant factors. Despite persistent racial-ethnic disparities and reported harmful effects of school exclusion, empirical studies on this topic are surprisingly scarce and available information is very limited (Morrison, Anthony, Storino, & Dillon, 2001). Prior studies on this issue are often based on descriptive statistics such as percentages and frequencies (e.g., Mendez & Knoff, 2003; Thornton & Trent, 1988). Several studies examined the problem using inferential statistical techniques, but the data were usually collected only from one or two school districts (e.g., Morrison, Anthony, Strino, & Dillon, 2001; Skiba et al., 2002). To date,

few studies have determined the effects of student race-ethnicity on school exclusion using national data. Regardless of the availability of national data or local data, the studies that attempt to explain the reasons for racial-ethnic disparities in school exclusion are also sparse. As a result, little is known about the reasons for racial-ethnic gaps in school exclusion (Skiba et al., 2002). Research on the variables correlated with school exclusion is relatively abundant. However, studies examining the relevant variables using a comprehensive multivariate model are not common.

It should also be noted that most previous studies on school exclusion analyzed data collected from either students or schools. As a consequence, the interplay between students and schools regarding school exclusion could not be effectively investigated. School discipline is a study topic that needs an examination of both students and schools because school discipline is a school's response to student behavior and it is, by nature, the product of interaction between students and schools. Thus, multilevel modeling techniques are considered most proper to examine school exclusion. Multilevel modeling techniques enable researchers to analyze hierarchically structured data with reduced statistical errors and provide an enhanced way to investigate the dynamic interrelationships between different levels of analysis units, such as students within schools (Hox, 2002; Raudenbush & Bryk, 2002; Reise & Duan, 1999). Yet, to date, no study has utilized multilevel analysis techniques in order to examine racial-ethnic disparities in school exclusion.

To summarize, empirical research is needed to expand the current knowledge on racial-ethnic disparities in school exclusion, its underlying reasons, and relevant factors that alleviate the disparities. Furthermore, an extensive review of previous literature suggests that future research (a) utilize national data to better understand nationwide racial-ethnic disparities in school exclusion; (b) adopt a comprehensive conceptual framework to investigate

individuals within the contexts; and (c) employ multilevel data analysis techniques to examine students, schools, and the interplay between the two, with enhanced estimation.

This study was designed to meet all of these research aims. First, this study selected the base year dataset of the Education Longitudinal Study of 2002 (ELS:2002), national data of U.S. high school sophomores collected by the National Center for Education Statistics (NCES), the U.S. Department of Education. Primarily, ELS:2002 intends to monitor the life transition of 10<sup>th</sup> graders in the nation from their high school years to entry into postsecondary education or the labor force. The base year dataset of ELS:2002 is considered particularly proper for this study because it is one of the most recent national data sets that is currently available and has information on school exclusion. Thus, recent nationwide racial-ethnic disparities in school exclusion can be revealed by analyzing the base year data of ELS:2002.

Second, this study employs comprehensive conceptual frameworks to examine school exclusion and to identify relevant factors. By collecting data from students, parents, teachers, and school administrators, ELS:2002 provides rich information on individual students' traits, their family backgrounds, school environments, and interaction between students and environmental factors. As a result, school exclusion can be investigated within the multifaceted ecology of high school students.

Third, the current study utilizes multilevel data analysis techniques. ELS:2002 sampled schools first and then students. In addition, the dataset contains symbolized ID information which does not make individual students identifiable but allows students attending the same school to be grouped together in data analysis. Therefore, multilevel techniques can be utilized in order to capture the dynamic interplay between individual students and schools, as well as to handle properly the estimation biases in standard errors, major risks in using a traditional analysis method when data from a clustered sample are analyzed.

Ultimately, the present study aims to produce useful information which can shed light on the efforts to remedy racial-ethnic disparities in school exclusion. To eradicate a problem, it is necessary to correctly understand the problem and its fundamental causes. The first part of analysis in this study, therefore, intends to diagnose the current racial-ethnic disparities in school exclusion and to uncover the underlying reasons for the disparities. Deep-rooted problems like racial-ethnic disparities in school exclusion usually are linked to a complicated social-historical mechanism, and require a wide range of changes on a societal level, as well as individual and family levels, to be successfully addressed. Thus, study results from the first part of data analysis will guide long-term strategies for problem solving.

Although an approach to solve the problem by addressing its underlying causes should be continuously pursued, it may not be practical for a short-term strategy or an immediate intervention plan. For a timely intervention, it is recommended to identify and utilize other modifiable factors that can reduce the undesirable outcomes more rapidly. To this end, the later part of data analysis seeks to identify compensatory and protective factors for school misconduct as well as school exclusion. In the next section, study purposes and data analysis approaches are further clarified.

## **I. 2. Study Purpose**

The goals of this study are twofold. The first goal is to contribute to knowledge development about school exclusion, student race-ethnicity, and the association between the two. The other goal is to produce practical information that helps policy makers, educators, and school mental health professionals effectively mitigate racial-ethnic disparities in school

exclusion and protect at-risk students from its detrimental impacts. Under these two ultimate goals, four study objectives were further developed.

The first study objective aims to determine the effects of student race-ethnicity on the likelihoods of internal school suspension, which is the most frequently used exclusionary school discipline. The analysis results for this objective will reveal how much more likely racial-ethnic minority students are to receive internal school suspension compared to their White peers.

The second study objective is to examine the reasons of racial-ethnic disparities in internal school suspension. Based on previous research and logical conceptualization, four potential explanations of this problem were identified: individual-factor explanation; family factor explanation; school factor explanation; and differential treatment explanation. A common assumption of the these four explanations is that there is a 3<sup>rd</sup> factor or factors that account for the significant association between race-ethnicity and school exclusion. The second objective intends to evaluate the plausibility of the first three explanations by testing the confounding effects of the 3<sup>rd</sup> variables proposed by the explanations. Since the differential treatment explanation cannot be directly tested due to lack of proper measurement, the plausibility of this explanation will be assessed indirectly. If the significant effects of race-ethnicity on internal school suspension are sustained, even after all of the confounding factors proposed in the other three explanations are taken into account, the differential treatment explanation can be considered plausible at least to some extent. The analysis results for the second study objective will enhance the current knowledge level on why a certain racial-ethnic group of students are more vulnerable than others to internal school suspension.

The third study objective attempts to identify compensatory and protective factors for school misconduct after controlling for gender, family socioeconomic status (SES), and

urbanicity of school locale. In principal, school discipline is implemented in response to students' rule-breaking behaviors. Thus, one of the effective approaches to protect students from the potential detrimental impact of school exclusion is to reduce their misconduct at school. In a similar vein, if racial-ethnic disparities in school exclusion reflect, at least partly, the disproportionate rule-breaking behaviors of racial-ethnic minority students, one of the remedies for the persistent problem should target reducing their misbehaviors. The analysis results for the third study objective will uncover the factors that contribute to low likelihoods of internal school suspension. In this regard, particular focus will be given to the factors that have greater beneficial effects for racial-ethnic minority students than White students because those factors can moderate racial-ethnic disparities in school misconduct and possibly internal school suspension as well.

The final study objective aims to identify compensatory and protective factors for internal school suspension after adjusting for school misconduct as well as other control variables. School discipline can be more effective and its utility can be more widely appreciated when it is fairly implemented with every student. According to previous literature, however, it is not only school misconduct but also many other factors such as family backgrounds and student race-ethnicity that are significantly related to school exclusion. This implies that reducing school misconduct may not be enough to protect students from the deleterious impacts of school exclusion. This further suggests that, in addition to the interventions that aim to reduce student misconduct at school, other rigorous efforts should be made to lessen racial-ethnic disparities in school exclusion. The analysis results for the final study objective will illuminate the factors that decrease the likelihood of internal school suspension being caused by something other than school misconduct. As in the third objective,

focus is put on the factors whose beneficial effects are greater for racial-ethnic minority students than White students.

Regarding the final two study objectives, two relevant issues need to be clarified. First, in this study, protective factors are conceptually differentiated from compensatory factors. A *compensatory factor* indicates a factor that is inversely associated with an outcome variable (either school misconduct or internal school suspension). A *protective factor*, on the other hand, refers to a factor that moderates the effect of race-ethnicity on the outcome variable, or a factor whose effect reducing the likelihood of the outcome variable is significantly greater for racial-ethnic minority students than White students. Second, compensatory and protective factors are selected from various levels of human ecology. That is, the selected potential compensatory and protective factors cover the school level (or equivalently “level-2” in the current study) as well as the individual-, family-, and peer-level (or equivalently “level-1” in this study). Employing multilevel modeling techniques, the last two study objectives will identify the compensatory and protective factors situated at the individual-, family-, and peer-level and those at the school level, separately. Then, statistical significance of the identified compensatory and protective factors will be tested again in an integrated model that considers both levels simultaneously.

In Chapter three, the study objectives are further specified with corresponding research questions. Detailed information on the potential compensatory and protective factors selected for this study is presented in Chapter two, and information on the measures of those factors utilized in this study are provided in Chapter three.

## **II. LITERATURE REVIEW AND CONCEPTUAL FRAMEWORK**

### **II.1. School Exclusion as Discipline**

#### **II.1.1. Zero Tolerance Policy and School Exclusion**

American schools were considered safe learning places in the past (Hill & Droplet, 1999). In the aftermath of several serious school violence incidents in late 1980s and early 1990s, public perception toward school safety has changed. School violence has become one of the most serious social and educational issues in the United States (Noguera, 1995). Growing concern about school violence led some school districts in California, New York, and Kentucky to adopt "zero tolerance" policies in 1989, which mandated automatic expulsion of students for drug use, fighting, and gang-related activity (Skiba & Knesting, 2001).

At the federal level, Congress passed the Gun-Free School Act (GFSA) in 1994, under which students must be expelled for firearm possession, and teachers and school staff must refer a student to the police or juvenile justice systems for any illegal act (Skiba & Knesting, 2001). Since the GFSA was enacted, many schools have adopted zero tolerance policies (National Summit on Zero Tolerance [NSZT], 2000; Skiba & Knesting, 2001). In addition, state legislatures and local school districts have expanded the policy mandates to less dangerous misconducts such as smoking and disruptive behavior (NSZT, 2001). According to National Center for Education Statistics (NCES) (1998), nearly 95 percent of all American elementary and secondary public schools have a zero tolerance policy for at least one behavior. During the 1996-1997 school year, 95 percent of schools had zero tolerance policies for firearms, 91 percent for other types of weapons, 88 percent for drugs, 77 percent for alcohol, 79 percent for violence, and 79 percent for tobacco (NCES, 1998).

Under a zero-tolerance policy, school suspension and expulsion are frequently used to deal with various student infractions (American Bar Association, 2001). These two types of exclusionary school discipline are different from each other in several aspects including due process, duration of implementation, and severity of misbehaviors to which a discipline is applied.

School suspensions are usually issued by school administrators such as a principal, vice-principal, or dean of students, and do not exceed 10 school days (Kingery, n.d.; Troyan, 2003). According to a survey of a school district in Florida (Mendez, Knoff, & Ferron, 2001), the typical school suspension is 1 to 3 days at the elementary level, 3 to 5 days at the junior high school level, and 5 to 10 days at the senior high school level. There are two types of school suspensions, internal school suspension (or in-school suspension) and external suspension (or out-of-school suspension). The former is commonly used for minor infractions while the latter is usually used for more serious ones (Kingery, n.d.; Skiba & Knesting, 2001; Troyan, 2003). Examples of offenses reserved for internal school suspension are disruptive behaviors, insubordination to school staff, attendance problems, failure to complete assigned academic tasks, inappropriate dress, improper speech or gestures, sexual or racial harassment, and vandalism or theft involving relatively low monetary value (Dawson, 1991; Kingery, n.d.). Reasons for external school suspension include threats of harm to a student or staff, physical fighting resulting in light to moderate injury, possession of inappropriate substances such as diet pills, stimulants, or marijuana, and vandalism or theft involving moderate monetary value (Kingery, n.d.).

Expulsion is reserved for the most serious offenses (Skiba & Knesting, 2001), and the process requires the involvement of the school board or superintendent (Mendez et al., 2001; Troyan, 2003). The longest possible period for expulsion is two-school years (Kingery, n.d.;

Mendez et al., 2001), though it typically applies until the end of the school term (Troyan, 2003).

In a school district in Florida, for instance, the average duration of expulsion was 142 school days (Mendez et al., 2001). The most common reasons for school expulsion include fighting resulting in moderate to serious physical injury, attempting or committing an attack on a school staff member, any weapon-related act (i.e., possession, selling, or carrying), and carrying or selling unlawful substances such as heroin or crack cocaine.

### **II.1.2. Concerns over School Exclusion**

Most schools and school districts have established certain rules about due process and have clarified the reasons for school suspension and expulsion, to avoid overuse or misapplication of such discipline measures. Many scholars and educators, however, argue that students are often too harshly punished for trivial offenses under zero tolerance policies. Skiba and Peterson (1999, p.373), for instance, criticize the zero tolerance policies, describing them as "policies that punish all offenses severely, no matter how minor." Indeed, school exclusion applies not only to serious misbehaviors, such as illegal substance abuse and school violence incidents, but also to minor offenses such as failure to complete assignments, inappropriate student dress, and disrespectful attitudes, as described above.

Consequently, the number of suspended or expelled students has remarkably increased since the Gun-Free Schools Act was adapted and zero tolerance policies became common. In the 1973-74 school year, out of 45.6 million students in public schools nationwide, 1.7 million students (3.7%) were suspended (NCES, 2000). In the 1997-98 school year, however, the proportion of suspended students nearly doubled. That is, out of 46 million students, 3.2 million students (7%) were suspended (NCES, 2000). A striking increase in school expulsion rates was observed in Chicago public schools (Gordon, Piana, & Keleher, 2001; Keleher, 2000).

During the 1993-1994 school year, there were only 10 students who were expelled from Chicago public schools. The number of expelled students increased to 81 in the 1995-1996 school year, 571 in 1997-1998, and 1,500 in 1990-2000. Chicago is not an isolated example. The expulsion rate in Massachusetts increased 35 percent between 1993 and 1997. In a suburban school district of California, the number of students recommended for expulsion was only two in the 1991-1992 school year, but 83 two years later (Landale & Oropesa, 2002).

As a substantial number of students were suspended or expelled from their school every year, school exclusion started to catch public attention, and there have been growing concerns and criticisms over the “get-tough” discipline methods. A key issue is that school exclusion is neither successful in achieving school safety nor effective in instructing misbehaving students. Specifically, the concerns and criticisms over zero-tolerance policies and school exclusion can be summarized as follows.

First, although school safety is a primary reason for adopting a zero-tolerance policy and implementing school exclusion, there is little empirical evidence supporting that school suspension and expulsion enhance school safety (Morrison, Anthony, Strino, & Dillon, 2001; Skiba & Knesting, 2001; Studley, 2002). Many statistics do not indicate a consistent pattern on school violence after the passage of the Gun Free School Act. School violence-related deaths may be a good example: The numbers of nationwide homicides at school were 34 in the school year of 1992-1993 and 29 in the next school year. In the 1994-1995 school year, when GFSA came into effect, the number was 28. In the following three school years from 1995-1996 to 1997-1998, the numbers were 32, 28, and 34, respectively (DeVoe et al., 2003). In California public schools, property crimes decreased from 1995 to 2000, but crimes against persons as well as drug and alcohol offenses increased during the same period (Studley, 2002). These data do not suggest that zero tolerance policies improved school safety. Moreover, some scholars

argue that school exclusion can even exacerbate school safety because ‘get-tough’ discipline approaches increase students’ mistrust and resistance toward authority figures, and create conflict in the classroom (Noguera, 1995). Noting inadequate evidence on the effectiveness, Skiba and Peterson (2000) criticize zero tolerance policies as being chosen for symbolic value rather than actual effectiveness.

Second, school exclusion is not effective in eliminating or decreasing student misconduct (Costenbader & Markson, 1998; Imich, 1994; Mendez et al., 2001; Studley, 2002). After examining 4,391 discipline files in a south Florida school district, McFadden et al. (1992) found that first time offenders composed less than 1 percent of the discipline files, suggesting an extremely high recidivism rate among disciplined students. In another study, disciplined students did not evaluate their discipline experience positively. According to Costenbader and Markson (1998), 68 percent of students who had been suspended reported that suspension was not at all or only a little helpful with regard to their misbehaviors. In some cases, school exclusion even aggravates student problems behaviors (Costenbader & Markson, 1998; Morrison, Anthony, Storino, Cheng, Furlong, & Morrison, 2001; NSZT, 2000; Skiba & Knesting, 2001; Townsend, 2000). By being left unsupervised, suspended or expelled students are more likely to associate with other delinquent students, school dropouts, and criminal offenders (Morrison, Anthony, Storino, Cheng, et al., 2001; Townsend, 2000). It is not difficult to find empirical evidence that suggests a high likelihood of serious problem behaviors among students who are suspended or expelled. According to Crowe (as cited in Walker & Steiber, 1998), 80 percent of daytime burglaries were committed by students who missed school or were excluded from school for a disciplinary reason. Not surprisingly, suspended or expelled students are at higher risk for being brought into the juvenile or criminal justice systems compared to students who are never suspended or expelled (Chobot & Garibaldi, 1982; NSZT,

2000; Walker & Sylwester, 1991).

Third, school exclusion has detrimental impacts on the educational outcomes of disciplined students. Previous research suggests that school exclusion is highly correlated with poor academic performance (Dupper, 1994), truancy (Williams, 1979), grade retention (DeRidder, 1991; Safer, 1986; Sellars, 1999), and school dropout (DeRidder, 1991, Ekstrom, Goertz, Pollack, & Rock, 1986; Jordan, Lara, McPartland, 1996; Quinn, 1991; Williams, 1989). Some researchers provide explanations for the relationship between school exclusion and undesirable educational outcomes. According to Morrison, Anthony, Storino, Cheng et al. (2001), for example, school exclusion often leads students to insufficient academic credits necessary for graduation. As a result, they are more likely to repeat grades or end their official education without a diploma. Johnston's study (1989) seems to support this explanation. Among those who have been sentenced to internal school suspension, the high school completion rate is only about 50 percent (Johnston, 1989).

The fourth concern is that school exclusion often contributes to poor mental health of students (Costenbaer & Markson, 1998; DeRidder, 1991; Noam, Warner, & Van Kyken, 2001), family conflict (Munn, Lloyd, & Cullen, 2000), and impaired social relationships (Morrison, Anthony, Storino, Cheng, et al., 2001). Suspended or expelled students commonly experience psychological stress such as feelings of anger (Costenbader & Markson, 1998), low self-respect or self-esteem (DeRidder, 1991), and feelings of powerlessness and helplessness (DeRidder, 1991). In addition, students who have been suspended or expelled often experience negative interactions with peers and teachers as a consequence of the stigma attached to such disciplines (Coleman, 1986; Costenbader & Markson, 1998).

The final concern relates to the long-lasting racial-ethnic disparities in school exclusion. In 1975, the Children's Defense Fund reported that disproportionate numbers of

racial-ethnic minority students were suspended and expelled from their school. Since the report, overrepresentation of racial-ethnic minority students in school exclusion have been consistently observed in numerous studies (Browner et al., 2001; Costenbader & Markson, 1998; Keleher, 2000; McFadden et al., 1992; Skiba et al., 2002; Thornton & Trent, 1988; Wu et al., 1982). As will be discussed in greater detail in the next section, the common finding is that racial-ethnic minority students in general are at greater risk than their White peers for school exclusion. Many civil right activists and academics believe that racial-ethnic minority students, particularly Black students, are unfairly disciplined in school. They fear that this disparity will intensify tensions and socioeconomic gaps between racial-ethnic groups in America. After examining the consequences of zero tolerance policies, the Civil Rights Project at Harvard University argued that "a great deal of statistical and anecdotal evidence supports the conclusion that children are being unfairly suspended and arbitrarily kicked out of school for incidents that could have been very easily handled using alternative methods" (NSZT, 2000, p.v.).

### **II.1.3. Racial-Ethnic Disparities in School Exclusion**

Racial-ethnic disparities have been regarded as a great concern with regard to school exclusion in the U.S. As introduced earlier, Black students represented only 17 percent of the entire student population, but their proportion of suspended students was 33 percent in the school year of 1996-1997 (Office for Civil Rights [OCR], 1998). In contrast, White students made up 63 percent of the student population, but composed only 50 percent of suspended students. Even more striking is that approximately 25 percent of Black male students received a suspension at least once during a four-year period (OCR, 1998). Overrepresentation of Black students in school exclusion is a consistent finding, regardless of region, state, and urbanicity.

Overrepresentation of Black students has been reported in numerous states including Florida (McFadden et al., 1992), New Orleans (Hyde & Ruth, 2002), Michigan (Studley, 2002), Louisiana (Thornton & Trent, 1988), Arizona (Brooks, Schiraldi, & Ziedenberg, 2000), Texas (Brooks et al., 2000), California (Brooks et al., 2000), Colorado (Brooks et al., 2000), Maryland (Browne et al., 2001), Massachusetts (Browne et al., 2001), Illinois (Browne et al., 2001), and South Carolina (Skiba & Knesting, 2001). In an investigation of eleven U.S. cities, conducted by the Applied Research Center in 2000, Black students were highly overrepresented in school exclusion in all the cities investigated (Keleher, 2000). In San Francisco, for example, Black students comprised 18 percent of the general student population, but accounted for 56 percent of disciplined students (Keleher, 2000).

Compared to Black students, information about Hispanic students in school discipline is rather limited. In addition, there does not seem to be a consistent pattern regarding Hispanic students' school exclusion. Some indicate overrepresentation of Hispanic students in school discipline while others do not. School discipline data of U.S. cities, collected and reported by the Applied Research Center (Keleher, 2000), however, reveal an interesting pattern: Hispanic students are significantly overrepresented in school discipline only when their proportion in the general student population is low. Among the ten cities that provided information on Hispanic students, Hispanic students were significantly overrepresented in only two cities (Durham, North Carolina and Salem, Oregon) where their proportion in the general student population was 10 percent or less. In Durham, Hispanic students comprised only 4 percent of the enrolled students, but represented 15 percent of disciplined students. Similarly, in Salem, Hispanic students represented 10 percent of the enrolled students, but comprised 22 percent of disciplined students.

In brief, previous studies and statistical data consistently show persistent

overrepresentation of Black students and underrepresentation of White students in school exclusion. Hispanic students' overrepresentation in school exclusion appears particularly significant in the areas where the Hispanic population is relatively small. However, no definitive conclusions can yet be reached about Hispanic students' school exclusion.

## **II.2. Explanation for Racial-Ethnic Disparities in School Exclusion**

People tend to think of “race” as a biological concept that categorizes people into distinctive groups based on physical characteristics such as skin color or hair texture. Despite this common belief, scholars in many disciplines such as anthropology, biology, and genetics concluded a long time ago that race is biologically meaningless (Omi, 2000). This implies that there is no such biological attribute on which people can be clearly classified (Omi, 2000). Furthermore, in terms of genetic characteristics, within-racial group variation is known to be much greater than between-racial group variation (DHHS, 2001). Nevertheless, there have been significant racial-ethnic gaps in many areas such as health, education, and socioeconomic status. Therefore, it can be said that racial-ethnic categorization is biologically meaningless, but socially meaningful. That is, as a social construct, racial-ethnic categories still have critical influences on human lives (Omi, 2000; DHHS, 2001).

In this regard, Bronfenbrenner's (1989) notion about race is insightful. He said that significant differences between racial groups are produced by different “processes” in their experiences, rather than by innate differences. Based on Bronfenbrenner's perspective, it is the life course differences, rather than naturally given attributes, that explain racial-ethnic group variations in many human development outcomes. In terms of research and data analysis methods, this perspective implies the existence of 3<sup>rd</sup> factors that account for the relation

between race-ethnicity and human outcomes. Regarding school exclusion, the potential 3<sup>rd</sup> factors can be classified into four categories: individual factors; family factors; school factors, and differential treatment factors. Each category of the potential 3<sup>rd</sup> factors provides a logical explanation for the racial-ethnic disparities in school exclusion, as illustrated in the following sections.

### **II.2.1. Individual Factor Explanation**

One possible explanation for racial-ethnic disparities in school exclusion can be found in individual student misconduct at school and functional impairments (e.g., various types of disabilities including learning disability and emotional disturbance)<sup>1</sup>. The key point of this explanation is that racial-ethnic minority students are more likely than White students to display undesirable attitudes and misbehaviors at school, and, therefore, are at greater risk for school exclusion. This explanation precludes racial bias since racial-ethnic disparities in school exclusion are natural consequences of individual problems and functional impairments more prevalent among racial-ethnic minority students than White students.

Although no study to date has yet directly tested the credibility of this explanation in a systemic way (Skiba et al., 2002), many statistical data on crime and delinquency appear to support this explanation. It is often reported that racial-ethnic minority people, particularly Blacks, commit criminal acts and are involved in misbehavior at higher rates than Whites (Federal Bureau of Investigation, 2004; National Research Council, 1993; Noguera, 1995; Rutter, Giller, & Hagell, 1998). A number of empirical studies also report that among the adolescent population, Black and Hispanic youth are more likely than their White peers to be

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<sup>1</sup> The definitions of ‘child with a disability,’ ‘learning disability,’ and ‘emotional disturbance’ by Individuals with Disabilities Education ACT are presented in Appendix A.

involved in problem behaviors and particularly serious delinquencies (Center for Disease Control and Prevention, 2004; DHHS, 2002; Hill & Drolet, 1999; Johnston, O’Malley, Bachman, & Schulenberg, 2005; McNulty & Bellair, 2003; Rutter, 1998; Tracy, 1987). Over the past decade, the proportion of students involved in physical fights is consistently higher for Black and Hispanic students compared to White students (DHHS, 2002). According to Hill and Drolet (1999), who investigated school related violence using nationally representative data, Black students were approximately 1.4 to 2 times more likely to carry a weapon, and 1.5 to 1.7 times more likely to be involved in physical fights on school property, compared to their White counterparts. In the same study, Hispanic students were also 1.3 to 2 times more likely than White students to be involved in those school violence acts. In addition, relative to White peers, Black youths were 5.5 times more likely to be arrested overall and 2.3 times more likely to be arrested for violent crimes (Williams, Ayers, & Arthur, 1997).

Another important individual factor is disabilities, including learning disabilities and emotional disturbances, because disabilities are well-known factors related to both school exclusion and race-ethnicity. According to Mellard and Seybert (1996), in Kansas, students with learning disabilities were almost 2.5 times more likely and those with conduct disorders were 11 times more likely to be suspended or expelled from their school compared to their counterparts without a disability. Higher risks of school exclusion were also observed in students with emotional disturbance. It was observed in Florida that the proportion of students with emotional disturbances was almost double their proportion in the general population (Florida State Department of Education, 1995). Given that emotional and behavior disorders are more prevalent among Black students, although the reasons remain unclear (Cullinan, 2002; U.S. Department of Education, 2005), a part of racial-ethnic disparities in school exclusion are possibly attributable to higher prevalence of disabilities among racial-ethnic minority groups

than Whites. Yet, no study has determined the effects of disability status on the relationship between race-ethnicity and school exclusion, indicating the need for such tests.

The individual factor explanation for racial-ethnic disparities in school exclusion seems commonly acknowledged and appreciated (Noguera, 1995). On the other hand, there are strong rejections against the theoretical attempts that attribute high risks of school exclusion among racial-ethnic minority students entirely to their individual problem behaviors. Critics of the individual factor explanation argue that individual student problem behavior explains only part of the racial-ethnic disparities in school exclusion, at best. They also argue that there is no clear evidence showing a significantly higher rate of misconduct among racial-ethnic minority students than their White counterparts (Skiba & Knesting, 2001).

In fact, some statistical data should be interpreted carefully. For example, arrest rates may not reflect people's actual involvement in criminal acts, but the percentage of people who have been detected to be involved in such acts. Accordingly, self-reported data are often considered more reliable than crime rates in delinquency or crime related research (Tracy, 1987). As critics of the individual factor explanation claim, studies utilizing self-report data often fail to find significant racial-ethnic differences in illegal acts (Williams et al., 1997). It is also noteworthy that racial-ethnic group differences in school exclusion usually exceed their differences in problem behavior and delinquency. Typically, the odds of Black students' school exclusion is higher than 2 compared to White students (Mendez et al., 2001). In many types of adolescent problem behaviors, however, the proportion of Black students who display problem behaviors usually do not exceed twice the corresponding proportion of White students (e.g., Hill & Drolet). Furthermore, Black students are consistently less likely to use or abuse almost all types of substances such as alcohol, tobacco, marijuana, and any illicit drug compared to White students (Fox, Connolly, & Snyder, 2005; Johnston, O'Malley, Bachman,

Schulenberg, 2005; U.S. Department of Education, 2003b). In sum, individual factors seem to provide a useful, but limited, explanation for racial-ethnic disparities in school exclusion, although the individual factor explanation has not yet been tested thoroughly.

### **II.2.2. Family Factor Explanation**

A second explanation focuses on family factors. This explanation relates the disproportionate representation of racial-ethnic minority students in school exclusion to their family disadvantages such as low socioeconomic status (SES) and non-intact family structure. Unquestionably, low family SES and non-intact family structure are risk factors for school exclusion (Dawson, 1991; Kingery, n.d.; Skiba et al., 2002; Wu et al., 1982) and they are also significantly associated with race-ethnicity (Lugaila, 1998; Williams & Collins, 1995). Family disadvantage factors appear to have direct and also indirect influences on the probability of school exclusion.

Family disadvantage factors indirectly affect school exclusion by increasing or intensifying student misconduct at school and poor mental health conditions, which are direct reasons or salient risk factors for school exclusion. An extensive body of research supports the notion that family SES or, its essential components, such as family income or parent educational attainment are significantly related to various developmental outcomes including attitudes, behaviors, and physical and psychological well-being (Cullinan, 2002). For example, youth from poor families are more likely to engage in delinquent acts, experience coition at earlier ages, be pregnant during adolescence, drop out of school, and be arrested than those from a wealthy or middle class family (Chazan, 2000; Cullinan, 2002; Gortmaker, Walker, Weitzman, & Sobol, 1990; National Research Council, 1993; Vosler & Enola, 1990; Zhou, 2001). In addition, children in low-income families are more likely to exhibit a symptom of

poor mental health, such as anxiety and depression because they are exposed to various stressful events (Gortmaker et al., 1990). Not surprisingly, numerous researchers have identified family SES as a critical risk factor for school exclusion (Costenbader & Markson, 1998; Skiba & Knesting, 2001; Townsend, 2000; Wu et al., 1982).

Similarly, a non-intact family structure also seems to raise the likelihood of school exclusion by magnifying student misconduct at school and various risk factors for school exclusion. It is well established that non-intact family structures are significantly associated with behavior problems (Gerard & Buehler, 2004; Gortmaker et al., 1990; McLanahan, 1997), delinquency (Thornberry, Smith, Rivera, Huizinga, & Stouthamer-Loeber, 1999; Wells & Rankin, 1991), and disruptive behaviors in class (Eamon & Altshuler, 2004) as well as social maladaptation and poor mental health (Kellam, Ensminger, & Turner, 1977; Stein & Jessop, 1984;). The effects of a non-intact family structure on various developmental outcomes are so strong that its significance usually does not disappear even after controlling for other important family factors, including family SES (McLanahan, 1997; NRC, 1993).

Factors related to family disadvantages can affect school exclusion directly as well. In Pennsylvania (Pennsylvania Legal Services, 2000), for instance, schools are supposed to have either an informal or a formal hearing with students and their families when discussing multi-day suspensions or expulsion, and students and their families are permitted to have an attorney present at the hearing. Bringing an attorney might result in relatively light disciplinary measures, suggesting that students from a high SES family are more likely to avoid severe disciplines such as long term suspension or expulsion compared to students from a low SES family. High occupational status of a parent (e.g., a parent who is a lawyer) could play a similar role in such a situation (Morrison, Anthony, Storino, Cheng, et al., 2001). It is also reported that teacher response toward student misbehavior varies depending on family backgrounds of

students. While students from high-income families are more likely to be disciplined in a gentle way (such as a lecture by the teacher or moving their desk in the classroom), low-income students are more likely to be disciplined in a relatively harsher way (being yelled at in front of their classmates, standing in the hall all day, or searching of the students' personal belongings) (Skiba & Knesting, 2001). It may not be coincidental that students, regardless of their family SES, feel that disciplinary practices are unfairly weighted against poor students (Skiba & Knesting, 2001).

Family disadvantage factors are, in general, significantly linked to race-ethnicity in the United States. The link between the two variables is so strong that race is used as an indicator of family SES in some studies (Williams & Collins, 1995). According to the U.S. Census Bureau (2003), poverty rates for Blacks and Hispanics in 2002 were 24 and 22 percent, respectively, while the poverty rate for Whites was only 8 percent. Racial-ethnic minority students are also in a disadvantaged status in terms of family structure (National Research Council, 1993). As of 1997, the proportion of Black students from a non-intact family was 65 percent, while that of White students was only 26 percent (Lugaila, 1998).

There seems to be a common view that a primary reason for racial-ethnic disparities in school exclusion is low family SES of racial-ethnic minority people. The National Association of Secondary School Principals (2000, p. 3), for example, asserts that "a higher incidence of ethnic and racial minority students being affected by zero tolerance policies should not be seen as disparate treatment or discrimination but in terms of an issue of socioeconomic status." Given that the significance of race disappears when socioeconomic status is controlled in some studies (Williams & Collins, 1995), including those on emotional and behavioral problems among children (Samaan, 2000; Vosler & Enola, 1990), the family factor explanation appears reasonable and logical.

Based on prior research on school exclusion, however, the plausibility of the explanation based on family factors seems too limited to completely account for the racial-ethnic disparities in the matter. A few available studies indicate that family disadvantage factors explain only a small proportion of racial-ethnic disparities in school exclusion. In a recent study by Skiba et al. (2002), adding SES as a covariate did not remove the significance of race effects on various school discipline measures and barely changed the magnitude of the effects. Therefore, many researchers argue that family SES only explains racial influence partially, and race is a significant contributor to school exclusion, independent of family SES (Skiba & Knesting, 2001). Noguera (1995) criticizes school officials who explain racial-ethnic disparities in school discipline with family SES, saying that they try to "avoid the charge of racism" (p. 201). To synthesize previous literature, it seems that family disadvantage factors provide a reasonable explanation for the significant effects of race-ethnicity on school exclusion, but do not fully explain the relationship.

### **II.2.3. School Factor Explanation**

Another reason for racial-ethnic disparities in school exclusion can be found in school characteristics. Regarding this explanation approach, it needs to be noted first that schools vary substantially in their utilization levels of school exclusion (Brooks et al., 2000; Browne, 2001; Children's Defense Fund, 1975; Mendez et al., 2001). In a study by Thornton and Trent (1988), the percentage of students with an experience of school suspension during a school year ranged from 3 percent for one school to 74 percent for another. Such huge school variations in the use of school exclusion might imply that school characteristics have something to do with the probability of school discipline. So far, however, little attention has been given to school factors in the attempts to explain the race-ethnicity effects on school exclusion (Davis & Jordan,

1994).

In this section, therefore, the school factor explanation relies largely on logical inferences and commonsense, rather than empirical study results, although empirical evidence is utilized whenever possible. Under the school factor explanation, school effects on the high likelihood of school exclusion among racial-ethnic minority students can be hypothesized in two ways.

First, in the schools where racial-ethnic minority students are dominant in number, problem behaviors are prevalent and, therefore, students are more likely to have a chance to be engaged in misconducts and delinquent acts, resulting in nationwide racial-ethnic disparities in school exclusion. One of the fundamental functions of schools is to socialize children (Coleman, 1986; Davis & Jordan, 1994). Certainly, school environments have significant influences on development and maintenance of student behaviors (Davis & Jordan, 1994). Among a number of school related variables, school safety and severity of student problem behaviors in schools could be considered the most critical factors that elevate individual misconduct and risks for school exclusion. Previous research indicates that many acts of adolescent misconduct and delinquency occur in and around school (Cullinan, 2002). It is also well documented that widespread behavioral disorders in schools and association with deviant peers increase various types of undesirable outcomes, including individual students' truancy, school dropout, rule breaking behaviors, and delinquency (Bowen & Bowen, 1999; Cullinan, 2002). Given that a higher proportion of racial-ethnic minority students attend unsafe schools with various problems compared to White students (Bowen & Bowen, 1999; Browne et al., 2001; Grant & Williams, 2000), it may be reasonable to hypothesize that the disproportionality of racial-ethnic minority students in school exclusion are attributed, at least partially, to the unsafe and detrimental environments of schools that exacerbate student misconduct at school.

A second possibility is that racial-ethnic minority students are at greater risk for school exclusion because their schools are more likely to resort to strict discipline policies to keep the school safe and orderly. Regarding this second postulation, there is a notable study finding. According to Brooks et al. (2000), schools that frequently use school exclusion as a method of discipline were not necessarily those with serious violence problems or unsafe environments. In Springfield, a small town in Massachusetts, and Lawrence, a small city in the same state, expulsion rates were 16.8 and 16.4 per 1,000 students, respectively (Brooks et al., 2000). In contrast, the rate was only 1.7 per 1,000 students in Boston, the largest city of the state, where crime and violence were more likely to be serious problems (Brooks et al., 2000). In addition, a case study of four junior high schools (Browne, 2001) reveals that the usage levels of school exclusion differ enormously, although the four schools are located in the same school district and comply with the same code of conduct. Through a pilot study and school administrator interviews, the author of the case study concluded that utilization of school exclusion was greatly influenced by a school administrator's philosophy toward discipline (Browne, 2001). These studies suggest that some schools administer school exclusion as discipline more often than others, irrespective of levels of student misconduct. Based on these studies, Children's Defense Fund's (1975) argument that the likelihood of school exclusion is a function of school policies and practices, rather than a function of student problem behavior, is persuasive.

To date, no one has systematically examined the influences of school environments and discipline policies as a reason for racial-ethnic disparities in school exclusion. Several available quantitative and qualitative studies, however, chorus that school characteristics are, at least partly, responsible for the variations in the usage level of school exclusion. Those studies implicitly suggest that racial-ethnic disparities in school exclusion can be explained by their school characteristics. Yet, this explanation has a major limitation. The school factor

explanation alone does not provide an adequate answer to the question as to why racial-ethnic minority students are at greater risk for school exclusion than White students within the same school. To understand the reasons for the racial-ethnic disparities in school exclusion, therefore, the school factor explanation needs to be considered along with other explanatory approaches.

#### **II.2.4. Differential Treatment Explanation**

Proponents of the differential treatment explanation believe that the disproportionate numbers of racial-ethnic minority students, particularly Black students, in school exclusions reflect the persistent racial discrimination, bias, and stigma against them in the United States (Noguera, 1995; Skiba et al., 2002; Studley, 2002). Indeed, an extensive body of research shows how racial-ethnic minority students are treated differently and perceived negatively in various educational and social contexts, including low teacher expectations (Irvine, 1990; Townsend, 2000), less positive relationships with teachers and staff (Taylor, Jacobson, & Roberts, 2000), and quality of instruction (Chazan, 2000; Skiba et al., 2002).

Proponents of this explanation do not necessarily deny the possibility that racial-ethnic disparities in school discipline are associated with a high prevalence of serious misconduct among racial ethnic minority students (Noguera, 1995; Skiba et al., 2002). Yet, they assert that differential treatment against racial-ethnic minority students is a key factor and that the consistent racial-ethnic disparities in school exclusion cannot be fully explained without consideration of the differential treatment factors (Mendez et al., 2001; Noguera, 1995; Skiba et al., 2002). The rationales or evidences which support this perspective can be summarized as follows.

First, the proponents of this explanation contend that the persistent disproportional

representation of racial-ethnic minority students in school exclusion is itself evidence of racial discrimination (e.g., McFadden et al., 1992). They highlight the study findings that the effects of race-ethnicity on school exclusion do not disappear after controlling for family SES. Regarding this point of view, it is also noteworthy that racial-ethnic differences in adolescent self-reported delinquencies are often insignificant (Tracy, 1987). That is, the logical steps of this first rationale are: (a) racial-ethnic minority students do not commit infractions at a significantly higher rate than White students; (b) nevertheless, racial-ethnic minority students are more vulnerable to school exclusion than their White peers; (c) the racial-ethnic differences in school exclusion cannot be fully explained by family SES; and (d) therefore, the racial-ethnic disparities in school exclusion indicate the evidence that racial-ethnic minority students are discriminately treated in their schools.

Second, the proponents of the differential treatment explanation pay attention to the previous report that racial-ethnic minority students are not only overrepresented in school exclusion, but also more likely to receive harsher disciplines in school (Thornton & Trent, 1988). According to McFadden et al. (1992), among the office-referred students for disciplinary action, White students were more likely to receive internal school suspension while Black students were more likely to receive external school suspension. They also reported that Black students were more vulnerable to corporal punishment than White students. McFadden and colleagues (1992) view these results as possible evidence that indicates the presence of discrimination against students of color in school settings.

Third, the proponents take notice of prior reports that racial-ethnic minority students are more likely to be suspended or expelled from their schools for relatively minor offenses. According to Skiba and colleagues (2002), who examined disciplinary records of a large school district in a Midwestern city area during the 1994-1995 school year, White students were more

likely to be referred to a discipline office for actions that were a clear violation of a school rule such as smoking, leaving without permission, vandalizing, and using obscene language. By contrast, Black students were more likely to be referred to the office due to subjectively judged offenses such as disrespect, excessive noise, threats, and loitering. Discipline records of South Carolina show a similar pattern. Black students were disciplined at a similar rate as White students for serious violations such as weapons carrying, but they were overwhelmingly overrepresented in minor offenses such as disturbance and loitering (Browner et al., 2001).

Regarding this finding, it may be worth noting that minor misbehaviors can sometimes be a reason for discipline but can be overlooked other times; this is unlike serious infractions which are dealt with mandatory punishment. This implies that negative stereotypes are more likely to play a role for the minor offenses than serious ones when a discipline measure is decided. The proponents of the differential treatment explanation view significant overrepresentation of racial-ethnic minority students in minor infractions as evidence showing the effects of negative stereotypes of school personnel against racial-ethnic minority students. That is, school teachers and administrators often perceive racial-ethnic minority students as dangerous or threatening and, as a result, the students are more likely to be suspended or expelled in an unfair way (Browne et al., 2001; Skiba, Michael, & Nardo, 2000).

The final rationale for a differential treatment explanation is based on student perceptions of racial discrimination in school. One study reveals that racial-ethnic minority students are more likely to think that racism has an impact on school disciplinary action (Ruck & Wortley, 2001). In a survey of 1,870 Canadian high school students, Ruck and Wortley (2001) found that racial-ethnic minority students were significantly more likely, compared to White students, to perceive unfair treatment against themselves and also other racial-ethnic minority students by school teachers. This perception was most prevalent among Black

students.

Although some of the logic and evidence presented by the differential treatment explanation are persuasive, they also have some limitations. First of all, it may not be sufficient evidence for differential treatment against racial-ethnic minority students that race-ethnicity effects on school exclusion are not fully explained by family SES. Many variables could mediate or confound the relationship between race-ethnicity and school exclusion. It should also be noted that in previous studies on school discipline, family SES was usually measured by the qualification for free school meal or family income only. Given that the level of parent education is often a more powerful factor than family income (Williams & Collins, 1995), the eligibility of free-lunch or family income may not be an adequate measure of family SES. That is, the reason why family SES does not fully account for the racial-ethnic difference in school exclusion could be due to inadequate measures of family SES.

Although the second and third rationales are compelling, neither of them can be considered rigorous proof for differential treatment against racial-ethnic minority students. The finding that racial-ethnic minority students are more likely to get harsher disciplinary action than White students does not necessarily indicate the existence of differential treatment against the minority students. The finding does not rule out a possibility that the disproportionate representation of racial-ethnic minority students in school exclusion correctly reflects their misbehaviors. Likewise, student perception cannot be sound evidence for differential treatment against racial-ethnic minority students either. Perception often differs from objective reality.

Despite its limitations, the plausibility of a differential treatment explanation cannot be easily denied, given the persistent and consistent overrepresentation of racial-ethnic minority students in school exclusion. The rationales of the differential treatment explanation are also

convincing to some extent. As long as this explanation has the potential to explain the significant effects of race-ethnicity on school exclusion (at least partly), it needs to be considered when racial-ethnic disparities in school exclusion are examined.

### **II.3. Compensatory and Protective Factors for Adolescents**

This section first reviews risk and protective factor frameworks, and relevant literature that are utilized for the third and fourth study objectives. Then, it introduces potential compensatory and protective factors for school misconduct and school exclusion selected from previous studies.

#### **II.3.1. Risk and Protective Factor Framework**

Risk factors are defined as “any influences that increase the probability of onset, digression to a more serious state, or maintenance of a problem condition” (Kirby & Fraser, 1997, p. 10-11). The attempts to identify risk factors are rooted in epidemiology and public health research that are primarily concerned with the etiology of diseases and health related problems (Nash & Fraser, 1997). Influenced by epidemiological approaches, risk factor research intends to uncover potential causes and patterns of problem occurrences (Nash & Fraser, 1997). Such research efforts contribute to improved preventions and treatment interventions in many clinical fields by providing a useful framework, based on which at-risk population and target issues for problem solving are efficiently identified (Nash & Fraser, 1997; Office of the Surgeon General [OSG], 2001).

In spite of its significant contributions, the risk factor frameworks are considered to have some limitations. One major limitation is that many risk factors are not easy to modify

(OSG, 2001). A single parent family structure may be a good example. Although a single parent family is often identified as a risk for various problem behaviors among adolescents, it is neither practical nor desirable to aim at changing the family structure in clinical intervention. A second major limitation of a risk factor framework is its susceptibility to stigmatizing at-risk populations as unhealthy and helpless people (Norman, 2000). In short, a risk factor framework is useful particularly when at-risk populations need to be identified. Risk factors that are often unalterable, however, make it difficult to present practical strategies for problem solving and to view at-risk people as individuals capable of overcoming the odds against them.

Therefore, growing interests in protective factors are by no means surprising. Protective factor research was triggered by the observations that people who had been exposed to similar levels of risks displayed widely different outcomes later in their lives (Anthony, 1987; Fraser & Galinsky, 1997). This led investigators in various fields to a search for the factors that insulate vulnerable people from hostile adversities and promote their resiliencies to problems (OSG, 2001). Although protective factors are now given more attention than ever, it is yet at the early stage of conceptual development. Over the past couple of decades, numerous definitions and conceptual frameworks of protective factors were proposed, but even the definition of the concept of a protective factor is a controversial issue.

One approach views protective factors as those negatively associated with undesirable outcomes or positively associated with desirable outcomes without consideration of risk factors. Nash and Bowen (1999, p.172), for instance, state that “protective factors are associated with positive outcomes or with reduced occurrence of harmful outcomes.” If defined in this way, protective factors are virtually the same as risk factors, because risk factors indicate one end of a continuum in a concept while protective factors refer to the opposite end of it (OSG, 2001). From this perspective, for example, high academic achievement is a protective factor whereas

low academic achievement is a risk factor for problem behavior. Due to the lack of a clear conceptual distinction between risk and protective factors, the utility of this approach is often criticized. Hawkins, Gatalno, and Miler (1992), for example, contend that if a protective factor is the exact opposite of a risk factor in the same concept, it adds little information. The authors further argue that, to be a useful construct, protective factors should demonstrate the effects making difference in outcomes among individuals with similar risk exposure.

The perspective of Hawkins and colleagues supports a second approach that clearly differentiates protective factors from risk factors, but considers protective factors only in concert with risk factors. The following definition represents this approach: “protective factors modify (ameliorate, buffer) a person’s reaction to a situation that in ordinary circumstances leads to maladaptive outcomes. A protective factor is evident only in combination with a risk variable”(Werner & Smith, 1992, p. 5). Focusing on youth violence, the Office of Surgeon General defines protective factors as “characteristics or conditions that interact with risk factors to reduce their influence on violent behavior” (OSG, 2002, Ch. 4, Section for Protective Factors, ¶2). A core idea of the second approach is that protective effects are posited to have an interactive relationship with risk factors (Hawkins et al, 1992; OSG, 2002).

A third approach combines the first with the second but still keeps the different qualities of the two approaches. In their study on stress and competence among children, Garmezy and colleagues differentiated protective factors from compensatory factors, such that the latter was defined as those negatively associated with an undesirable outcome while the former was identified as those moderating the effects of risk factors on the outcome (Garmezy, Masten, & Tellegen, 1984). Adapting this conceptual and statistical framework to a study on adolescent conduct problems, Gest, Neemann, Hubbard, and Telegen (1993) articulately explained the difference between compensatory and protective factors as follows:

a characteristic was called a *compensatory factor* when it predicted better outcomes at both high and low levels of adversity exposure (i.e., a statistical main effect). A characteristic was called a *protective factor* when it was associated with sustained adequate functioning in the face of adversity by persons with high levels of the characteristic (p. 664)

Gest et al. (1993) further specified that a protective factor moderates the association between adversity and outcomes, and the existence of a protective effect is identified by its significant statistical interaction term with the adversity.

This third framework is considered suitable for the current study because racial-ethnic minority status is an identified risk factor for school exclusion, and both compensatory and protective factors seem informative regarding the efforts to alleviate the racial-ethnic disparities in school exclusion. Based on the third conceptual framework, therefore, potential compensatory and protective factors were selected from the previous literature and the effects of the factors are empirically tested in the present study.

Protective factor concepts and frameworks, regardless of the types, are considered useful in some aspects because the frameworks have great potential to provide practical guidelines about how policy makers and practitioners in the helping professions can reduce the odds of undesirable outcomes among people in needs. In addition, protective factor frameworks dramatically reduce a risk of stigmatizing vulnerable people by focusing on their strengths. Given these qualities, protective factor frameworks are deemed particularly appropriate for social work since the faith in people's innate capability and strong orientation toward problem-solving are placed at the very core of the profession (Norman, 2000).

### **II.3.2. Compensatory and Protective Factors for School Misconduct and School Exclusion**

For empirical tests in the current study, a total of eleven potential compensatory/protective factors<sup>2</sup> for school misconduct and school exclusion were selected from the previous literature. As stated in the previous section, selection of these potential factors is guided by the compensatory and protective factor framework. The process of selecting the potential compensatory/protective factors was also guided by ecological models, including Bronfenbrenner's (1979) ecological system theory. A number of scholars have noted that risk or protective factor frameworks can be harmoniously incorporated into an ecological model (e.g., Fraser, 1997; Nash & Bowen, 1999; Vosler & Enola, 1990; Williams et al., 1997).

The influences of ecological models on this study are reflected in the following two aspects. First, based on a conceptual framework of ecological models, the potential compensatory and protective factors were searched, and identified in various levels of student ecology, covering individual, family, peer, and school level. As specified in the next section, out of the selected eleven compensatory/protective factors, seven are located at the individual-, family-, and peer-level (level-1) while four are placed at the school-level (level-2). Secondly, in the selection process, a priority was given to an interactive relationship between different levels of ecology rather than a static attribute located at one level of ecology. This is because ecological models, in general, highlight the intertwined connection between a person and his/her environments (Bronfenbrenner, 1979, 1989; Garbarino & Abramowitz, 1992), and also because such interrelationship variables are considered a proper target of clinical intervention.

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<sup>2</sup> Although a protective factor is conceptually differentiated from a compensatory factor in the current study, it is possible for one factor to be both a compensatory factor and a protective factor at the same time. When a factor is found or presumed to have both functions with regard to an

### ***II.3.2.a. Individual, Family, and Peer Level Compensatory/Protective Factors***

#### ***Academic achievement***

Academic achievement is one of the variables that is most often investigated and found significant with many critical developmental outcomes in research on adolescents. Previous studies consistently indicate that low academic achievement is significantly related to adolescent problem behaviors and delinquency, while high achievement is linked to lower levels of such behavior problems (Crosnoe, Erickson, & Dornbusch, 2002; Lambert, 1988; Magdol, 1994; Maguin & Loeber, 1996; Morrison, Anthony, Storino, & Dillon, 2001; National Research Council and Institute of Medicine, 2000). The effects of academic achievement are so strong that the significance of the effects often sustains after adjusting for family socioeconomic status (Maguin & Loeber, 1996). In connection with school exclusion, however, the studies that assessed the effects of academic achievement are scarce. Although no study has yet aimed to determine its protective function in this regard, the compensatory and protective effects of academic achievement on school exclusion are promising given that academic under-achievers are more vulnerable to school exclusion (Morrison, Anthony, Strino, & Dillon, 2001; Wu et al., 1982).

#### ***Academic orientation***

Academically-orientated students are those who value education and are eager to make a commitment to school (Crosnoe, 2001). Although relatively less attention has been given to the construct “academic orientation” compared to academic achievement, recent studies have

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outcome variable, the factor is sometimes described as “a compensatory/protective factor” in this study.

started to recognize its desirable effects on adolescents. Those studies revealed that students who were academically oriented and committed to learning are less likely to be engaged in deviant behaviors (Crosnoe et al., 2002; Erickson, Crosnoe, & Dornbusch, 2000). In addition, academic orientation was found to have a significant association with school exclusion. In a study that surveyed 620 junior and senior students in two school districts, students who had never been excluded from school had higher school interests than those who had received an internal school suspension, and students with an experience of internal school suspension had higher school interests than those with an experience of external school suspension (Costenbader & Markson, 1998). It was also observed in a study using a national sample that students who were not happy to be at school were approximately 3 times more likely to be excluded from their school compared to their peers who were happy (Kingery, n.d.).

### ***Parent-student shared activity***

In the current study, parent-student shared activity is identified as a potential compensatory/protective factor for school misconduct and school exclusion because such activities are considered to provide an opportunity of positive interaction between a parent and their adolescent child. A substantial body of research shows that the family-child relationship plays an important role in human development (Bowlby, 1995; Geismar, 1986). Not only did harsh parenting and low levels of parent affection increase behavior problems among youth (Florisheim, Tolan, & Gorman-Smith, 1998; Patterson, Grosby & Vuchinich, 1992; Pettit & Dodge, 1993; Vosler & Enola, 1990) but they also raise a risk of school exclusion (Kingery, n.d.). By contrast, affectionate parent-child relationship and active parent involvement in a child's life are associated with a low likelihood of adolescent behavior problems (Eamon & Altshuler, 2004; Fox, Platz, & Bentley, 1995; Resnick et al., 1997). Noting the high levels of

parent-child interactions among resilient students, McMilan and Reed (1994) argue that parental supports and commitment protect at-risk students from harmful environments because those parents provide informal counseling and the opportunities to feel a family tie. Based on an extensive literature review, Pettit and Dodge (1993) presented several protective mechanisms about how positive and proactive parenting styles buffer children against developmental problems. They proposed that such parenting styles are more likely to meet the emotional needs of a child, decrease the chances of a child's misbehavior engagement, facilitate his or her learning of proper social skills, and boost the positive bond between parent and a child.

### ***Parent involvement in school***

There is abundant evidence supporting that positive parent involvement contributes to student behavioral adjustment and high academic performance (Bayers, Bates, Pettit, & Dodge, 2003; Bronstein, Clauson, Stoll, & Abrams, 1993; Kelein & Forehand, 2000; Reynolds & Gill, 1994). Parent involvement in school, such as attending school activities, is considered a component of such positive parent involvement (Jenkins, 1997). Parent involvement in school or schooling not only reduces externalized behavior problems (Bennett, Elliott, & Peters, 2005; Stewart, 2003) but also mediates the desirable effects of authoritative parenting, which is characterized as high acceptance, supervision, and psychological autonomy granting on student school engagement and academic performance (Steinberg, Lamborn, Dornbusch, & Darling, 1992). Crosnoe and colleagues (2002) suggest that the protective function of parent involvement is likely drawn from emotional bonds between parent and child since adolescents are more likely to respect their parent's opinion when the parents are perceived to care about the youth themselves.

### ***Bond with teacher***

Bonding with teachers indicates emotional connection of a student toward his or her school teachers. It has been noted that close bonding with at least one caring adult out of home is beneficial for human development, particularly for at-risk youth (McMilan & Reed, 1994). Given the critical roles of teachers such as knowledge imparting and disciplining, teachers are often considered as the right persons to be role models and afford emotional support for adolescent students. Not surprisingly, prior literature suggests that bond with teachers lowers the risk of school discipline, as well as the likelihood of school misconduct (Crosnoe et al., 2004; Kingery, n.d.; Noddings, 1992). Previous literature also indicates that a student bond with teachers promotes student adjustment and academic achievement (Crosnoe et al., 2004; Sanders & Jordan, 2000). It is particularly noteworthy that resilient students tend to view school personnel as those interested in the students and those who help them succeed (McMilan & Reed, 1994).

### ***Extracurricular Activity***

The benefits of participating in extracurricular activities have been researched in various disciplines. Although some recent studies revealed that some types of extracurricular activities can increase risk behaviors such as drinking alcohol (Barber, Eccles, & Stone, 2001; Eccles & Barber, 1999), a substantial body of research supports the beneficial effects of extracurricular activities among adolescents. The common advantages of adolescent extracurricular activities include having leisure time in a safe and structured way, reducing the chance to engage in delinquent peer association, building mentoring relationship with caring adults, heightening positive self-images, and facilitating cognitive development (Zaff, Moore, Papillo, & Williams, 2003). School based extracurricular activities have been given particular

focus with regard to adolescent research because such activities appear to have many desirable effects on adolescent development. For example, in-school extracurricular activities are found to have bigger effect sizes on academic achievement than those provided out of school (Gerber, 1996). Another advantage of school-based extracurricular activities over other out-of-school activities is that students are viewed as more involved in school by school personnel (McMillan & Reed, 1994; Townsend, 2000). Previous studies also report that school-based extracurricular activities are inversely associated with early school drop-out and criminal arrests among at-risk adolescents (Mahoney, 2000).

### *Academic orientation of close friends*

Adolescent research is replete with studies on peer association. It is not surprising because adolescence is the developmental period when the influences of family members decline while peer influences increase (American Psychological Association, 2002). Previously, harmful impacts of peer relationships on developmental outcomes were given major focus in the studies on adolescent friendships (Crosnoe, Cavanagh, & Elder, 2003). For instance, Dishion and colleagues illustrated how interactions and communication patterns in adolescent peer association generated and reinforced deviant behaviors (Dishion, Edy, Haas, Fuzhong, & Spracklen, 1997). Recently, however, a growing body of research began to note the beneficial effects of adolescent friendship. For instance, it was observed in a study that not only academic achievement of peers, but also their school attachment, was connected to low levels of off-track academic behavior, which was measured by several items including grade retention and poor academic performance, and school discipline experiences (Crosnoe et al., 2003). In an another study (Morrison, Anthony, Strino, & Dillon, 2001), students without a previous experience of school suspension were more likely to report that their peers considered

academic excellence important compared to those with such an experience. These studies may suggest the potential compensatory and protective effects of associating with academically-oriented peers with regard to school misconduct and school exclusion.

### ***II.3.2.b. School Level Compensatory/Protective Factors***

#### ***Academic climate at school***

School climate is defined as “the feelings that students and staff have about the school environment over a period of time” (Peterson & Skiba, 2001, p.167) and it is often referred to as one of the most salient characteristics of effective schools (Imich, 1994). Existing evidence suggests that schools with a positive academic climate are significantly and positively associated with student academic achievement (Smyth, 1999) whereas schools that stress discipline issues are inversely linked to student academic achievement (Davis & Jordan, 1994). It is also documented that schools with low utilization levels of school exclusion tend to put more focus on academic achievement and school climate rather than discipline (Bickel & Qualls, 1980; Imich, 1994; Skiba & Knesting, 2001).

#### ***Fair school rules***

Regarding school characteristics in disciplinary policies and administration, fairness can be considered a potential compensatory/protective factor. Although empirical evidence on effectiveness of school rules and fair implementation are rather limited, available studies report that school rules can be good measures to keep students from misconduct when the rules are fairly implemented or perceived as fair by students. Jenkins (1997) found that the student belief in fair and consistent school rules is inversely associated with school crime, school

misconduct, and school nonattendance problems. According to Gottfredson (1989), violent and disruptive student behaviors are more likely to be prevalent in schools where students perceive school rules as unfair and inconsistent.

### ***Students' awareness of school punishment***

Another potential compensatory/protective factor at the school level is students' awareness of school punishment. In order for students to comply with school rules, first of all, school rules and relevant sanctions need to be well disseminated among students. Based on existing literature, clear standards for rule violations and a school's response to such behaviors seem key to effective school discipline. Violent and disruptive student behaviors are more likely to occur in the schools where the rules are perceived as unclear, and teachers and administrators often disagree with each other on the school's response to student misbehaviors (Gottfredson, 1989). Conversely, one of the common characteristics of safe and orderly schools is that school rules are clearly specified and made known to every one in the schools so that students understand what behaviors are acceptable and what behaviors are not (Cotton, 2001).

### ***Parent participation in setting school policy***

Educators and researchers often cite parent-school partnership as an important school characteristic that contributes to successful student outcomes. Comparing Catholic and public schools, Coleman (1988) argues that Catholic schools outperform public schools because the former is more likely than the latter to create high levels of social closure, a concept emphasizing mutual responsibility and accountability between schools and parents. In a similar vein, Cotton (2001) identified a close tie between school and communities as one of the

general qualities of safe and well-managed schools. According to her, those schools tend to provide parents with many opportunities to be involved in school functions. It seems particularly true for the high schools and their students. Based on school administrator interview and qualitative data analysis, Mendez and colleagues (2001) found that, at the high school level, a major difference between schools with low rates of out-of-school suspension (OSS) and those with high rates lied in the levels of parent involvement in schools. They reported that compared to high OSS schools, low OSS schools were more likely to encourage parent in-put when developing school discipline plans.

#### **II.4. Summary of Previous Studies**

In Chapter two, previous studies on school exclusion, risk-protective frameworks, and potential compensatory and protective factors for school misconduct and school exclusion are reviewed. The chapter began with the review of important background information about school exclusion. Although many American schools have adopted zero tolerance policies to address student rule breaking behaviors and enhance school safety, numerous scholars and educators criticize frequent use of school exclusion as a form of discipline, noting the detrimental impacts of such harsh discipline methods, including exacerbated student misbehaviors and an increased risk of school drop-out.

Persistent racial-ethnic disparities in school exclusion have been considered one of the greatest concerns with regard to school exclusion. To better understand the reasons for the problem, the second section of this chapter introduces four explanation approaches – individual factor explanation, family factor explanation, school factor explanation, and differential treatment explanation. One commonality of these explanations is to view racial-ethnic

disparities in school exclusion as a consequence of the effects of 3<sup>rd</sup> factors. As the name of each explanation implies, the individual factor explanation emphasizes the characteristics of individuals such as school misconduct and functional impairment; the family factor explanation stresses family disadvantages such as low family SES and non-intact family structure; the school factor explanation highlights school-level factors such as unsafe and disorderly school environments; and the differential treatment explanation contends that unfair treatments against racial-ethnic minority students in schools are the most critical reason for the racial-ethnic disparities in school exclusion.

The final section of the second chapter summarizes previous studies on risk-protective factor frameworks, with particular emphasis on the compensatory and protective factor model for adolescents. The final section also presents the potential compensatory/protective factors for school misconduct and school exclusion, which were selected from previous literature. Seven factors are placed at the individual-, family-, and peer-level (academic achievement, academic orientation, bond with teachers, extracurricular activities, parent-student shared activities, academic orientation of close friends, and parent involvement in school). Four factors are located at the school-level (academic climate at school, students' awareness of school punishment, fair school rules, and parent involvement in setting school policy).

In the next chapter, the dataset, the study sample, the measurement of the variables, and data analysis methods used for the current study are detailed.

### **III. METHODS**

#### **III.1. Data and Study Sample**

##### **III.1.1. Overview**

The data for this study were drawn from the Education Longitudinal Study of 2002 (ELS:2002) base year data collected by the National Center for Education Statistics (NCES), the U.S. Department of Education. ELS:2002 was designed to monitor the life transition of a national sample of high school students as they proceed from high school into postsecondary education or the labor force. The base year of the ELS:2002 provides information about a nationally representative sample of U.S. high school sophomores.

As the fourth in a series of school-based longitudinal studies by NCES, the sampling design and contents of ELS:2002 build on three previous datasets, The National Longitudinal Study of the High School Class of 1972 (NLS-72), High School and Beyond (HS&B), and the National Education Longitudinal Study of 1988 (NELS:88). Although these four datasets share many qualities, the ELS:2002 tried to enhance its three predecessors by updating survey questions and extending the time line. The ELS:2002 has two distinctive characteristics. First, the ELS:2002 is a multilevel dataset. Information was obtained from multiple respondents, including students, their parents (or primary care givers of the students), their teachers, and school administrators of the students. Such multilevel foci of the ELS:2002 enable researchers to have a comprehensive understanding of the study subjects and their environments. More specifically, various information sources make it possible to investigate the effects of dynamic interaction between students and such key people on the developmental outcomes of the students. The other major characteristic of the ELS:2002 is that it is longitudinal data. The

base year data was collected in 2002, and the first and second follow-up data were scheduled to be gathered in 2004 and 2006, respectively. Considering the traits of the ELS:2002 as a longitudinal dataset, the ELS:2002 is especially recommended for studies on educational processes and outcomes, predictors of dropping out, and high school effects on student success on postsecondary education or labor force participation.

The primary information available in the base year includes student attitudes toward schools; scholastic aptitude and cognitive tests regarding English and Math; home environment and family backgrounds; various aspects of parent-child relationships; school effectiveness; safety and physical environmental quality of the school; and teacher evaluation of students about their attitude, behavior, and academic activities. More detailed information about the dataset is available elsewhere (e.g., Ingels, Scott, & Owings, 2004; NCES, 2004).

### **III.1.2. Sampling and Subject Eligibility**

The base-year subjects of the ELS:2002 were selected through the two-stage stratified probability sampling method. In the first stage, schools were stratified by geographic areas and urbanicity. The nine U.S. Census divisions and urbanicity were utilized as stratification filters for public schools while the four geographic regions (Midwest, Northeast, South, and West) and urbanicity were used for private schools. Target schools were those that were in operation when they were contacted and had 10<sup>th</sup> graders enrolled. From a population of 27,000 schools, 1,221 schools were selected based on probability proportional to size (PPS). PPS sampling technique provides each cluster with a selection chance proportionate to its size so that every subject in a final sample is given the same chance of being selected for a study (Rubin & Babbie, 2000). Among the eligible schools, a total of 752 schools actually participated in the ELS:2002, yielding a 62 percent of school response rate.

The selection unit of the second stage was students in the 10<sup>th</sup> grade as of the Spring term of 2002. All of the 10<sup>th</sup> graders in the selected schools were eligible as long as they were considered capable of completing the student survey questionnaire. Among 17,591 sampled students, a total of 15,362 students took part in the ELS:2002, an overall student response rate of 87 percent.

### **III.1.3. Data Collection**

During school recruitment processes, the issue about how to obtain parental permission was discussed with schools. Prior to administering the student survey, a consent form was sent to parents of all the sampled students in a packet with a letter about the study, a brochure about the study, an envelope, and an endorsement letter of the school principal if available. Parental permission about their child' participation in the ELS:2002 was checked based on the method that was decided with schools during school recruitment process. Passive parental consent was encouraged, but active consent was allowed, for the schools which expressed their preference for it. For parents of schools requiring active consent, a parent consent form was returned to the research team in order that their child could participate in the ELS:2002. For parents of schools allowing passive consent, student participation was allowed as long as the parents did not express their intent of refusal by sending the consent form to the research team.

Student data was collected in their schools from January 2002 to June 2002. A team composed of a survey administrator and an assistant administered the student survey at each school. If there was a student who missed the survey originally planned, a make-up survey day was scheduled. Among the 15,362 students participating in the ELS:2002, most students were surveyed on the original survey day (85.4 %) or the make-up day (11.1 %). A small fraction of

the sampled students (3.5%) were phone-interviewed outside their schools. The majority of the students (96.2 %) responded to the full version of the student survey questionnaire, while 3.8 percent responded to the abbreviated version.

Parent questionnaires were mailed to all parents of the sampled students. The mailing addresses were obtained from school or from student responses to the survey question. Parent questionnaire packets included a lead letter and brochure explaining the study, the parent questionnaire, and a postage-paid return envelope. A reminder postcard was sent to the parents who did not respond within one week. For those parents, a telephone phone interview was tried. If the parents were reluctant to participate in the ELS:2002, a short version of the phone interview was offered to gather key socio-demographic information only. A total of 13,488 parents participated in the ELS:2002. Parent data was collected from January 2002 to October 2002.

To obtain teacher evaluations of the sampled students, a teacher survey was conducted. The respondents of the teacher survey were those who taught math or English to any sampled student during the semester prior to the ELS data collection. All eligible teachers were sent a questionnaire packet containing a lead letter, a brochure explaining the study, the ELS:2002 Uses of Data booklet, a list of sampled students about whom the particular teacher was supposed to report, the teacher questionnaire, and a postage-paid return envelope. Ninety-two percent of students participating in the ELS:2002 were evaluated by at least one of their two previous math or English teachers.

School administrator questionnaires were mailed to the schools with a lead letter, a brochure explaining the study, the ELS:2002 Uses of Data booklet, and a postage-paid return envelope. Although any school staff member could respond to general questions about the school, the principal was asked to respond to the questions about school governance and

climate. Approximately 88 percent of the schools sent their response by mail and roughly 11 percent of the schools responded to the abbreviated form of the telephone interview. In addition, each school was asked to respond to a library media center questionnaire. A total of 718 schools (95.5%) completed this questionnaire. Data from teachers, school administrators, and a staff responsible for library media center of the school were collected from January 2002 to September 2002.

#### **III.1.4. Study Sample**

To assess student behavior and interaction with others, as well as family and school environment from various perspectives, four filtering processes were introduced and a subset of the base-year sample of the ELS:2002 was actually used for this study.

The first filter is student race-ethnicity. Since racial-ethnic differences in school exclusion are the primary interest of this study, and only Whites, Blacks, and Hispanics have a big enough sample size that allows reasonable statistical comparisons among racial-ethnic groups, only the three major racial-ethnic groups were selected for the study. This filtering process excluded 2,261 students from 14,776 who answered to the full version of the student questionnaire.

The second filter is parent report. Some important variables of this study, particularly those related to family relationship, student past behavior problem, and disability status are available only in the parent survey. Accordingly, 2,255 students whose parent did not responded to the full version of the parent questionnaire were dropped off.

The school administer report is the third filter applied. The study objectives require a somewhat comprehensive assessment about school environment including school safety, academic atmosphere, and prevalence of student problem behaviors at school. Because such

information is available in the school administrator survey, 1,066 students attending a school whose top administrator did not participate in the ELS:2002 were filtered out in the third stage of the selection process.

The final filter is the teacher report. In this study, a proper measure of school misconduct is a critical issue. The variable is used to test one of the confounding effects explaining the relationship between student race-ethnicity and internal school suspension, and it is also a dependent variable for Study Objective 3. Although adolescent self-report is generally considered adequate and commonly used to measure juvenile offenses (Elliott, Huizinga, & Morse, 1987; Tracy, 1987), it is not free from potential biases such as underreport of problem behaviors. Empirical evidence indicates that incorporating self-report of youth delinquency with teacher or parent reports enhances predictive validity (Farrington, Loeber, Stouthamer-Loeber, Kkammen, & Schmidt, 1996). To obtain a better measure, teacher report of student classroom behavior was combined with student self-report of their school misconduct in the current study. As a consequence, 478 students without the teacher report were excluded, leaving the final study sample of 8,716 students.

Table III-1 summarizes the sample selection process and compares the social, economic, and demographic characteristics of the samples chosen through each filtering process. Gender compositions and means of academic achievement scores are relatively similar across all the samples. In terms of family income, non-intact family structure, and highest parent education, however, the proportion of subjects from a socially and economically advantaged home slightly increase as more filters apply. The filtering process also brought some changes to the racial-ethnic compositions of the sample. The more filters applied, the fewer racial-ethnic minority students. The proportions of Black and Hispanic students, which were 16 and 17 percent when only Filter 1 was applied, became 13 and 14 percent, respectively,

in the final sample. In contrast, the proportion of White students increased from 67 to 73 percent.

**Table III–1. Sample Selection Process and Sample Characteristics**

	<b>Mean</b>				
	ELS 2002 base year Sample <sup>a</sup>	Filter 1 <sup>b</sup>	Filter 1 – 2 <sup>c</sup>	Filter 1 – 3 <sup>d</sup>	Filter 1 – 4 <sup>e</sup>
<b>Student race-ethnicity</b>					
White	.57	.67	.71	.72	.73
Black	.13	.16	.14	.13	.13
Hispanic	.15	.17	.16	.15	.14
Other	.15	N.A.	N.A.	N.A.	N.A.
<b>Gender (male)</b>	.50	.50	.49	.49	.49
<b>Family income</b>					
Less than \$25,000	.21	.20	.18	.18	.17
\$25,001 - \$50,000	.31	.31	.30	.29	.29
\$50,001 - \$75,000	.20	.21	.21	.22	.22
Higher than \$75,000	.28	.29	.31	.31	.32
<b>Non-intact family structure</b>	.41	.41	.39	.39	.39
<b>Highest parent education</b>					
Less than high school	.06	.06	.05	.04	.04
High school/GED	.20	.20	.19	.19	.19
Some College	.33	.34	.34	.34	.34
College graduation or higher	.41	.40	.42	.43	.43
<b>Academic achievement</b>	50.6	50.5	51.4	51.5	51.7
<b>N</b>	14,776	12,515	10,260	9,194	8,716

<sup>a</sup> This sample includes only the students who responded to the full version of the questionnaire.

<sup>b</sup> **Filter 1:** Only three racial-ethnic groups (Whites, Blacks, & Hispanics)

<sup>c</sup> **Filter 2:** Only students with parents who responded to the full version of parent survey questionnaire

<sup>d</sup> **Filter 3:** Only students whose school administrator responded to the full version of school administrator survey questionnaire

<sup>e</sup> **Filter 4:** Only students about whom at least one of the previous teachers reported

Therefore, the analysis results might be rather conservative such that socio-economically disadvantaged students and racial-ethnic minority students are somewhat disproportionately under-represented in the sample. This implies a possibility that the filtering process causes estimation biases. This kind of defect is often an unavoidable cost for a multifaceted assessment of human ecology using data collected from multiple sources. Thus, it is important to judge whether the cost is less than or at least balanced with the substantive significance of the study.

In terms of cost, the potential estimation biases may not be so detrimental given that social, economic, and demographic characteristics of the study sample are not very different from those of the three racial-ethnic groups in the ELS:2002 base year sample (the sample to which only Filter 1 is applied). As seen in Table III-1, proportions of most subcategories of race-ethnicity, gender, family income, family structure and parent education are within 3 percent differences between the two samples. Furthermore, the size of the final sample still seems large enough to have a high level of statistical power. Thus, the study sample may not have a serious problem to detect significant relationships between variables of interest even though the introduction of the filtering process resulted in non-negligible case loss. Considering that this study is the first that aims to determine the effects of race-ethnicity, explain the reasons for higher risks of racial-ethnic minority students, and identify compensatory and protective factors with regard to school exclusion using national data, the significance of this study may outweigh the costs associated with a potential bias due to underrepresentation of certain groups in the sample.

## **III.2. Measurements of Variables**

### **III.2.1. Key Variables: Primary Independent, Control, and Dependent Variables**

This study has two dependent variables. In the analysis models for Study Objectives I, II, and IV, the dependent variable is the experience of internal school suspension during the previous semester. For Study Objective III, school misconduct is used as a dependent variable. Two dummy variables regarding student race-ethnicity (Black and Hispanic) are the primary independent variables across the study objectives. This study uses several control variables, but only gender is consistently used in all the models developed for this study. Table III-2 provides detailed information about how these key variables were measured and coded.

#### ***Dependent Variables***

The primary dependent variable is student experience of internal school suspension in a semester prior to the survey. It is based on student self-report. If a student had been under internal school suspension during the semester, the answer was coded 1 and otherwise 0.

The other dependent variable is school misconduct. As aforementioned, school misconduct was assessed based on teacher report as well as student self-report. Out of seven questions utilized for this variable, six questions were asked to students and one question was asked to teachers. Six questions asked to students cover class attendance, homework completion, rule breaking experience, and physical fighting. The question asked of teachers evaluates student disruptive behavior in class. Since the answer categories for the seven questions are not identical, they were first standardized into z scores and then a mean was computed. Cronbach's alpha for the seven z-scores is .68 and the final mean score ranges from -.87 to 3.15 in the study sample.

**Table III–2. Description of Primary Independent, Control, and Dependent Variables**

Category	Variables	Measurement
Dependent Variable 1 <sup>a</sup>	Internal school suspension	<ul style="list-style-type: none"> <li>Dichotomous variable (Student report)</li> <li>1 = If a student was put on internal school suspension; 0 otherwise</li> </ul>
Dependent Variable 2 <sup>b</sup>	School misconduct	<ul style="list-style-type: none"> <li>Continuous variable (Student report + Teacher report)</li> <li>To assess student misconduct at school, a total of 7 questions were utilized.</li> <li>Among the seven, four questions asked how often the following things happened to a student during the previous semester: (1) I was late for school; (2) I cut or skipped classes; (3) I was absent from school; (4) I got in trouble for not following school rules. Answer categories for these four questions range from 1 (Never) to 5 (10 or more times).</li> <li>One question asked how often a student came to class without homework done. The answer categories range from 1 (Never) to 4 (Usually).</li> <li>One question asked how many times a student got into a physical fight at school in the first semester of the school year. Students were given three answer choices, 1 (Never), 2 (Once or Twice), and 3 (More than twice).</li> <li>One question asked to math and English teachers how often a sampled student was disruptive in class. Response categories range from 1 (Never) to 5 (All of the time). A mean of two teacher reports was computed.</li> <li>Since the response categories for the seven questions are not consistent, the student answers and teacher report were first standardized (z-scores), and, then, the mean score was computed.</li> <li>Alpha: .68 in the study sample</li> <li>Ranging from - .87 to 3.15 in the study sample</li> </ul>
Primary Independent Variable	Student Race-ethnicity Black Hispanic	<ul style="list-style-type: none"> <li>Dummy Variable (Reference: White)</li> <li>1 = if a student is Black; 0 = otherwise</li> <li>1 = if a student is Hispanic; 0 = otherwise</li> </ul>
Primary Control Variable	Student Gender	<ul style="list-style-type: none"> <li>Dichotomous variable (1 = a male; 0 = female)</li> </ul>

<sup>a</sup> It is used as a dependent variable in the analyses for the Study Objective I, II, & IV

<sup>b</sup> It is used as a dependent variable in the analyses for the Study Objective III

### ***Primary Independent Variables***

The primary independent variable of this study is student race-ethnicity, reported by students themselves. For racial-ethnic group comparison, two dummy-variables were created and non-Hispanic White students are used as a reference category. If a student is non-Hispanic Black, the student race-ethnicity was coded 1 and otherwise 0 for the variable “Black.” If a student has a Hispanic ethnic background, the student race-ethnicity was coded 1 regardless of his/her race and otherwise 0 for the variable “Hispanic.”

### ***Primary Control Variables***

As noted earlier, previous research consistently identifies gender as one of the most powerful predictors of school misconduct and school discipline. Therefore, the effects of race-ethnicity on school misconduct and internal school suspension were always determined after controlling for gender in the present study. Regarding this control variable, 0 was assigned to females and 1 was assigned to males based on student self-identification of their gender. In some analysis models, family SES, school misconduct, and urbanicity of school locale were also used as control variables depending on the study objectives. The information about measurement of these variables is provided in the later part of this section.

#### **III.2.2. Variables Used to Test Confounding Effects**

Study objective 2 is to test confounding effects explaining the significant association between student race-ethnicity and internal school suspension. The confounding factors are categorized into individual, family, and school factors. Table III-3 explains how the variables used to test confounding effects were measured and coded.

### ***Individual Factor***

Disability status, past behavior problem, and school misconduct are identified as potential individual confounding factors. ***Disability status*** was identified by parent report. If a student has any type of disability, 1 was assigned and otherwise 0. ***Past behavior problem*** was also identified on the basis of parent report. If a parent answered “Yes” to a question asking whether a student had ever been considered to have a behavior problem at school, 1 was assigned and otherwise 0. The measure of ***school misconduct*** is the same as the one explained in the previous section.

### ***Family Factor***

Potential confounding factors at the family level identified in this study are family SES and non-intact family structure. The ***family SES*** variable was produced by ELS: 2002 project staff based on five components: family income, education and occupation of father (or male guardian), and education and occupation of mother (or female guardian). Occupational prestige score was determined in accordance with the 1962 Duncan index. The value range of family SES is -1.96 through 1.82 in this study sample.

***Non-intact family structure*** was coded 1 if a student lived with two biological parents at the time of survey, and 0 otherwise. Parent report was primarily used to determine family structure. If the parent answer was missing, the student answer was utilized as a substitute.

**Table III–3. Variables Used to Test Confounding Effects**

<b>Category</b>	<b>Measurement</b>
<b><i>Individual Factors</i></b>	
Disability <sup>3</sup>	<ul style="list-style-type: none"> <li>Dichotomous variable (Parent report)</li> <li>1 = If a student has a disability; 0 = otherwise</li> </ul>
Past behavior problem	<ul style="list-style-type: none"> <li>Dichotomous variable (Parent report)</li> <li>1 = if a student has been considered to have a behavior problem; 0 = otherwise</li> </ul>
School misconduct	See the Dependent Variable 2 in Table III-2
<b><i>Family Factors</i></b>	
Family SES	<ul style="list-style-type: none"> <li>Continuous variable (Based on Parent report: If parent data was not available, relevant student answer was utilized whenever possible; If both parent and student data were missing, the value was imputed by ELS2002 project staff)</li> <li>Computed on the basis of the following five items which were standardized and combined with equal weight: education of father or male guardian; education of mother or female guardian; family income; occupation of father or male guardian; occupation of mother or female guardian;</li> <li>Parent occupation prestige value was determined following 1961 Duncan index</li> <li>Ranged from -1.96 to 1.82 in the study sample</li> </ul>
Non-intact family Structure	<ul style="list-style-type: none"> <li>Dichotomous variable (Based on parent report: If parent data was not available, relevant student answer was utilized whenever possible)</li> <li>1 = if a student lives with two biological parents; 0 = otherwise</li> </ul>
<b><i>School Factors</i></b>	
Sector	<ul style="list-style-type: none"> <li>Dichotomous variable (Based on source data for sampling)</li> <li>1 = public; 0 = Catholic or other private</li> </ul>
Urbanicity of school locale	<ul style="list-style-type: none"> <li>Dummy variables (Based on source data for sampling)</li> <li>Reference: suburban schools</li> <li>Urban school: 1 = if a school is located in urban area; 0 = otherwise</li> <li>Rural school: 1 = if a school is located in rural area; 0 = otherwise</li> </ul>
Unsafe & disorderly school environment	<ul style="list-style-type: none"> <li>Continuous variable (Based on school administrator report)</li> <li>Measured with 19 questions asking how often the following problem occurred at school: (1) tardiness; (2) absenteeism; (3) class cutting; (4) physical conflicts; (5) robbery/theft; (6) vandalism; (7) use of alcohol; (8) use of illegal drugs; (9) students on drugs/alcohol; (10) sale of drugs near school; (11) possession of weapons; (12) physical abuse of teachers; (13) racial tension among students; (14) student bullying; (15) verbal abuse of teachers; (16) disorder in classrooms; (17) student disrespect for teachers; (18) gang activity; (19) cult/extremist group activities</li> <li>Response categories range from 1 (Happens daily) to 5 (Never happens). The answers were reversely coded so that a higher score indicates more unsafe school environment and more serious student misconducts at school. Then, a mean was computed if a school administrator answered at least 10 among the 19 questions.</li> </ul>

<sup>3</sup>In the entire study sample (8,716), 11.2% (966) has a disability. Among the 966 with a disability, 70.8% (661) have a learning disability and 19.3% (180) have emotional disturbance (multiple choices allowed).

### ***School Factor***

This study identified school sector (public vs. private), urbanicity of school locale, and unsafe and disorderly school environment as potential school level confounding factors. Information about ***school sector*** and ***urbanicity of school locale*** were drawn from ELS: 2002 source data for sampling. The former is a dichotomous variable with two values, 1 for public, and 0 for Catholic or other private schools. The latter has two dummy variables, urban and rural schools. Suburban schools serve as a reference.

***Unsafe and disorderly school environment*** was assessed by 19 questions in the school administrator survey. As answers to the 19 questions, school administrators reported the frequencies of various problems at their school. The problems include class cutting, physical conflicts, robbery/theft, substance use, drug sales, weapon possession, and gang activity. The answer categories ranging from 1 to 5 were coded in a way that a higher score signifies a more problematic and disorderly school environment. Coefficient alpha for these 19 items is .88 in the study sample. A mean was computed for each school if the administrator answered more than 13 questions out of the 19. That is, if a school has missing data for up to 5 items, the school was not excluded from the analysis by computing its own mean value based on the answered items. Although this type of imputation may not be common, it can be considered reasonable and worth trying on the following grounds. First, this method targets only the schools with a high answer rate which probably still enable a reliable assessment of a school regarding the construct being measured. Second, the high alpha value (.88) suggests that the 19 items measure virtually the same construct. This might further imply that a school's mean score for the answered items would not be so radically different from the scores for the unanswered ones if they had been answered. Third, application of this imputation method saved not only 34 schools, but also nearly 500 students attending those 34 schools, from

exclusion by listwise deletion. It is very probable that including these subjects in analysis improves statistical power and accuracy of estimation. Finally, it is noteworthy that a similar imputation method (missing data imputation with a subject's own mean score of the answered items in a scale) has been adopted in prior empirical research (e.g., Bennett et al., 2005), suggesting that this type of imputation is scientifically acceptable.

### **III.2.3. Variables Used to Identify Compensatory and Protective Factors**

An extensive review of previous literature on adolescent behavior and school effects identified eleven factors that might contribute to a low likelihood of school misconduct and internal school suspension, and furthermore buffer the greater risk of racial-ethnic minority students to the two outcome variables. Out of the eleven, seven are at the individual-, family-, and peer-level (level-1) and four are at the school-level (level-2). The measures of the former are illustrated in Table III-4 and those of the latter are summarized in Table III-5.

#### ***III.2.3.a. Individual, Family, and Peer Level Compensatory/Protective Factors***

The seven potential compensatory and protective factors at the individual-, family-, and peer-level are academic achievement, academic orientation, bond with teachers, extracurricular activities, parent-student shared activities, parent involvement in school, and academic orientation of close friends.

***Academic achievement*** was measured by two actual tests on reading and math conducted as a part of ELS: 2002 survey. The two test scores were first standardized separately, then averaged, and finally re-standardized by ELS:2002 project team such that it has a national mean of 50.0 with a standard deviation of 10.0.

*Academic orientation* was assessed by four questions, such as how much a student valued education and enjoyed school life. Response categories ranging from 1 to 4 were provided for each question and a mean was computed. A higher score indicates a stronger orientation toward education and school. Coefficient alpha for the four questions is .75 in the study sample.

To measure *student bond with teachers*, student answers to five questions were utilized. The questions asked how strongly a student agreed to five short statements regarding school teachers or student relationship with the teachers. Two examples of the statements are “teachers are interested in students” and “I go to school because my teachers expect me to succeed.” Five answer categories were provided for each item. Coefficient Alpha for these five questions is .69 in the study sample. A mean was computed as a composite variable in which the higher value, the stronger bond with teachers.

*Parent-student shared activities* were assessed based on parent report about how often a parent participated in the following seven activities with their sampled child during the past year: Attending school activities (sports, plays, concerts, etc.); working on homework or school projects; attending concerts, plays, or movies outside of school; attending sporting events outside of school; attending family social functions (party, wedding, etc.); working on a hobby or playing sports; spending time just talking together. Each item was provided with four answer categories, 1 “never” through 4 “frequently.” Coefficient alpha is .72 in the study sample. Like other indices in this study, a mean score was computed and used as a composite variable. The higher the score, the more frequent shared activities occur between parent and students.

**Table III–4. Individual, Family, and Peer Level Compensatory and Protective Factors**

Compensatory/ Protective Factors	Measurement
Academic Achievement	<ul style="list-style-type: none"> <li>• Continuous variable</li> <li>• For students who have both math and reading test scores, the two test scores were standardized separately and then averaged; for students who have only one test score, either math or reading, the single available score was utilized. Finally, the scores were re-standardized by ELS2002 project staff to a national mean of 50.0 and standard deviation of 10.0.</li> </ul>
Academic orientation	<ul style="list-style-type: none"> <li>• Continuous variable (Student report)</li> <li>• Assessed by four questions. First three questions asked how strongly a student agreed or disagreed to the following statements: I go to school because (1) I think the subjects I'm taking are interesting and challenging; (2) I get a feeling of satisfaction from doing what I'm supposed to do in class; and (3) education is important for getting a job later on. Answer categories for these three questions range from 1 (Strongly agree) to 4 (Strongly disagree). The responses were reverse-coded. The final question asked (4) how important good grades are to a student. Four response categories range from 1 (not important) to 4 (very important).</li> <li>• A mean was computed and utilized as an indicator of student academic orientation in which a higher score refers to a stronger academic orientation.</li> </ul>
Bond with teachers	<ul style="list-style-type: none"> <li>• Continuous variable (Student report)</li> <li>• Measured by five questions asking how strongly a student agreed or disagreed to the following statements: (1) Students get along well with teachers; (2) teachers are interested in students; (3) When I work hard on schoolwork, my teachers praise my effort; (4) I go to school because my teachers expect me to succeed; and (5) In class I often feel put down by my teachers.</li> <li>• Response categories range from 1 (Strongly agree) to 5 (Strongly disagree). After the answers for all the items except (5) were reversely coded , a mean was computed. A higher score indicates a higher level of a student's bond with school teachers</li> </ul>
Extracurricular activities	<ul style="list-style-type: none"> <li>• Continuous variable (Student report)</li> <li>• Hours spent on school-sponsored extracurricular activities in a typical week</li> </ul>
Parent-student Shared activities	<ul style="list-style-type: none"> <li>• Continuous variable (Parent report)</li> <li>• Gauged by 7 questions asking how often parent and student did the following things together during the past year: (1) attended school activities; (2) worked on homework/school projects; (3) attended concerts/plays/movies; (4) attended sports events outside school; (5) attended family social functions; (6) worked on hobby/played sports; and (7) spend time talking;</li> <li>• Response categories range from 1 (Never) to 4 (Frequently). A mean of the answers for these 7 questions was computed.</li> </ul>
Academic orientation of close friends	<ul style="list-style-type: none"> <li>• Continuous variable (Student report)</li> <li>• Measured by student report about how important good school grades are to three best friends. If a student reported about three or two best friends, a mean was calculated; if a student answered about only one friend, the single available answer was used.</li> <li>• Response categories range from 1 (not important) to 3 (very important).</li> </ul>
Parent involvement in school	<ul style="list-style-type: none"> <li>• Continuous variable (Parent report)</li> <li>• Assessed by the five questions asking if a parent (1) is belong to parent-teacher organization; (2) attended meetings of the parent-teacher organization; (3) took part in the activities of the parent-teacher organization; (4) acted as a volunteer at the school; and (5) is belong to any other organization with several parents from the school</li> <li>• Possible response is Yes or No. The latter was coded 0 and former coded 1. These scores then were summed so that the possible range of this scale is 0 to 5.</li> </ul>

In this study, the degree to which a student participated in *extracurricular activities* was quantified as the average time (hour) spent on such activities in a typical week. The possible answer range is 0 to 21. Only extracurricular activities sponsored by school were counted.

*Academic orientation of close friends* was assessed based on student perception about their close friends. Sampled students were asked to list up to the best friends attending a same school, and rate the importance of getting good school grades to each of the three. The answer categories are 1 “not important,” 2 “somewhat important,” and 3 “very important.” Student answers about the three best friends were averaged if a student rated more than one friend. If student reported only about one friend, the single available score was used.

*The levels of parent involvement in school* were measured by counting parent answers of “Yes” to five relevant questions. The questions asked if a parent or his/her spouse/partner had done the following things during the 2001-2002 school year: belong to the school’s parent-teacher organization; attend meetings of the parent-teacher organization; take part in the activities of the parent-teacher organization; act as a volunteer at the school; and belong to any other organization with several parents from the school. The “yes” answer for each question was assigned 1 and then the scores were summed. Thus, a possible score ranges from 0 to 5.

### ***III.2.3.b. School Level Compensatory/Protective Factors***

Four potential school-level compensatory and protective factors selected for this study are academic climate at school, students’ awareness of school punishment, fair school rules, and parent involvement in school policy.

*Academic climate at school* was assessed by five questions in the school administrator survey. The school administrators were requested to rate how well the following statements describe their school's climate: Student morale is high; teachers press students to achieve; teacher morale is high; learning is high priority for students; and students expected to do homework. Five answer categories were provided and coded in a way that a higher score reflects a more academically oriented school climate. The Alpha value for these items is .87 in this study sample. A mean was computed for each school if the administrator answered more than three of the five questions. The rational for including the schools having up to two missing data points is the same as those addressed in the explanation for *unsafe and disorderly school environment*.

To gauge *students' awareness of school punishment* and create a relevant school-level variable, an aggregation score was utilized. In the student survey, students were asked to rate how well students at their school knew punishments for broken rules. Four answer categories ranging from 1 to 4 were provided for this question. Student answers were averaged for each school. A higher mean score suggests a higher level of student awareness of school punishment.

*Fairness of school rules* was evaluated in the same way. In the survey, students rated fairness of their school rules with four response categories ranging from 1 to 4. The ratings were averaged across students attending the same school. A higher score indicates a higher level of school rule fairness perceived by students.

To rate each school regarding *parent involvement in setting school policy*, a similar aggregation technique was used. In ELS:2002 parent survey, parents were asked how strongly they agreed or disagreed to the statement "Parents have an adequate say in setting school policy." They were given four answer categories from 1 to 4. Parent ratings were averaged for

each school. A higher score indicates a higher level of parent involvement in school policy, based on parent perception.

**Table III–5. School Level Compensatory and Protective Factors**

Compensatory/ Protective Factor	Measurement
Academic climate at school	<ul style="list-style-type: none"> <li>• Continuous variable (School administrator report)</li> <li>• Measured with 5 questions asking how much of the characteristics as follows describe a school's climate: (1) student morale is high; (2) Teachers press students to achieve; (3) Teacher morale is high; (4) Learning is high priority for students; and (5) Students expected to do homework. Response categories range from 1 (Not accurate at all) to 5 (Very accurate).</li> <li>• A mean score was computed for each school where the administrator answered to at least three questions among the five.</li> </ul>
Students' awareness of school punishment	<ul style="list-style-type: none"> <li>• Aggregate variable (Mean of student rating)</li> <li>• Assessed by one question how strongly students agreed or disagreed to the statement, "Students know punishments for broken rules." The response categories ranging from 1 (Strongly agree) to 4 (Strongly disagree) were reversely coded before averaging the scores for each school. A higher score indicates a higher level of students' awareness of school punishment.</li> </ul>
Fair school rules	<ul style="list-style-type: none"> <li>• Aggregate variable (Mean of student rating)</li> <li>• Assessed by one question how strongly student agreed or disagreed to the statement, "School rules are fair." Possible answer range is 1 to 4 and student ratings were averaged for each school. A higher score indicates a higher level of fairness in school rules perceived by students.</li> </ul>
Parent involvement in school policy	<ul style="list-style-type: none"> <li>• Aggregate variable (Mean of parent rating)</li> <li>• Assessed by one question how strongly a parent agreed or disagreed to the statement, "Parents have an adequate say in setting school policy." Parent answers were averaged for each school. A possible score ranges from 1 to 4. A higher score refers to a higher level of parent involvement in school policy.</li> </ul>

### **III.3. Data Analysis**

#### **III.3. 1. Overview**

As the traditional “person in environment” social work perspective (Germain & Gitterman, 1980) depicts intuitively, human beings cannot be separated from their environments and need to be understood within the contexts. In social and behavioral research, this suggests a need for collecting data on individuals and also about contexts in which the individuals are nested. Today, many datasets have a hierarchical structure with variables measured at different levels (e.g., individuals at a lower level and schools at a higher level as in ELS: 2002). Multilevel modeling is designed to analyze such hierarchically structured data (Raudenbush & Bryk, 2002).

Since the theoretical and statistical foundation of multilevel analysis was established in the mid 1980s, the techniques have been more sophisticated and more popular in various disciplines including biometrics, economics, education, sociology, and public health (Luke, 2004; Snijders & Bosker, 1999). This analysis technique has many different names, such as hierarchical linear model (HLM) (Raudenbush & Bryk, 2002), random coefficient model (Longford, 1993), and mixed effects model (Singer, 1998). Throughout this dissertation, the term “multilevel model” or “multilevel analysis” are used exclusively because it appears to be the most general and widely used term, regardless of discipline. It also warrants mention that level-1 indicates individual-, family-, and peer-level whereas level-2 indicates school level in this study.

In this section, the need for multilevel analysis is first discussed with particular relation to the study purposes and sampling method of ELS: 2002. Then, specific analysis

strategies for each study objective will follow. In the final part of this section, the results of missing data analysis and its potential effects on estimation will be discussed.

### **III.3.2. Properness of Multilevel Analysis**

There are certain situations in which multilevel models are considered appropriate. With regard to this study, three reasons for using multilevel models may be especially worth discussing. First, multilevel modeling corrects estimation bias of standard statistical analysis methods such as OLS regression, and produces improved estimation of individual effects (or lower level effects) when hierarchically structured data are analyzed (Hox, 2002; Luke, 2004; Raudenbush & Bryk, 2002). A hierarchical dataset reflects the reality that individuals (or lower-level units) are nested within a certain context (or higher-level units), such as schools, social agencies, and neighborhoods. In terms of statistical analysis, an important issue is that individuals within the same context share similar qualities. In other words, individuals belonging to the same organization or functioning in the same context are not completely independent from each other. As is well known, independence of observations is one of the important assumptions of traditional statistical models, including OLS regression (Hox, 2002). Thus, this critical assumption will be violated if the interdependence among individuals in the same context is disregarded, and hierarchically structured data are analyzed with a standard statistical method. Violation of this assumption will make standard errors misestimated downward, and Type 1 error rates inflated as a consequence (Hox, 2002; Raudenbush & Bryk, 2002; Snijders & Bosker, 1999).

This estimation bias is of particular concern for studies utilizing cluster sampling methods like ELS: 2002 where schools were selected in the first stage and individual students were selected in the later stage. This is because a significant intraclass correlation or a violation

of independent observations is very likely to occur in a clustered sample. This undesirable effect of cluster sampling is called ‘design effect’ and numerous statistical methods have been developed to properly deal with it (Hox, 2002). Multilevel models solve this problem by including random effects for level-2 units in the statistical model and adjusting for intraclass correlation (or design effect) in the computation process of standard errors (Raudenbush & Bryk, 2002). Today, multilevel modeling is deemed one of the most efficient strategies to address design effects.

The second reason for using a multilevel model is that the multilevel analysis technique provides an enhanced way to investigate the association between individuals (or lower-level units) and contexts (or higher level units). Given that there are a number of statistical procedures that successfully address design effects (Hox, 2002), this is probably a more important reason for choosing a multilevel analysis model in many studies including the current one. As a research topic, internal school suspension, which is the primary dependent variable of this study, inherently calls for multilevel analysis. Internal school suspension can be understood as a product of interplay between students and their school. Specifically, internal school suspension is a school’s response toward certain types of attitudes or behaviors of individual students. To understand why some students are more vulnerable to internal school suspensions and how their greater risk can be alleviated, both individual and school characteristics should be considered concurrently. By combining variables from different levels and incorporating regression equations for different levels into one statistical analysis model, multilevel models enable researchers to examine the effects of both level variables simultaneously with improved estimations.

The third reason for using a multilevel model can be found in its advanced capability to detect and test cross-level interaction. Cross-level interaction, defined as “interactions between

variables measured at different levels in hierarchically structured data” (Kreft & Leeuw, 1998, p.12), is often a primary reason for selecting a multilevel model over other traditional analysis approaches. This final reason is somewhat similar to the second in that the focal interests lie in the association between variables at a lower level and those at a higher level. However, there is a subtle difference. Cross-level interaction indicates only a special type of such an association. If there is a significant cross-level interaction, the result suggests that the effect of the individual level variable on the outcome is not constant, but conditional, depending on the context, more specifically, values of a variable at a higher-level. Multilevel models make it possible in statistical analysis to capture such dynamic relationships between the units at different levels. In this study, two research questions necessitate tests of cross-level interactions. The questions attempt to identify school characteristics that moderate the effects of a racial-ethnic minority status on school misconduct (Research Question 3.2.2) and internal school suspension (Research Question 4.2.2).

### **III. 3.3. Study Objectives and Analysis Strategy**

To accomplish the study objectives properly, several analysis methods and strategies were adopted. This sub-section details the analysis strategies in the order of study objectives, which is followed by the explanation of the centering technique utilized in this study. At the end of this section, the results of missing data analysis and the potential impacts of missing data are described. Descriptive analysis, missing data analysis, and ANOVA tests for the sample characteristics were conducted using SPSS for Windows (version 11.5). All of the multilevel linear and logistic regressions were computed employing HLM (version 6.0).

### ***III.3.3.a. Research Questions and Analysis Strategy for Study Objective 1***

#### ***Research Questions for Study Objective 1***

The first study objective aims to determine the effects of student race-ethnicity on internal school suspension. This study objective is specified as two research questions.

##### ***Research Question 1.1***

*What is the likelihood of Black students getting internal school suspension compared to White students after controlling for gender?*

##### ***Research Question 1.2***

*What is the likelihood of Hispanic students getting internal school suspension compared to White students after controlling for gender?*

#### ***Analysis Strategy for Study Objective 1***

In Research Questions 1.1 and 1.2, the outcome variable, internal school suspension, is dichotomous. It measured whether or not a student had an experience of internal school suspension during the prior semester. To answer the research questions, multilevel logistic regression, which is sometimes called hierarchical generalized linear model (HGLM), was utilized. Equation [1] presented below represents a general form of the level-1 multilevel logistic regression, in which no centering technique is used.

$$\eta_{ij} = \log\left(\frac{\varphi_{ij}}{1-\varphi_{ij}}\right) = \beta_{0j} + \beta_{1j}X_1 + \dots + \beta_{kj}X_k \quad [1]$$

Here,  $\varphi_{ij}$  indicates a probability and  $\eta_{ij}$  stands for the log of the odds of the outcome variable. As equation [1] designates, the log of the odds is mathematically a probability over

one minus probability. The subscripts  $ij$  in  $\eta_{ij}$  and  $\varphi_{ij}$  signify a person  $i$  within a school  $j$ . Thus, in Equation [1],  $\eta_{ij}$  is the expected log of the odds of the outcome variable for a person  $i$  attending a school  $j$ . In the equation,  $\beta_{0j}$  indicates an intercept while  $\beta_{1j}$  and  $\beta_{kj}$  refer to the effect of the level-1 predictors,  $X_1$  and  $X_k$ , respectively. In a multilevel model, level-1 coefficients (e.g.,  $\beta_{0j}$ ,  $\beta_{1j}$ , ...  $\beta_{kj}$ ) are used as the outcome variables in level-2 equations and further modeled with level-2 predictors. Therefore, Equation [1] possibly has the following level-2 equations.

$$\beta_{0j} = \gamma_{00} + \gamma_{1j}W_1 + \dots + \gamma_{sj}W_s + u_{0j} \quad [2]$$

$$\beta_{1j} = \gamma_{10} + \gamma_{1j}W_1 + \dots + \gamma_{sj}W_s + u_{1j} \quad [3]$$

$$\beta_{kj} = \gamma_{k0} + \gamma_{kj}W_1 + \dots + \gamma_{sj}W_s + u_{kj} \quad [4]$$

In Equation [2], the outcome variable is the level-1 intercept  $\beta_{0j}$  and it is regressed on level-2 predictors,  $W_1$  to  $W_s$ , whose effects are symbolized as  $\gamma_{01}$  to  $\gamma_{0s}$ , respectively. In the same equation, the  $\gamma_{00}$  and  $u_{0j}$  are the intercept and the error for the outcome  $\beta_{0j}$ . Equations [3] and [4] show that all of the other coefficients in level-1 are modeled in the same way that  $\beta_{0j}$  is modeled. If these level-2 equations are plugged, instead of  $\beta_{0j}$ ,  $\beta_{1j}$ , and  $\beta_{kj}$ , into the level-1 equation, a combined model is obtained. The meaning of symbols in a multilevel regression equation will be further elaborated upon when the equations for the study objectives are specifically discussed. The level-1 equation of the multilevel logistic regression for Research Questions 1.1 and 1.2 are presented below.

$$\eta_{ij} = \log\left(\frac{\varphi_{ij}}{1 - \varphi_{ij}}\right) = \beta_{0j} + \beta_{1j}Gender + \beta_{2j}Black + \beta_{3j}Hispanic \quad [5]$$

In Equation [5],  $\eta_{ij}$  is the log of the odds of internal school suspension and it has three level-1 independent variables (gender, Black, and Hispanic). Each coefficient in this equation is further modeled as presented below.

$$\beta_{0j} = \gamma_{00} + u_{0j} \quad [6]$$

$$\beta_{1j} = \gamma_{10} \quad [7]$$

$$\beta_{2j} = \gamma_{20} \quad [8]$$

Unlike the previous cases (Equations [2], [3], and [4]), no level-2 predictor was used to explain the variations in the level-1 coefficients,  $\beta_{0j}$ ,  $\beta_{1j}$ , and  $\beta_{2j}$  because Research Questions 1.1 and 1.2 only concern the effect of two level-1 predictors (Black and Hispanic) on internal school suspension. Another important difference is that the error components in Equations [7] and [8],  $u_1$  and  $u_{2j}$ , are set to 0. This means the effects of Black and Hispanic on internal school suspension are modeled to be fixed rather than variant across schools. A combined model is obtained by incorporating the level-2 equations into the level-1 equation as seen in Equation [9].

$$\eta_{ij} = \log\left(\frac{\varphi_{ij}}{1-\varphi_{ij}}\right) = \gamma_{00} + \gamma_{10}Gender + \gamma_{20}Black + \gamma_{30}Hispanic + u_{0j} \quad [9]$$

### ***III.3.3.b. Research Questions and Analysis Strategy for Study Objective 2***

#### ***Research Questions for Study Objective 2***

The second study objective is to examine whether the racial-ethnic disparities in internal school suspension are explained by 3<sup>rd</sup> factors. Based on previous literature and logical conceptualization, four potential explanations were identified. The individual factor explanation posits that racial-ethnic minority students are more vulnerable to school exclusion because they are more likely to display functional impairments and school misconduct than White students. To test this approach empirically, the following research question was developed.

#### ***Research Question 2.1***

*Are the racial-ethnic disparities in internal school suspension accounted for by school misconduct and functional impairments as hypothesized in the individual factor explanation?*

The family factor explanation focuses on the detrimental impacts of family disadvantages on the behavioral outcomes of adolescent students. According to this explanation, the reason why racial-ethnic minority students are more vulnerable to school exclusion than White students can be found in the reality that racial-ethnic minority students are more likely to be from a socio-economically disadvantaged family. This explanation yields the following research question.

#### ***Research Question 2.2***

*Are the racial-ethnic disparities in internal school suspension accounted for by family disadvantages such as low family SES and non-intact family structure as proposed in the family factor explanation?*

Yet, another explanation emphasizes school factors. In this explanation, the racial-ethnic disparities in school exclusion are considered to reflect the differences between schools where White students are dominant in number and those where racial-ethnic minority students are dominant. Specifically, it is hypothesized that racial-ethnic minority students are at greater risk for school suspension compared to White students, since they are more likely to attend a school where school suspension is frequently implemented as a form of discipline. The potential school characteristics that encourage use of school suspension include public sector, urban school locale, unsafe environment, and prevalent behavior problems among students.

Research Question 2.3 was developed to test the school factor explanation.

**Research Question 2.3**

*Are the racial-ethnic disparities in internal school suspension accounted for by school characteristics such as public sector, urbanicity of school locale, unsafe environment and prevalent behavior problems as posited in the school factor explanation?*

The final explanation proposes differential treatment as the real factor that racial-ethnic minority students are subjected to school exclusion more frequently than White students. The proponents of this approach argue that negative stereotypes against and fear toward racial-ethnic minority groups have persisted in society, and that schools are no exception. According to this explanation, negative stereotypes against racial-ethnic minority groups influence school personnel to respond to racial-ethnic minority students in an unfairly harsh way. In order to test this explanation appropriately, it is essential to have a good measure of differential treatment against racial-ethnic minority students in schools. However, it seems extremely difficult to obtain a good measure of differential treatment, particularly in survey data because social desirability biases are likely involved in the responses to such a politically

and socially sensitive issue. Therefore, Skiba and colleagues (2002) suggest that the effects of racial bias in school settings need to be tested indirectly by ruling out alternative hypotheses. Guided by this suggestion, in this study the plausibility of the differential treatment explanation is judged indirectly through a statistical model where all of the other alternative explanation factors are taken into account. If the effects of racial-ethnic minority status on internal school suspension remain significant in the model, the differential treatment explanation can be considered plausible to some degree. If not, however, the grounds of the differential treatment explanation will be seriously challenged. The research question for the differential treatment explanation was developed as follows.

**Research Question 2.4**

*Are the racial-ethnic disparities in internal school suspension fully accounted for by individual, family, and school characteristics collectively?*

***Analysis Strategy for Study Objective 2***

The factors proposed in each explanation to account for the relationship between race-ethnicity and internal school suspension can be understood as confounding factors or mediating factors. A confounding factor is defined as a third factor that is associated with both a focal independent variable and a dependent variable, and one that distorts the true relationship between the independent and the dependent variables (Fitzmaurice, 2003; Frank, 2000; Greenland & Morgenstern, 2001). The presence of confounding effects suggests that a third factor or factors explain, at least partially, the observed relation between an independent variable and a dependent variable (MacKinnon, Krull, & Lockwood, 2000; Müllner, Matthews, & Altman, 2002). A mediating factor, on the other hand, refers to a third factor through which a focal independent variable affects a dependent variable (Baron & Kenny, 1986). That is, the

independent variable influences the mediating factor, which, in turn, influences the dependent variable (Sobel, 1990). What makes a mediating factor conceptually different from a confounding factor is that the concept of mediating factor involves a clearly defined causal-effect relationship between an independent variable and a mediating factor, and such a relationship between a mediating factor and a dependent variable.

In this study, the term “confounding factor” is used preferably over the term “mediating factor” for two reasons. First, some of the 3<sup>rd</sup> factors identified in the explanation approaches can be considered confounding factors but not mediating factors from a conceptual standpoint. A good example is unsafe and disorderly school environments. It is illogical to assume that student race-ethnicity, an individual (or level-1) characteristic, causes unsafe and disorderly school environment, a school level (or level-2) characteristic. As Krull and MacKinnon (2001) clarify, a variable at a lower level should not be modeled to affect a variable at a higher level in a multilevel mediating factor mechanism.

Second, identifying a mediating factor mechanism is not a primary study objective, and this study does not attempt to determine causal-effect relationships posited in a mediating factor mechanism. Some 3<sup>rd</sup> factors identified to explain the association between student race-ethnicity and school exclusion can be viewed as mediating factors. For example, family SES may mediate the effects of student race-ethnicity on school exclusion. What is a cause and what is an outcome are usually debatable issues, and a significant association between two variables is often spurious in social and behavioral science; therefore, it may be inappropriate to define a factor as a mediator without sound theoretical rationale and through tests of causal-effect relationships. Given that the current study does not concern the direction of the relationships between student race-ethnicity and 3<sup>rd</sup> factors, nor those between 3<sup>rd</sup> factors and

school exclusion, the term “confounding factors” may be more proper than “mediating factor,” even when the 3<sup>rd</sup> factors have the conceptual potential to be mediating factors.

The effects of a confounding factor can be estimated in the same way as mediating effects are estimated, although the two factors are conceptually distinct (MacKinnon et al., 2000). One of the most common methods to test mediating or confounding effects is to measure the coefficient difference of a focal independent variable before and after controlling for the 3<sup>rd</sup> factor(s) (MacKinnon et al., 2000; MacKinnon, Lockwood, Hoffman, West, & Sheets, 2002). This approach is particularly efficient when there are multiple numbers of 3<sup>rd</sup> factors to be considered (Hammal & Bell, 2002). In addition, this approach can be utilized in a multilevel regression analysis (For more information, see Krull & MacKinnon, 2001). The present study, therefore, employed this approach to estimate the effects of the third factors and judge the plausibility of each explanation. As the outcome variable for Study Objective 2 is dichotomous, a multilevel logistic regression will be again employed, and the coefficients or odds ratio of student race-ethnicity variables in models with and without an adjustment for the 3<sup>rd</sup> factors will be compared.

### ***III.3.3.c. Research Questions and Analysis Strategy for Study Objectives 3 and 4***

#### ***Research Questions for Study Objective 3***

The third study objective intends to identify compensatory and protective factors for school misconduct. For this objective, differentiation between a compensatory and a protective factor was established first based on the framework developed and specified by Garmezy et al. (1984) and Gest et al. (1993). In this study, a compensatory factor indicates one which is inversely associated with an undesirable outcome. On the other hand, a protective factor is one

that mitigates the effects of a risk factor, racial-ethnic minority status in this study, on the undesirable outcome, or one that reduces the vulnerability of racial-ethnic minority students to the undesirable outcomes. Statistically, compensatory effects are recognized as direct effects of a factor whereas protective effects are identified as moderating or interaction effects combined with an identified risk.

Under the third study objective, three sub-objectives were developed, reflecting the different levels of analysis units. The first sub-objective is to identify the individual-, family-, and peer-level (level-1) factors that contribute to low levels of misconducts among students in general and racial-ethnic minority students in particular. This sub-objective has two research questions.

**Research Question 3.1.1**

*What are the individual-, family-, and peer-level compensatory factors that are negatively associated with school misconduct after controlling for gender, race-ethnicity, family SES, and urbanicity of school locale?*

**Research Question 3.1.2**

*What are the individual-, family-, and peer-level protective factors that alleviate the effects of the racial-ethnic minority status on school misconduct after controlling for gender, family SES, and urbanicity of school locale?*

The second sub-objective concerns the school-level compensatory and protective factors. Specifically, it aims to identify the school-level factors that contribute to low levels of misconducts among students in general and racial-ethnic minority students in particular. The two relevant research questions are presented below.

**Research Question 3.2.1**

*What are the school-level compensatory factors that are associated with low levels of school misconduct on average at school after controlling for gender, race-ethnicity, family SES, and urbanicity of school locale?*

**Research Question 3.2.2**

*What are the school-level protective factors that mitigate the effects of racial-ethnic minority status on school misconduct on average at school after controlling for gender, family SES, and urbanicity of school locale?*

The last sub-objective intends to develop the full model of compensatory and protective factors for school misconduct, encompassing both levels of analysis units, school-level as well as individual-, family-, and peer-level. It was specified as the following research question.

**Research Question 3.3.1**

*What compensatory and protective factors with regard to school misconduct are significant in the full model (in which the individual-, family-, peer, and school-level factors selected for this study are all taken into account)?*

***Research Questions for Study Objective 4***

The final study objective is to identify compensatory and protective factors for internal school suspension. Three sub-objectives and relevant research questions were constructed and worded in an equivalent way to Study Objective 3. The difference between Study Objectives 3 and 4 is the outcome variable and control variables. The outcome variable for Study Objective 4 is internal school suspension, while the outcome variable for Study Objective 3 is school misconduct. In addition to gender, family SES, and urbanicity of school locale, school misconduct was also utilized as a control variable in the analysis models for Study Objective 4.

The first sub-objective is to identify the individual-, family-, and peer-level (level-1) factors that contribute to a low likelihood of internal school suspension among students in general and racial-ethnic minority students in particular. Under this sub-objective, there are two research questions.

**Research Question 4.1.1**

*What are the individual-, family-, and peer-level compensatory factors that are negatively associated with the likelihood of internal school suspension after controlling for school misconduct as well as gender, race-ethnicity, family SES, and urbanicity of school locale ?*

**Research Question 4.1.2**

*What are the individual-, family-, and peer- level protective factors that alleviate the effects of racial-ethnic minority status on internal school suspension after controlling for school misconduct as well as gender, family SES and urbanicity of school locale ?*

The second sub-objective aims to identify the school-level factors that contribute to low likelihoods of internal school suspension among students in general and racial-ethnic minority students in particular. This sub-objective has two research questions.

**Research Question 4.2.1**

*What are the school-level compensatory factors that are negatively associated with the likelihood of internal school suspension on average at school after controlling for school misconduct as well as gender, race-ethnicity, family SES, and urbanicity of school locale ?*

**Research Question 4.2.2**

*What are the school-level protective factors that mitigate the effects of racial-ethnic minority status on internal school suspension on average at school after controlling for school misconduct as well as gender, family SES, and urbanicity of school locale ?*

The final sub-objective attempts to develop the full model of compensatory and protective factors for internal school suspension. It was specified into the following research questions.

**Research Question 4.3.1**

*What compensatory and protective factors with regard to internal school suspension are significant in the full model (in which the individual-, family-, peer, and school-level factors selected for this study are all taken into account)?*

***Analysis Strategy for Study Objectives 3 and 4***

In Study Objective 3, the outcome variable is school misconduct. Because it is a continuous variable, multilevel linear regression models were used. For Study Objective 4, multilevel logistic regression models were employed to treat the binary outcome variable, internal school suspension, as in the previous analyses.

With regard to Study Objectives 3 and 4, a brief explanation about a cross-level interaction may be useful because the cross-level interaction technique is a distinct merit of multilevel modeling and it was utilized to identify school-level protective factors in the present study. The presence of a cross-level interaction is easily identifiable in a combined model of multilevel analysis. For instance, suppose Equation [10] is the level-1 analysis model and Equations [11] and [12] are level-2 analysis models for the intercept ( $\beta_{0j}$ ) and the effects of level-1 predictor  $X$  ( $\beta_{1j}$ ). Here,  $r_{ij}$ ,  $u_{0j}$ , and  $u_{1j}$ , indicate the residuals or error components in Equations [10], [11], and [12], respectively. These three equations imply that the intercept ( $\beta_{0j}$ ) and the slope of level-1 predictor  $X$  ( $\beta_{1j}$ ) are allowed to vary across schools (if the level-2 unit is school), and a school level predictor,  $W$ , is included in Equations [11] and [12] to explain the variances in the intercept and slope.

$$Y_{ij} = \beta_{0j} + \beta_{1j}X_{ij} + r_{ij} \quad [10]$$

$$\beta_{0j} = \gamma_{00} + \gamma_{01}W_j + u_{0j} \quad [11]$$

$$\beta_{1j} = \gamma_{10} + \gamma_{11}W_j + u_{1j} \quad [12]$$

By incorporating the two level-2 equations into the level-1 equation, a combined model was produced.

$$Y_{ij} = \gamma_{00} + \gamma_{01}W_j + \gamma_{10}X_{ij} + \gamma_{11}W_jX_{ij} + X_{ij}u_{1j} + u_{0j} + r_{ij} \quad [13]$$

In Equation [13], the component  $WX$  points to the product of a cross-level interaction between level-2 predictor  $W$  and the level-1 predictor  $X$ . If the coefficient  $\gamma_{11}$  is statistically significant, the null hypothesis that the cross-level interaction is zero is rejected and the effects of the level-1 predictor  $X$  on the outcome is interpreted as conditional, depending on the value of the level-2 predictor  $W$ .

In general, the effect of a cross-level interaction is tested after a significant slope variance is identified. This is because there seems no need to model the slope in the level-2 equation if the slope is not significantly different across schools. In this study, however, no test for slope variances was preceded in order to determine the need for a cross-level interaction test. Supplemental tests that were carried out in a later stage of data analysis suggest no significant variance in the slopes of student race-ethnicity variables (not shown), but cross-level interaction tests were conducted as planned. This approach can be rationalized on both statistical and substantive grounds.

Statistically, it needs to be noted that a significant slope variance is not an absolute prerequisite for testing cross-level interaction effects as well as modeling the slope in the level-2 equation (Raudenbush & Bryk, 2002; Snijders & Bosker, 1999). Central to this notion is that the null hypothesis of zero slope variance is not necessarily true, even if it is retained based on a statistical test. Therefore, whether a level-1 coefficient is modeled needs to be guided by theoretical rationale, rather than a statistical test in and of itself (Raudenbush & Bryk, 2002). Snijders and Bosker (1999) further elucidate how a test of cross-level interaction effects can be justified without a test indicating significant slope variance. According to them, if the effect of a cross-level interaction is statistically significant, but the corresponding slope variance is not, then the results suggest that either the former or the latter has a mistake or error involved. Since the test for the cross-level interaction effects has considerably higher statistical power than that for the random slope variance, however, it is not improper to perform a cross-level interaction test irrespective of the results of a slope variance test (Snijders & Bosker, 1999). This explanation seems particularly true for this study because a significant number of schools become excluded, and only a subset of schools that meet a certain criteria are used for the slope variance test regarding student race-ethnicity.

Thus, a substantive rationale is critical in deciding the properness of a cross-level interaction test. In a situation where relevant empirical evidence is limited like in this study, the foremost question to be answered is “what is the human consequence of the available options?” It requires making a value judgment by nature. To make a reasonable judgment, it may be necessary to estimate the potential benefit and the potential harm of the available options with particular regard to the study subjects and the population of the study. In the present study, the option at stake is whether cross-level interaction tests are conducted despite insignificant variance of the corresponding slope. Given that the purpose of the cross-level interaction tests

in this study is to identify school-level factors that moderate the effects of racial-ethnic minority status on school misconduct and internal school suspension, the potential benefit of conducting such tests appears considerably meaningful especially for racial-ethnic minority students. That is, the study results could help educators and school mental health professionals create school environments that serve racial-ethnic minority students better, such that the students would be less involved in misconduct and internal school suspensions. In the long run, such efforts in school settings would ameliorate the persistent racial-ethnic gaps in educational outcomes, including school exclusion. In contrast to substantial potential benefits, the potential harm of conducting cross-level interaction tests seems negligible. Based on statistical and substantive grounds, therefore, cross-level interaction tests were conducted even though no significant slope variance was identified.

### **III.3.4. Centering Technique**

In the multilevel models of this study, all level-1 and level-2 variables were centered around their grand mean, except dichotomous variables and family SES<sup>4</sup>. These grand-mean centered variables were also used when the interaction product terms were created. Although grand-mean centering is likely to produce estimation bias at level-1 (Raudenbush & Bryk, 2002), it was preferred and selected in this study over raw scores and group-mean centering. The grand-mean centering technique makes the level-1 intercept more meaningful and interpretation of the analysis results much easier than the other two, especially when cross-level interaction effects are included in a model (Hox, 2002). In addition, grand-mean centering considerably reduces the multicollinearity problems, which often seriously undermine the

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<sup>4</sup> Even though Family SES is a continuous variable, no centering technique was used because it has qualities similar to those of a standardized variable and has a mean near to zero, so the interpretation seemed easier that way.

evaluation of the interaction effects using raw scores (Jaccard & Turrisi, 2003). Compared to group-mean centering, grand-mean centering has a merit that it does not change a model and the model can be easily transformed back to the raw score model (Kreft & Leeuw, 1998). In contrast, group-mean centering changes an analysis model in a complicated way and the model is no longer equivalent to the raw score model (Hox, 2002; Kreft & Leeuw, 1998). Another advantage of using grand-mean centering over group-mean centering is that the group-mean centering technique is completely inappropriate when a study intends to estimate the effects of a level-2 predictor on the outcome after adjusting for a level-one predictor (Raudenbush & Bryk, 2002). This is because grand-mean centering makes the level-1 predictor component in the equation disappear and, as a result, the level-1 predictor cannot at all be controlled (Raudenbush & Bryk, 2002).

### **III.3.5. Missing Data Analysis**

Missing data were treated with listwise deletion in the present study. This method further reduced the size of the final study sample selected through the filtering process (which is summarized in Table III-1). While the sample size of the selected study sample is 8,816, the number of students included in data analysis for Study Objective 1 and 2 is 7,373, and the number of students included in the analysis for Study Objective 3 and 4 are 6,635 and 6,621, respectively.

In addition to further case loss, another, probably greater concern is that disproportionate representation of racial-ethnic groups and potential biases seem a little more serious after listwise deletion method was introduced for missing data. In the sample selected through the filtering process, the proportions of Black and Hispanic students are 13 percent and 14 percent, respectively. The proportion of Black and Hispanic students in the samples that

were actually used for data analysis ranges from 10 to 13 percent, as seen in Appendix B. Although listwise deletion is likely to intensify the study limitations, careful examination of missing data suggests that the estimation biases due to listwise deletion might not be drastic.

It is known that listwise deletion, which often causes significant case loss, produces unbiased estimation if missing is completely at random (MCAR) (Allison, 2002). Furthermore, more than any other method, listwise deletion is robust to violations of the assumption *missing at random* (MAR) among independent variables in a logistic regression as well as a linear regression (Allison, 2002). This specifies that if the probability of missing data on a predictor in a regression model is independent of the values of the outcome variable, listwise deletion will not produce biased estimations (Little, 1992). To gauge potential estimation biases brought by missing data and listwise deletion, missing data were analyzed employing logistic regression. To begin with, all of the independent variables were dichotomized to have only two values: 0 for all valid answers and 1 for missing data. Then each of these recoded variables was regressed on either student misconducts or internal school suspension based on the study objectives.

As shown in Appendix C and D, the probability of missing data on most independent variables for Study Objectives 1, 2, and 3 is not significantly associated with the value of their respective dependent variable in this study. Such results suggest that the detrimental impact of missing data on estimation would not be too serious and the analysis results could be considered reliable, although interpretation with caution is always warranted. Among the 18 independent variables for Study Objective 4, however, six have missing data dependent on the values of *internal school suspension*, the outcome variable (see Appendix E for more information). Since it is probable that the analysis results involve some inaccurate estimation, the results for Study Objective 4 should be interpreted with caution.

## **IV. RESULTS**

### **IV.1. Sample Characteristics**

This chapter presents the findings related to each research question. Before addressing specific research questions, sample characteristics were first examined. In terms of all the variables used in this study, the mean and standard deviation of each racial-ethnic group, as well as those of the entire study sample, were computed. Using One-Way ANOVA, the racial-ethnic group differences were compared. If an ANOVA test indicated a significant difference across the groups, the nature of the group differences was further specified employing two post-hoc tests, Bonferroni-adjusted multiple t-tests and the Tukey Honestly Significant Difference test (HSD). Since the results of these two post-hoc tests are basically identical, only HSD results are presented in the results tables in the interest of space. Individual-, family-, and peer-level characteristics of the sample are reported in the first part of this section, and then school-level characteristics are described in the later part.

#### **IV.1.1. Sample Characteristics by Race-Ethnicity: Individual, Family, and Peer Level**

Individual-, family-, and peer-level (level-1) sample characteristics by race-ethnicity are presented in Table IV-1. Out of the 14 variables at this level, no significant racial-ethnic group differences were detected in three variables – gender, disability, and bond with teachers. The proportion of male students is approximately half percent in all three groups. The proportion of students with a disability is 10 or 11 percent, regardless of racial-ethnic group. Regarding bond with teachers, both the White and Hispanic groups have a mean of 2.87 whereas the mean of the Black student group is 2.85 on a scale ranging from 1 to 5 where a

#### IV-1. Individual, Family, and Peer Level Sample Characteristics by Race-Ethnicity

	Group Mean (standard deviation)				ANOVA test		
	White	Black	Hispanic	Total	F value <sup>a</sup>	p value	Post hoc test (HSD) <sup>b</sup>
Gender (Male) <sup>c</sup>	.50 (.50)	.48 (.50)	.50 (.50)	.50 (.50)	.988 (2; 8713)	p ≥ .05	N.A.
Internal school suspension during the past semester <sup>c</sup>	.07 (.26)	.21 (.41)	.15 (.36)	.10 (.30)	120.176 (2; 8641)	p < .001	B ≠ W H ≠ W B ≠ H
Disability <sup>c</sup>	.11 (.32)	.10 (.30)	.11 (.32)	.11 (.32)	.611 (2; 8639)	p ≥ .05	N.A.
Past behavior problem at school <sup>c</sup>	.06 (.236)	.12 (.319)	.09 (.283)	.07 (.255)	25.469 (2; 8644)	p < .001	B ≠ W H ≠ W B ≠ H
School misconduct	-.08 (.55)	.09 (.56)	.11 (.62)	-.03 (.57)	78.900 (2; 8246)	p < .001	B ≠ W H ≠ W B ≈ H
Family SES	.25 (.67)	-.22 (.71)	-.304 (.77)	.115 (.73)	486.228 (2; 8713)	p < .001	B ≠ W H ≠ W B ≠ H
Non-intact Family structure <sup>c</sup>	.33 (.47)	.66 (.47)	.43 (.50)	.38 (.49)	234.236 (2; 8713)	p < .001	B ≠ W H ≠ W B ≠ H
Academic Achievement	53.91 (9.14)	44.96 (8.57)	46.44 (9.76)	51.71 (9.86)	686.263 (2; 8713)	p < .001	B ≠ W H ≠ W B ≠ H
Academic orientation	3.00 (.534)	3.21 (.499)	3.11 (.528)	3.04 (.53)	79.163 (2; 8468)	p < .001	B ≠ W H ≠ W B ≠ H
Bond with teachers	2.87 (.46)	2.85 (.50)	2.87 (.48)	2.87 (.48)	.646 (2; 8318)	p ≥ .05	N.A.
Extracurricular activities	5.76 (6.0)	4.04 (5.51)	3.68 (5.9)	5.27 (5.9)	87.676 (2; 8350)	p < .001	B ≠ W H ≠ W B ≈ H
Shared activities between parent and student	3.09 (.53)	3.04 (.59)	2.94 (.64)	3.06 (.56)	41.153 (2; 8374)	p < .001	B ≠ W H ≠ W B ≠ H
Academic orientation of close friends	2.38 (.43)	2.51 (.45)	2.44 (.45)	2.40 (.44)	44.842 (2; 8539)	p < .001	B ≠ W H ≠ W B ≠ H
Parent involvement in school	1.69 (1.63)	1.47 (1.57)	1.22 (1.39)	1.59 (1.60)	48.331 (2; 8238)	p < .001	B ≠ W H ≠ W B ≠ H

<sup>a</sup> The number to the left in the parentheses refers to the degree of freedom (df) for between group level while the number to the right indicates the df for within group level.

<sup>b</sup> B, W, and H stand for Black, White, and Hispanic group, respectively. The symbol ≠ indicates that the null hypothesis (the group means are the same) is rejected while ≈ signifies the null is retained at the alpha of .05.

<sup>c</sup> Indicates a dichotomous variable. Therefore, a mean refers to the proportion of students with the characteristic relevant to the variable within each racial-ethnic group.

higher score indicates a higher level of a student's bond with teachers. Although the Black students' mean is slightly lower than that of the other groups, the group difference did not reach statistical significance ( $p \geq .05$ ).

The racial-ethnic groups, however, differ significantly in the other 11 variables including ***internal school suspension***, the primary outcome variable of this study. While only 7 percent of White students received internal school suspension during a semester prior to the survey, 21 percent of Black students and 15 percent of Hispanic students had the same experience ( $p < .001$ ). Post-hoc tests reveal that the three groups are all significantly different from one another.

The racial-ethnic groups also show distinctive differences in ***past behavior problem*** ( $p < .001$ ). Among White students, only 6 percent have ever been considered to have behavior problems at school. The proportion of Black students is 12 percent, twice as high as that of White students, and the proportion of Hispanic students is 9 percent, falling in the middle of the other two groups. Post-hoc tests indicate that any pair of the groups cannot be considered the same statistically in terms of past behavior problems.

***School misconduct*** of the racial-ethnic groups also vary significantly ( $p < .001$ ). On a scale ranging from -.87 to 3.15, White students' mean of school misconduct is -.08 whereas those of Black and Hispanic students are .09 and .11, respectively. Post-hoc tests specify that White students are significantly different from the other two, but the difference between Black and Hispanic students is statistically insignificant.

Significant racial-ethnic differences are also observed in terms of ***family socio-economic status (SES)*** and ***non-intact family structure*** ( $p < .001$ ). The average family SES score of White students is .25, followed by -.22 of Black students. Hispanic students have a mean of -.30, lowest among the three racial-ethnic groups. Regarding non-intact family

structure, Black students have the highest proportion, followed by Hispanic students and then by White students. Two-thirds of the Black students in the study are living in a non-intact family, compared to one-third of White students. Among Hispanic students, the proportion is .43. According to post-hoc tests, all of the groups are different from one another on these two key family factors.

Furthermore, the racial-ethnic groups differ significantly on two other family-related variables, *parent-student shared activities* and *parent involvement in school* ( $p < .001$ ). Regarding parent-student shared activities, the mean of White students is 3.09 on a scale ranging from 1 to 4 whereas those of Black and Hispanic students are 3.04 and 2.94, respectively. Similarly, in terms of parent involvement in school that was measured by a scale ranging from 0 to 5, White students' mean is 1.69, which is significantly higher than 1.47 for Black students and 1.22 for Hispanic parents. Post-hoc tests for the three groups are all significantly different from one another.

Significant differences among racial-ethnic groups are also found in *academic achievement* ( $p < .001$ ). On a scale in which a mean of the study population (10<sup>th</sup> graders in the nation) is set to 50.0 (with a standard deviation of 10.0), the mean of White students is 53.9. The corresponding scores for Hispanic students and Black students are 46.4 and 45.0, respectively. Based on post-hoc tests, any pair of racial-ethnic groups can not be considered the same statistically in terms of academic achievement.

Interestingly, however, the racial-ethnic group means of *academic orientation* are exactly the opposite order for those for academic achievement. On a scale ranging from 1 to 4, Black students have a mean of 3.21, the highest among the three groups, which is followed by Hispanic students who have a mean of 3.11. White students' mean score is 3.00, the lowest

among the three. Post-hoc tests indicate that all of the groups differ significantly from one another.

The three racial-ethnic groups exhibit significant differences in *academic orientation of close friends* as well ( $p < .001$ ). The nature of the group differences is similar to that found for academic orientation of the students themselves. On a scale ranging from 1 to 3, the mean of close friends' academic orientation perceived by Black students is 2.51, followed by Hispanic students' mean of 2.44. White students have a mean of 1.69, the lowest among the three groups. According to post-hoc test results, none of the groups can be considered the same statistically as any of the other two.

In *extracurricular activities*, racial-ethnic groups also display a significant difference ( $p < .001$ ). According to post-hoc tests, however, only White students are different from the other two groups. Black and Hispanic students are not statistically different from each other. On average, White students spend 5.8 hours per week participating in extracurricular activities sponsored by their school. In contrast, Black and Hispanic students spend 4.0 and 3.7 hours, respectively.

To summarize the sample characteristics by student race-ethnicity with regard to individual-, family, and peer-level variables, there are three noticeable patterns. First, White students are the most advantaged and Hispanic students are the least advantaged in many family level factors, including family SES, parent-student shared activities, and parent involvement in school. In terms of family structure, however, Black students appear to be the least advantaged.

Second, sharp contrasts between White and Black students are observed in educational and behavioral outcomes. Among the three groups, White students have the highest academic achievement on average and are least likely to be considered to have a past behavior problem.

The degree of White students' school misconduct is also, on average, the lowest. By contrast, Black students have the lowest academic achievement and are most likely to be considered to have a past behavior problem. The degree of Black students' school misconduct is second highest, following Hispanic students, but the difference between these two groups is statistically insignificant.

Finally, it should be noted that Black students exhibit many desirable attitudes toward education. It is particularly worth noting that they are the most academically oriented among the three groups. It is also noteworthy that the degree of Black students' bond with school teachers is not significantly lower than that of White and Hispanic students. In addition, Black students closely associate with peers whom they perceive to value academic achievement.

#### **IV.1.2. Sample Characteristics by Race-Ethnicity: School Level**

As in individual-, family-, and peer-level variables, the three racial-ethnic groups also display distinctive differences in school-level (level-2) variables. As presented in Table IV-2, across all of the school-level variables used in this study, the racial-ethnic groups differ significantly at an alpha level of .001.

Racial-ethnic minority students are more likely to go to a *public school* than White students. The proportion of Black and Hispanic students attending a public school is 86 and 82 percent, respectively, compared to 72 percent of White students. Post-hoc tests reveal that White students are significantly different from the other two groups, but the two racial-ethnic minority groups are not different from each other.

Similarly, racial-ethnic minority students are more likely to attend a school located in an urban area than White students. While only 23 percent of White students go to an *urban school*, the proportion of Black and Hispanic students is 44 and 43 percent, respectively.

Post-hoc tests again specify that only White students are significantly different from the other two, but the difference between Black and Hispanic students is not statistically significant. By contrast to urban schools, White students are most likely and Hispanic students are least likely to attend a *rural school*. The proportion of White students attending a rural school is 25 percent and that of Black students is 15 percent. Among Hispanic students, only 10 percent attend a rural school. According to post-hoc tests results, all of the groups differ significantly from one another.

**Table IV–2. School Level Sample Characteristics by Race-Ethnicity**

	Group Mean (standard deviation)				ANOVA test		
	White	Black	Hispanic	Total	F value <sup>a</sup>	p value	Post hoc test (HSD) <sup>b</sup>
Public	.72 (.45)	.86 (.35)	.82 (.38)	.75 (.43)	68.237 (2; 8713)	p < .001	B ≠ W H ≠ W B ≈ H
Urban school	.23 (.42)	.44 (.50)	.43 (.50)	.29 (.45)	172.137 (2; 8713)	p < .001	B ≠ W H ≠ W B ≈ H
Rural school	.25 (.44)	.15 (.36)	.10 (.30)	.22 (.41)	92.349 (2; 8713)	p < .001	B ≠ W H ≠ W B ≠ H
Unsafe & disorderly school	2.26 (.38)	2.40 (.41)	2.41 (.40)	2.30 (.39)	111.359 (2; 8303)	p < .001	B ≠ W H ≠ W B ≈ H
Academic climate	4.02 (.64)	3.79 (.69)	3.76 (.74)	3.96 (.67)	111.513 (2; 8292)	p < .001	B ≠ W H ≠ W B ≈ H
Fair school rules	2.57 (.30)	2.39 (.35)	2.52 (.30)	2.54 (.31)	166.205 (2; 8713)	p < .001	B ≠ W H ≠ W B ≠ H
Student's awareness of school punishment	2.78 (.23)	2.85 (.26)	2.79 (.26)	2.79 (.24)	39.207 (2; 8713)	p < .001	B ≠ W H ≈ W B ≠ H
Parent participation in setting school policy	2.57 (.31)	2.58 (.28)	2.63 (.25)	2.58 (.30)	23.883 (2; 8703)	p < .001	B ≈ W H ≠ W B ≠ H

<sup>a</sup> The number to the left in the parentheses refers to the df for between group level while the number to the right indicates the df for within group level.

<sup>b</sup> B, W, and H stand for Black, White, and Hispanic group, respectively. The symbol ≠ indicates that the null hypothesis is rejected while ≈ signifies that the null is retained at the alpha of .05.

Regarding ***unsafe and disorderly school environment***, White students' mean is 2.26 (on a scale ranging from 1 to 5), while the mean for Black and Hispanic students is 2.40 and 2.41, respectively. Post-hoc tests found significant differences between White students and the other two groups, but no significant difference between Black and Hispanic students. These results indicate that Black and Hispanic students are more likely than White students to attend an unsafe and disorderly school.

A similar pattern is observed in ***academic climate at school***. For this variable ranging from 1 to 5, White students' group mean is 4.02 while that of Black and Hispanic students is 3.79 and 3.76, respectively. In post-hoc tests, the differences between White students and each of the two racial-ethnic minority groups are found to be significant. Yet, the difference between Black and Hispanic students is not. Thus, it can be concluded that White students are more likely to attend a school with a better academic climate, compared to the two racial-ethnic minority groups.

With regard to ***fair school rules*** perceived by students, White students have a mean of 2.57 (on a scale ranging from 1 to 4), followed by 2.52 for Hispanic students and then by 2.39 for Black students. Based on post-hoc tests, all of the groups vary significantly from one another. These results imply that White students are most likely and Black students are least likely to attend to a school in which rules are perceived by students as fair.

In ***students' awareness of school punishment***, with values ranging from 1 to 4, Black students have a mean of 2.85 while White and Hispanic students have a mean of 2.78 and 2.79, respectively. Post-hot tests identify that only Black students are significantly different from the other two, suggesting that Black students are more likely to attend a school where students are well aware of school punishment for broken rules. Yet, no significant difference between White and Hispanic students is detected.

One remaining school-level variable is *parent participation in setting school policy*.

On a scale from 1 to 4, Hispanic students have a mean of 2.63, the highest among the three groups. The mean score of White and Black students is 2.57 and 2.58, respectively. Based on the significant differences between Hispanic students and the other two groups in post-hoc tests, it is concluded that Hispanic students are more likely than White and Black students to attend a school where parents are actively involved in setting school policy. The difference between Black and White students is statistically insignificant.

To summarize school-level sample characteristics by race-ethnicity, two major points are noteworthy. First, in the school-level variables drawn from objective facts (e.g., public sector and urbanicity of school locale) and those created based on school administrator report (e.g., poor academic climate at school, and unsafe and disorderly school environment), consistent differences between White students and racial-ethnic minority students are observed. Compared to White students, racial-ethnic minority students are more likely to attend a public school, urban school, unsafe and disorderly school, and a school with poorer academic climate. These are all well-known risk factors for school misconduct or school discipline. Black and Hispanic students are not statistically different from each other in these school-level variables.

The other major point is that in aggregation variables based on the perceptions of students or parents, there is no consistent pattern of racial-ethnic differences. For instance, compared to the other two groups, White students are more likely to attend a school with fair rules, Black students are more likely to attend a school with punishment well-recognized, and Hispanic students are more likely to attend a school with active parent involvement. Since these three school-level variables are the aggregated perception of students or parents, they could be considered different from the objective facts or objective evaluations. Given that human beings are influenced and guided not only by their perception but also by the

perceptions of other people around them, these could be valuable resources for students, especially for those living in disadvantaged environments.

#### **IV.2. The Effects of Race-Ethnicity on Internal School Suspension**

The first study objective is to determine the effects of student race-ethnicity on internal school suspension. For this objective, two research questions were developed, which are provided below.

**Research Question 1.1**

*What is the likelihood of Black students getting internal school suspension compared to White students after controlling for gender?*

**Research Question 1.2**

*What is the likelihood of Hispanic students getting internal school suspension compared to White students after controlling for gender?*

To answer the two research questions, a multilevel logistic regression was employed. Two dummy variables of student race-ethnicity, being Black and being Hispanic, and one control variable, gender, were added simultaneously to this model in which the outcome variable is internal school suspension. As shown in Table IV–3, the three variables are all significant at  $p < .001$ . The coefficient of being Black is 1.030, which is converted to an odds ratio of 2.8. Compared to White students, therefore, *Black students are nearly 3 times more likely to receive an internal school suspension* after controlling for gender. A ninety five percent confidence interval indicates that the true effect of being Black on internal school suspension falls 95 times out of 100 trials into the odds ratio ranging from 2.26 to 3.5.

The coefficient of being Hispanic is .656, which is equivalent to the odds ratio of 1.9.

In other words, *Hispanic students are two times more likely than their White peers to receive internal school suspension* after adjusting for gender. With a 95 percent confidence interval, it can be said that the true effect of being Hispanic on internal school suspension falls in the odds ratio range between 1.54 and 2.4.

In summary, it is concluded that compared to White students racial-ethnic minority students in general and Black students in particular are at a greater risk for receiving an internal school suspension. The significant random effect for the intercept in this model is also noteworthy, although it is not a focal interest of this study. The intercept variance is .609, which is significant at an alpha of .001. This indicates that there are significant school variations in terms of the usage levels of internal school suspension.

**Table IV–3. The Effects of Student Race-Ethnicity on Internal School Suspension**  
(Student N = 7,735 & School N = 597)

	b	se	df	t Ratio	Odds Ratio	Confidence Interval	Approx. p value
<b>Fixed effect</b>							
Black <sup>a</sup>	1.030	.110	7,731	9.390	2.802	(2.260, 3.474)	.000
Hispanic <sup>a</sup>	.656	.113	7,731	5.787	1.928	(1.543, 2.408)	.000
Gender	.659	.080	7,731	8.282	1.933	(1.654, 2.260)	.000
Intercept	-2.886	.077	596	-37.284			.000
<b>Random Effect</b>							
	Variance		df	$\chi^2$			Approx. p value
Intercept variance, $u_{0j}$	.609		596	961.17			.000

<sup>a</sup>Whites are the reference category

### **IV.3. Confounding Factors:**

#### **What Explains the Effects of Race-Ethnicity on Internal School Suspension?**

The second study objective is to examine if the four explanation approaches – individual factor explanation, family factor explanation, school factor explanations, and differential treatment explanation – account for the racial-ethnic disparities in internal school suspension. Since there is no good measure for differential treatment, its plausibility will be tested in an indirect way. As specified in Chapter three, this objective has the following four research questions.

**Research Question 2.1**

*Are the racial-ethnic disparities in internal school suspension accounted for by school misconduct and functional impairments as hypothesized in the individual factor explanation?*

**Research Question 2.2**

*Are the racial-ethnic disparities in internal school suspension accounted for by family disadvantages such as low family SES and non-intact family structure as proposed in the family factor explanation?*

**Research Question 2.3**

*Are the racial-ethnic disparities in internal school suspension accounted for by school characteristics such as public sector, urbanicity of school locale, unsafe environment and prevalent behavior problems as posited in the school factor explanation?*

**Research Question 2.4**

*Are the racial-ethnic disparities in internal school suspension fully accounted for by individual, family, and school characteristics collectively?*

Since the outcome variable, internal school suspension, has only two values, multilevel logistic regressions were again utilized. For Study Objective 2, six models including a baseline model were developed. Table IV–4 presents the six models with coefficients and odds of the variables only. The same models are also provided in Appendix F, but with more information such as standard errors of the variables and variance components of the models. As shown in the Model A1, the baseline model has only three variables, two dummy variables of student race-ethnicity and gender. This model is actually the same model developed for Study Objective 1. The coefficients of student race-ethnicity variables for this model are compared with those of the other models to examine the confounding effects of 3<sup>rd</sup> factors selected from previous literature.

In Model A2, three individual-factors – disability, past behavior problem, and school misconduct – were added to the baseline model in order to investigate if student misbehaviors at school and functional impairment explained racial-ethnic minority students' higher risks when compared to White students for internal school suspension (for Research Question 2.1). As expected, the three variables were all positively associated with internal school suspension, indicating that a higher value in these variables increased the likelihood of internal school suspension. After adding these potential individual confounding factors to the baseline model, Hispanic students' odds of internal school suspension decreased from 1.9 to 1.5, and the statistical significance of the coefficient was also dropped from .001 to .01. In Black students' odds of internal school suspension, however, no considerable change was observed. Their odds of 2.8 in the baseline model decreased to 2.7 in Model A2. The coefficient of being Black was still significant at an alpha of .001. These results suggest that when compared to White students, individual confounding factors partially explains Hispanic students' higher risk, but little explain Black students' higher risk for internal school suspension.

**Table IV– 4. Confounding Effects in the Relationship between Student Race-Ethnicity and Internal School Suspension**  
 (Student N = 7,735 & School N = 597)

	Model A1		Model A2		Model A3		Model A4		Model A5		Model A6	
	b	Odds	b	Odds	b	Odds	b	Odds	b	Odds	b	Odds
<b>Race-Ethnicity and Gender</b>												
Black <sup>a</sup>	1.030***	2.802	.988***	2.686	.660***	1.934	.935***	2.548	.724***	2.063	.698***	2.010
Hispanic <sup>a</sup>	.656***	1.928	.406**	1.501	.347**	1.414	.577***	1.781	.175	1.191	.170	1.185
Gender	.659***	1.933	.238**	1.269	.706***	2.025	.671***	1.957	.294**	1.342	.301**	1.351
<b>Individual Factors</b>												
Disability		.360**	1.433					.326*	1.385	.307*	1.360	
Past behavior problem		0.915***	2.496					.849***	2.337	.828***	2.288	
School misconduct		1.889***	6.612					1.864***	6.449	1.865***	6.455	
<b>Family Factors</b>												
Family SES					-.556***	0.574			-.487***	0.615	-.393***	0.675
Non-intact family structure					.612***	1.845			0.350***	1.419	.330**	1.391
<b>School Factors</b>												
Public school <sup>b</sup>							1.389***	4.011			.939***	2.557
Urban school <sup>c</sup>							.180	1.197			.096	1.100
Rural school <sup>c</sup>							.120	1.128			.174	1.190
Unsafe & disorderly school environment							.087	1.090			-.036	0.964
Intercept	-2.886***	.0558	-3.286***	.0374	-3.116***	.004	-4.130***	.016	-3.416***	.033	-4.255***	.014

<sup>a</sup>Whites are the reference category, <sup>b</sup>Private schools are the reference category, <sup>c</sup>Suburban schools are the reference category.

\* p < .05, \*\* p < .01, \*\*\* p < .001.

In Model A3, family SES and non-intact family structure were added to the baseline model to examine the confounding effects of family disadvantage factors in the association between student race-ethnicity and internal school suspension (for Research Question 2.2). As anticipated, family SES had a negative relationship with internal school suspension while non-intact family structure had a positive relationship. Both variables were statistically highly significant ( $p < .001$ ). Addition of these two family disadvantage factors to the baseline model reduced Hispanic students' odds of internal school suspension from 1.9 to 1.4, and also dropped the statistical significance of the coefficient from .001 to .01. Similarly, the family-level confounding factors decreased Black students' odds of internal school suspension somewhat considerably from 2.8 to 1.9, although the coefficient was still statistically significant at an alpha of .001. Relative to White students, therefore, the higher risks of Black students as well as Hispanic students are attributed, in part, to their family disadvantages such as low family SES and non-intact family structure.

To the baseline model, Model A4 introduced potential school-level confounding factors such as public sector, urbanicity of school locale, and an unsafe and disorderly school environment in order to examine if school characteristics accounted for racial-ethnic minority students' vulnerabilities to internal school suspension (for Research Question 2.3). Among these school-level factors, only public sector was significantly linked to internal school suspension ( $p < .001$ ). Its positive association with the outcome variable indicated that students attending a public school are more likely than those attending a private school to receive an internal school suspension. Introduction of potential school-level confounders slightly reduced the magnitude of Black students' effects on internal school suspension. Black students' odds of internal school suspension, which was 2.8 in the baseline model, became 2.5 in Model A4. Again, however, the statistical significance level of the coefficient remained the same ( $p$

< .001). Thus, school characteristics appear to minimally explain Black students' higher risk of internal school suspension relative to White students. Hispanic students' odds of internal school suspension, on the other hand, remained almost the same, suggesting that school characteristics barely explain Hispanic students' higher likelihood relative to White students.

The final research question under Study Objective 2 is whether the individual-, family-, and school-level confounding factors in combination can fully account for the significant effects of race-ethnicity on internal school suspension. As noted before, this research question aims to test the plausibility of the differential treatment explanation indirectly. If the significant effects of student race-ethnicity are fully explained by any one or all of three explanations, then the plausibility of the differential treatment explanation will be seriously undermined. If not, the explanations can be considered at least tentatively plausible.

In Model A5, both individual- and family-level factors were added to the baseline model. Black students' odds of internal school suspension decreased from 2.8 in the baseline model to 2.1 in Model A5. Yet, the effect of being Black remained significant ( $p < .001$ ). On the other hand, the combination of individual- and family-level confounding factors completely eliminated the significance of being Hispanic. This implies that the higher likelihood of Hispanic students to be internally suspended, compared to their White counterparts, is completely attributed to their individual misbehaviors and functional impairment as well as family disadvantages.

In Model A6, the confounding factors proposed in the three explanation approaches were all added to the baseline model. Overall, this model does not seem substantially different from Model A5. Insignificant effects of being Hispanic were also observed. Black students' odds of internal school suspension in Model A6 is almost identical to their odds in Model A5. *Even after controlling for all of the potential confounding factors proposed in the individual-,*

*family-, and school- factor explanations, Black students were 2 times more likely than White students to receive an internal school suspension, and the effects were statistically significant at an alpha of .001.* Given these results, the differential treatment hypothesis may not be plausible at all in explaining Hispanic students' vulnerability to school exclusion. By contrast, the differential treatment hypothesis showed its potential to explain the significant difference between Black and White students in terms of school exclusion.

#### **IV.4. Compensatory and Protective Factors for School Misconduct**

The third objective of this study aims to identify compensatory and protective factors for school misconduct. Under this objective, three sub-objectives were further specified. The first sub-objective concerns individual-, family-, and peer-level factors (level-1 factors), the second sub-objective addresses school-level factors (level-2 factors), and the last sub-objective covers both levels. In this section, analysis findings for Study Objective 3 are reported in the order of the three sub-objectives. Since *school misconduct*, the outcome variable for Study Objective 3, is a continuous variable, multilevel linear regression models are consistently used in this section instead of multilevel logistic regression.

##### **IV.4.1. Individual, Family, and Peer Level Compensatory and Protective Factors for School Misconduct**

The first sub-objective intends to identify the individual-, family-, and peer-level factors that contribute to low levels of misconducts of students in general and racial-ethnic minority students in particular. For this sub-objective, two research questions were developed.

**Research Question 3.1.1**

*What are the individual-, family-, and peer-level compensatory factors that are negatively associated with school misconduct after controlling for gender, race-ethnicity, family SES, and urbanicity of school locale?*

**Research Question 3.1.2**

*What are the individual-, family-, and peer-level protective factors that alleviate the effects of the racial-ethnic minority status on school misconduct after controlling for gender, family SES, and urbanicity of school locale?*

The results of multilevel analyses for these two research questions are summarized in Table IV–5. This table presents only regression coefficients with statistical significance levels. The same models are also provided in Appendix G with additional information such as standard errors of all the predictors and variance components of the models.

Before testing potential level-1 compensatory and protective factor effects, a baseline model was first developed. This baseline model, Model B1, included two dummy variables of student race-ethnicity and four control variables which were gender, family SES, urban school, and rural school. Among the variables included in this model, two student race-ethnicity dummy variables, gender, and family SES were significantly related to the outcome variable. After the four control variables were all taken into account, the score of Black students' school misconduct was, on average, approximately 0.12 points higher than that of White students ( $p < .001$ ). Similarly, Hispanic students' school misconduct score was, on average, 0.14 points higher than that of White students ( $p < .001$ ). Compared to females, males had a mean that was about 0.18 points higher for school misconduct ( $p < .001$ ). A negative association between family SES and school misconduct indicated that the higher the family SES, the lower the school misconduct.

**Table IV–5. Individual, Family, and Peer Level Compensatory and Protective Factors for School Midconduct**

(Student N = 6,635 &amp; School N = 591)

	Model B1	Model B2	Model B3	Model B4	Model B5	Model B6	Model B7	Model B8	Model B9
<b>Race-Ethnicity &amp; Control Variables</b>									
Black <sup>a</sup>	.116***	.100***	.076***	.096***	.102***	.099***	.100***	.100***	.094***
Hispanic <sup>a</sup>	.140***	.116***	.112***	.117***	.116***	.101***	.116***	.108***	.116***
Gender	.177***	.105***	.104***	.105***	.104***	.105***	.105***	.105***	.104***
Family SES	-.098***	-.010	-.009	-.010	-.009	-.009	-.010	-.010	-.009
Urban school <sup>b</sup>	.013	.043*	.043*	.043*	.043*	.044*	.043*	.042*	.043*
Rural school <sup>b</sup>	-.036	-.043*	-.041*	-.043*	-.043*	-.042*	-.043*	-.042*	-.042*
<b>Level-1 Compensatory Factors</b>									
Academic achievement	-.012***	-.012***	-.012***	-.012***	-.012***	-.012***	-.012***	-.012***	-.012***
Academic orientation	-.289***	-.291***	-.287***	-.289***	-.290***	-.289***	-.289**	-.288***	
Bond with teachers	-.160***	-.160***	-.160***	-.162***	-.159***	-.160***	-.161***	-.160***	
Extracurricular activities	-.002	-.002	-.002	-.002	-.000	-.002	-.002	-.002	
Parent-student shared activities	-.041**	-.041**	-.041**	-.041**	-.041**	-.045**	-.040**	-.041***	
Parent involvement in school	-.006	-.006	-.006	-.006	-.006	-.006	-.001	-.006	
Academic orientation of close friends	-.098***	-.099***	-.098***	-.098***	-.099***	-.098***	-.097***	-.115***	
<b>Level-1 Protective Factors</b>									
Academic achievement x Black					<b>-.005*</b>				
Academic achievement x Hispanic					<b>-.002</b>				
Academic orientation x Black						.021			
Academic orientation x Hispanic						-.038			
Bond with teachers x Black							.055		
Bond with teachers x Hispanic							-.038		
Extracurricular activities x Black								<b>-.003</b>	
Extracurricular activities x Hispanic								<b>-.011**</b>	
Parent-student shared activities x Black									.017
Parent-student shared activities x Hispanic									.009
Parent involvement in school x Black									<b>-.024*</b>
Parent involvement in school x Hispanic									<b>-.026*</b>
Academic orientation of close friends x Black									<b>.089*</b>
Academic orientation of close friends x Hispanic									<b>.045</b>
Intercept	-.127***	-.108***	-.109***	-.107***	-.107***	-.109***	-.107***	-.108***	-.108***

<sup>a</sup>Whites are the reference category, <sup>b</sup>Suburban schools are the reference category.

† p &lt; .10, \* p &lt; .05, \*\* p &lt; .01, \*\*\* p &lt; .001.

In Model B2, seven potential level-1 compensatory factors were added to the baseline model to examine whether these factors were negatively associated with school misconduct (for Research Question 3.1.1). As listed in Table IV–5, the added seven factors are academic achievement, academic orientation, bond with teachers, extracurricular activities, parent-student shared activities, parent involvement in school, and academic orientation of close friends. Among the seven, extracurricular activities and parent involvement in school were not statistically significant. On the other hand, a significant and inverse association with the outcome variable was identified in academic achievement ( $b = -.012$ ,  $p < .001$ ), academic orientation ( $b = -.289$ ,  $p < .001$ ), bond with teachers ( $b = -.160$ ,  $p < .001$ ), parent-student shared activities ( $b = -.041$ ,  $p < .01$ ), and academic orientation of close friends ( $b = -.098$ ,  $p < .001$ ). That is, the higher values in these five level-1 factors were significantly linked to lower values in the outcome variable, suggesting their compensatory effects regarding school misconduct. Notably, the effect of family SES, which was highly statistically significant in the baseline model, was no longer significant once all of the level-1 compensatory factors were taken into account.

To examine whether the compensatory factors had further buffering effects for racial-ethnic minority groups regarding school misconduct, interaction terms between each race-ethnicity dummy variable with each compensatory factor were created and tested one-by-one in Model B2 through Model B9 (for Research Question 3.1.2). Out of seven, four factors were found to have a significant interaction effect with at least one racial-ethnic group. As seen in Model B3, the interaction effect between academic achievement and being Black was significant ( $b = -.005$ ,  $p < .05$ ) but its interaction effects with being Hispanic was not. This insignificant interaction effect indicates that the effects of academic achievement were the same, regardless of whether a student was Hispanic or White. For Hispanic students, therefore,

academic achievement did not have a protective effect to reduce the gap on school misconduct between White students and Hispanic students, after controlling for the other variables in the model. As revealed by the significant interaction term between academic achievement and being Black, however, the effects of academic achievement on school misconduct differed depending on whether a student was Black or White. Given that being White was coded 0 and being Black was coded 1 in the dummy variable, the effects of academic achievement for White students was the same as its main effect, -.012, while the effects of the same variable for Black students was -.0125, the sum of direct and interaction effect in this model. That is, the effects of academic achievement reducing school misconduct were slightly but significantly greater for Black students than for White students.

The interaction effect between extracurricular activities and being Hispanic was also significant ( $p < .01$ ). Yet, its interaction term with being Black did not reach statistical significance. This suggests that the effects of extracurricular activities moderate the effects of being Hispanic, but not the effects of being Black, on school misconduct. As the direct effect and its statistical insignificance reveals in Model B6, the effect of extracurricular activities for White students was virtually zero when the other variables in the model were controlled. On the other hand, the effect of extracurricular activities for Hispanic students was -.011. Thus, extracurricular activities were significantly associated with low levels of school misconduct among Hispanic students, while it did not have such an effect among White students.

As seen in Model B8, the interaction effects between parent involvement and being Black, as well as being Hispanic, were both significant ( $p < .05$ ). These two interaction terms have an inverse relationship with the outcome variable. Thus, the effects of parent involvement in school on school misconduct differed across racial-ethnic groups in a protective way for racial-ethnic minority students. Net of other variables, the effect of parent involvement in

school for White students was  $-.001$  and it is statistically insignificant as the main effect of the variable indicates. The effects of parent involvement in school for Black students and Hispanic students were  $-.025$  and  $-.027$ , respectively, both of which were computed by summing the main effect and the respective interaction effect in Model B8.

As Model B9 presents, the interaction effect between academic orientation of close friends and being Black was significant ( $p < .05$ ) but had a positive association with the outcome variable. This result reveals that the desirable effects of academic orientation of close friends (specifically, the effects that decrease school misconduct) are significantly smaller for Black students than for White students. As indicated by the main effect, the effects for White students was  $-.115$  ( $p < .001$ ) when the other variables in this model were adjusted. The effect for Black students, on the other hand, was  $-.027$ , the sum of the main and interaction effect in the same model.

#### **IV.4.2. School Level Compensatory and Protective Factors for School Midconduct**

The aim of the second sub-objective under Study Objective 3 is to identify school-level factors that contribute to low levels of misconduct of students in general and racial-ethnic minority students in particular. As specified in the previous chapter, this sub-objective has the following two research questions.

##### Research Question 3.2.1

*What are the school-level compensatory factors that are associated with low levels of school misconduct on average at school after controlling for student gender, race-ethnicity, family SES, and urbanicity of school locale?*

##### Research Question 3.2.2

*What are the school-level protective factors that mitigate the effects of racial-ethnic minority status on school misconduct on average at school after controlling for student gender, family SES, and urbanicity of school locale?*

The multilevel analysis results for these research questions are provided in Table IV-6

and also in Appendix H. Table IV–6 presents only the intercept and variable coefficients with statistical significance levels for easy comparison of the analysis models. For a more complete understanding of the models, Appendix H provides other supplementary information such as standard errors of the variables and variance components of the models in addition to the information available in Table IV–6.

Model C1 in Table IV–6 is identical to Model B1 in Table IV–5. This model again serves as a baseline model. In Model C2, four potential level-2 compensatory factors were added simultaneously to the baseline model to examine whether they were inversely associated with school misconduct (for Research Question 3.2.1). The newly added school level factors were academic climate at school, fair school rules, students' awareness of school punishment, and parent participation in school policy. As anticipated, the four school-level factors had an inverse relationship with the outcome variable after controlling for the other variables in the model, but they were not all statistically significant. A high level of statistical significance was observed in fair school rules ( $b = .138$ ,  $p < .001$ ). The significant effect of fair school rules suggests that a student attending a school where students perceive the rules, on the whole, as fair is less likely to display school misconduct compared to his or her counterpart attending a school where students perceive the rules, on the whole, as unfair. Students' awareness of school punishment is also highly statistically significant ( $b = -.174$ ,  $p < .001$ ). Its negative association with the outcome variable implies that a student attending a school where students are, on the whole, well aware of school punishments is less likely to exhibit school misconduct compared to his or her counterpart attending a school where students are, on the whole, poorly aware of school punishments. Good academic climate at school was also negatively related to the outcome variable, but it was only marginally significant ( $b = .022$ ,  $p < .10$ ). The last

**Table IV–6. School Level Compensatory and Protective Factors for Student Misconduct**

(Student N = 6,635 &amp; School N = 591)

	Model C1	Model C2	Model C3	Model C4	Model C5	Model C6
<b><i>Race-Ethnicity &amp; Control Variables</i></b>						
Black <sup>a</sup>	.116***	.101***	.096***	.092***	.100***	.101***
Hispanic <sup>a</sup>	.140***	.132***	.132***	-.134***	-.132***	.133***
Gender	.177***	.176***	.175***	.176***	.176***	.177***
Family SES	-.098***	-.094***	-.094***	-.094***	-.094***	.094***
Urban school <sup>b</sup>	.013	.023	.017	.023	.024	.023
Rural school <sup>b</sup>	-.036	-.036†	-.034	-.036†	-.036†	-.036†
<b><i>Level-2 Compensatory Factors</i></b>						
Academic climate at school		-.022†	-.002	-.021	-.022†	-.021
Fair school rules		-.138***	-.137***	-.136***	-.136***	-.138***
Students' awareness of school punishment		-.174***	-.171***	-.174***	-.195***	-.174***
Parent participation in school policy		-.002	-.002	-.002	-.001	-.006
<b><i>Level-2 Protective Factors</i></b>						
Academic climate at school x Black			-.091**			
Academic climate at school x Hispanic			-.046			
Fair school rules x Black				.067		
Fair school rules x Hispanic				.064		
Student awareness of school punishment x Black					.029	
Student awareness of school punishment x Hispanic					.104	
Parent participation in school policy x Black						.039
Parent participation in school policy x Hispanic						-.005
Intercept	-.126***	-.126***	-.127***	-.126***	-.126***	-.126***

† p &lt; .10, \* p &lt; .05, \*\* p &lt; .01, \*\*\* p &lt; .001.

<sup>a</sup>White are the reference category, <sup>b</sup>Suburban schools are the reference category.

school-level factor, parent participation in school policy was insignificant.

To identify protective effects, interaction terms between each school-level factor and each race-ethnicity dummy variable were created and tested one at a time (for Research Question 3.2.2). There was only one significant interaction effect when adjusting for the other variables in the model. As shown in Model C3, the interaction term between academic climate at school and being Black was statistically significant, showing an inverse relationship with the outcome variable ( $b = -.091$ ,  $p < .01$ ). It suggests greater desirable effects for Black students than for White students. Specifically, for one unit increase in the academic climate at school, Black students' school misconduct are predicted to decrease by .09, while White students' school misconduct are predicted to show no significant change.

#### **IV.4.3. Full Model of Compensatory and Protective Factors for School Misconduct**

The last sub-objective under Study Objective 3 is to develop the full model of compensatory and protective factors for student school misconduct, which concerns both level-1 and level-2 factors at the same time. As stated earlier, this sub-objective yields the following research question.

##### Research Question 3.3.1

*What compensatory and protective factors with regard to school misconduct are significant in the full model (in which the individual-, family-, peer, and school-level factors selected for this study are all taken into account)?*

To address this research question, all of the significant protective factors were added to the baseline model in addition to all of the level-1 and level-2 compensatory factors. Table IV-7 shows the results. All five level-1 compensatory factors that were significant in Model B2 through Model B9 were continuously significant in this full model, keeping their inverse

**Table IV–7. Full Model of Compensatory and Protective Factors for School Misconduct**

	(Student N = 6,635 & School N = 591)		
	b	se	
<b>Fixed Effect</b>			
<b>Race-ethnicity &amp; Control Variables</b>			
Black <sup>a</sup>	.069**	.025	
Hispanic <sup>a</sup>	.095***	.022	
Gender	.104***	.012	
Family SES	-.010	.010	
Urban school <sup>b</sup>	.041*	.018	
Rural school <sup>b</sup>	-.037*	.019	
<b>Level-1 Compensatory Factors</b>			
Academic achievement	-.012***	.001	
Academic orientation	-.288***	.014	
Bond with teachers	-.154***	.015	
Extracurricular activities	-.001	.001	
Parent-student shared activities	-.039**	.012	
Parent involvement in school	-.002	.005	
Academic orientation of close friends	-.118***	.017	
<b>Level-1 Protective Factors</b>			
Academic achievement x Black	-.003	.002	
Academic achievement x Hispanic	-.000	.002	
Extracurricular activities x Black	-.000	.003	
Extracurricular activities x Hispanic	-.009**	.003	
Parent involvement in school x black	-.022†	.012	
Parent involvement in school x Hispanic	-.020	.013	
Academic orientation of close friends x Black	.094*	.043	
Academic orientation of close friends x Hispanic	.059	.041	
<b>Level-2 Compensatory Factors</b>			
Academic climate at school	.007	.014	
Fair school rules	-.046†	.026	
Students' awareness of school punishment	-.095**	.032	
Parent participation in school policy	.018	.026	
<b>Level-2 Protective Factors</b>			
Academic climate at school x Black	-.087**	.030	
Academic climate at school x Hispanic	-.015	.029	
Intercept	-.110***	.013	
<b>Random Effect</b>			
	Variance	$\chi^2$	df
Intercept Variance, $U_{0j}$	.010***	897.98	584
Level-1 Variance, $r_{ij}$	.221		

† p < .10, \* p < .05, \*\* p < .01, \*\*\* p < .001.

<sup>a</sup>Whites are the reference category, <sup>b</sup>Suburban schools are the reference category.

relationship with the outcome variable. As seen in Table IV–7, these factors were academic achievement, academic orientation, bond with teachers, parent-student shared activities, and academic orientation of close friends.

In this full model, the significance of the interaction term between extracurricular activities and being Hispanic sustained ( $b = -.009$ ,  $p < .01$ ), suggesting a protective effect of extracurricular activities for Hispanic students even after controlling for all level-1 and level-2 variables included in this study. Previously, academic achievement and parent involvement in school had protective effects for Black students' school misconduct. In the full model, however, the protective effect of parent involvement in school was only marginally significant ( $b = -.022$ ,  $p < .10$ ) and the protective effect of academic achievement became insignificant. The statistical significance of the interaction term between academic orientation of close friends and being Black sustained in the full model, maintaining its effect in favor of White students ( $b = .094$ ,  $p < .05$ ).

Among level-2 compensatory factors, however, some changes were observed once level-1 compensatory factors and all significant interaction terms were taken into account in the full model. Fair school rules that were significant at an alpha of .05 in Model C2 through Model C6 became marginally significant ( $p < .10$ ). Academic climate at school, which was marginally significant in Model C2, was no longer significant even at an alpha of .10 in the full model. Students' awareness of school punishment is the only level-2 compensatory factor that was statistically significant ( $p < .01$ ) even after all protective factors and the other level-1 and level-2 compensatory factors were adjusted. Although the main effect of academic climate at school was insignificant, its interaction effect with Black students was still significant in the full model ( $b = -.087$ ,  $p < .01$ ). This suggests that this level-2 variable had no significant effects on White students' misconduct, but it did significantly reduce Black students' misconduct.

## **IV.5. Compensatory and Protective Factors for Internal School Suspension**

Finally, this study aims to identify compensatory and protective factors for internal school suspension. Like the previous objective, Study Objective 4 has three sub-objectives. As explained earlier, all three sub-objectives and relevant research questions of the last objective are exactly parallel to those of Study Objective 3. Yet, Study Objectives 3 and 4 are different in two distinct ways. First, the outcome variable for Study Objective 4 is not school misconduct , but internal school suspension. Second, school misconduct, the outcome variable for Study Objective 3, serves as one of the control variables in the models developed for the last study objective. Multilevel logistic regression was adopted to properly handle the binary outcome variable. In this section, the analysis results for the last study objective are addressed to correspond with the order of the three sub-objectives.

### **IV.5.1. Individual, Family, and Peer Level Compensatory and Protective Factors for Internal School Suspension**

Under Study Objective 4, the first sub-objective attempts to identify the individual-, family-, and peer-level factors that contribute to a low likelihood of internal school suspension among students in general and racial-ethnic minority students in particular. As specified previously, this sub-objective has two research questions as follows.

#### Research Question 4.1.1

*What are the individual-, family-, and peer-level compensatory factors that are negatively associated with the likelihood of internal school suspension after controlling for school misconduct as well as gender, family SES, and urbanicity of school locale ?*

Research Question 4.1.2

*What are the individual-, family-, and peer- level protective factors that alleviate the effects of racial-ethnic minority status on internal school suspension after controlling for school misconduct as well as gender, family SES, and urbanicity of school locale ?*

Table IV–8 displays the multilevel logistic regressions computed for Research Questions 4.1.1 and 4.1.2. Consistent with the previous tables, Table IV–8 contains only regression coefficients and statistical significance levels of the intercept and the variables included in the models. Appendix I extends this table by including standard errors and odds ratios of the variables, as well as random effects test results.

As seen in the Table IV–8, Model D1 includes two race-ethnicity dummy variables and five control variables (gender, school misconduct, family SES, urban school, and rural school). This model continuously serves as a baseline model for Study Objective 4. In this model, being Black was significantly associated with internal school suspension ( $b = .936$ ,  $OR = 2.55$ ,  $p < .001$ ), holding constant all other variables in the model. Exponentiating its coefficients, .936, yields the odds ratios of 2.5. *Therefore, compared to White students, Black students were 2.5 times more likely to receive internal school suspension even after controlling for the five variables in the model.* In the same model, the effect of being Hispanic was .266, indicating that Hispanic students were 1.3 times more vulnerable to internal school suspension compared to White students, adjusting for the other variables in the model. Yet, Hispanic students' coefficient was only marginally significant ( $p < .10$ ).

Among the control variables, gender ( $b = .353$ ,  $OR = 1.42$ ,  $p < .01$ ), school misconduct ( $b = 2.072$ ,  $OR = 7.94$ ,  $p < .001$ ), family SES ( $b = -.550$ ,  $OR = .58$ ,  $p < .001$ ), and rural school ( $b = .234$ ,  $OR = 1.26$ ,  $p < .05$ ) were statistically significant. As anticipated and observed previously, male gender, high levels of school misconduct, and low family SES

**Table IV–8. Individual Family and Peer Compensatory and Protective Factors for Internal School Suspension**

(Student N = 6,621 & School N = 591)

Model	Model D1	Model D2	Model D3	Model D4	Model D5	Model D6	Model D7	Model D8	Model D9
<b>Race-Ethnicity and Control Variables</b>									
Black <sup>a</sup>	.936***	.761***	.761***	.773***	.770***	.750***	.789***	.830***	.774***
Hispanic <sup>a</sup>	.266†	.113	.324†	.147	.153	.168	.191	.212	.145
Gender	.353**	.404***	.407***	.400***	.400***	.404***	.401***	.399***	.412***
School misconduct	2.072***	1.898***	1.899***	1.894***	1.900***	1.900***	1.896***	1.917***	1.887***
Family SES	-.550***	-.341***	-.339***	-.334***	-.344***	-.340***	-.351***	-.339***	-.334***
Urban school <sup>b</sup>	-.043	-.020	-.023	-.024	-.017	-.024	-.024	-.004	-.029
Rural school <sup>b</sup>	.234*	.208	.202	.205	.205	.206	.211	.210	.213
<b>Level-1 Compensatory Factors</b>									
Academic achievement		-.038***	-.045***	-.038***	-.038***	-.038***	-.038***	-.038***	-.037***
Academic orientation		-.130	-.123	-.206	-.127	-.132	-.135	-.126	-.121
Bond with teachers		-.144	-.141	-.142	-.208	-.141	-.134	-.130	-.159
Extracurricular activities		-.022*	-.022*	-.022*	-.022*	-.023*	-.021*	-.021*	-.021*
Parent-student shared activities		-.022	-.027	-.024	-.022	-.027	-.234*	-.032	-.023
Parent involvement in school		-.062†	-.060	-.062*	-.060	-.061*	-.060	-.143**	-.067†
Academic orientation of close friends		.219†	.230†	.220†	.215†	.220†	.217†	.208†	-.083
<b>Level-1 Protective Factors</b>									
Academic achievement x Black			<b>.005</b>						
Academic achievement x Hispanic			<b>.031*</b>						
Academic orientation x Black				.235					
Academic orientation x Hispanic				.169					
Bond with teachers x Black					.020				
Bond with teachers x Hispanic					.329				
Extracurricular activities x Black						.007			
Extracurricular activities x Hispanic						.021			
Parent-student shared activities x Black							<b>.495*</b>		
Parent-student shared activities x Hispanic							<b>.489*</b>		
Parent involvement in school x Black								<b>.215**</b>	
Parent involvement in school x Hispanic								<b>.200*</b>	
Academic orientation of close friends x Black									<b>.664*</b>
Academic orientation of close friends x Hispanic									<b>.849**</b>
Intercept	-3.283***		-3.412***	-3.411***	-3.405***	-3.398***	-3.416***	-3.431***	-3.434***

<sup>a</sup>Whites are the reference category, <sup>b</sup>Suburban schools are the reference category.

† p < .10, \* p < .05, \*\* p < .01, \*\*\* p < .001.

were linked to a higher likelihood of internal school suspension, taking all of the other variables into account. These three control variables were consistently significant through the later models developed based on Model D1. Rural school, on the other hand, was significant in Model D1 only. The positive coefficient of rural school in this model suggests that rural school students were more vulnerable to internal school suspension compared to suburban school students, adjusting for the other variables in the model.

Model D2 added seven potential level-1 compensatory factors for internal school suspension to the baseline model to examine whether these factors were negatively associated with internal school suspension (for Research Question 4.1.1). The same set of level-1 compensatory factors used for school misconduct in the prior section was utilized. Inclusion of the seven factors eliminated the statistical significance of Hispanic students and rural school. However, the other control variables, as well as being Black, remained highly significant. Among the seven potential compensatory factors, academic achievement ( $b = -.038$ , OR = .96,  $p < .001$ ) and extracurricular activities ( $b = -.022$ , OR = .98,  $p < .05$ ) were found significant.

The coefficient of academic achievement,  $-.038$ , corresponds to an odds ratio of .96. For one unit increase in academic achievement, therefore, the odds of internal school suspension is predicted to decrease by 4 percent, adjusting for the other variables. Therefore, the odds of internal school suspension for a student who had a score of 60 in academic achievement is 40 percent lower than the odds for an otherwise similar student who had a score of 50 in academic achievement<sup>5</sup>. The coefficient of extracurricular activities was  $-.022$  and its corresponding odds ratio is .98. For every one hour increase in extracurricular activities per week, the predicted odds of internal school suspension declines by 2 percent, holding the other

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<sup>5</sup> As addressed earlier, academic achievement was standardized to have a national mean of 50 with a standard deviation of 10.

variables constant. In addition, parent involvement in school was inversely related to the outcome variable but only marginally significant ( $b = -.062$ ,  $OR = .94$ ,  $p < .10$ ).

Academic orientation of close friends was also marginally significant but it had a positive association with internal school suspension ( $b = .219$ ,  $OR = 1.25$ ,  $p < .10$ ). Based only on this result, academic orientation of close friends cannot be considered a compensatory factor for internal school suspension. The effect of this variable, however, seems a little complicated and this issue will be further discussed later in this section.

In order to identify protective effects of the selected level-1 factors, interaction terms of these factors with race-ethnicity dummy variables were created and tested one at a time in Model D3 through Model D9 (Research Question 4.1.2). Four factors were found to have a significant interaction effect with at least one racial-ethnic dummy variable. As opposed to the predicted expectation, however, all of the significant interaction effects had a positive association with internal school suspension. This suggests that these factors had significantly greater desirable effects for White students compared to the other group(s), after controlling for the other variables in the models.

As seen in Model D3, the interaction term between academic achievement and being Hispanic was significant ( $p < .05$ ). The effect of academic achievement differed significantly depending on student ethnicity (Whites vs. Hispanics). Since the direction of the interaction term ( $b = .031$ ) is positive, its effect in reducing the likelihood of internal school suspension is estimated to be significantly smaller for Hispanic students than for White students. Specifically, for White students, the effect of academic achievement is  $-.045$ , the main effect, which is equivalent to an odds ratio of  $.96$ . One unit increase in academic achievement decreased White students' likelihood of internal school suspension by 4 percent, controlling for the other variables in the model. For Hispanic students, on the other hand, the effect is  $-.014$ ,

the sum of the main effect and interaction effect, which was converted to an odds ratio of .99.

For every one unit increase in academic achievement, Hispanic students' likelihood of internal school suspension is predicted to diminish by only 1 percent.

The effect of parent-student shared activities varied significantly across racial-ethnic groups. As presented in Model D7, its interaction term with being Black ( $b = .495$ ,  $p < .05$ ) and also with being Hispanic ( $b = .489$ ,  $p < .05$ ) were both significant and had a positive relationship with internal school suspension. The negative direction of the two significant interaction terms indicates greater desirable effects for White students. After these two interaction terms were added to Model D2, the main effect of this factor became significant in Model D7 ( $b = -.234$ ,  $p < .05$ ). For White students, the effect of parent-student shared activities is  $-.234$ , while for Black and Hispanic students it is  $.261$  and  $.255$ , respectively, holding other variables constant. Based on these results, it is predicted that parent-student shared activities significantly reduces the likelihood of White students' internal school suspension even after all of the other variables in the model were taken into account; however, the factor did not have such desirable effects for Black students and Hispanic students in the same model.

Parent involvement in school was also found to have greater desirable effects for White students than for the other two racial-ethnic groups. As Model D8 indicates, the two interaction terms with each of the race-ethnicity dummy variable were both significant and had a positive association with the outcome variable. After the two interaction terms were added, the effect of parent involvement in school, which was only marginally significant in Model D2, became significant at an alpha of .01 in Model D8. As the main effect indicates in Model D8, a high value for parent involvement in school was associated with a low likelihood of White students' internal school suspension ( $b = -.143$ ,  $p < .01$ ), holding other variables in the model constant. By contrast, the computed effect of this factor for Black students and Hispanic

Students was .072 and .057, respectively. This finding suggests that parent involvement in school did not reduce the likelihood of Black students' internal school suspension nor Hispanic Students' internal school suspension, controlling for the other variables.

Similarly, the academic orientation of close friends had differential effects on internal school suspension, depending on student race-ethnicity. Previously in Model D2, the academic orientation of close friends was marginally significant and had a positive association with internal school suspension. Once its two interaction terms with race-ethnicity dummy variables were introduced in Model D9, its main effect turned out to have a negative association with the outcome variable, although the effect was not significant ( $p \geq .10$ ). The insignificant main effect suggests that the academic orientation of close friends has no significant impact on White students' internal school suspension, after the other variables were all controlled. In contrast, the newly added two interaction terms in Model D9 were both significant and positively associated with internal school suspension. Therefore, a high value in academic orientation predicts a high likelihood of internal school suspension among Black students and Hispanic students, when all of the other variables in the model are adjusted.

To understand more clearly the nature of the relationship between academic orientation of close friends and student race-ethnicity, a series of multilevel logistic regressions were conducted separately for each racial-ethnic group (not shown). There are three key findings of the supplementary analyses. First, in a bivariate relationship, academic orientation of close friends was significantly and also inversely associated with White students' internal school suspension. Once all of the other variables used in Model D9 were controlled, however, the effect was no longer significant. Second, for Black students, academic orientation of close friends had no significant relationship with internal school suspension in a bivariate relationship. After all of the other variables were added to the model, it became marginally

significant in a positive direction. Finally, academic orientation of close friends had no significant bivariate relationship with Hispanic students' internal school suspension, either. When all of the other variables were adjusted for, however, it became significantly and positively associated with the outcome variable.

#### **IV.5.2. School Level Compensatory and Protective Factors for Internal School Suspension**

The second sub-objective under Study Objective 4 aims to identify the school-level factors that contribute to a low likelihood of internal school suspension. As stated earlier, the two following research questions were further developed to address this sub-objective.

##### Research Question 4.2.1

*What are the school-level compensatory factors that are negatively associated with the likelihood of internal school suspension on average at school after controlling for school misconduct as well as gender, race-ethnicity, family SES, and urbanicity of school locale ?*

##### Research Question 4.2.2

*What are the school-level protective factors that mitigate the effects of racial-ethnic minority status on internal school suspension on average at school after controlling for school misconduct as well as gender, family SES, and urbanicity of school locale ?*

Multilevel logistic regression was again employed and the results are summarized in Table IV-9. As in the previous table, only logistic regression coefficients with statistical significance levels are presented in this table for simplicity and easy comparison of the models. More detailed information about the models is available in Appendix J.

Model E1 is the baseline model and has only student race-ethnicity dummy variables and four control variables. As mentioned earlier, it is exactly the same as Model D1. To this

**Table IV–9. School Level Compensatory and Protective Factors for Internal School Suspension**

(Student N = 6,621 & School N = 591)

	Model E1	Model E2	Model E3	Model E4	Model E5	Model E6
<b><u>Race-Ethnicity and Control Variables</u></b>						
Black <sup>a</sup>	.936***	.833***	.810***	.830***	.830***	.846***
Hispanic <sup>a</sup>	.266†	.261†	.333*	.259†	.262†	.262†
Gender	.353**	.357**	.359***	.357**	.357**	.354**
School misconduct	2.072***	2.065***	2.066***	2.065***	2.065***	2.065***
Family SES	-.550***	-.490***	-.494***	-.490***	-.489***	-.483***
Urban school <sup>b</sup>	-.043	-.007	-.009	-.007	-.005	-.004
Rural school <sup>b</sup>	.234*	.202	.198	.202	.201	.201
<b><u>Level-2 Compensatory Factors</u></b>						
Academic climate at school		-.227*	-.300*	-.227*	-.226*	-.221*
Fair school rules		-.501*	-.475*	-.483†	-.503*	-.499*
Students' awareness of school punishment		.505*	.490†	.503*	.523	.518*
Parent participation in school policy		-.450**	-.432*	-.451*	-.453*	-.573*
<b><u>Level-2 Protective Factors</u></b>						
Academic climate at school x Black			<b>-.046</b>			
Academic climate at school x Hispanic			<b>.395†</b>			
Fair school rules x Black				.032		
Fair school rules x Hispanic				-.051		
Students' awareness of school punishment x Black					.041	
Students' awareness of school punishment x Hispanic					-.137	
Parent participation in school policy x Black						.066
Parent participation in school policy x Hispanic						.791
Intercept	-3.283***	-3.320***	-3.323***	-3.320***	-3.320***	-3.329***

<sup>a</sup>Whites are the reference category, <sup>b</sup>Suburban schools are the reference category.

† p < .10, \* p < .05, \*\* p < .01, \*\*\* p < .001.

baseline model, academic climate at school, fair school rules, students' awareness of school punishment, and parent participation in setting school policy were added so that their compensatory effects in the relationship with internal school suspension could be identified (for Research Question 4.2.1). The four school-level compensatory factors were all significantly related to internal school suspension. All but student awareness of school punishment had an inverse relationship with the outcome.

Academic climate at school had a significant and inverse relationship with internal school suspension after controlling for the other variables in the model ( $b = -.227$ ,  $p < .05$ ). Since its coefficient of  $-.227$  corresponds to an odds ratio of  $.80$ , the odds of internal school suspension is predicted to drop by 20 percent for every unit increase in academic climate at school, holding the other variables constant. Fair school rules was also significantly and inversely associated with the outcome variable in the same model ( $b = -.501$ ,  $p < .05$ ). An odds ratio of  $.61$  was obtained by exponentiating the coefficient  $-.501$ . For every one unit increase in fair school rules, the odds of internal school suspension is predicted to decrease by 39 percent after taking all other variables into account. Parent participation in setting school policy was found to have similar effects ( $b = -.450$ ,  $p < .01$ ). Its coefficient,  $-.450$ , yields an odds ratio of  $.64$ . For every one unit increase in parent participation in setting school policy, therefore, the odds of internal school suspension is predicted to decrease by 36 percent. In contrast, the remaining factor, students' awareness of school punishment, was positively associated with internal school suspension ( $b = .505$ ,  $p < .05$ ). Its odds ratio of  $1.66$ , the exponent of the coefficient, indicates that for one unit increase in students' awareness of school punishment, the predicted odds of internal school suspension increases by a multiplicative factor of  $1.66$ .

In the next stage of analysis, every interaction term between each school-level factor and each race-ethnicity dummy variable was tested in order to identify whether the school-level

factors have protective effects for racial-ethnic minority students with regard to internal school suspension (for Research Question 4.2.2). The test results are exhibited in Models E3 through E5. None of the interaction terms were statistically significant at an alpha of .05, holding the other variables constant. As shown in Model E3, the interaction term between academic climate at school and being Hispanic was significant at an alpha of .10 ( $b = .395 = p < .10$ ). Consistent with the other significant interaction effects regarding internal school suspension, this interaction effect had a positive association with the outcome variable. At a marginal level of statistical significance, therefore, the effects of academic climate at school that reduced the likelihood of internal school suspension were smaller for Hispanic students than White students, taking the other variables into account.

#### **IV.5.3. Full Model of Compensatory and Protective Factors for Internal School Suspension**

The last sub-objective under Study Objective 4 is to examine the compensatory and protective factor effects for internal school suspension in a full model that covers both level-1 and level-2. This sub-objective was specified in the following research question.

##### Research Question 4.3.1

*What compensatory and protective factors with regard to internal school suspension are significant in the full model (in which the individual-, family-, peer, and school-level factors selected for this study are all taken into account)?*

To answer this final research question, a full model of compensatory and protective factors for internal school suspension was developed using multilevel logistic regression. This full model includes all level-1 and level-2 compensatory factors and significant interaction terms as well as student race-ethnicity dummy variables and control variables. Multilevel logistic regression results from this full model are presented in Table IV-10.

Academic achievement was statistically highly significant and had a negative direction with the outcome variable ( $b = -.042$ ,  $p < .001$ ), suggesting that higher values in this factor were associated with a low likelihood of internal school suspension, even after taking all of the other variables into account. Yet, its interaction effect with being Hispanic became only marginally significant in the full model.

Parent involvement in school was also significant and had an inverse relationship with internal school suspension in this full model ( $b = -.103$ ,  $p < .05$ ). Its two interaction terms with race-ethnicity dummy variables, however, were no longer significant in the full model. When the other variables in the full model were all taken into account, therefore, the effect of parent involvement in school did not differ significantly across racial-ethnic groups.

As observed in Model D9, the main effect of academic orientation of close friends was insignificant, while its interaction effects with race-ethnicity dummy variables were at least marginally significant and had a positive relationship with internal school suspension in the full model. It suggests that academic orientation of close friends had no significant effects for White students' internal school suspension, holding constant the other variables in the full model. This result further suggests that the more close peers are academically oriented, the higher is the likelihood of internal school suspension among Black and Hispanic students. These differential effects of academic orientation of close friends depending on student race-ethnicity seem rather complex, and require careful examination and interpretation of this factor in relationships with other variables.

Extracurricular activities were also negatively associated with internal school suspension in the full model, as it was in Model D2. In the full model, however, extracurricular activities were only marginally significant ( $b = -.018$ ,  $p < .10$ ). Similarly, the effects of parent-student shared

**Table IV–10. Full Model of Compensatory and Protective Factors for Internal School Suspension**  
(Student N = 6,621 & School N = 591)

	b	se	Odds
<b>Fixed Effect</b>			
<b>Race-Ethnicity and Control Variables</b>			
Black <sup>a</sup>	.714**	.198	2.043
Hispanic <sup>a</sup>	-.490**	.181	1.633
Gender	.412***	.102	1.509
School misconduct	1.899***	.089	6.682
Family SES	-.304**	.086	.739
Urban school <sup>b</sup>	-.009	.149	1.009
Rural school <sup>b</sup>	.183	.153	1.201
<b>Level-1 Compensatory Factors</b>			
Academic achievement	<b>-.042***</b>	<b>.008</b>	<b>.959</b>
Academic orientation	-.130	.110	.877
Bond with teachers	-.112	.118	.894
Extracurricular activities	<b>-.018†</b>	<b>.009</b>	<b>.982</b>
Parent-student shared activities	-.187	.121	.829
Parent involvement in school	<b>-.103*</b>	<b>.049</b>	<b>.902</b>
Academic orientation of close friends	-.082	.150	.921
<b>Level-1 Protective Factors</b>			
Academic achievement x Black	.003	.016	1.003
Academic achievement x Hispanic	<b>.029†</b>	<b>.015</b>	<b>1.029</b>
Parent-student shared activities x Black	.335	.239	1.398
Parent-student shared activities x Hispanic	.320	.232	1.377
Parent involvement in school x Black	.134	.092	1.144
Parent involvement in school x Hispanic	.082	.106	1.085
Academic orientation of close friends x Black	<b>.577†</b>	<b>.288</b>	<b>1.782</b>
Academic orientation of close friends x Hispanic	<b>.901**</b>	<b>.298</b>	<b>2.463</b>
<b>Level-2 Compensatory Factors</b>			
Academic climate at school	-.218†	.120	.804
Fair school rules	<b>-.451*</b>	<b>.203</b>	<b>.637</b>
Students' awareness of school punishment	<b>.446†</b>	<b>.259</b>	<b>1.562</b>
Parent participation in school policy	<b>-.349†</b>	<b>.219</b>	<b>.706</b>
<b>Level-2 Protective Factors</b>			
Academic climate at school x Black	-0.102	.210	.903
Academic climate at school x Hispanic	.312	.213	1.367
Intercept	-3.509***	.121	.030
<b>Random Effects</b>			
Intercept Variance, U <sub>0j</sub>	Variance .616***	$\chi^2$ 760.63	df 584

<sup>a</sup>Whites are the reference category, <sup>b</sup>Suburban schools are the reference category.

† p < .10, \* p < .05, \*\* p < .01, \*\*\* p < .001.

activities became substantially attenuated in the full model. Statistical significance of its main effect, as well as interaction effects with race-ethnicity dummy variables, did not sustain in the full model.

Regarding the level-2 compensatory factor effects, relatively small changes were observed in the full model. Although some of the level-2 compensatory factors became statistically less significant, all of them were at least marginally significant even after all of the other variables in the full model were adjusted. Academic climate at school, fair school rules, and parent participation in school policy all had an inverse association with internal school suspension. That is, these factors contribute to less utilization of internal school suspension at the school level, and, therefore, a lower likelihood of internal school suspension at the individual level. On the other hand, students' awareness of school punishment had a positive association with the outcome variable, but it was only marginally significant in the full model. In addition, the interaction term between academic climate at school and being Hispanic, which was marginally significant in Model E3, became insignificant in the full model. This finding suggests that when all of the variables were taken into account, the effects of academic climate at school did not differ significantly across racial-ethnic groups.

#### **IV.6. Summary of Key Findings**

This study has four major objectives. The first objective is to determine the effects of student race-ethnicity on internal school suspension. The second objective is to examine the potential confounding factor effects that account for the racial-ethnic disparities in internal school suspension. Third, this study aims to identify compensatory and protective factors for school misconduct, after controlling for student gender, family SES, and urbanicity of school

locale. The final study objective is to identify compensatory and protective factors for internal school suspension, holding constant school misconduct as well as the other control variables used for the third study objective. The first two objectives aim to make a scholastic contribution by producing empirical evidence and accumulating knowledge on the racial-ethnic disparities in school suspension and the reasons for the phenomenon. It is also anticipated that these study results will shed light on the long-term strategies to eradicate the racial-ethnic disparities in school exclusion. The later two objectives were designed to provide more practical information for educators and mental health professionals at school. Based on the study results regarding the last two study objectives, educators and school mental health professionals might be better able to develop timely intervention plans and help at-risk students be less involved in school misconduct and school exclusion.

As expected, this study found that racial-ethnic minority students, particularly Black students, are significantly more vulnerable to internal school suspension compared to their White counterparts. When only gender is controlled, Hispanic students are about 2 times more likely, and Black students are roughly 3 times more likely than White students to receive internal school suspension.

To understand the reasons for the significant racial-ethnic disparities in school exclusion, this study examined three explanations directly and one explanation indirectly. By comparing regression coefficients of race-ethnicity dummy variables in the model with the confounding factors and those without the confounding factors, this study assessed the plausibility of an individual factor explanation, a family factor explanation, and a school factor explanation. Above all, it is noticeable that the effects of being Hispanic on internal school suspension are completely accounted for by the combination of the individual factor explanation and the family factor explanation. That is, Hispanic students' higher risk for

internal school suspension, in comparison with White students, is fully attributable to their individual misconduct at school, functional impairment, and family disadvantages. Yet, the significant effects of being Black on internal school suspension sustain even after the confounding factors proposed in the three explanation approaches were all taken into account. This result seems to support the plausibility of a differential treatment explanation regarding Black students' vulnerability to school exclusion. That is, Black students' higher risk for school exclusion, compared to White students, seems to result, at least in part, from unfair treatment against them in school settings.

Next, this study identified compensatory and protective factors for school misconduct, as well as for internal school suspension. The seven level-1 compensatory factors have all desirable effects on either internal school suspension or school misconduct. Interestingly, there seems to be somewhat distinctive differences between the significant compensatory factors for school misconduct and those for internal school suspension. Based on the level-1 compensatory factor for school misconduct and the corresponding model for internal school suspension (Model B2 and Model D2), academic orientation, bond with teachers, parent-child shared activities, and academic orientation of close friends are inversely associated only with school misconduct, while extracurricular activities and parent involvement in school are inversely associated only with internal school suspension. As summarized in Table IV-11, academic achievement is the only level-1 factor that has a negative association with both school misconduct and internal school suspension, controlling for the other variables in the models. Academic orientation of close friends is also negatively linked to school misconduct but positively connected to internal school suspension at a marginal level of statistical significance. As addressed previously, the effect of academic orientation of close friends needs to be carefully interpreted in the

**Table IV–11. Summary of Significant Compensatory and Protective Factors by Problem Area<sup>a</sup>**

	School Misconduct	Internal school suspension
Level-1 Compensatory Factor	<b>Academic achievement***</b> <b>Academic orientation***</b> <b>Bond with teachers***</b> <b>Parent-child shared activities**</b> <b>Academic orientation of close friends***</b>	<b>Academic achievement***</b> <i>Academic orientation of close friends†</i> <b>Extracurricular activities*</b> <b>Parent involvement in school†</b>
Level-1 Protective Factor	<b>Academic achievement x Black*</b> <b>Extracurricular activities x Hispanic**</b>  <b>Parent involvement in school x Black*</b> <b>Parent involvement in school x Hispanic*</b>  <i>Academic orientation of close friends x Black*</i>	<i>Academic achievement x Hispanic*</i>  <i>Parent-child shared activities x Black*</i> <i>Parent-child shared activities X Hispanic*</i>  <i>Parent involvement in school x Black**</i> <i>Parent involvement in school x Hispanic*</i>  <i>Academic orientation of close friends x Black*</i> <i>Academic orientation of close friends x Hispanic**</i>
Level-2 Compensatory Factor	<b>Academic climate at school†</b> <b>Fair school rules***</b> <b>Students' awareness of school punishment***</b>	<b>Academic climate at school*</b> <b>Fair school rules*</b> <b>Students' awareness of school punishment*</b> <b>Parent participation in school policy**</b>
Level-2 Protective Factor	<b>Academic climate at school x Black**</b>	<i>Academic climate at school x Hispanic†</i>

<sup>a</sup> This table was created based on separate models (Model B2–B9, Model C2–C9, Model D2–D9, and Model E2–E9), not the full models.

The factors in bold indicate those associated negatively with the outcome variable while the factors italicized refer to those associated positively.

† p < .10, \* p < .05, \*\* p < .01, \*\*\* p < .001.

relationship with other variables.

In addition, all of the four potential level-2 compensatory factors selected from previous literature are found to have desirable effects on at least one problem area, internal school suspension or school misconduct. Based on the level-2 compensatory factor model for school misconduct and the corresponding model for internal school suspension (Model C2 and Model E2), academic climate at school and fair school rules are inversely related to both internal school suspension and school misconduct. Parent participation in setting school policy is inversely associated only with internal school suspension. Students' awareness of school punishment, on the other hand, had somewhat complicating effects depending on the problem area. As seen in Models C2 and E2, it has a significant association with both problem areas. But the direction of its relation with school misconduct is negative, while the direction of the relation with internal school suspension is positive, holding the other variables are constant. Like the effects of academic orientation of close friends, careful examination and interpretation are warranted to correctly understand the effects of students' awareness of school punishment.

A final key finding that should be addressed here is that some factors demonstrated differential effects depending on student race-ethnicity. In Table IV-2, significant interaction terms are summarized by student race-ethnicity. As shown in the table, academic achievement, parent involvement in school, extracurricular activities, and academic climate at school have protective effects for at least one racial-ethnic minority group regarding their misconducts at school. These results suggest that these protective factor effects can ameliorate the racial-ethnic gap between White students and racial-ethnic minority students in school misconduct. When the outcome variable is internal school suspension, however, all of the significant interaction terms such as parent-student shared activities and parent involvement in

**Table IV–12. Summary of Significant Protective Factors by Race-Ethnicity<sup>a</sup>**

Problem Area	Black <sup>b</sup>	Hispanic <sup>b</sup>	White
<b><u>School Misconduct</u></b>			
Level-1 Protective Factor	<ul style="list-style-type: none"> <li>• Academic achievement</li> <li>• Parent involvement in school</li> </ul>	<ul style="list-style-type: none"> <li>• Extracurricular activities</li> <li>• Parent involvement in school</li> </ul>	<ul style="list-style-type: none"> <li>• Academic orientation of close friends (vs. Black)</li> </ul>
Level-2 Protective Factor	<ul style="list-style-type: none"> <li>• Academic climate at school</li> </ul>		
<b><u>Internal School Suspension</u></b>			
Level-1 Protective Factor		<ul style="list-style-type: none"> <li>• Academic achievement (vs. Hispanic)</li> <li>• Parent-students shared activities (vs. Black &amp; Hispanic)</li> <li>• Parent involvement in school (vs. Black &amp; Hispanic)</li> <li>• Academic orientation of close friends (vs. Black &amp; Hispanic)</li> </ul>	
Level-2 Protective Factor		<ul style="list-style-type: none"> <li>• Academic climate at school (vs. Hispanic)†</li> </ul>	

<sup>a</sup> This table was created based on separate models (Model B2 – B9, Model C2 –C9, Model D2 – D9, and Model E2 – E9), not the full models.

<sup>b</sup> Whites are the reference group.

† Indicates a factor that is only marginally significant ( $p < .10$ ).

school actually have greater desirable effects for White students than Black or Hispanic students. That is, the effects of these factors in reducing the likelihood of internal school suspension are significantly greater for White students than for racial-ethnic minority students. These results might reflect White students' advantaged status in school settings compared to racial-ethnic minority students. Given that significant interaction effects are considerably influenced by other variables included in a model, however, the protective effects for a certain racial-ethnic group should be understood in a specific context.

## V. DISCUSSION

In this chapter, the summary of primary findings and key issues are first addressed in accordance with the four study objectives. This is followed by study implications and practical suggestions that aim to minimize the potential detrimental impacts of school exclusion on students and moderate the racial-ethnic disparities in school exclusion. In the final section, study limitations and recommendation for future research studies are presented.

### **V.1. Vulnerability of Racial-Ethnic Minority Students to School Exclusion**

The aim of the first objective in this study was to diagnose the problem under investigation. Utilizing multilevel logistic regression, this study determined the effects of race-ethnicity on internal school suspension. Consistent with previous studies (Browner et al., 2001; Costenbader & Markson, 1998; Crosnoe et al., 2004; Keleher, 2000; Skiba et al., 2002; Thornton & Trent, 1988; Wu et al., 1982), racial-ethnic minority students were found to be significantly more vulnerable than White students to school exclusion. Specifically, compared to their White peers, Black students were roughly three times more likely and Hispanic students were approximately two times more likely to receive internal school suspension, adjusting for gender. In addition to accumulating another piece of empirical evidence on racial-ethnic disparities in school exclusion, this finding can be considered particularly meaningful in that it pulled from one of the most recent national data sets (ELS:2002). Although the data used for this study were collected based on cluster sampling, biased estimation of standard errors and inflated Type I error may not be serious concerns because the risks were reduced in this study by utilizing multilevel modeling techniques. Therefore, this result may depict current

nationwide racial-ethnic disparities in internal school suspension reasonably well.

## **V.2. The Reasons for Racial-Ethnic Disparities in School Exclusion**

To understand why racial-ethnic minority students are at a greater risk for school exclusion than White students, four potential explanations were identified through a review of the literature and logical conceptualization. Among the four, the plausibility of three explanation approaches (an individual factor explanation, a family factor explanation, and a school factor explanation) was examined by testing confounding factor effects, which were proposed in each explanation. Due to a lack of proper measure, however, the plausibility of the differential treatment explanation could be assessed only indirectly by ruling out other alternative explanations. Analysis results suggest that the underlying reasons for the vulnerability of racial-ethnic minority students to school exclusion are different depending on their race-ethnicity. In this section, the reasons for such vulnerabilities among Black students and Hispanic students are further discussed.

### **V.2.1. What Explains Black Students' Vulnerability to School Exclusion?**

The individual factor explanation, family factor explanation, and school factor explanation failed to completely explain, either in isolation or in combination, why Black students are more vulnerable to internal school suspension compared to White students. As an individual factor explanation posits, One-Way ANOVA test and two post-hoc tests conducted to understand sample characteristics revealed that Black students are significantly more likely than White students to display school misconduct and to have been identified to have behavior problems at school. When individual factors such as school misconduct and disability (mainly

emotional disturbance and learning disorders) were added to the baseline multilevel logistic regression model, Black students' odds of internal school suspension reduced but the change was minimal (from 2.8 to 2.7). Based on this result, Black students in general show more school misconduct than White students, but such individual factor differences do not successfully explain Black students' higher likelihood of school exclusion relative to White students.

On the other hand, the study results partially support the family factor explanation for Black students' vulnerability to internal school suspension. Adding family SES to the baseline model decreased Black students' odds of internal school suspension from 2.8 to 1.9, but the effects of being Black remained highly statistically significant. This result is consistent with previous studies. In Skiba et al. (2002), including free lunch eligibility reduced the effect of being Black on school discipline, but it did not change the effect size substantially nor remove its statistical significance.

The school factor explanation is also too limited to completely account for Black students' vulnerability to school exclusion. Including school factors, such as public sector, urbanicity of school locale, and unsafe and disorderly school environment did not substantially reduce Black students' odds of internal school suspension (from 2.8 to 2.5), and the effects of being Black remained highly significant. As well documented (Bowen & Bowen, 1999; Grant & Williams, 2000; U.S. Census Bureau, 2005; U.S. Department of Education, 2005), Black students in this study sample are indeed more likely than White students to attend a public school, urban school, and unsafe school where problem behaviors are prevalent. The study results, however, do not suggest such school characteristics play a major role in Black students' high vulnerability to school exclusion.

Even in the final model, where all of the confounding factors proposed by the three

explanations were added to the baseline model, Black students were twice as likely as White students to receive an internal school suspension. Based on this result, the differential treatment hypothesis seems to provide a plausible explanation. Williams and Collins (1995) assert that there are two potential explanations for the significant race effects which sustain even after family SES is controlled for in an empirical study. First, the effects of family SES may not be fully captured because of measurement flaws. Second, the analysis model may fail to detect racism effects. As explained previously, the measure of family SES used in this study is a composite variable based on family income, educational attainment of both parents, and occupational status of both parents. This is the first study to date that determined the confounding effects of family SES on the relationship between race-ethnicity and school exclusion using a measure considering all the important three components of family SES, instead of a proxy measure such as the eligibility of free school lunch or family income. Therefore, the significant effects of being Black that sustained after controlling for family SES in this study may not result from a flawed measure of family SES. Rather, the result may suggest racial bias.

There are many potential confounding factors that could significantly affect the relationship between race-ethnicity and school exclusion but are not tested in this study. Therefore, the study results should not be interpreted as decisive evidence indicating the existence of differential treatment against Black students in school. Neither should differential treatment be interpreted as intentional discrimination. Regarding Black students' high vulnerability to school exclusion, cultural differences or conflict between school personnel from mainstream cultures and Black students seems to be a critical issue. Townsend (2000) views such cultural conflict as a major reason for disproportionate school exclusion among Black students. For example, Black students are accustomed to doing a number of tasks

simultaneously, which increases the likelihood that they will be viewed as disturbing in class (Townsend, 2000). Similarly, Noguera (1995) claims that disruptive behavior by Black students reflects their cultural norm whereas school teachers and administrators often perceive those students as aggressive, antisocial, or violent in school. According to Noguera, this may be particularly true when school administrators and teachers are ignorant of the culture and living environment of the students. In such situations, teachers and administrators are more likely to be influenced by stereotypes and more likely to see the students as dangerous and threatening (Noguera, 1995).

In fact, Black students in the current study sample are much more likely than White students to be seen as disturbing in class by their teachers. In addition, the proportion of Black students who have been considered to have a behavior problem at school is double the proportion of White students. It is unclear to what extent these results reflect negative stereotypes of school teachers toward Black students. Notwithstanding, the possibility of differential treatment should be seriously considered, given the importance of the issue and the wealth of previous documentation on negative stereotypes and potential bias against racial-ethnic minority people in various areas, including education (Irvine, 1990; Noguera, 1995; Skiba et al., 2002; Townsend, 2000) and criminal justice (Bridges, Crutchfield, Simpson, 1987; Kramer & Steffensmeier, 1993; Rutter et al., 1998; Smith, 1994).

### **V.2.2. What Explains Hispanic Students' Vulnerability to School Exclusion?**

Although there is no perfect single explanation, Hispanic students' higher likelihood of internal school suspension relative to White students is fully accounted for by the combination of the individual and family factor explanations. Contrary to Black students' school exclusion, the differential treatment hypothesis may not be considered plausible in

accounting for Hispanic students' vulnerability to school exclusion.

It may not be surprising that Hispanic students' higher risk of school exclusion is partly attributed to individual factors. Previous literature reports that Hispanic students show a significantly higher involvement rate than White students in numerous types of problem behaviors such as physical fighting, substance use/abuse, and serious violence acts (Hill & Drolet, 1999; McNulty & Bellair, 2003; DHHS, 2002). Overall, problem behavior involvement of Hispanic students is often similar to and sometimes higher than that of Black students (Center for Disease Control and Prevention, 2004; DHHS, 2002). In the current study sample, it is also observed that the mean of Hispanic students' school misconduct is highest among the three racial-ethnic groups, although the difference between Hispanic and Black students is not statistically significant.

Given that the Hispanic population is, in general, socio-economically deprived in the U.S., it is also not surprising that family disadvantages are contributory factors to Hispanic students' school exclusion. According to the National Center for Children in Poverty (2004), 62 percent of Hispanic children live in low-income families compared to 25 percent of White children. The educational gap between Hispanics and Whites is even more striking. Over 27 percent of Hispanic adults have an educational attainment less than ninth-grade, compared to about 4 percent of White adults (U.S. Census Bureau, 2000). The proportion of Hispanics who completed high school is also lower than that of African Americans (U.S. Census Bureau, 2000). As ANOVA and post-hoc tests reveal, the family SES of Hispanic students is significantly lower than the family SES of Black students and that of White students in the present study sample. Interestingly, however, the proportion of Hispanic students who have been considered to have a behavior problem at school is significantly lower than that of Black students.

Despite key factors such as racial-ethnic minority status, low family SES, and a high rate of school misconduct involvement, the negative stereotypes attached to Hispanics seem much less serious compared to the stereotypes attached to Blacks. There are several potential reasons for this: unlike Blacks, Hispanics have no victim history as slaves in the U.S.; the physical appearance of Hispanics is generally not as distinctively different from Euro-Caucasians as are Blacks; the overrepresentation of Hispanics in serious violence and criminal arrest rates are lower than those of Blacks; the media is less likely to portray Hispanics as violent compared to Blacks; and as Valenzuela (1999) points to, some Hispanic students, particularly recent immigrant students, are perceived positively by school teachers (e.g., being obedient, respectful, and conformative toward U.S. mainstream values).

Yet, caution is needed in interpreting the results that Hispanic students' higher risk of school exclusion compared to White students, is fully explained by individual and family factors. It does not indicate that Hispanics are free from potential bias against them in society. Nor does it mean that Hispanic students are void of cultural conflict in schools. The study results apply to internal school suspension only. In addition, given that the individual factor hypothesis fails to fully explain the difference between Hispanic students and White students in that regard, many Hispanic students appear to experience some kinds of stereotypes attached to low family SES. Thus, the efforts of school personnel to be culturally competent are warranted for better communication and relationships with Hispanic students, particularly those from a low SES family. This holds true for Black students as well.

### **V.3. Compensatory and Protective Factors for School Misconduct**

School misconduct is the most significant direct reason for school exclusion, and disproportionate school misconduct among racial-ethnic minority students are partially responsible for racial-ethnic disparities in school exclusion. Therefore, school misconduct should be addressed in order to minimize the potential detrimental impact of school exclusion and to reduce racial-ethnic disparities. To this end, an objective of this study attempts to identify compensatory and protective factors for school misconduct.

Among the seven potential level-1 compensatory factors identified from previous literature, academic achievement, academic orientation, bond with teachers, parent-student shared activities, and academic orientation of close friends are significantly associated with school misconduct. Consistent with previous literature, the statistical relationships are all negative, indicating that the higher value in these factors, the lower degree of school misconduct. The statistical significance of all these level-1 factors sustain in the full model for school misconduct.

Among the four level-2 compensatory factors selected from the previous literature, fair school rules and students' awareness of school punishment are significant while academic climate at school is only marginally significant. As anticipated, the statistical relationships are all negative. In the full model, however, only students' awareness of school punishment remains significant. Fair school rules become marginally significant and academic climate at school become insignificant in the full model.

In addition to compensatory effects, this study further identifies protective effects of the factors for school misconduct by testing its interaction term with race-ethnicity dummy variables. Indeed, some factors have effects that differ significantly depending on

race-ethnicity. For Blacks, academic-related variables seem particularly important and beneficial. The effects of academic achievement in reducing school misconduct are significantly greater for Black students than for White students. Furthermore, academic climate at school has greater beneficial effects for Black students than for their White counterparts.

Yet, it can be considered controversial to regard academic achievement as a protective factor for Black students. Some might view academic achievement as a marker variable rather than as a protective factor for Blacks. The point is that high academic achievement, which is relatively less common among Black students, simply indicates the attributes of those special Black students. This view seems compelling given previous studies which indicate that the Black sub-culture tends to devalue academic accomplishment and reject academic pursuit (Fordham, 1988; Fordham & Ogbu, 1986; Holland, 1989).

A growing body of research, however, shows that Blacks have higher educational aspirations and a stronger commitment to economic success than Whites (Cemkovish, Giordano, & Rudolph, 2000; Kao & Tienda, 1998). Nevertheless, a wide racial gap in academic achievement persists (Crawford, 2000; Fox, Connolly, Snyder, 2005; Low & Clement, 1982; Roscigno, 1998; U.S. Department of Education, 2003a, 2003b, 2004). Consistent with these recent data, in this study Black students are significantly more academically oriented but their actual academic achievement is, overall, significantly lower compared to White students. This suggests that many Black students have strong motivation toward academic success, but relatively fewer Black students realize this motivation compared to White students. Based on these results, it seems plausible that high academic achievement has protective effects for Black students' school misconduct. Academic achievement possibly enhances Black students' competence in schools, which, in turn, helps them to be more

adaptive to the school environment and conventional norms. Yet, whether or not academic achievement is a simple marker or a protective factor for Black students cannot be clearly determined with the current data. This topic calls for studies with a more rigorous design as well as replication studies.

For Hispanic students, extracurricular activities are found to be particularly beneficial. Contrary to the predicted expectation in this study, the main effects of extracurricular activities are not statistically significant, indicating no significant effects on White students' school misconduct. On the other hand, the interaction term between extracurricular activities and being Hispanic is highly significant and has an inverse relationship with the outcome variable. This suggests that the more extracurricular activities at school, the fewer school misconduct among Hispanic students. This finding supports the notion that the effects of extracurricular activities can vary across racial-ethnic groups and, therefore, should be examined with consideration of student race-ethnicity (Schreiber & Chambers, 2002).

One potential reason for the conditioned effects of extracurricular activities by student ethnicity is that only the extracurricular activities sponsored by school are considered in the present study. Since a wealthy family can encourage and support various types of out-of-school activities such as private lessons for their child, the benefit of in-school extracurricular activities may not be substantial for students from an upper and middle class family. This may explain why the effects of extracurricular activities are insignificant for White students whose family SES is, overall, highest among the three racial-ethnic groups in this study. By contrast, the significant benefit of in-school extracurricular activities for Hispanic students can be understood within the context of their low family SES. In-school activities possibly reduce the chance to being exposed to environmental risks and dangerous situations among students from disadvantaged families and unsafe neighborhoods.

Given the recent study results that the effects of extracurricular activities vary depending on activity types or key structural characteristics (Barber et al., 2001; Eccles & Barber, 1999; Mahoney & Stattin, 2000), it is also possible that the different effects of extracurricular activities by student ethnicity stem from the differences between extracurricular activities in which White students participate and those in which Hispanic students participate. Although this study could not further examine the effects of extracurricular activities by specific type, considering both student race-ethnicity and activity type is warranted for future study.

Parent involvement in school has protective effects for both Blacks and Hispanics with regard to school misconduct. As indicated in its insignificant main effect, parent involvement in school is not significantly associated with White students' school misconduct. On the other hand, its interaction terms with being Black and also with being Hispanic are both statistically significant, and have an inverse relationship with the outcome variable. No clear answer can be identified regarding why the effects of parent involvement are conditioned by student race-ethnicity. Potentially, parents' active support and expressive interests in their child's school life can promote racial-ethnic minority students' adaptation to school environments, helping the students overcome relatively easily the cultural differences between their home and school.

The effects of academic orientation of close friends are also conditioned by student race-ethnicity. As addressed earlier, however, its desirable effects in reducing school misconduct are significantly larger for White students than for racial-ethnic minority students. Although being White is neither a risk nor a focal interest group of this study, the relationship between peer group characteristics and race-ethnicity is worth of further discussion. The greater peer group impact on White students over racial-ethnic minority students is by no

means a new finding. Previous studies rather consistently report that the association between deviant peer group and problem behaviors such as substance abuse and delinquency is significantly stronger for White students than Black students (Brannock, Schandler, & Oncley, 1990; Matsueda & Heimer, 1987). This study may extend the prior literature by revealing that the desirable peer group effects in reducing problem behaviors are also significantly greater for White students than for Black and Hispanic students.

#### **V.4. Compensatory and Protective Factors for Internal School Suspension**

Without a doubt, reducing student misconduct at school is one of the most desirable approaches to protect students from potential harm of school exclusion and decrease racial-ethnic disparities in school exclusion. Previous literature suggests that not only school misconduct but also that many other variables such as family background are significantly associated with school exclusion. Thus, targeting only school misconduct may not be sufficient to accomplish the desired goals. Accordingly, the final objective of this study aims to identify compensatory and protective factors for internal school suspension after adjusting for school misconduct and other control variables.

For this final study objective, seven level-1 factors and four level-2 factors were selected to test their compensatory and protective effects with regard to internal school suspension. These factors are exactly the same as those used to identify compensatory and protective effects for school misconduct. Among the seven level-1 factors, only academic achievement and extracurricular activities are significantly linked to internal school suspension at an alpha of .05. Parent involvement in school and academic orientation of close friends are only marginally significant.

A significant association between academic achievement and school exclusion is consistent with prior literature (Morrison, Anthony, Strino, & Dillon, 2001; Wu et al., 1982). Academic achievement has an inverse relationship with internal school suspension, which is highly significant even in the full model. That is, the desirable effects of academic achievement in reducing the likelihood of internal school suspension is significant, even after controlling for all the other variables (including school misconduct, family SES, and four school-level factors). Although the reason is uncertain, it seems to indicate that high academic achievement generates a positive image about a student and helps the student build good relationships with school personnel. As a consequence, school personnel may be less likely to have suspicions of a high achieving student's misconduct and, therefore, less likely to detect the student's rule-breaking behavior. Even if his or her rule-breaking behavior is detected, good relationships with school personnel may help the student avoid serious punishment.

Extracurricular activities are also inversely and significantly related to internal school suspension, even after adjusting for school misconduct as well as the other level-1 compensatory factors and control variables. Yet, its statistical significance attenuates to a marginal level in the full model. None of the interaction terms between extracurricular activities and race-ethnicity are significant. The results indicate that the greater the participation in extracurricular activities sponsored by the school, the lower likelihood of internal school suspension, regardless of student race- ethnicity. From the study findings on school misconduct as well as internal school suspension, the effects of extracurricular activities can be summarized as follows: For Hispanic students, extracurricular activities reduce not only school misconduct but also the likelihood of internal school suspension; For White and Black students, on the other hand, extracurricular activities reduce the likelihood of internal school suspension, but not school misconduct. That is, participation in school-sponsored

extracurricular activities seems to help students be connected to their school and make them viewed in a positive way at school, independent of their school misconducts. This is one of the benefits of in-school extracurricular activities noted by Townsend (2000).

Four level-2 compensatory factors are all significantly associated with internal school suspension, even after school misconduct and other control variables are adjusted. In the full model of internal school suspension, however, only fair school rules remain significant at an alpha of .05 and the other three factors become marginally significant. As expected, fair school rules, academic climate, and parent participation in setting school policy are inversely associated with internal school suspension. Thus, schools that have a good academic climate, high parent involvement in setting school policy, and fair school rules are less likely to use school exclusion as a form of discipline. Consequently, students attending such a school are at significantly lower risk for school exclusion compared to their counterparts attending a school with the opposite characteristics.

The negative association between academic climate at school and internal school association indicates that the likelihood of internal school suspension is significantly lower in schools with a good academic climate compared to those with a poor academic climate. This result supports previous findings that schools with low utilization of school exclusion tend to emphasize academic climate rather than discipline-related matters (Bickel & Qualls, 1980; Davis & Jordan, 1994).

Similarly, schools that include parents in the process of school policy development are less likely to use internal school suspension. Thus, students attending a school with high parent involvement in policy development are less vulnerable to internal school suspension compared to their counterparts attending a school with low parent involvement. This result corroborates a qualitative data analysis finding by Mendez et al (2002). The authors report that at the high

school level, parent involvement is a major difference between schools with low utilization of school exclusion and those with high utilization. They further specify that schools with low levels of school exclusion are more likely to include parents in the discipline planning process (Mendez et al., 2002). Based on the findings of this study and Mendez et al. (2002), schools appear to make their policy more realistic and get more support from the families by including parents in school policy development. This may reduce the need to use school exclusion.

Fair school rules are also found to be inversely related to internal school suspension. This result indicates that in a school where the rules are perceived as fair by students, internal school suspension is significantly less often used. This can be interpreted in two ways. First, if schools try to implement school discipline fairly, such efforts result in reduced use of internal school suspension. Second, students attending a school that does not frequently use internal school suspension are more likely to perceive their school rules as fair. If the former is accurate, fair school rules have a direct effect on the reduced use of internal school suspension. If the latter is the case, on the other hand, fair school rules have indirect effects on the reduced use of internal school suspension through decreased school misconduct among students. As examined previously, students attending a school where school rules are perceived as fair by students are less likely to be involved in school misconduct compared to their counterparts attending a different type of school with regard to fair school rules. Since previous literature on relevant issues is limited, however, no clear conclusion can be drawn. Future research on this topic is warranted.

Students' awareness of school punishment has a significant association with internal school suspension, but the direction is positive. Regarding this relationship, caution should be paid to what is the cause and what is the outcome. Although the model specifies internal school suspension as the outcome and students' awareness of school punishment as a predictor, the

significant relationship may suggest that high utilization of disciplinary actions makes students better aware of school punishments, rather than suggesting that students' increased awareness of school punishment causes a school to use internal school suspension more often. As examined previously, students' awareness of school punishment is negatively related to school misconduct. Given that the results are all correlation-based, one may argue that frequent use of school exclusion contributes to students' increased awareness of school punishments so that students are less likely to be involved in school misconduct. From this argument, important questions arise: Is the association between students' awareness of school punishment and school misconduct truly significant?; or, is it actually spurious but statistically significant because of the confounding effects of school exclusion? If the latter is the case, the utility of students' awareness of school punishment as a compensatory factor for school misconduct is negligible.

To answer this question, a supplementary multilevel analysis was conducted (not shown). In this model, school misconduct was regressed on students' awareness of school punishment after controlling for school exclusion, the other three level-2 compensatory factors, the race-ethnicity dummy variables, and the other control variables which were consistently used in this study. The results indicate that students' awareness of school punishment is negatively associated with school misconduct, independent of school exclusion and the other variables in the model ( $b = -.177$ ,  $p < .001$ ). Thus, the utility of students' awareness of school punishment as a compensatory factor for school misconduct is retained, although such effects do not apply to internal school suspension.

With regard to internal school suspension, the test results of the protective factor effects show an evident pattern as stated before. All of the significant interaction terms indicate that the desirable effects of the factors are all greater for White students than for the

racial-ethnic minority student groups. These include academic achievement, parent-student shared activities, parent involvement in school, academic orientation of close friends, and academic climate at school. Unfortunately, the reason why each of these factors exerts significantly greater desirable effects for White students over racial-ethnic minority students cannot be clearly uncovered in this study. Moreover, prior literature on this topic is too limited to provide a reasonable explanation for the significant differential effects of these factors on internal school suspension in favor of White students.

What seems clear, though, is that White students are privileged in schools with particular relation to school exclusion. Potentially, the advantages of White students in school stem from the social and cultural capital that they have as a majority racial-ethnic group in the U.S. Compared to racial-ethnic minority students, White students can be better accustomed to school norms and make a connection with school personnel relatively easily because their home culture is not very different from the school culture. By contrast, racial-ethnic minority students are often confronted with cultural discontinuity or cultural conflict between their home and school (Noguera, 1995; Patton & Townsend, 1999; Richart, Brooks, & Soler, 2003; Townsend, 2000). In addition, unlike racial-ethnic minority students, White students do not have negative stereotypes attached to them. These arguments collectively imply that White students are more likely to communicate effectively with school personnel and less likely to be misunderstood, compared to racial-ethnic minority students.

Racial-ethnic minority parents also seem to experience such difficulties when they communicate with school teachers and administrators. This provides a good potential reason for why the desirable effects of parent involvement in school on internal school suspension are significantly larger for White students than for the other two racial-ethnic groups. A recent case study by Lareau and Horvat (1999) well illustrate communication difficulties and potential

conflicts between Black parents and school teachers. According to the authors, White parents are less likely to worry about how their child is treated in school and more likely to build a trust-based relationship with school teachers. On the contrary, Black parents often have apparent concerns about racial bias in school, which makes Black parents viewed as “unacceptable” and “destructive” by teachers. The authors conclude that race plays an important role in communication between parents and school teachers, and White parents are the privileged group in this regard (Lareau & Horvat, 1999). Thus, what is important may be “how efficient parents are in communication with school personnel” or “how parents are viewed in school” rather than “how many times parents are involved in school.” Based on this perspective, White parents seem to protect their children from school exclusion more effectively through their involvement in school because they can establish a cooperative relationship with school personnel more easily. To thoroughly understand the protective factor mechanism through which White students take more advantages, more documentation on this topic is necessary.

## **V.5. Study Implications and Recommendations for Interventions**

### **V.5.1. Macro-Level Implication: Recommendations for Policy Makers**

From the study results, several policy implications can be drawn. For example, this study carries some policy implications regarding the persistent wide gaps between Whites and racial-ethnic minority groups in family SES as well as academic achievement. Many of these issues are extensively addressed in prior literature and seem tangentially related to the major issues of the current study. Thus, macro-level implications and recommendations for policy

makers focus solely on zero-tolerance policies.

Based on the study results, it is suggested that the utility and legitimacy of the zero-tolerance policy be carefully examined and be abandoned unless empirical evidence consistently indicates the effectiveness of the policy (such as reduction of school misconduct and improvement of school safety). One of the important findings of this study is that the likelihood of Black students' internal school suspension is twice as high as that of White students, even after adjusting for school misconduct and other control variables, including family SES. These results appear supportive of the existence of differential treatment against Black students in school, who have long been disadvantaged and discriminated against in this society. According to the prior studies on school exclusion, differential treatment against Black students is likely to be rooted in racial bias or negative stereotypes, and zero-tolerance policies tend to exacerbate the problems.

As is well known, racial-ethnic minority students carry the extra burden of having to adjust themselves to school norms and culture that are sometimes distinctively different from those to which they are accustomed. Furthermore, the behavior and communication styles of racial-ethnic minority students are, in general, not preferred by staff members at schools. In such situations, it is not rare that racial-ethnic minority students' behaviors are misunderstood and misinterpreted as aggressive or violent (Noguera, 1995). Given that certain groups of students are especially vulnerable to being misunderstood, it is necessary for educators to evaluate those students contextually, giving them adequate opportunities to explain their behaviors before sentencing a particular disciplinary action.

Yet, a zero-tolerance policy hinders educators from taking such desirable steps by stipulating mandatory disciplinary actions for certain behaviors. It is well documented that the rule-breaking behaviors that lead racial-ethnic minority students to school exclusion are often

understandable and reasonable given the context, and might not deserve such harsh discipline measures (NSZT, 2000). These kinds of cases strongly invite racial-ethnic minority students to feel rejected or unfairly treated in school.

School discipline is important and school exclusion may be a proper discipline measure in some situations. However, students should be given sufficient opportunities to explain their behaviors, and their behaviors should be assessed holistically before school exclusion is implemented. It is worth noting that students who are resilient despite risk factors wish their teachers to be willing to understand a student's motivation behind improper behavior before they discipline the student (McMillan & Reed, 1994).

#### **V.5.2. Meso-Level Implication: Recommendations for School Administrators**

The study results also have some implications for meso-level interventions. The school-level factors are particularly relevant for meso-level intervention recommendations. Thus, several recommendations are provided for school administrators based primarily on the study findings related to school-level factors.

First, a more efficient way to achieve a safe school environment appears to be to enhance an academic climate at school rather than to emphasize school discipline. Prior literature consistently indicates that schools which place a greater focus on academic quality over discipline matters are less likely to use school exclusion, and more likely to produce high academic achievement among students (Bickel & Qualls, 1980; Davis & Jordan, 1994; Laub & Sampson, 1995; Skiba & Knesting, 2001). The findings of this study also support the negative association between an academic climate at school and the use of internal school suspension. In addition, a good academic climate at school tends to contribute to low levels of school misconduct, although the association is marginally significant. This is particularly true

for Black students. The effects of a school's academic climate in reducing school misconduct are significantly greater for Black students than for White students. Therefore, engaging in efforts to create a good academic climate seems to be a particularly effective approach for schools that aim to reduce Black students' school misconduct and enhance school safety.

Second, schools must make efforts to apply school rules fairly to every student. In this study, school rules that are perceived as fair by students predict not only school misconduct but also the likelihood of internal school suspension. More specifically, schools where the rules are perceived as fair by students are less likely to resort to school exclusion to discipline students and students attending such a school are less likely to be involved in school misconduct. According to Gottfredson (1989), when students, particularly those at-risk, think school rules or policies as unfair, they are more likely to be confrontational toward school authority figures and more likely to misbehave. If a school tries to apply school rules and implement a school discipline measure in a fair way, the school may find a reduced need to use exclusionary discipline measures and an increase in students' willingness to comply with school rules.

Third, schools need to disseminate the information about school punishment for rule-breaking behaviors to help ensure that students clearly understand such school discipline policy. Given the study results showing that students' awareness of school punishment is strongly associated with decreased school misconduct, it seems that well disseminated school discipline policy may be effective in curbing students' involvement in school misconduct. It should also be noted that the effects of students' awareness of school punishment on reduced school misconduct remain highly significant, even after controlling for internal school suspension in supplemental analyses. This implies that students' awareness of school punishment have the desirable effects that decrease school misconduct, independent of school

exclusion.

Fourth, it is recommended that schools include parents in the development process of school policy, including discipline-related ones. In this study, it is observed that parent participation in setting school policy is inversely associated with a school's use of internal school suspension, indicating that the more parents participate in school policy development, the less internal school suspension is implemented. This is consistent with prior research which has found that well-disciplined schools have a strong partnership with parents and the community (Cotton, 2001; Mendez et al., 2001). Parent participation in school policy development may have two advantages. One advantage is that school administrators and teachers have a valuable opportunity to know and understand the culture of their students and families. This may help educators avoid misinterpreting behaviors of racial-ethnic minority students whose cultural norms are often different from traditional ones (Townsend, 2000). The other advantage is that schools can develop more realistic school policies that are harmoniously matched with the culture of students and their families.

Last but not least, in order to reduce racial-ethnic disparities in school exclusion, it seems critical for educators to acknowledge the possibility of differential treatment against racial-ethnic minority students, especially Black students, in school and to make efforts to mitigate the problem. The results of the current study, as well as numerous previous studies, strongly suggest the existence of differential treatment in schools. Racial-ethnic disparities in school exclusion, as well as differential treatment, are most likely unintentional consequences resulting from educators' lack of awareness of the culture of racial-ethnic minority students (Townsend, 2000). Thus, a remedy for this problem seems to be to require educators' self-awareness and on-going efforts to overcome potential bias toward a certain group of students. Regarding this effort, school administrators can play a critical role by encouraging

teachers and other school personnel to participate in various training programs such as self-awareness training and cultural competence training. Such efforts by educators will help them better understand their students and over time reduce the need to implement school exclusion to discipline students.

#### **V.5.3. Micro-Level Implication: Recommendations for School Mental Health Professionals**

The study results on the individual-, family-, and peer-level factors provide meaningful information for micro-level interventions. Since the compensatory effects of those factors are extensively documented previously, the micro-level implications and recommendations for school mental health professionals focus on the protective factor effects. This does not mean, however, that only the factors addressed here are the most important or more important than the others. The recommendations for micro-level interventions made here are based on the protective factors because they have greater effects for a specific racial-ethnic group and were not previously addressed enough in prior literature.

For Black students, assisting their academic work seems especially important and effective. As stated earlier, this study found that the effect of academic achievement in reducing school misconduct is larger for Black students than for White students. Along with this finding, it is notable that many recent studies, including the current one, observe many desirable attitudes of Black students. For example, Black students' academic orientation, academic aspiration, and motivation toward economic success are often higher than those of White students (Cernkovich et al., 2000; Kao & Tienda, 1998) although their actual academic achievement is often lowest among all of the racial-ethnic groups. Another notable report from prior literature is that Black students' higher educational aspirations are not sustained throughout their high school years (Kao & Tienda, 1998). Taken together, it seems that Black

students are highly motivated academically, but relatively insufficient resources and opportunities keep Black students from realizing their academic goals and potential. This may result in decreased motivation of Black students toward academic success over time.

Based on the prior literature and the findings of the present study, it seems particularly effective to provide practical support that helps Black students keep their high aspiration for academic success and make actual progress in academic performance. Academic activity-oriented after school programs, college student-mentoring programs, and tutoring programs utilizing community resources would be good programs to envision and implement for Black students. Given Black students' propensity toward actively participating task (Townsend, 2000), teacher training that aims to inform teachers of Black students' characteristics and encourage them to utilize academic devices actively engage Black students in class may also be worth exploring.

For Hispanic students, utilizing extracurricular activities appears particularly effective. In this study, extracurricular activities are significantly related to Hispanic students' school misconduct in a negative direction. This result indicates that the more participation in school-sponsored extracurricular activities, the less school misconduct among Hispanic students. On the contrary, no significant effects of extracurricular activities on school misconduct are identified with regard to White and Black students. It is rather unclear why the effects of extracurricular activities in reducing school misconduct are significant only for Hispanic students. Given that Hispanic students' family SES is lowest among the three racial-ethnic groups included in this study, low family SES can be considered a potential reason. Extracurricular activities seem to provide good opportunities to experience self-accomplishment for Hispanic students, particularly those from a low SES family.

Another potential reason is that many Hispanic students are from immigrant families.

This implies that their parents may be less skilled in communicating with school personnel in English and may have difficulties helping their child integrate into the American school system. In such situations, in-school extracurricular activities seem like good resources through which Hispanic students can enhance their capability of adjusting themselves to school environments and build a dependable relationship with adult staff members at school. Therefore, it is recommended that school mental health professionals encourage Hispanic students to participate in various school sponsored extracurricular activities.

For White students, peer group influences appear particularly important in both positive and negative ways. Previous research reports somewhat consistently that delinquent peer association has stronger effects on problem behavior involvement for White students than for Black students (Brannock et al., 1990; Matsueda & Heimer, 1987). In this study, the desirable effects of close friends' academic orientation are also greater for White students than Black students in terms of school misconduct. In addition, association with academically oriented peers is found to reduce the likelihood of internal school suspension among White students, while such effects are not detected for Black and Hispanic students when adjusting for other important factors, including family SES and academic achievement.

In general, White students are not considered a risk group. In this study sample, for example, White students are more likely to be from a high SES and intact family, more likely to participate in extracurricular activities, and less likely to be involved in school misconduct. In addition, their parents are also more likely to be involved in shared activities with their child and also in various activities of their child's school. However, it does not mean that all White students are doing well in school. When a White student seems to be at risk and the family is assessed to be functioning well, then examining the student's peer group association is recommended. If a problem is found in his or her peer association, clinical intervention

needs to address the peer group interactions. In such a situation, focusing only on an individual student may not be effective.

School mental health professionals are encouraged to work with school teachers and administrators as well as students. Obviously, school teachers and administrators hold very important positions in schools. School teachers meet and communicate with students every school day and school administrators manage the school, exerting strong power in setting school-wide systems and policies. Often, however, educators are not familiar with the culture of their students, especially racial-ethnic minority students, and judge student behaviors only through the lens of traditional norms. As is consistently pointed out in this study, educators' unfamiliarity with student culture is likely to cause unintentional differential treatment against racial-ethnic minority students. Hence, it is imperative to provide school administrators and teachers with on-going opportunities to reflect on their enormous influence over students and enhance their understanding of student cultures as well as their skills in guiding students. It is no simple task to help educators realize potential biases and encourage them to pursue cultural competency. Yet, it should be noted that without school-wide efforts, differential treatment against racial-ethnic minority students at school is not likely to be effectively addressed.

#### **V.6. Study Limitations and Recommendation for Future Study**

This study can be considered to produce many meaningful results. However, it also has some limitations. In this section, the limitations of this study are discussed along with recommendation for future study.

First, the study sample is not representative of the 10<sup>th</sup> graders in the nation. As reported earlier, this study selected only three major racial-ethnic groups – Whites, Blacks, and

Hispanics. In addition, this study utilized not only student self-reports but also reports from parents, school administrators, and teachers. By selecting only the students about whom parents, school administrators, and teachers all reported, this study could examine individual students and their environment in a comprehensive way. However, the cost that comes with such rich information is a significant loss in the number of cases. Listwise deletion for missing data further reduced the sample size. Unfortunately, case loss was not random and the final study sample shows some differences in socio-demographic characteristics compared to the original sample of ELS:2002. Specifically, racial-ethnic minority students and students from a low SES family are underrepresented, while White students and students from a high SES family are overrepresented, in the sample utilized for this study. Although the case loss may not be considered too serious, a possibility that the final sample is not representative of the study population and that the study results involve some potential biases should be taken into account. For future study, therefore, it is recommended to use national data that represents the study population. If a study replicates this study using a nationally representative sample, the results will more precisely depict the national trend regarding school exclusion.

Second, it should be noted that the measure of school misconduct has a limitation. School misconduct is one of the most important variables in this study. It was used to test the confounding effects of individual factors on the relationship between student race-ethnicity and school exclusion. It was also used as the outcome variable in all of the analyses conducted for Study Objective 3. This variable, however, does not cover many serious rule-violation behaviors such as substance use/abuse and weapon possession. This study tried to minimize the limitation of the variable “school misconduct” by selecting internal school suspension as the primary outcome variable, because internal school suspension is used for relatively minor offenses while external school suspension and expulsion are reserved for more serious

misbehaviors. Yet, there still exists the possibility that the effects of individual factors on the relationship between student race-ethnicity and internal school suspension are not correctly estimated because of the limitation in the measure of school misconduct. Thus, it seems important for future studies to use a stronger measure of school misconduct. In addition, using external school suspension, expulsion, or any combination of school exclusion measures would extend this study in a meaningful way.

Third, many important school-level factors could not be examined in this study due to non-availability of such variables or a high rate of missing data in ELS:2002. One example of the important school-level variables is school administrators' philosophy about discipline. Previous studies indicate that school administrators' philosophy strongly affects the use of school exclusion and that it is often a primary reason for observed wide variations across schools in terms of how often school exclusion is used (e.g., Browne, 2001). Since ELS:2002 did not collect such information, the variable could not be included in this study. This implies that the confounding effects of school factors on the relationship between student race-ethnicity and internal school suspension reported in this study may be inadequately estimated because of the omitted variables. It is strongly recommended that future studies identify important school- level factors regarding school exclusion and test those variables empirically. By doing so, the study will better estimate the confounding effects of school factors in accounting for racial-ethnic disparities in school exclusion, as well as possibly identify more significant school-level compensatory and protective factors for school exclusion.

Fourth, this study used cross-sectional data and, therefore, it is inappropriate to draw a decisive causal-effect relationship from the study results. Rather, the results need to be understood in terms of correlations among the variables. As indicated in the discussion

section, for instance, the relationship between fair school rules perceived by student and internal school suspension may not be unilateral. Rather, the two variables seem mutually influential in a way that low levels of internal school suspension influence students to perceive school rules as fair and vice-versa. Although most risk-protective factor research does not necessarily assume a causal-effect relationship between the variables, specifying causes and effects can be an important matter for a certain study objective. In that case, utilizing longitudinal data is more proper. By utilizing longitudinal data, a study can significantly reduce the possibility that an identified relationship between variables is a simple correlation.

The fifth limitation is related to the term “Hispanic.” According to Acevedo and Morales (2001), the term “Hispanic” has been an issue of debate. “Hispanic” is often considered too politically neutral and some people prefer “Latino” to “Hispanic” (Acevedo & Morales, 2001). Although the term “Hispanic” does not embrace all of the subgroups within the category equally well, it was selected and used in this study primarily to be consistent with prior studies utilizing national data in which the term “Hispanic” is more often used over other competing terms such as “Latino.”

The final limitation is that this study did not carefully examine within-group diversity in each racial-ethnic group. It can be an important limitation, particularly for the Hispanic population. As is well-known, Hispanics are composed of many diverse subgroups such as those who have a national origin of Mexico, Puerto Rico, and Cuba. Although the subgroups within the Hispanic category share some common heritages, they also differ from each other in terms of national origin, racial and ethnic mixture, history, geography, and specific customs (Negroni-Rodriguez & Morales, 2001). Therefore, categorizing all of the subgroups into one group may fail to capture their characteristics in a sensitive way. Despite this limitation, this study did not specify all of the subgroups comprising the Hispanic population in the analyses

because such specified classification would make racial-ethnic group comparisons rather complicated and reduce the statistical power of each subgroup significantly. Given the significant within-group differences under the Hispanic category, it is recommended that future studies compare subgroups in the Hispanic population in terms of school exclusion.

### **V.7. Conclusion**

This study has four major objectives. The first objective is to determine race-ethnicity effects on internal school suspension, the most often used form of exclusionary school discipline. The second objective is to examine four explanatory approaches toward persistent racial-ethnic disparities in internal school suspension. The third and fourth study objectives are to identify compensatory and protective factors for school misconduct and internal school suspension, respectively. While the first two objectives aim to understand the problem under investigation, the last two objectives intend to produce practical information based on which policy makers, educators, and school mental health professionals can better serve at-risk students and decrease racial-ethnic disparities in school exclusion.

Consistent with prior literature, this study found significant race-ethnicity effects on internal school exclusion. Black students were three times more likely and Hispanic students were two times more likely to receive internal school suspension compared to White students, after controlling for gender. With regard to the reasons for racial-ethnic disparities in internal school suspension, this study observed that the significance of being Hispanic on the outcome variable was completely accounted for by school misconduct and functional impairment as well as family disadvantages. On the other hand, the significance of Black students' effects on internal school suspension was sustained even after taking all of the confounding factors

proposed in the four explanatory approaches into account. These results were considered to support, at least partially the existence of differential treatment against Black students in school discipline.

As expected, most potential compensatory and protective factors selected from prior literature were found significant in connection with either school misconduct or internal school suspension. Significant level-1 compensatory factors for school misconduct include academic achievement, academic orientation, bond with teachers, parent involvement in school, and academic orientation of close friends while level-2 compensatory factors for problem behavior are fair school rules and students' awareness of school punishment. Among the factors, academic achievement, parent involvement in school and academic climate at school were found to have protective effects for Black students' school misconduct. For Hispanics' problem behavior, extracurricular activities and parent involvement in school were found to have protective effects.

Regarding compensatory factors for internal school suspension, among the level-1 factors, academic achievement and extracurricular activities are significant, while parent involvement in school and academic orientation of close friends are only marginally significant. In addition, all of the four level-2 factors – academic climate at school, fair school rules, students' awareness of school punishment, and parent participation in setting school policy – have significant compensatory effects on internal school suspension. The effects of several factors on internal school suspension are conditioned by student race-ethnicity. Contrary to the predicted expectation, the desirable effects of all those factors in reducing the likelihood of internal school suspension are significantly greater for White students than for the racial-ethnic minority groups. These results appear to indicate the advantageous status of White students in school.

Based on these study results, some intervention recommendations were presented for policy makers, school administrators, and school mental health professionals. This was followed by study limitations and recommendation for future studies.

Although this study has some limitations as addressed in the penultimate section, it can be considered to make many meaningful contributions. First, this study is the first one to date to determine race-ethnicity on school exclusion using national data. Second, this study extends previous literature by examining the confounding effects of school factors, in addition to individual factors and family factors, with regard to the relationship between race-ethnicity and school exclusion. Third, the current study effectively examined the effects of school-level factors as well as the effects of individual-, family-, and peer-level factors on school exclusion and school misconduct by utilizing multilevel analysis techniques. Fourth, the present study developed comprehensive compensatory and protective factor models for internal school suspension and school misconduct based on an ecological framework.

## **Appendix A.**

### **Definitions of Disabilities by Individuals with Disabilities Education ACT**

#### **CHILD WITH A DISABILITY. –**

The term ‘child with a disability’ means a child-

- (A) with mental retardation, hearing impairments (including deafness), speech or language impairments, visual impairments (including blindness), serious emotional disturbance (referred to in this title as ‘emotional disturbance’), orthopedic impairments, autism, traumatic brain injury, other health impairments, or specific learning disabilities; and
- (B) who, by reason thereof, needs special education and related services.

*Source: Individuals with Disabilities Education Improvement Act (Public Law 108-446)*

#### **SPECIFIC LEARNING DISABILITY.-**

- (A) IN GENERAL..- The term ‘specific learning disability’ means a disorder in 1 or more of the basic psychological processes involved in understanding or in using language, spoken or written, which disorder may manifest itself in the imperfect ability to listen, think, speak, read, write, spell, or do mathematical calculations.
- (B) DISORDERS INCLUDED.- Such term includes such conditions as perceptual disabilities, brain injury, minimal brain dysfunction, dyslexia, and developmental aphasia.
- (C) DISORDERS NOT INCLUDED.- Such term does not include a learning problem that is primarily the result of visual, hearing, or motor disabilities, of mental retardation, of emotional disturbance, or of environmental, cultural, or economic disadvantage.

*Source: Individuals with Disabilities Education Improvement Act (Public Law 108-446)*

#### **EMOTIONAL DISTURBANCE**

The term means a condition exhibiting one or more of the following characteristics over a long period of time and to a marked degree that adversely affects a child’s educational performance:

- (A) An inability to learn that cannot be explained by intellectual, sensory, or health factors.
- (B) An inability to build or maintain satisfactory interpersonal relationships with peers and teachers.
- (C) Inappropriate types of behavior or feelings under normal circumstances.
- (D) A general pervasive mood of unhappiness or depression.
- (E) A tendency to develop physical symptoms or fears associated with personal or school problems.

*Source: U.S. Department of Education (1998). Twentieth Annual Report to Congress on the Implementation of the Individuals with Disabilities Education Act, p. II-46*

## Appendix B. Key Characteristics of Study Sample Used in Analysis

	Mean (sd)		
	Sample for Study Objectives I & II	Sample for Study Objective III	Sample for Study Objective IV
<b><u>Level-1 Variables</u></b>			
Gender (Male) <sup>a</sup>	.49 (.50)	.49 (.50)	.49 (.50)
Black	.10 (.30)	.11 (.31)	.11 (.31)
Hispanic	.11 (.32)	.13 (.33)	.13 (.33)
Family SES	.16 (.71)	.15 (.71)	.15 (.71)
Current problem behavior	-.04 (.56)	-.03 (.56)	-.03 (.56)
N	7,373	6,635	6,621
<b><u>Level-2 Variables</u></b>			
Public school	.77 (.42)	.78 (.42)	.78 (.42)
Urban school	.30 (.46)	.30 (.46)	.30 (.46)
Rural school	.21 (.40)	.21 (.41)	.21 (.41)
N	594	591	591

## **Appendix C. Missing Data Analysis for Study Objectives 1 and 2**

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<b>Missingness</b>	<b>Logistic Regression with In-School Suspension as Predictor</b>
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**Level – 1 Variable**

Gender	N.A. (No missing data)
Black	N.A. (No missing data)
Hispanic	N.A. (No missing data)
SES	N.A. (No missing data)
Non-intact family structure	N.A. (No missing data)
Disability	$p \geq .05$
Past behavior problem	$p \geq .05$
School misconduct	$p < .05$ The odds of missingness in current problem behavior: 1.94

**Level – 2 Variable**

Public school	N.A. (No missing data)
Urban school	N.A. (No missing data)
Rural school	N.A. (No missing data)
Unsafe & disorderly school environment	$p < .05$ The odds of missingness in unsafe and disorderly school environment: 1.81

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## Appendix D. Missing Data Analysis for Study Objective 3

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<b>Missingness</b>	<b>Logistic Regression with Current Problem Behavior as Predictor</b>
<b><u>Level – 1 Variable</u></b>	
Gender	N.A. (No missing data)
Black	N.A. (No missing data)
Hispanic	N.A. (No missing data)
SES	N.A. (No missing data)
Academic achievement	N.A. (No missing data)
Academic orientation	$p \geq .05$
Bond with teacher	$p \geq .05$
Extracurricular activity	$p \geq .05$
Parent-student shared activity	$p \geq .05$
Parent involvement in school	$p \geq .05$
Academic orientation of close friends	$p < .05$ The odds of missingness in Academic orientation of close friends: 1.65
<b><u>Level – 2 Variable</u></b>	
Urban school	N.A. (No missing data)
Rural school	N.A. (No missing data)
Academic climate at school	$p \geq .05$
Fairness of school rule	N.A. (No missing data)
Student awareness of school punishment	N.A. (No missing data)
Parent participation in setting school policy	$p \geq .05$

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## Appendix E. Missing Data Analysis for Study Objective 4

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Missingness	Logistic Regression with In-School Suspension as Predictor
<b><u>Level - 1 Variable</u></b>	
Gender	N.A. (No missing data)
Black	N.A. (No missing data)
Hispanic	N.A. (No missing data)
School misconduct	p < .05 The odds of missingness in Current problem behavior: 1.94
SES	N.A. (No missing data)
Academic achievement	N.A. (No missing data)
Academic orientation	p < .05 The odds of missingness in Academic orientation: 2.95
Bond with teacher	p < .05 The odds of missingness in Bond with teacher: 1.61
Extracurricular activity	p < .05 The odds of missingness in Extracurricular activity: 2.24
Parent-student shared activity	p ≥ .05
Parent involvement in school	p ≥ .05
Academic orientation of close friends	p < .05 The odds of missingness in Academic orientation of close friends: 2.17
<b><u>Level - 2 Variable</u></b>	
Urban school	N.A. (No missing data)
Rural school	N.A. (No missing data)
Academic climate at school	p < .05 The odds of missingness in Academic climate at school: 1.43
Fairness of school rule	N.A. (No missing data)
Student awareness of school punishment	N.A. (No missing data)
Parent participation in setting school policy	p ≥ .05

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**Appendix F. Confounding Effects in the Relationship between Student Race-Ethnicity and Internal School Suspension**  
 (Student#: 7,735 & School#: 597)

Model	Model A1			Model A2			Model A3			Model A4			Model A5			Model A6		
	b	se	Odds	b	se	Odds	b	se	Odds	b	se	Odds	b	se	Odds	b	Se	Odds
<b>Fixed Effect</b>																		
<b>Race-Ethnicity and Gender</b>																		
Black <sup>a</sup>	1.030***	.110	2.802	.988***	.126	2.686	.660***	.115	1.934	.724***	.131	2.063	.935***	.112	2.548	.698***	.135	2.010
Hispanic <sup>a</sup>	.656***	.113	1.928	.406**	.130	1.501	.347**	.119	1.414	.175	.136	1.191	.577***	.116	1.781	.170	.140	1.185
Gender	.659***	.080	1.933	.238**	.091	1.269	.706***	.081	2.025	.294**	.092	1.342	.671***	.080	1.957	.301**	.092	1.351
<b>Individual Factors</b>																		
Disability				.360**	.126	1.433				.326*	.127	1.385				.307*	.127	1.360
Past behavior problem				0.915***	.130	2.496				.849***	.131	2.337				.828***	.131	2.288
School misconduct				1.889***	.074	6.612				1.864***	.075	6.449				1.865***	.075	6.455
<b>Family Factors</b>																		
Family SES							-.556***	.063	0.574	-.487***	.072	0.615				-.393***	.075	0.675
Non-intact family structure							.612***	.083	1.845	0.350***	.094	1.419				.330**	.094	1.391
<b>School Factors</b>																		
Public school <sup>b</sup>										1.389***	.176	4.011	.939***	.204	2.557			
Urban school <sup>c</sup>										.180	.122	1.197	.096	.145	1.100			
Rural school <sup>c</sup>										.120	.126	1.128	.174	.150	1.190			
Unsafe & disorderly school environment										.087	.147	1.090	-.036	.179	0.964			
Intercept	-2.886***	.077	.0558	-3.286***	.092	.0374	-3.116***	.088	.004	-3.416***	.103	.033	-4.130***	.178	.016	-4.255***	.207	.014
<b>Random Effect</b>																		
Intercept Variance, $u_{0j}$	.608***	596	961.17	.841***	596	973.29	.494***	596	853.32	.743***	596	903.8	.453***	592	826.0	.712***	592	873.7
										3			0			6		

<sup>a</sup>White is the reference category, <sup>b</sup>Private school is the reference category, <sup>c</sup>Suburban schools are the reference category.

\* p < .05, \*\* p < .01, \*\*\* p < .001.

**Appendix G. Individual, Family, and Peer Level Compensatory and Protective Factors for School Misconduct**  
 (Student#: 7,735 & School#: 597)

<b><u>Fixed Effect</u></b>	<b>Model B1</b>		<b>Model B2</b>		<b>Model B3</b>		<b>Model B4</b>		<b>Model B5</b>		
	b	se	b	se	b	se	b	se	b	se	
Black <sup>a</sup>	.116***	.023	.100***	.021	.076**	.025	.096***	.022	.102***	.021	
Hispanic <sup>a</sup>	.140***	.023	.116***	.020	.112***	.022	.117***	.020	.116***	.020	
Gender	.177***	.013	.105***	.012	.104***	.012	.105***	.012	.104***	.012	
Family SES	-.098***	.011	-.010	.010	-.009	.010	-.010	.010	-.009	.010	
Urban school <sup>b</sup>	.013	.021	.043*	.018	.043*	.018	.043*	.018	.043*	.018	
Rural school <sup>b</sup>	-.036	.022	-.043*	.019	-.041*	.019	-.043*	.019	-.043*	.019	
Academic achievement			-.012***	.001	-.012***	.001	-.012***	.001	-.012***	.001	
Academic orientation			-.289***	.014	-.291***	.014	-.287***	.015	-.289***	.014	
Bond with teachers			-.160***	.015	-.160***	.015	-.160***	.015	-.162***	.017	
Extracurricular activities			-.002	.001	-.002	.001	-.002	.001	-.002	.001	
Parent-student shared activities			-.041**	.012	-.041**	.012	-.041**	.012	-.041**	.012	
Parent involvement in school			-.006	.004	-.006	.004	-.006	.004	-.006	.004	
Academic orientation of close friends			-.098***	.015	-.099***	.015	-.098***	.015	-.098***	.015	
<b>Academic achievement x Black</b>					<b>-.005*</b>	<b>.002</b>					
<b>Academic achievement x Hispanic</b>					<b>-.002</b>	<b>.002</b>					
Academic orientation x Black							.021	.038			
Academic orientation x Hispanic							-.038	.035			
Bond with teachers x Black									.055	.039	
Bond with teachers x Hispanic									-.038	.038	
Extracurricular activities x Black											
Extracurricular activities x Hispanic											
Parent-student shared activities x Black											
Parent-student shared activities x Hispanic											
Parent involvement in school x Black											
Parent involvement in school x Hispanic											
Academic orientation of close friends x Black											
Academic orientation of close friends x Hispanic											
Intercept	-.127***	.015	-.108***	.128	-.109***	.013	-.107***	.013	-.107***	.013	
<b>Random Effect</b>	Var.	$\chi^2$	Var.	$\chi^2$	Var.	$\chi^2$	Var.	$\chi^2$	Var.	$\chi^2$	
Intercept Variance, $U_{0j}$	(df: 588)	.016***	983.17	.011***	932.64	.011***	929.15	.011***	933.64	.011***	932.58
Level-1 Variance, $r_{ij}$		.284		.222		.222		.222		.222	

<sup>a</sup>White is the reference category, <sup>b</sup>Suburban schools are the reference category. † p < .10, \* p < .05, \*\* p < .01, \*\*\* p < .001.

## Appendix G Cont.

<u>Fixed Effect</u>	Model B6		Model B7		Model B8		Model B9	
	b	se	b	se	b	se	b	se
Black <sup>a</sup>	.099***	.021	.100***	.021	.100***	.021	.094***	.022
Hispanic <sup>a</sup>	.101***	.021	.116***	.020	.108***	.021	.116***	.020
Gender	.105***	.012	.105***	.012	.105***	.012	.104***	.012
Family SES	-.009	.010	-.010	.010	-.010	.010	-.009	.010
Urban school <sup>b</sup>	.044*	.018	.043*	.018	.042*	.018	.043*	.018
Rural school <sup>b</sup>	-.042*	.019	-.043*	.019	-.042*	.019	-.042*	.019
Academic achievement	-.012***	.001	-.012***	.001	-.012***	.001	-.012***	.001
Academic orientation	-.290***	.014	-.289***	.014	-.289**	.014	-.288***	.014
Bond with teachers	-.159***	.015	-.160***	.015	-.161***	.015	-.160***	.015
Extracurricular activities	-.000	.001	-.002	.001	-.002	.001	-.002	.001
Parent-student shared activities	-.041**	.012	-.045**	.014	-.040**	.012	-.041**	.012
Parent involvement in school	-.006	.004	-.006	.004	-.001	.005	-.006	.004
Academic orientation of close friends	-.099***	.015	-.098***	.015	-.097***	.015	-.115***	.017
Academic achievement x Black								
Academic achievement x Hispanic								
Academic orientation x Black								
Academic orientation x Hispanic								
Bond with teachers x Black								
Bond with teachers x Hispanic								
Extracurricular activities x Black	<b>-.003</b>	<b>.003</b>						
Extracurricular activities x Hispanic	<b>-.011**</b>	<b>.003</b>						
Parent-student shared activities x Black			.017	.033				
Parent-student shared activities x Hispanic			.009	.030				
Parent involvement in school x Black					<b>-.024*</b>	<b>.012</b>		
Parent involvement in school x Hispanic					<b>-.026*</b>	<b>.013</b>		
Academic orientation of close friends x Black							<b>.089*</b>	<b>.043</b>
Academic orientation of close friends x Hispanic							<b>.045</b>	<b>.041</b>
Intercept	-.109***	.013	-.107***	.013	-.108***	.013	-.108***	.013
<u>Random Effect</u>	Var.	$\chi^2$	Var.	$\chi^2$	Var.	$\chi^2$	Var.	$\chi^2$
	(df: 590)	.011*** 934.15	.011*** 930.97	.011*** 937.20	.011*** 931.48			
Intercept Variance, $U_{0j}$								
Level-1 Variance, $r_{ij}$	.222		.222		.222		.222	

<sup>a</sup>White is the reference category, <sup>b</sup>Suburban schools are the reference category.

† p < .10, \* p < .05, \*\* p < .01, \*\*\* p < .001.

**Appendix H. School Level Compensatory and Protective Factors for School Misconduct**  
 (Student#: 6,635 & School#: 591)

<b><u>Fixed Effect</u></b>	C1		C2		C3		C4		C5		
	b	se	b	se	b	se	b	se	b	se	
Black <sup>a</sup>	.101***	.023	.096***	.024	.092***	.025	.100***	.024	.101***	.023	
Hispanic <sup>a</sup>	.132***	.022	.132***	.023	-.134***	.022	-.132***	.022	.133***	.023	
Gender	.176***	.013	.175***	.013	.176***	.013	.176***	.013	.177***	.013	
Family SES	-.094***	.011	-.094***	.011	-.094***	.011	-.094***	.011	.094***	.011	
Urban school <sup>a</sup>	.023	.020	.017	.020	.023	.020	.024	.020	.023	.020	
Rural school <sup>a</sup>	-.036†	.021	-.034	.021	-.036†	.021	-.036†	.021	-.036†	.021	
Academic climate at school	-.022†	.013	-.002	.015	-.021	.013	-.022†	.013	-.021	.013	
Fairness of school rules	-.138***	.028	-.137***	.028	-.136***	.032	-.136***	.028	-.138***	.028	
Students' awareness of school punishment	-.174***	.035	-.171***	.035	-.174***	.035	-.195***	.041	-.174***	.035	
Parent participation in school policy	-.002	.029	-.002	.015	-.002	.029	-.001	.029	-.006	.032	
<b>Academic climate at school x Black</b>			<b>-.091**</b>	<b>.033</b>							
<b>Academic climate at school x Hispanic</b>			<b>-.046</b>	<b>.031</b>							
Fairness of school rules x Black					-.067	.066					
Fairness of school rules x Hispanic					.064	.071					
Students' awareness of school punishment x Black							.029	.086			
Students' awareness of school punishment x Hispanic							.104	.086			
Parent participation in school policy x Black									.039	.079	
Parent participation in school policy x Hispanic									-.005	.082	
Intercept	-.126***	.014	-.127***	.014	-.126***	.014	-.126***	.014	-.126***	.014	
<b><u>Random Effect</u></b>		Var.	$\chi^2$	Var.	$\chi^2$	Var.	$\chi^2$	Var.	$\chi^2$	Var.	$\chi^2$
Intercept Variance, $U_{0j}$	(df: 584)	.011***	866.32	.011***	855.60	.011***	861.90	.012***	866.30	.115***	865.86
Level-1 Variance, $r_{ij}$		.284		.284		.284		.284		.284	

<sup>a</sup>White is the reference category, <sup>b</sup>Suburban schools are the reference category.

† p < .10, \* p < .05, \*\* p < .01, \*\*\* p < .001.

### Appendix I. Individual, Family, and Peer Level Compensatory and Protective Factors for Internal School Suspension

(Student#: 6,621 & School#: 591)

<b><i>Fixed Effect</i></b>	<b><i>Model</i></b>			<b><i>Model D1</i></b>			<b><i>Model D2</i></b>			<b><i>Model D3</i></b>			<b><i>Model D4</i></b>			<b><i>Model D5</i></b>			
	b	se	Odds	b	se	Odds	b	se	Odds	b	se	Odds	b	se	Odds	b	se	Odds	
Black <sup>a</sup>	.936***	.140	2.549	.761***	.147	2.141	.761***	.190	2.141	.773***	.148	2.166	.770***	.149	2.159				
Hispanic <sup>a</sup>	.266†	.148	1.305	.113	.151	1.120	.324†	.177	1.383	.147	.155	1.158	.153	.154	1.165				
Gender	.353**	.098	1.424	.404***	.101	1.497	.407***	.101	1.502	.400***	.101	1.492	.400***	.101	1.492				
School misconduct	2.072***	.079	7.939	1.898***	.088	6.674	1.899***	.088	6.678	1.894***	.088	6.642	1.900***	.088	6.688				
Family SES	-.550***	.077	.577	-.341***	.084	.711	-.339***	.843	.712	-.334***	.085	.716	-.344***	.085	.709				
Urban school <sup>b</sup>	-.043	.143	.958	-.020	.145	.981	-.023	.145	.977	-.024	.145	.976	-.017	.144	.983				
Rural school <sup>b</sup>	.234*	.150	1.263	.208	.152	1.231	.202	.152	1.224	.205	.152	1.227	.205	.152	1.228				
Academic achievement				-.038***	.006	.962	-.045***	.007	.956	-.038***	.006	.963	-.038***	.006	.963				
Academic orientation				-.130	.109	.878	-.123	.109	.885	-.206	.128	.814	-.127	.109	.881				
Bond with teachers				-.144	.116	.866	-.141	.116	.868	-.142	.116	.868	-.208	.143	.813				
Extracurricular activities				-.022*	.009	.978	-.022*	.009	.978	-.022*	.009	.978	-.022*	.009	.978				
Parent-student shared activities				-.022	.093	.978	-.027	.093	.973	-.024	.093	.977	-.022	.093	.978				
Parent involvement in school				-.062†	.038	.940	-.060	.038	.941	-.062*	.038	.939	-.060	.038	.942				
Academic orientation of close friends				.219†	.118	1.245	.230†	.119	1.258	.220†	.118	1.246	.215†	.119	1.239				
Academic achievement x Black							.005		.016	1.005									
<b>Academic achievement x Hispanic</b>							<b>.031*</b>		<b>.015</b>	<b>1.031</b>									
Academic orientation x Black											.235		.241	1.265					
Academic orientation x Hispanic											.169		.237	1.184					
Bond with teachers x Black															.020		.251	1.020	
Bond with teachers x Hispanic															.329		.270	1.389	
Extracurricular activities x Black																			
Extracurricular activities x Hispanic																			
Parent-student shared activities x Black																			
Parent-student shared activities x Hispanic																			
Parent involvement in school x Black																			
Parent involvement in school x Hispanic																			
Academic orientation of close friends x Black																			
Academic orientation of close friends x Hispanic																			
Intercept	-3.283***	.113	.038	-3.396***	.117		-3.412***	.117		-3.411***	.118		-3.405***	.117					
<b>Random Effect</b>	Var.	$\chi^2$	Var.	$\chi^2$	Var.	$\chi^2$	Var.	$\chi^2$	Var.	$\chi^2$	Var.	$\chi^2$	Var.	$\chi^2$	Var.	$\chi^2$	Var.	$\chi^2$	
Intercept variance, $U_{0j}$	(df: 588)	.625 ***	768.90	.633 ***	765.54	.632 ***	767.26	.632 ***	765.059	.627 ***	763.12								

<sup>a</sup>White is the reference category, <sup>b</sup>Suburban schools are the reference category. † p < .10, \* p < .05, \*\* p < .01, \*\*\* p < .001.

## Appendix I. cont.

<b><i>Fixed Effect</i></b>	<b><i>Model</i></b>			<b><i>Model D6</i></b>			<b><i>Model D7</i></b>			<b><i>Model D8</i></b>			<b><i>Model D9</i></b>		
	b	se	Odds	b	se	Odds	b	se	Odds	b	se	Odds	b	se	Odds
Black <sup>a</sup>		.750***	.152	2.116	.789***	.147	2.202	.830***	.148	2.293	.774***	.149	2.169		
Hispanic <sup>a</sup>		.168	.163	1.183	.191	.154	1.211	.212	.159	1.236	.145	.153	1.156		
Gender		.404***	.101	1.498	.401***	.101	1.494	.399***	.101	1.490	.412***	.101	1.510		
School misconduct		1.900***	.088	6.685	1.896***	.088	6.659	1.917***	.089	6.804	1.887***	.088	6.602		
Family SES		-.340***	.084	.711	-.351***	.085	.704	-.339***	.084	.712	-.334***	.085	.716		
Urban school <sup>b</sup>		-.024	.145	.976	-.024	.145	.976	-.004	.145	.996	-.029	.145	.972		
Rural school <sup>b</sup>		.206	.152	1.229	.211	.152	1.235	.210	.152	1.233	.213	.152	1.237		
Academic achievement		-.038***	.006	.962	-.038***	.006	.962	-.038***	.006	.962	-.037***	.006	.963		
Academic orientation		-.132	.109	.876	-.135	.109	.873	-.126	.109	.882	-.121	.109	.886		
Bond with teachers		-.141	.116	.868	-.134	.116	.874	-.130	.116	.878	-.159	.116	.853		
Extracurricular activities		-.023*	.011	.977	-.021*	.009	.980	-.021*	.009	.980	-.021*	.009	.979		
Parent-student shared activities		-.027	.093	.974	-.234*	.117	.792	-.032	.094	.968	-.023	.093	.977		
Parent involvement in school		-.061*	.038	.940	-.060	.038	.942	-.143**	.047	.867	-.067†	.038	.935		
Academic orientation of close friends		.220†	.119	1.246	.217†	.119	1.242	.208†	.119	1.231	-.083	.148	.920		
Academic achievement x Black															
Academic achievement x Hispanic															
Academic orientation x Black															
Academic orientation x Hispanic															
Bond with teachers x Black															
Bond with teachers x Hispanic															
Extracurricular activities x Black		-.007		.023		.993									
Extracurricular activities x Hispanic		.021		.027		1.021									
Parent-student shared activities x Black							.495*		.219	1.641					
Parent-student shared activities x Hispanic							.489*		.214	1.630					
Parent involvement in school x Black									.215**		.082	1.239			
Parent involvement in school x Hispanic									.200*		.097	1.221			
Academic orientation of close friends x Black												.664*	.285	1.942	
Academic orientation of close friends x Hispanic												.849**	.294	2.338	
Intercept	-3.398***	.117		-3.416***	.117		-3.431***	.118		-3.434***	.118				
<b><i>Random Effect</i></b>	Var.	$\chi^2$		Var.	$\chi^2$		Var.	$\chi^2$		Var.	$\chi^2$		Var.	$\chi^2$	
Intercept variance, U <sub>0j</sub> (df: 588)	.633 ***	765.46		.630 ***	762.43		.632 ***	766.16		.635 ***	766.63				

<sup>a</sup>White is the reference category, <sup>b</sup>Suburban schools are the reference category.

† p < .10, \* p < .05, \*\* p < .01, \*\*\* p < .001.

### Appendix J. School Level Compensatory and Protective Factors for Internal School Suspension

(Student#: 6,621 & School#: 591)

<b><i>Fixed Effect</i></b>	Model E1			Model E2			Model E3			Model E4			Model E5			
	b	se	Odds	b	se	Odds	b	se	Odds	b	se	Odds	b	se	Odds	
Black <sup>a</sup>	.833***	.144	2.301	.810***	.149	2.247	.830***	.155	2.292	.830***	.145	2.294	.846***	.146	2.330	
Hispanic <sup>a</sup>	.261†	.150	1.299	.333*	.151	1.393	.259†	.151	1.296	.262†	.150	1.300	.262†	.151	1.299	
Gender	.357**	.099	1.429	.359***	.149	1.432	.357**	.099	1.428	.357**	.099	1.428	.354**	.099	1.425	
School misconduct	2.065***	.080	7.882	2.066***	.080	7.895	2.065***	.080	7.883	2.065***	.080	7.884	2.065***	.080	7.886	
Family SES	-.490***	.079	.613	-.494***	.079	.610	-.490***	.079	.613	-.489***	.079	.613	-.483***	.080	.617	
Urban school <sup>b</sup>	-.007	.146	1.007	-.009	.147	1.009	-.007	.146	1.007	-.005	.146	1.005	-.004	.146	.996	
Rural school <sup>b</sup>	.202	.150	1.224	.198	.150	1.219	.202	.150	1.224	.201	.150	1.223	.201	.150	1.222	
Academic climate at school	-.227*	.093	.797	-.300*	.116	.741	-.227*	.094	.797	-.226*	.093	.797	-.221*	.094	.801	
Fairness of school rules	-.501*	.199	.606	-.475*	.200	.622	-.483†	.248	.617	-.503*	.200	.605	-.499*	.199	.607	
Students' awareness of school punishment	.505*	.254	1.657	.490†	.255	1.632	.503*	.255	1.654	.523	.320	1.688	.518*	.255	1.679	
Parent participation in school policy	-.450**	.214	.637	-.432*	.215	.649	-.451*	.214	.637	-.453*	.214	.636	-.573*	.248	.564	
<b>Academic climate at school x Black</b>	<b>-.046</b>	<b>.207</b>	<b>.955</b>													
<b>Academic climate at school x Hispanic</b>	<b>.395†</b>	<b>.208</b>	<b>1.485</b>													
Fairness of school rules x Black							.032		.406		.968					
Fairness of school rules x Hispanic							-.051		.464		.950					
Students' awareness of school punishment x Black												.041		.532	1.042	
Students' awareness of school punishment x Hispanic												-.137		.577	.872	
Parent participation in school policy x Black														.066	.472	1.068
Parent participation in school policy x Hispanic														.791	.546	2.206
Intercept	-3.320***	.115	.036	-3.323***	.115	.036	-3.320***	.115	.036	-3.320***	1.115	.036	-3.329***	.115	.036	
<b><i>Random Effect</i></b>	Var.	df	$\chi^2$	Var.	df	$\chi^2$	Var.	df	$\chi^2$	Var.	df	$\chi^2$	Var.	df	$\chi^2$	
Level-2 Intercept, U <sub>0j</sub>	.595***	584	794.33	.597***	584	755.16	.598***	584	754.49	.600***	584	754.81	.598***	584	755.15	

<sup>a</sup>White is the reference category, <sup>b</sup>Suburban schools are the reference category.

† p < .10, \* p < .05, \*\* p < .01, \*\*\* p < .001.

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## VITA

Soyon Jung was born in Seoul, Korea on May 23, 1969, the daughter of Duk-Goo Jung and Sang-Bok Han. After graduating from Song-Gok Girls' High School, Seoul, Korea, she entered Seoul Women's University in 1988. She received the degree of Bachelor of Art (Major: Social Work) from Seoul Women's University in 1992 and entered the Graduate School of Yonsei University, Seoul, Korea in 1993. After receiving a Master's degree of Art (Major: Social Welfare) from Yonsei University in 1996, she was employed by Kayang 4 Community Welfare Center of Yonsei University, Seoul, Korea. For about two years at the center, she worked as a director of the prevention and intervention programs for children and adolescents with problem behaviors and/or those at risk of delinquency. Soyon Jung was also in charge of various research-related activities including evaluating program effectiveness and writing grant proposals. In addition, she taught college students as a part-time instructor at Daejin University, Kyunggi-Do, Korea and as part-time program instructor at Seoul Women's University, Seoul, Korea in 1997 and 1998. Soyon came to the U.S. in 1999 to study social work in George Warren Brown School of Social Work, Washington University in St. Louis. In 2001 she received Master's degree in Social Work from Washington University and entered the School of Social Work of the University of Texas at Austin for her doctoral study. While pursing a doctoral degree in philosophy, she has worked as a graduate research assistant and teaching assistant.

Permanent Address: 8054 Exchange Dr., APT 413, Austin, TX, 78754

This dissertation was typed by the author.