PREDICTING THE PREVALENCE OF STUDENTS’ PERCEPTIONS OF SAFETY:
A THEORETICAL INTEGRATION OF SOCIAL DISORGANIZATION AND
PERCEIVED DISORDER WITHIN SCHOOLS.

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ABSTRACT

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A large literature on communities has found that indicators of neighborhood social disorganization and disorder are associated with residents’ perceptions of safety and fear of victimization. In recent years, this area of research has been extended to the context of the school environment. This research has begun to examine how social disorganization and disorder within schools may influence student perceptions of safety. Despite evidence that school victimization has decreased over the past two decades, a considerable number of students still report concerns about school safety and these concerns are likely to vary across school contexts. In the present study I draw on a vast literature on community fear of victimization and on a broader literature on the conceptualization and measurement of fear and perceptions of safety to examine how social disorganization and disorder in the school environment are related to perceptions of safety at the school level. Data from the Educational Longitudinal Study of 2002 are used to examine indicators of disorganization and disorder and student perceptions of safety at school for a nationally representative sample of schools. Ordinary least square regressions reveal several significant findings. First, structural characteristics (i.e., poverty, percent black, and percent Hispanic) significantly predict lower perceived safety. Second, positive perception of school rules predicts higher perceived safety while social disorder and victimization predict lower perceived safety. Finally, the affect of measures for racial and ethnic composition (i.e., percent black, percent Hispanic) on perceived safety are mediated by positive perception of school rules and social disorder.
DEDICATION

I would like to dedicate this thesis to my family in recognition of their enduring love and support. I especially want to thank my parents (Patrick Michael and Laura Michael), step-parents (Lisa Jewell Michael and Brent Roose), and grandparents (Dane and Marjorie Michael, and James and Pauline Schaedler). I hope they know how much I love them and how truly blessed I am to call them family.
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INTRODUCTION

Highly visible events like school shootings, such as those experienced by Sandy Hook Elementary in 2012 and Columbine High School in 1999, have the potential to undermine students’ confidence in school safety. Despite the salience of such events, preliminary evidence reveals encouraging results regarding serious violent victimization at school. Using several national datasets, the National Center for Educational Statistics and the Bureau of Justice Statistics jointly provide an annual report examining student and teacher victimization, titled, “Indicators of School Safety.” The 2012 report provides current statistics and temporal trends for student victimization and perceptions of safety since data collection began in the early- and mid-1990s. Of all homicides involving school-age victims, over all survey years since 1992, less than two percent occurred in schools. Also, rates of serious violent victimization (i.e., rape, sexual assault, aggravated assault, and robbery) have been generally decreasing since 1992, reaching record lows in 2009 with 4 to 5 incidents per 1,000 students, with no measurable differences between 2009 and 2011. Consistent with temporal trends for serious violent victimization incidence, violent and serious violent victimization prevalence has also been generally decreasing between 1995 and 2011. For the most recent data collected in 2011, one percent of students aged 12 to 18 reported having experienced violent victimization at school in the past 12 months and only one-tenth of one percent of students reported serious violent victimization for the same time period. Also encouraging is that, as victimization at school has been decreasing, so has the number of students reporting fear of victimization at school. Since 1995, the percent of students reporting fear of attack or harm at school has decreased from 12 percent to a record low of 4 percent in 2009, with no measurable differences between 2009 and 2011. In sum, homicides occurring at school are a rare phenomena, violent and serious violent victimization incidence and
prevalence have been decreasing since the early- and mid-1990s, and the percentage of students reporting fear of harm or attack at school has also been decreasing since 1995 (Robers, Kemp, and Truman 2013).

Although preliminary results concerning victimization at school are encouraging, there remain three primary concerns. The first concern pertains to the comparison of victimization at school versus away from school. For more serious forms of victimization, such as homicide or serious violent victimization, youth do appear to be safer at school. Only two percent of all school-aged youth homicides occur in schools and serious violent victimization rates have been lower at school than away from school for nearly two decades. However, when considering less serious forms of victimization such as simple assault (i.e., threats and attacks without a weapon or serious injury), youth are actually safer away from school than at school, with rates of 11.3 and 20.1 per 1,000 students, respectively. As the rate of simple assault at school is almost double the rate away from school it is not surprising that twice the number of students report fear of attack or harm at school than away from school (Robers et al. 2013). These statistics are disconcerting as youth spend a considerable amount of time at school, an environment that students, parents, and school representatives typically expect to be safe and comfortable for students. Yet the second most common form of victimization for youth while at school—simple assault—occurs at higher rates at school than away from school. Thus, in a presumably controlled environment youth are not necessarily safer, nor do they feel safer, than if they were out on the streets where they may be exposed to adult offenders.

The second concern centers on the discrepancy between the number of students who have experienced personal victimization and the number of students expressing fear of personal victimization. Although only 1.1% of students report having experienced any type of violent
victimization, 4% of students express fear of attack or harm at school (Robers et al. 2013). It appears as though student fear of victimization and risk perceptions depend on more than individual experiences of violent victimization and may not be congruent with the students’ actual risk of victimization. This may be particularly important as research has shown that fear of victimization increases anxiety and depression, negatively affects concentration and academic performance, and may result in problematic changes in behaviors such as avoidance of school, carrying a firearm or weapon in school, or joining a gang (Boulton, Trueman, and Murray 2008; May 1999; Milam, Furr-Holden, and Leaf 2010; Randa and Wilcox 2010; Stafford, Chandola, and Marmot 2007; Thompkins 2000). When considering the adverse effects of experiencing fear, it is imperative that research determine the factors that influence student fear above and beyond victimization.

The final concern involves the distribution of fear of victimization across schools. Nearly double the proportion of students in urban schools (5%) reported being afraid of victimization while at school as compared to rural and suburban students (3%) despite comparable victimization prevalence in urban, rural, and suburban schools (Robers et al. 2013). Empirical evidence suggests that students at urban schools report lower levels of perceived safety (Gastic 2011) and higher levels of fear (Bachman, Randolph, and Brown 2011) even after controlling for victimization. These findings suggest that factors associated with a school’s geographic location may be influencing student fear above and beyond victimization.

Research on student fear should continue to investigate the factors that influence fear so that administrative policies and security efforts can be implemented. Although research often concludes that previous victimization is the strongest predictor of fear (Bachman et al. 2011; Melde and Esbensen 2009; Randa and Wilcox 2010; Schreck and Miller 2003), other factors
such as the school environment, interactions with school officials, and social climate appear to
influence student fear as well (Addington and Yablon 2011; Gastic 2011; Hong and Eamon
2012).

The bulk of existing research on student fear has attempted to predict fear at the
individual level using micro- or multi-level modeling. My research utilizes a different
methodological and conceptual approach. This study examines how school characteristics and
dynamics are associated with school-level concerns about safety in school. For example, I
consider how environmental and social factors examined in the school literature such as
structural characteristics, discipline, security, and disorder are associated with perceptions of
safety—above and beyond victimization. In addition, I propose and test a conceptual integration
of social disorganization theory and the perceived disorder perspective to model student
perceptions of safety. To my knowledge, no study to date has integrated these two frameworks
to predict perception of safety or fear of victimization in schools.
LITERATURE REVIEW

Fear of Victimization and Origins in Criminological Research

Numerous researchers have found that fear of victimization is a complex social-psychological construct involving more than the actual risk of victimization and previous experiences of victimization. Within the criminological literature, the study of fear originated in research with sociodemographic characteristics, neighborhood conditions, and environmental cues found to predict individuals’ perceptions of safety and feelings of fear. Using surveys from eight cities, Garofalo (1979) found that although women and the elderly expressed more fear of victimization, they actually had lower rates of victimization compared to men and younger individuals. Lewis and Maxfield’s (1980) study on four Chicago neighborhoods determined that residents’ perceptions of crime did not consistently correspond to actual crime levels, but are more closely related to levels of neighborhood conditions or “incivilities” such as abandoned buildings, vandalism, drug use, and loitering teenagers. Skogan and Maxfield (1981) found that physically vulnerable individuals (i.e., females and the elderly), vicarious victimization experience (i.e., exposure to stories concerning other individuals’ experiences of victimization), and neighborhood conditions (i.e., crime and lower social integration) were related to higher levels of fear, net of previous victimization. A study of 26 cities conducted by Liska and colleagues (1982) concluded that racial composition, or the percent of nonwhite residents, increased resident levels of fear, even after controlling for violent and property crime rates. Lewis and Salem’s (1986) study on ten neighborhoods in three cities concluded that perceived environmental changes such as structural deterioration, increasing crime, and population flight influenced residents’ fear of crime. Finally, Warr’s (1990) study using several vignettes found that novelty (i.e., vignette involved walking through a neighborhood the respondent was
unfamiliar with) and darkness (i.e., vignette involved night as a time period) are interpreted by individuals as “signs of danger” and that females and the elderly have greater fear of victimization.

Empirical evidence suggests fear of victimization is complex and that sociodemographic characteristics, neighborhood conditions, and environmental cues are related to fear of victimization. Although not the focus of the present study, early research on age and gender revealed that actual risk and previous victimization are not the only factors that influence perceived risk and fear of victimization. Similarly, although structural deterioration, vandalism, loitering teenagers, and drug use do not necessarily produce more crime or victimization, these “incivilities” (Lewis and Maxfield 1980) or “signs of crime” (Skogan and Maxfield 1981) may influence fear of crime by heightening perceived risk.

Defining and Measuring Fear of Victimization

As criminological research on fear of victimization continued, theoretical and methodological concerns emerged, specifically in how fear is conceptualized and operationalized. Ferraro and LaGrange (1987) proposed that fear of victimization may be divided into two primary components—cognitive assessments and affective assessments. Cognitive assessments involve subjective judgments of perceived risk that are elicited with questions pertaining to the likelihood of victimization or to safety within a particular context. Conversely, affective assessments are based upon emotional reactions that are elicited with questions pertaining to fear or worry of victimization. Upon reviewing the literature, Ferraro and LaGrange (1987) discovered that researchers had been treating cognitive assessments and affective assessments as one broad, omnibus construct. They emphasize that use of an omnibus conceptualization of fear is problematic, especially as their review found that perceived risk and
fear are only moderately related, with correlation coefficients ranging from 0.28 to 0.48. They suggest that fear should be measured by items using “afraid” or “worry” while the “likelihood of victimization” or “perception of safety” would represent indicators of perceived risk. To further clarify, items using phrases such as “how safe you feel” are not ideal measures of fear, as “safety” is more proximate to risk whereas “afraid” is more proximate to fear and “how safe you feel” may actually confound the concepts of risk and fear (Ferraro and LaGrange 1987).

Neighborhood research has found that perception of safety and fear of victimization are empirically correlated yet distinct concepts and that perception of safety mediates the effects of victimization on fear (Chiricos, Hogan, and Gertz 1997; Ferraro 1995; Gainey, Alper, and Chappell 2011; LaGrange, Ferraro, Supancic 1992). Although these studies were concerned with the way in which fear manifests in neighborhoods, the way in which perceived risk affects fear should be applicable to other community contexts. Due to data limitations, most research on students has not been able to document the distinction and relationship between perceived safety and fear. Several studies were only able to utilize measures that are consistent with fear (Addington and Yablon 2011; Alvarez and Bachman 1997; Bachman et al. 2011; Mayer 2010; Schreck and Miller 2003), while other studies utilized measures that were a synthesis of fear and perceived risk using items such as “don’t feel safe” and “feel safe” (Bradshaw, Sawyer, and O’Brennan 2009; Gastic 2011; Hong and Eamon 2012; Shumow and Lomax 2001). Unfortunately, the present study cannot contribute to the literature in terms of the relationship and distinction between perceptions of safety and fear of victimization as the dependent variable combines elements from both perceived safety and fear, therefore confounding the two concepts.
Correlates of Student Fear

Victimization. Not surprisingly, a strong and consistent predictor of student perceptions of safety and fear of victimization is previous experience of victimization. Schreck and Miller (2003) determined that students who had previously suffered theft, a beating, or a robbery were more worried about future victimization than students who had never experienced such victimization. Bachman and colleagues’ (2011) analyses found that victimization was the strongest predictor of student fear (Bachman et al. 2011). Similarly, Alvarez and Bachman (1997) determined that having experienced a personal attack or larceny increased levels of fear. Addington and Yablon’s (2011) cross-national study concluded that previous bullying victimization was the strongest predictor of student fear in U.S. schools. A final study by Melde and Esbensen (2009) found that previous victimization was significantly associated with fear of future victimization, but that the relationship became insignificant once perceived risk was entered into the model. They explain that victimization was positively associated with perceived risk of victimization, creating a positive indirect effect that cancelled the substantive total effect of victimization on fear (Melde and Esbensen 2009).

School Type & Structural Conditions. Several studies have examined macro-level indicators such as school type and structural conditions when predicting student fear. Students attending public schools are more fearful of victimization than students attending private schools (Alvarez and Bachman 1997; Schreck and Miller 2003). Using the National Longitudinal Study of Youth:1979, Hong and Eamon (2012) determined that students attending schools that were not in central cities (as compared to those in central cities) reported higher levels of perceived safety. Schreck and Miller (2003) determined that students in larger schools were more likely to report worrying (i.e., fear) about physical assault. Bradshaw and colleagues’ (2009) study concluded
that lower levels of poverty, as measured by the proportion of students receiving free/reduced lunches, significantly predicted students’ perceptions of safety (Bradshaw et al. 2009).

**Discipline as Formal Social Control.** Several studies reveal that discipline as measured by rule clarity, fairness, and enforcement is related to student fear and perceptions of safety. Bosworth and colleagues (2011) conducted qualitative interviews at eleven secondary schools, asking students what makes a school safe. They found that, “[s]tudents who recognized a clear and consistent discipline system felt safer. They reported feeling safe when faculty stop fights and enforce discipline and that absence of a behavior management system and a lack of accountability compromised their safety” (Bosworth, Ford, and Hernandez 2011, pp. 197). Using the School Crime Supplement to the National Crime Victimization Survey (2011), researchers found that white students who perceived school rules to be enforced were significantly less fearful, although this finding was not significant for black students (Bachman et al. 2011). Finally, Hong and Eamon (2012) found students who reported that classmates could “get away with anything,” reported lower levels of perceived safety.

**Social Disorder.** Empirical research has also determined that perception of school disorder is consistently related to students’ perceptions of safety and fear. In their cross-national comparison of American and Israeli students, Addington and Yablon (2011) found that hate graffiti and the presence of gangs at school significantly increased students’ levels of fear in their U.S. sample. Hong and Eamon (2012) determined that having observed another student carrying a weapon predicted lower perceived safety. Utilizing a nationally representative survey, Schreck and Miller’s (2003) results indicated that knowing other students bring weapons to school and that gangs and drug dealers are present in school increased worry (i.e., fear) about criminal
victimization. Finally, Alvarez and Bachman (1997) found that gang presence, violent victimization of teachers, and drug availability increased fear for students.

**Coercive Security as Perceived Disorder.** Schools have increasingly adopted and implemented security measures over the past decade. For public schools specifically, sixty-one percent now have security cameras, forty-three percent have security personnel, and ninety-two percent monitor or lock school entrances during school hours. Other forms of security, such as the use of random metal detector checks (5%) and sweeps for contraband (12%), are less common (Robers et al. 2013). Research examining how security affects students’ perceptions of safety and fear has yielded unexpected results. Bracy (2011) conducted ethnographic research in two public high schools, inquiring about students’ perceptions of high-security environments. Students reported that their schools were safe and the presence of SROs (security resource officers) and physical security was unnecessary. However, students also expressed that SROs cannot prevent all crimes and students who are intent on offending would do so regardless of the SRO’s presence. Additionally, the use of metal detectors was deemed unnecessary by students due to their belief that their school is a safe place and students also indicated that such security measures actually contributed to a negative school atmosphere (Bracy 2011). Quantitative studies examining SROs and metal detectors have also demonstrated the negative effect of security on school environments. Addington and Yablon (2011) found that security guards significantly increased fear for their U.S. sample of students. Gastic’s (2011) study utilizing the National Longitudinal Study of Adolescent Health concluded that metal detectors significantly reduced perceptions of safety. Finally, Bachman et al. (2011) found that metal detectors and security guards were significantly related to higher levels of student fear. Importantly, the negative relationship between security and fear held even when controlling for previous personal
victimization in all three of the previously discussed quantitative studies. In general, these studies find that security measures are associated with higher levels of fear and lower levels of perceived safety even when controlling for victimization. Security measures are a form of formal social control, representing to students that the school environment is protected and they are safe (Schreck and Miller 2003). However, findings on student fear and perceived safety imply that security is perceived as a form of disorder, indicating the school is unsafe (Gastic 2011) and victimization is a real possibility (Schreck and Miller 2003).
THEORETICAL FRAMEWORK

Due to its relatively recent emergence as an area of interest, literature on student perceptions of safety and fear of victimization is sparse. Notable is the absence of a theoretical framework for explaining fear and perceptions of safety in schools. Moderate support has been established for macro-level indicators originating in social disorganization theory and the perceived disorder perspective. However, less than half of these studies have explicitly tested either framework and have instead drawn loosely on these and other frameworks. To my knowledge, no previous study concerning student fear or perceived safety has attempted a conceptual integration of social disorganization and perceived disorder despite some theoretical overlap in established predictors of student fear. I address this limitation by explicitly testing an integrated model of social disorganization and perceived disorder in predicting student perceptions of safety in schools. And although the original foci of the social disorganization and perceived disorder perspectives pertain to neighborhood crime and fear of victimization, applying these frameworks to the school environment is reasonable on the following grounds: 1) schools may be considered a manifestation of a community, 2) proxies for indicators used in neighborhood research can also be found in schools, and 3) some of these proxies of disorganization and disorder used in prior research have been found to significantly predict student fear.

Social Disorganization

Social disorganization theory purports that structural conditions found in specific types of urban neighborhoods predict crime and delinquency rates by preventing or attenuating the formation of social ties. Population mobility, racial/ethnic heterogeneity, and poverty create an environment that is conducive to crime. Shaw and McKay (1942) hypothesized that these
structural characteristics limit communication and interaction between residents, thereby weakening the informal and formal social control in the neighborhood. When informal and formal social control decreases, there are more opportunities for crime, opportunities that potential offenders are likely to be cognizant of (Park and Burgess 1925; Shaw and McKay 1942; Kasarda and Janowitz 1974).

The origins of social disorganization theory can be traced back to Park and Burgess (1925) who proposed that urbanization is a dynamic, expansive process resulting in distinct ecological zones. They further theorized that urbanization changes a city’s structure, thereby decreasing communication in primary relations and weakening social control of the community (Park and Burgess 1925). Shaw and McKay’s (1942) study on juvenile delinquency in Chicago found that neighborhood sociodemographic characteristics were correlated with high rates of delinquency within the neighborhood. Further, areas marked by certain structural characteristics continued to experience higher rates of juvenile delinquency despite population and racial/ethnic turnover (Shaw and McKay 1942). Decades later, Kasarda and Janowitz (1974) introduced the systemic model, emphasizing that community is a social product, and provided the first test and empirical evidence of the mediating effects of neighborhood social control.

There are two forms of social control found in communities, informal social control and formal social control. Sampson (1986:278) states that informal social control includes “neighbors taking note of or questioning strangers, watching over each other’s property, assuming responsibility for supervision of general youth activities, and intervening in local disturbances.” Conversely, formal social control is exercised through actions involving more formal entities like local government (city council) and law enforcement (policing) (Sampson 1986). It is purported that structural antecedents (i.e., poverty, population mobility, racial/ethnic heterogeneity) impede
the formation of social ties and consensus of community values, which are posited as critical for enacting informal and formal social control. Informal and formal social control are assumed to be central to a community’s ability to exert social control, which is considered key in preventing crime and victimization (Park and Burgess 1925; Shaw and McKay 1942; Kasarda and Janowitz 1974).

In recent decades, a few researchers have provided theoretical refinements regarding informal and formal social control. Bursik (1988) questioned the normative assumption of social disorganization, arguing that value consensus and norm conformity may not be necessary in enacting informal social control to prevent crime, provided that the residents have a common community goal. Relatedly, Bursik and Grasmick (1993:15) stated that, “we assume that the residents of neighborhoods share a common goal of living in an area relatively free from the threat of crime” and defined social control as “the effort of the community to regulate itself and the behavior of residents and visitors to the neighborhood to achieve this specific goal.” Later theoretical work introduced the concept of collective efficacy, a social construct that involves informal social control and social cohesion in a community. As Sampson, Raudenbush, and Earls (1997:919) have proposed, “the willingness of local residents to intervene for the common good [informal social control] depends in large part on conditions of mutual trust and solidarity among neighbors.”

As with any social phenomenon, community dynamics do not operate in a vacuum. Scholars have theorized that a community’s level of social capital can affect their ability to obtain necessary resources. Portes (1998) defines social capital as “the ability of actors to secure benefits by virtue of membership in social networks and other social structures” (Portes 1998:6). In terms of social disorganization theory and community dynamics, this would entail connections
and interactions with figures representing institutions such as city council or the police department. If a community is experiencing economic or criminal concerns, they should be able to elicit assistance and resources from formal social control agents. However, receipt of such benefits is partially dependent on the social connections between the community and formal social control. Communities possessing rapport with city council and police will be more likely to obtain aid than communities that have a negative or absent relationship to formal social control agents. Kubrin and Weitzer (2003) also emphasized the importance of dedicating increased attention to formal social control, such as the police, as the frequency and quality of police practice can directly influence crime. Furthermore, regular and positive police presence should increase the ability of the residents and police to work together as well as encourage residents to exert informal social control when the police are not immediately available (Kubrin and Weitzer 2003).

Numerous studies have tested social disorganization theory and have yielded moderate support. Using the British Crime Survey, Sampson and Groves (1989) conducted the first comprehensive test of social disorganization theory and concluded that socioeconomic status, residential instability, ethnic heterogeneity, and family disruption were significant predictors of crime, most of which were mediated by indicators of informal social control (i.e., friendship ties, organizational participation). Warner and Rountree (1997) found that heterogeneity was significantly related to higher rates of assault and robbery, poverty was significantly related to higher rates of assault, heterogeneity decreased social ties, and residential stability increased social ties. Using the Project on Human Development in Chicago Neighborhoods, Silver and Miller (2004) concluded that as residential mobility decreased, and increasing socioeconomic status increased, the ability of residents to enact informal social control increased. Sun and
colleagues (2004) determined that lower socioeconomic status, residential mobility, racial heterogeneity, and family disruption all significantly predicted robbery. Also, racial heterogeneity and residential mobility significantly predicted rates of assault. The influence of informal social control was also important, as all of these relationships were mediated by local social ties (Sun, Triplett, and Gainey 2004). A final study was conducted by Rhineberger-Dunn and Carlson (2011) who found that ethnic heterogeneity was significantly related to higher rates of interpersonal violence, burglary, larceny, and vandalism and that economic disadvantage predicted burglary and interpersonal violence.

Social Disorganization and Schools

Although the origins of social disorganization theory lie in research on neighborhood dynamics and conditions, the theoretical propositions are applicable to the school environment. The same structural characteristics found in neighborhoods that decrease informal and formal social control, and ultimately result in more crime and victimization, may affect schools in the same manner. Bradshaw and colleagues (2009) purport that schools are a different form of community yet are similarly affected by disorganization. They suggest that school-level factors such as poverty and high rates of student mobility that characterize disorganized schools “may challenge the school’s functioning and stability” (Bradshaw et al. 2009:205). For example, impoverished schools likely have higher student-teacher ratios (i.e., a measure of formal social control), making it more difficult for teachers to manage student misbehavior (Bradshaw et al. 2009), resulting in more student victimization (Khoury-Kassabri et al. 2004). As with neighborhood research, it is not the indicators of disorganization that increase victimization, but the way in which they influence social dynamics within the community. For example, when students perceive school rules (i.e., formal social control) as fairly and effectively enforced, this
may increase trust between teachers and students (Schreck and Miller 2003), encourage students to seek assistance from teachers when experiencing conflict instead of physically retaliating (Aceves et al. 2010), and increase perceived safety (Hong and Eamon 2012). Within the school literature, constructs drawn from social disorganization have been found to predict student victimization. Khoury-Kassabri and colleagues (2004) found that overcrowded classes, poverty, and positive relationships between students and teachers were significant predictors of physical, verbal-social, and threat-related victimization in the expected directions (Khoury-Kassabri et al. 2004). Using data from the National Study of Delinquency Prevention in Schools, Gottfredson and DiPietro (2011) determined that concentrated disadvantage significantly predicted property and personal victimization, but that the relationships became insignificant once student enrollment and student-teacher ratio were included in the models. In the full models, size of student enrollment and student-teacher ratio were significant predictors of property and personal victimization, respectively (Gottfredson and DiPietro 2011). Bradshaw and colleagues (2009) considered the effect of social disorganization on victimization and perceptions of safety. They found that poverty, student-teacher ratio, and student mobility predicted frequent bullying. Concerning student perceptions of safety, urbanicity, student-teacher ratio, poverty, and student mobility were found to be significant predictors in the expected direction (Bradshaw et al. 2009).

Perceived Disorder

As with social disorganization theory, the perceived disorder perspective also originated in neighborhood research. This perspective often uses terms such as “broken windows” (Kelling and Wilson 1982) and “incivilities” (LaGrange et al. 1992). Kelling and Wilson (1982) posited that environmental cues, such as broken windows or abandoned buildings, may affect residents’
perceptions of the neighborhood’s investment in maintaining their community. When residents perceive disorder in their neighborhood, community informal social control will be decreased. For example, when residents perceive disorder in their neighborhood, they are likely to become wary of others and withdraw, thereby restricting their movement and interaction in the neighborhood. This ultimately reduces the social cohesion and informal social control necessary for preventing crime. Kelling and Wilson (1982) also propose that disorder can influence potential offenders’ perceptions of the community when offenders perceive informal social control as ineffective, or absent, their inhibitions in committing crime are lessened and they are more likely to engage in criminal behavior. And although Kelling and Wilson (1982) appeared to indicate that “broken windows” may result in more crime, their primary outcome of interest was fear, as they claimed visible community concerns should increase resident fear (Kelling and Wilson 1982).

LaGrange and colleagues (1992) extended the research on disorder, conceptualizing incivilities as “low level breaches of community standards that signal an erosion of conventionally accepted norms and values” (LaGrange et al. 1992, pp. 312). They divide incivilities into two types: physical and social. Physical incivilities involve “disorderly physical surroundings” while social incivilities involve “disruptive social behaviors” (LaGrange et al. 1992, pp. 312). LaGrange and colleagues’ (1992) empirical study determined that incivility is related to perceived risk and fear, but that the effect on perceived risk is stronger than the effect on fear. They emphasize, however, that the effect of incivility on fear is modest at best and mostly mediated by perceived risk of criminal victimization (LaGrange et al. 1992).

There is an alternative theoretical position regarding how perceived disorder may operate within community. Recall that Kelling and Wilson (1982) proposed that disorder may result in
residents’ withdrawal from community interaction and encourage potential offenders to engage in crime. Although it was not their intention, their narrative seems to imply that physical and social disorder may influence crime through its effect on how it is perceived and how individuals respond behaviorally to the perceived threat. Other researchers have argued that the relationship between disorder and crime is spurious, that both disorder and crime are potential outcomes of structural antecedents and ineffective, or absent, informal/formal social control (Sampson and Raudenbush 1999). Consistent with their argument, signs of disorder can be considered explicit criminal conduct (e.g., public drug use), evidence of criminal conduct (e.g., graffiti, vandalism, drug paraphernalia in the streets), or at the very least ordinance violations (e.g., broken windows, abandoned buildings) all of which may be a result of structural conditions and attenuated informal/formal social control. Using systematic social observation of 196 Chicago neighborhoods, Sampson and Raudenbush (1999) conducted a study to determine disorder’s relationship to crime. They found that although disorder and crime were moderately correlated, they both varied consistently with antecedent structural characteristics. After controlling for neighborhood conditions (i.e., concentrated disadvantage, residential stability, immigrant concentration, population density, and mixed land use) disorder was not a significant predictor of crime with the exception of robbery (Sampson and Raudenbush 1999).

Perceived Disorder and Schools

The perceived disorder perspective is easily applicable to the school community. Although his original focus was on neighborhoods, Ferraro (1995) generically makes reference to communities, environments, and areas. For example, “[t]o produce a fear reaction in humans, a recognition of a situation as possessing at least potential danger, real or imagined, is necessary. This conception of potential danger is what we may call perceived risk…” (Ferraro 1995:4,
emphasis added). He explains that individuals make subjective judgments of risk using environmental cues and that some places develop reputations for being crime-ridden or dangerous (Ferraro 1995). A few researchers have applied this logic to the school environment. Even minor forms of physical disorder such as rundown school conditions may affect fear as it signals to students that agents of formal social control (i.e., teachers, administrators) do not care about the school or students’ well being. The presence of gangs or drug dealers involved in criminal activity may remind students’ of their proximity to dangerous people (Schreck and Miller 2003) and if certain areas are associated with these offenders, fearful students will avoid certain areas in the school (Randa and Wilcox 2010). Empirical evidence suggests that disorder observed in schools such as hate graffiti (Addington and Yablon 2011), gangs (Bachman et al. 2011), and drug dealers (Schreck and Miller 2003) do influence students’ perceptions of safety and fear of victimization.

A relatively new area of interest involves the way in which school security measures, such as metal detectors or security personnel, may be related to student fear of victimization and perceptions of safety. There are three theoretical explanations concerning this relationship. The first explanation purports that the relationships between security and student fear and perceived safety may be entirely spurious. It may be that students who are most fearful or feel unsafe attend schools that have high levels of crime and utilize security, yet it is the relative level of crime in the school that affects student these outcomes, not the presence of security. Using the National Longitudinal Study of Adolescent Health, Gastic (2011) was able to test this proposition. After controlling for the schools’ level of violence, metal detectors were significantly and negatively related to students’ perceptions of safety. Gastic (2011) proposed that metal detectors or “coercive security” may be interpreted by students as a sign their school is
not safe. Although this single study does not refute the possibility that security and fear are not related, it does direct our attention to the way in which security may be perceived by students.

The other two explanations contend that the relationships between security, perceived safety, and fear of victimization is not spurious, but that security could increase or decrease these outcomes. Gastic (2011), purports that security can increase student fear if it serves as a reminder that the school is unsafe. Conversely, Schreck and Miller (2003) propose that security may lessen student fear if security serves a “symbolic purpose” of reminding students they are safe. Although research in this area is sparse, a couple of studies were able to support the possibility that security is associated with more student fear while, to my knowledge, no study has concluded that security is associated with less student fear. Using the 1993 National Household Education Survey, Schreck and Miller (2003) found that some security efforts are related to higher student fear. Metal detectors predicted worry about assault and supervised hallways predicted worry about theft and assault. Locked doors were predictive of worry regarding multiple types of victimization. Even more important, these relationships remained even after controlling for contextual variables (i.e., public school, school size, drug dealer and gang presence, and others bringing weapons to school) and individual behavioral and attitudinal measures (race, ethnicity, gender, income, brings weapon to school, rules are perceived as unfair, delinquent friends, alienation toward school, and victimization) that would theoretically predict fear (Schreck and Miller 2003). A study conducted by Bachman and colleagues (2011) also concluded that security is related to higher levels of student fear. Using the 2005 School Crime Supplement to the National Crime and Victimization Survey, they found that metal detectors and security guards were associated with higher student fear, but that the effect of security guards on fear was significant for white students only. Security’s effect on fear remained after controlling
for demographic characteristics, urbanicity, school type, perceived rule enforcement, gun and gang presence, and property and personal victimization (Bachman et al. 2011). For the purpose of this study, security will be conceptualized as a form of perceived disorder.

**Theoretical Integration of Social Disorganization and Perceived Disorder**

Empirical research on student perceptions of safety and fear of victimization is limited due to its relatively recent emergence as an area of interest. Despite its short history, this literature has determined a number of correlates of student fear that are consistent with social disorganization theory and perceived disorder. Although these frameworks originated in research on neighborhood crime and fear and have received moderate support, few studies have explicitly applied either framework to student perceptions of safety or fear of victimization. To my knowledge no study in school research has presented a conceptual theoretical integration of these frameworks. The present study seeks to provide an integrated model of social disorganization theory and perceived disorder within the school environment. This is a theoretically valid proposal for three reasons. First, research has revealed that poverty, racial/ethnic heterogeneity, population mobility, and disorder are correlated (Ferraro 1995; Kohm 2009; Markowitz et al. 2001; Rountree and Land 1996; Sun, Triplett, and Gainey 2004) and these indicators appear to manifest under similar neighborhood (Markowitz et al. 2001) and school conditions (Nickerson and Martens 2008). Second, structural antecedents (i.e., concentrated disadvantage, residential mobility, and racial heterogeneity) are related to informal/formal social control (Gottfredson and DiPietro 2011; Silver and Miller 2004; Sun et al. 2004) and informal/formal social control is related to both victimization (Bradshaw et al. 2009; Rhineberger-Dunn and Carlson 2011) and disorder (Markowitz et al. 2001; Mayer 2010). Finally, perceived disorder (Kohm 2009; Randa...
and victimization (Gainey et al. 2011; Schreck and Miller 2003) are related to perceptions of safety and fear of victimization.

The present study seeks to examine how school-level environmental factors may be associated with students’ perceptions of safety. Using a theoretical integration of social disorganization and perceived disorder, I have created the conceptual model provided in figure 1.

![Figure 1. Conceptual Model](image)

In reviewing the empirical evidence on student fear, I have developed a more nuanced understanding of how environmental factors may influence students’ perceptions of safety. The arrows in my model provide a visual representation of the direct and indirect effects on perceived safety. First, structural antecedents (i.e., poverty, heterogeneity) are expected to influence formal social control (i.e., student-teacher ratio, rule enforcement/knowledge/fairness). Formal social control, perceived disorder including coercive security as disorder, and victimization should affect student perceptions of safety. The relationship between structural antecedents should be related to perceptions of safety, but I expect this relationship to be entirely indirect, operating through formal social control, perceived disorder, and victimization. Among all of these relationships, victimization is expected to be the strongest predictor of perceived safety.

Due to an absence of a theoretical framework for predicting student fear and because social disorganization theory and the perceived disorder perspective originated in neighborhood research, it is helpful to provide a narrative of how my conceptual model may operate in schools. Schools with higher levels of poverty may have higher student-teacher ratios. This likely affects
teachers’ and other school officials’ ability to enforce the rules, resulting in more disorder and victimization. Racial and ethnic heterogeneity may limit communication between students and between students and teachers, affecting whether students are cognizant of the school rules and whether they perceive the rules as fair. How the rules are perceived may then affect students’ perceptions of safety. Also, victimization and perceived disorder (e.g., gangs, metal detectors, broken windows) should be associated with reduced perceptions of safety.

The present study addresses three primary research questions:

1) Are school poverty and racial/ethnic heterogeneity negatively related to student perceptions of safety?

2) Are formal social control, perceived disorder, and victimization negatively related to student perceptions of safety?

3) Is the relationship between structural antecedents and student perceptions of safety mediated by formal social control, physical disorder, coercive security, and social disorder?
METHOD

Data

The dataset used in the present study is the Educational Longitudinal Study (ELS) of 2002, a nationally representative study conducted by the National Center for Education Statistics. ELS was designed to monitor a sample of adolescents as they progressed from tenth grade through high school and thereafter, with the primary focus on academics, future goals/aspirations, and educational/employment outcomes. The ELS used a two-stage sampling process. First, a nationally representative sample of schools was selected using stratified probability proportional to size design. Second, students were randomly selected within each of the final 752 participating schools. Oversampling was utilized to include more non-public schools and students of Asian heritage/ethnicity in the data. The final sample consisted of approximately 15,000 sophomores and their parents across 752 schools (NCES 2012).

The first wave (2002) involved cognitive tests in reading/mathematics and several questionnaires (completed by students, parents, math/English teachers, principals, and heads of school library/media center). This survey protocol included many questions related to students’ attitudes and experiences regarding school as well as many demographic variables. The second wave (2004) involved approximately 12,400 of the original sample as well as students who were out of the country or in another grade (other than sophomore) during the base survey. Not all participants in wave two were seniors; some were in another grade, some had dropped out, and some had completed high school early. A cognitive test in mathematics and questionnaires were completed by students, and administrators also completed questionnaires. Student surveys included questions on academic achievement, changes in school status and plans for the future (educational and employment). The final wave (2006) involved an interview with all students.
(those they were able to locate and reach) from the previous waves, with a focus on current education and employment status (NCES 2012).

Sample

In the present study I utilize data from the first wave, collected in 2002, as only the first wave contains indicators for the school environment. Thus, analyses are cross-sectional. As my research queries focus on how school-level environmental factors may generally affect perceived safety for the entire student body, all variables are tested at the school-level. The survey items to be used originate from the student- and school-level datasets and include responses from the students (student-level), school administrators (school-level), and survey administrators (school-level). The students and school administrators completed questionnaires and the survey administrator completed a facility checklist of the school (NCES 2012). All items contained in the dataset are provided at the student level, even items completed by the school and survey administrator (i.e., urban, poverty). After deletion of one school with no respondents, respondents missing on the dependent variable, and schools with fewer than five respondents there are 14,466 respondents remaining. After I aggregated the data to the school level using the “collapse” command in Stata (StataCorp 2013), there are a total of 736 schools available for analysis. Mean and mode imputation has been performed for missing values on the independent variables. Although this is not the preferred method for handling item non-response (see Donders et al. 2006 and Groves, Dillman, and Eltinge 2002), most variables are missing less than two percent at the individual-level and less than four percent at the school-level.

Measures

Dependent Variable The dependent variable was created from an item contained in the student questionnaire. Using a Likert scale response format (i.e., strongly agree, agree, disagree,
strongly disagree), students are asked to indicate how much they agree or disagree with the statement “I don’t feel safe at this school.” Categorizing this indicator as perception of safety as opposed to fear of victimization is consistent with other studies using similar or identical items (Bradshaw et al. 2009; Gastic 2011; Hong and Eamon 2012). I have combined the response categories on this item to create a binary measure where a value of 1 represents a response of “agree” or “strongly agree” and a value of 0 represents a response of “disagree” or “strongly disagree.” I then took the number of students who reported they do not feel safe at school and divided it by the total number of respondents to get the student prevalence of perceived safety for each school. The dependent variable thus becomes a school-level continuous measure where higher values represent a larger proportion of students expressing that they do not feel safe at their school.

**Structural Characteristics** Four school structure indicators are used. Poverty is measured using the percentage of students receiving reduced/free lunch, which is consistent with measures used in other school studies (Bradshaw et al. 2009; Koth, Bradshaw, and Leaf 2008). School administrators were asked, “What percentage of the current 10th grade students receives free or reduced-price lunch from your school?” Respondents were able to provide any percentage value from 0 to 100. The responses were then used by the NCES to create an item with a categorical response format: 0-5%, 6-10%, 11-20%, 21-30%, 31-50%, 51-75%, and 76-100%. Higher responses on this item correspond to higher levels of student poverty and this measure is treated as a continuous variable.

Three measures were constructed for racial/ethnic heterogeneity. The NCES created a composite race/ethnicity item from several individual items contained in the student questionnaire. The composite variable has the following responses: 1) American Indiana/Alaska
native, non-Hispanic 2) Asian, Hawaii/Pacific Islander, non-Hispanic 3) Black or African
American, non-Hispanic 4) Hispanic, no race specified 5) Hispanic, race specified 6) Multi-
racial, non-Hispanic and 7) White, non-Hispanic. This item is constructed in such a way that all
the categories are mutually exclusive. For example, there is no overlap among individuals who
consider themselves black and Hispanic. I created measures for percent black and percent
Hispanic, which are identical to constructs representing racial/ethnic heterogeneity in
neighborhood literature (Chiricos et al. 1997; Martinez, Lee, and Nielson 2004; Mosher 2001). I
created an item where the student had a value of 1 if they were considered “black or African
American” on the race/ethnicity composite, and a 0 otherwise. I then took the number of students
who were black/African American and divided it by the total number of respondents to the get
the construct percent black by school. The resulting measure is continuous, representing the
proportion of students who are black, with higher values representing a larger black population.
Percent Hispanic was calculated in the same way, except that a respondent was given a value of
1 if they were coded as “Hispanic, race specified” or “Hispanic, no race specified.” Percent
foreign-born was created from a student-level item asking if the tenth grader was born in the
“United States (that is, any of the fifty states or the District of Columbia), Puerto Rico, or in
another country or area?” Responses were exactly as indicated in the question (U.S., Puerto Rico,
other country/area) and an item was created where a student was given a value of 1 if they were
born outside of the United States, and coded as 0 otherwise. I then took the number of students
who were not born in the U.S. and divided it by the total number of respondents by school. The
resulting construct is continuous, representing the proportion of students who were foreign-born,
with higher values corresponding to a larger concentration of students who are immigrants. This
is consistent with studies in the neighborhood literature measuring immigrant concentration (Silver and Miller 2004) and ethnic heterogeneity (Rhineberger-Dunn and Carlson 2011).

**Formal Social Control** Two measures representing formal social control have been created. *Student-teacher ratio* is a construct that was created from two items contained in the school administrator questionnaire—number of full-time teachers and total student enrollment. The response formats on both items were categorical, representing ranges of the total number of full time teachers and total student enrollment. Each response category had to be recoded to the median of the response interval so that it represented an actual number of students and teachers. For example, a response of 1 for “1-399 students” is now 200, representing 200 students. And a response of 1 for “0-10 teachers” is now 5, representing 5 teachers. The responses for student enrollment were then dived by the responses of total full-time teachers to create a student-teacher ratio. Higher values on this measure represent more students per teacher.

*School Rules* was constructed from three items contained in the student questionnaire. All three original items are preceded by the statement “Thinking about your school over the last year, how much do you agree or disagree with the following statements?” and provide the same Likert scale response format (i.e., “strongly agree,” “agree,” “disagree,” “strongly disagree”). The individual item representing rule fairness states “The school rules are fair.” Knowledge of school rules is tapped with the statement “Everyone knows what the school rules are.” Rule enforcement was measured with the item stating, “The school rules are strictly enforced.” Each item was used to create a corresponding binary item where a value of 1 represents a response of “agree” or “strongly agree” and a value of 0 represents a response of “disagree” or “strongly disagree.” Responses to each of the three items were then added to represent a positive perception of school rules for each student. Once aggregated to the school level, the final
measure corresponds to school mean for the student additive scale with a cronbach alpha value of 0.33. Higher values on this item represent a more positive perception of rules as perceived by the school body.

**Physical Disorder** An additive scale representing physical disorder was created from five items. The original survey items were provided by the survey administrator and all are binary in response format. The administrator was asked to indicate if he/she observed the following in a classroom where classes were taught: “Ceiling in disrepair,” “graffiti on desks,” “broken lights,” “broken windows,” and “trash on the classroom floor.” For each of the five items, if the specific condition was observed, the item received a value of 1 and a value of 0 otherwise. The final additive scale represents the number of physical disorder items observed in each school. The cronbach alpha value is 0.34 and higher values represent an increasing number in the types of physical disorder.

**Coercive Security as Perceived Disorder** An additive scale was created representing the number of security measures utilized by the school. The survey administrator was asked to indicate if he/she observed a security guard, security cameras, metal detectors, and bars on windows (in the classroom). For each of the four items, if the specific security type was observed, the item received a value of 1 for having been observed. When the security type was not observed, the item received a 0. The final additive scale represents the number of security measures observed in each school, with higher values representing more coercive security with a cronbach alpha value of 0.42.

**Social Disorder** Two measures have been constructed for social disorder. The first social disorder measure is a scale involving students often disrupting class, the presence of gangs, and the presence of drugs. Using a Likert scale response format (i.e., strongly agree, agree, disagree,
strongly disagree), students were asked how much they agree or disagree with the following statements: “Other students often disrupt class” and “There are gangs in school”. Each item was used to create a corresponding binary item where a value of 1 represents a response of “agree” or “strongly agree” and a value of 0 represents a response of “disagree” or “strongly disagree.” The third item in the scale involves the presence of drugs and the student questionnaire asks students “In the first semester or term of this school year, how many times did any of the following happen?: Someone offered to sell me drugs at school.” The responses offered are “never,” “once or twice,” and “more than twice.” A new measure was created where students had a value of 1 for having been offered drugs and a value of 0 otherwise. Using the newly created items for disruptive students, gang presence, and offered drugs, I created an additive scale representing the number of social disorder items reported by each student. Once aggregated to the school level, the final measure corresponds to the mean count of social disorder for each school where higher values represent more forms of social disorder. The second measure, noisy school, was constructed from an item contained in the survey administrator’s facility checklist. The survey administrator was instructed to stand at the main entrance to the school, while students were in class, and rate the noise level of the school. Response options provided are “whisper,” “normal conversation,” “yelling,” and “busy street.” A binary measure was created where schools are given a value of 1 if the survey administrator indicated the noise level was “yelling” or “busy street” and a value of 0 otherwise. Ultimately, this measure represents a noisy school as compared to school that is not considered noisy. Noise level of the school was not included in the social disorder scale as the cronbach alpha value increased when it was not included (i.e., from 0.30 to 0.33³).
Victimization  Two measures of victimization were created from the student questionnaire. There are four items for personal victimization and two items for property victimization. All original items state “In the first semester or term of this school year, how many times did any of the following happen?...” and provide the following response options: “never,” “once or twice,” and “more than twice.” Binary measures were created for all six items so that students reporting they had never experienced the specific type of victimization were given a value of 0, while those reporting at least one incident of that type were given a value of 1.

Personal victimization was created from four items: “Someone bullied me or picked on me;” “Someone threatened to hurt me at school;” “Someone hit me;” and, “Someone used strong-arm or forceful methods to get money or other things from me.” Once the additive scale was created for each student, the subsequent values were aggregated by school, resulting in a final measure of average incidence of personal victimization by school. Higher values on this measure represent a higher rate of personal victimization and the cronbach alpha level is 0.58. An additive scale for property victimization was created using student responses to the statements “I had something stolen from me at school” and “Someone purposely damaged or destroyed my belongings.” Once aggregated to the school level, the final measure represents the mean school incidence for property victimization with a cronbach value of 0.45. Higher values represent a higher incidence of property victimization at the school level.

Controls  I use three control variables in my analyses, all of which are provided by the school administrator. School size uses the item for total school enrollment. This item is categorical and each response corresponds to a range of student enrollment. For example, a value of 3 is “600-799 students.” Higher values represent a larger school size, as measured by student enrollment, and this measure is treated as a continuous variable. Urbanicity was created from an
item that provides the responses of “urban,” “suburban,” and “rural” for school location. Two dummy variables have been created with the reference group being urban and the other two groups are rural and suburban. Public has been created from an item that provides the responses of “public,” “Catholic,” and “other private” for school type. Two dummy variables were created for school type with Catholic and other private schools being referenced to public schools.

Analytic Strategy

As my dependent variable is the student prevalence of perceived safety at the school level, which is a continuous response variable, I am able to use ordinary least squares regression for my analyses. The first model regresses perception of safety on the structural characteristics (i.e., poverty, percent black, percent Hispanic, and percent foreign-born) and control variables. In the second model I add student-teacher ratio and the school rules scale. The physical disorder and coercive security scales are added in the third model. The fourth model includes the social disorder scale and noise and in the fifth model I add the victimization scales. Finally, using the Clogg test (Clogg, Petkova, and Haritou 1995), I test successive models for mediation.
RESULTS

*Descriptive Results* On average, the percentage of students reporting they do not feel safe at their school was 10.66%. Although this may appear low, there is considerable variability with a standard deviation of 10.32% and some schools having as many as 56.25% of students reporting they do not feel safe. The average level of poverty across schools was 3.17, which corresponds to the interval category of 11-20%. Although some schools reported as many as 76-100% of students receiving reduced/free lunch, the modal category of 0-5% contained 29.62% of schools and a full 61.68% of schools had 20% or fewer impoverished students. The average student body composition contained 13.58% black (s.d. = 20.86), 14.17% Hispanic (s.d. = 20.72), and 8.88% foreign-born students (s.d. = 11.78). As with other measures, there was considerable variation with some schools reporting up to 100% black, or 100% Hispanic students, and up to 70% of a student body being foreign-born.

The average student-teacher ratio was 22.86 with a standard deviation of 20.89. The school mean for positive perception of school rules was 2.07 (s.d.=0.30), which corresponds to an average student count of at least two of the three items contained in the school rules scale (i.e., rules known, rules fair, and rules strictly enforced). The average school physical disorder count was 0.17 with a standard deviation of 0.48, or fewer than one of the five physical disorder items (i.e., ceilings in disrepair, broken lights, broken windows, trash on floor, and graffiti on desks). Some schools did report as many as four of the five physical disorder items. The mean coercive security count was 0.87 with a standard deviation of 0.89 or fewer than one type of coercive security measures, with some schools reporting as many as all four types of coercive security (i.e., metal detectors, cameras, security personnel, and bars on windows). Only 2% of schools had noise levels consistent with an item response of “yelling” or “busy street.” The mean
school student personal victimization average incidence was 0.65 (i.e., fewer than 1 out of 4 types) and the mean for property victimization was 0.54 (i.e., fewer than 1 out of 3 types).

Concerning geographic location, 33.15% of schools were urban, 48.10% were suburban, and 18.75% were rural. Most schools were public (77.85%), 12.77% were private Catholic schools, and 9.38% were other types of private schools. The average school size was 4.66, which corresponds to the interval category of 800-999 students, with a standard deviation of 2.32. This was quite close to the modal response of 1,000-1,199 students. A complete table for the sample descriptive statistics is provided in the Tables section at the end.

**Bivariate Results** At the bivariate level of analysis, all measures except for two (i.e., student-teacher ratio, suburban) were significantly associated with mean student perceptions of safety in the expected direction. Recall that the dependent variable is based on the item, “I do not feel safe at this school,” where higher values reflect more agreement. Therefore, positive coefficients will correspond to lower perceived safety and negative coefficients will correspond to higher perceived safety.

Poverty had a significant and positive association with the proportion of students reporting they do not feel safe ($B=0.021$, $p<0.001$). Schools with a higher percentage of the student body that was black ($B=0.179$, $p<0.001$), Hispanic ($B=0.100$, $p<0.001$) or foreign born ($B=0.158$, $p<0.001$) had significantly lower perceived safety. Thus, schools with higher levels of poverty and higher proportions of black, Hispanics, and foreign-born all had lower levels of perceived safety.

Student teacher ratio was not significantly related to student perceptions of safety ($B=0.000$, $p=0.669$). Based on bivariate analyses, schools in which students expressed more positive perceptions of school rules had higher perceptions of safety ($B=-0.124$, $p<0.001$). The
school physical disorder count \( (B=0.017, p<0.05) \) was significantly associated with perceived safety across schools, meaning that schools with more physical disorder had lower levels of perceived safety. School coercive security \( (B=0.028, p<0.001) \) had a significant, positive association with students reporting they do not feel safe in the bivariate analyses. This indicates that schools with more coercive security measures had lower levels of perceived safety. Higher levels of social disorder as perceived by students \( (B=0.127, p<0.001) \) was significantly related to lower perceived safety across schools. Schools with students having observed more forms of social disorder have lower levels of perceived safety. Noise level as reported by the survey administrator \( (B=0.112, p<0.001) \) had a significant and positive association with students reporting they do not feel safe. In other words, nosier schools have lower levels of perceived safety. Mean student incidence of personal \( (B=0.089, p<0.001) \) and property victimization \( (B=0.128, p<0.001) \) had significant and positive associations with the proportion of student reporting they do not feel safe. Higher average incidence of personal and property victimization was associated with lower levels of perceived safety.

Relative to urban schools, rural schools \( (B=-0.031, p<0.01) \) had higher levels of perceived safety. However, urban and suburban schools did not significantly differ from one another in levels of perceived safety \( (B=-0.016, p=0.063) \). Both Catholic \( (B=-0.094, p<0.001) \) and other private schools \( (B=-0.083, p<0.001) \) had significantly higher levels of perceived safety than public schools. Finally, schools with larger student enrollment \( (B=0.010, p<0.001) \) had lower levels of perceived safety. For a complete table of the zero-order regression results, see Table 2.

**Multivariate Results** Table 3 provides the results for the ordinary least squares regressions for the proportion of students reporting they do not feel safe. The first model contains
only the structural characteristics and control variables. Three of the structural characteristics and one control variable were found to be significant predictors of perceived safety. Poverty ($b=0.007$, $p<0.01$) as measured by the percentage of students receiving reduced/free lunch, is a significant predictor of perceived safety. As school poverty level increases by one unit, the mean proportion of students expressing they do not feel safe increases by 0.007 units. Percentage of the student body who are black ($b=0.134$, $p<0.001$) and percentage of the student body who are Hispanic ($b=0.057$, $p<0.01$) are both significant predictors of perceptions of safety. Schools with higher proportions of black students and higher proportions of Hispanic students have significantly higher proportions of students reporting that they do not feel safe, controlling for urbanicity, school type, and school size. Of all of the control variables, significant differences were found only for school type. Catholic ($b=-0.066$, $p<0.001$) and other private ($b=-0.046$, $p<0.01$) schools had significantly lower proportions of students expressing they do not feel safe, relative to public schools. Although percent-foreign born and school size were significantly associated ($p<0.001$) with perceptions of safety in the bivariate analyses, these variables were not significantly related to perceptions of safety after controlling for other structural characteristics, urbanicity, and school type.

Model 2 contains all the variables from model 1 and adds the formal social control measures. Just as at the bivariate level, student-teacher ratio is not significantly related to perceived safety. However, the school rules scale ($b=-0.079$, $p<0.001$), as measured by the mean count of positive perceptions of school rules by students, is a significant predictor of perceptions of safety, even when controlling for urbanicity, school type, and school size. An increase of 1 unit on the perception of school rules scale is associated with a 0.079 decrease in the proportion of students expressing they do not feel safe at school. Results from the Clogg test for mediation
reveal that the school rules scale partially and significantly mediates the effects of percent black (t=6.86, p<0.001) and percent Hispanic (t=5.29, p<0.001) on perceived safety; however, both measures remain significant with percent black significant at the p<0.001 level (b=0.118) and percent Hispanic at the p<0.01 level (b=0.050). Catholic schools (b=-0.054, p<0.001) continue to have significantly lower proportions of students reporting they do not feel safe, as compared to public schools. Other private schools also continue to have significantly lower proportions of students reporting they do not feel safe relative to public schools, however, the addition of student-teacher ratio and the school rules scales does slightly reduce this difference (b=-0.046, p<0.01; b=-0.034, p<0.05). Finally, the effect of poverty on perceptions of safety does not change with the addition of the formal social control variables.

Model 3 includes all the variables from model 2 and adds the scales for physical disorder and coercive security. Although physical disorder and coercive security significantly predicted perceptions of safety in the bivariate analyses, neither of these measures significantly predicts the level of perceived safety once structural characteristics, controls, and formal social control are entered. Coefficients for all other variables in model 3 do not significantly change their values in model 2 upon the addition of physical disorder and coercive security. In model 4 I add the social disorder scale and the measure for school noise level. Although noise was a significant predictor of perceived safety at the bivariate level (p<0.001), it does not significantly predict the proportion of students reporting they do not feel safe, after controlling for other covariates. Social disorder, as measured by mean count of social disorder as perceived by students (b=0.079, p<0.001), is a significant predictor of perceived safety. Schools with higher levels of perceived social disorder also have higher proportions of students reporting they do not feel safe at school. Clogg tests for mediation also reveal that the social disorder scale significantly mediates the
effects of percent black (t=3.57, p<0.001) and percent Hispanic (t=8.04, p<0.001) on perceived safety. Although the coefficient for percent black remains significant in the model (b=0.100, p<0.001), the school rules scale fully mediates the effect of percent Hispanic on perceptions of safety, decreasing the coefficient to nonsignificance. The addition of noise and the social disorder scale reduces the coefficients for Catholic and other private schools. Catholic schools remain significantly different from public schools in predicting the proportion of student reporting they do not feel safe (b = -0.034, p<0.01), however, the effect of other private schools on perceived safety is reduced to nonsignificance (b = -0.009, p>0.05). Finally, the effect of poverty is slightly attenuated (b=0.007 to b=0.005), but remains significant at p<0.05.

The fifth and final model contains all of the previous variables and adds the personal and property victimization scales. Both mean student incidence of personal (b=0.056, p<0.001) and property (b=0.040, p<0.05) victimization are significant predictors of perceived safety. Schools with higher mean incidence of personal and property victimization predict a higher mean of students expressing they do not feel safe at school. Percent black (b=0.116, p<0.001), Catholic (b = -0.035, p<0.01), school rules (b = -0.037, p<0.01), and social disorder (b=0.060, p<0.001) remain significantly associated with perceptions of safety in this final model. Clogg tests were not performed for poverty and percent black as the coefficient values did not appear to substantively change from models 4 to 5, and the coefficient for percent black even increased in model 5. To ensure that multicollinearity did not bias the estimates, variance inflation factor values were obtained for the full model. The average value was 1.55 with only school size (VIF=2.10) and the social disorder scale (VIF=2.08) having a value larger than 2.
DISCUSSION

Using the Educational Longitudinal Study of 2002, I was able to test my theoretically integrated model and corresponding primary research questions. The first query asked if poverty and racial/ethnic heterogeneity significantly predict perceptions of safety. Regression results provided some support as poverty and percent black significantly predicted higher proportions of students reporting they do not feel safe at school. Percent Hispanic initially predicted perceptions of safety however, the effect on perceived safety was partially mediated by perception of school rules and fully mediated by the social disorder scale. Percent foreign-born, although significant at the bivariate level, did not predict perceptions of safety net of other structural conditions and controls. In sum, I found support for this research question in only half of the structural characteristics.

The second research question asked if formal social control, perceived disorder, and victimization were negatively related to perceptions of safety. Although physical disorder, coercive security, and noise were not significantly associated with perceived safety in any of the models, perception of school rules, social disorder, and both types of victimization were significantly related to higher proportions of students reporting they do not feel safe. Thus, it seems that perception of school rules, social disorder, and victimization influence student perceptions of safety and are more important than physical disorder, coercive security, and noise level in predicting perceived safety (net of structural characteristics and controls).

The final research question asked if the relationships between structural characteristics and perceptions of safety were mediated by formal social control, perceived disorder, and/or victimization. Results of the Clogg test (Clogg et al. 1995) showed that social disorder and perception of school rules significantly mediate the effects of percent black and percent Hispanic
on student perceptions of safety. Although the effect of percent Hispanic on perceived safety was fully mediated, percent black remained a significant predictor of student perceptions of safety. The enduring significant effect of percent black on perceived safety is consistent with other studies which concluded that racial composition does significantly predict fear even when controlling for crime rates, socioeconomic status, and urbanicity (Chiricos et al. 1997; Liska et al. 1982). Poverty remained consistently associated with perceptions of safety across all models and the effect of poverty on perceptions of safety was not mediated by formal social control, perceived disorder, and/or victimization.

Student-teacher ratio was not significantly related to perceived safety even in the bivariate analysis. This is consistent with prior research as only one study appears to have found a significant relationship between student-teacher ratio and perceptions of safety (Bradshaw et al. 2009). Perhaps overcrowded classes are not a concern if teachers are able to maintain discipline and safety in their classrooms. Another possibility is that other factors such as student-teacher relationships or the perception of school rules are more important to perceptions of safety than overcrowded classrooms. Relatedly, the nonsignificant result for the physical disorder scale is not entirely surprising. Although it was significant at the bivariate level, this construct may not influence perceptions of safety once rule perception, social disorder, and victimization are controlled. It may be the case that rules, social disorder, and victimization are more salient concerns that have a stronger influence on perceived safety whereas physical conditions (i.e., ceiling in disrepair, broken lights, broken windows, graffiti, and trash) do not necessarily indicate to students that the school environment is unsafe.

The coercive security scale, although significant at the bivariate level, was not significant in the multivariate analyses. Although studies have concluded that metal detectors are
significantly related to lower levels of student perceptions of safety (Gastic 2011) and higher levels of fear (Bachman et al. 2011), my results suggest that the zero-order effect of coercive security is accounted for by structural characteristics (e.g., racial/ethnic heterogeneity, poverty), formal social control (e.g., perception of school rules), and controls (i.e., urbanicity). Therefore, I would conclude that the use of coercive security and perceptions of safety are mutually determined by other factors within the school environment.

The personal victimization scale was found to be a significant predictor of the proportion of students expressing that they do not feel safe at school. This is consistent with other research finding that prior victimization is the strongest predictor of fear and perceived safety (Bachman et al. 2011; Melde and Esbensen 2009; Randa and Wilcox 2010; Schreck and Miller 2003). Somewhat interesting is that the property victimization scale, as measured using items for theft and vandalism, was a significant predictor of the proportion of students indicating they do not feel safe. It would seem that minor forms of property victimization, such as damaged or stolen belongings, would not predict whether students report they do not feel safe since property victimization does not involve harm to their person. One possibility is that property victimization may be perceived by students as a precursor to personal victimization.
CONCLUSION

Empirical research suggests that victimization in schools has been decreasing for nearly two decades and that students are safer at school than away from school, at least when considering the most serious forms of victimization. Despite these encouraging preliminary results, concerns regarding school safety remain and appear to vary by school context (Robers et al. 2013). While other research has centered on determining the predictors of student victimization (Blosnich and Bossarte 2011; Gottfredson and DiPietro 2011; Gottfredson et al. 2005; Khoury-Kassabri et al. 2004; Nickerson and Martens 2008), this study was concerned with predicting student perceptions of safety. This area of research is especially important as prior research has documented the adverse effects of student fear on mental health, academic performance, and reactive behaviors such as carrying a weapon to school or joining a gang for protection (Boulton, Trueman, and Murray 2008; May 1999; Milam et al. 2010; Randa and Wilcox 2010; Stafford, Chandola, and Marmot 2007; Thompkins 2000). Further, if approximately four times the number of students express fear of personal victimization as the number of students who have actually experienced such victimization (Robers et al. 2013), it is possible that students may suffer the negative consequences of fear of victimization even in the absence of direct victimization.

Many studies have examined the predictors of student perceptions of safety and fear of victimization (Alvarez and Bachman 1997; Bachman et al. 2011; Hong and Eamon 2012; May and Dunaway 2010; Mayer 2010; Shumow and Lomax 2001); however, there appears to be an absence of a theoretical framework for explaining student perceptions of safety and fear of victimization. Two studies discuss Ferraro’s (1995) model of perceived risk and fear (Melde and Esbensen 2009; Schreck and Miller 2003), but this model alone ignores environmental cues and
other social processes that may elicit perceptions of risk. Review of the available literature reveals moderate support within school communities for macro-level indicators originating in social disorganization theory and the perceived disorder perspective (Alvarez and Bachman 1997; Bachman et al. 2011; Bradshaw et al. 2009; Gastic 2011; Hong and Eamon 2012; Schreck and Miller 2003). In this study, I have proposed a theoretically-integrated model that allows for the examination of the structural antecedents that may produce conditions that ultimately influence formal social control, perceived disorder, and victimization—all of which predict perceived safety. Upon testing my conceptual model, I was able to demonstrate that the structural characteristics of poverty and racial/ethnic composition predict levels of perceived safety. In the present analyses, the effect of racial and ethnic composition on perceived safety is partially mediated by formal social control and social disorder. Finally, prior victimization was a significant predictor of perceptions of safety. These findings are consistent with neighborhood research on social disorganization, perceived disorder, perceptions of safety, and fear of victimization (Chiricos et al. 1997; Gainey et al. 2011; Kohm 2009; Markowitz et al. 2001; Rhineberger-Dunn et al. 2011; Silver and Miller 2004; Sun et al. 2004). My integrated model contributes to the existing literature by explicitly providing and testing a theoretical framework for student perceptions of safety. More importantly, the results suggest that even after controlling for previous victimization, environmental factors are significantly associated with student perceptions of safety in school.

Review of the existing literature and results from this study have provided crucial information for school officials and policy. First, empirical evidence has documented the relationship and distinction between perceived risk and fear of victimization. It seems as though perceived risk is antecedent to fear and mediates most, if not all, of the environmental effects on
fear (Chiricos et al. 1997; Ferraro 1995; Gainey et al. 2011; LaGrange et al. 1992; Melde and Esbensen 2009). Thus, if we are able to determine the predictors of perceived risk, efforts to increase perceptions of safety should theoretically also decrease fear of victimization. This is especially important when considering that more students express fear of victimization than those who have been victimized (Robers et al. 2013). Second, this study has found that prior victimization significantly predicts perceived safety. Therefore, any efforts to decrease the prevalence and incidence of victimization should also increase perceived safety. Relatedly, social disorder in the form of gangs, drugs, and school disruption should also be addressed by school officials. One tactic to address these concerns is by using a standardized paper assessment of school concerns that every student could complete, thereby protecting anonymity while informing school officials of social disorder. Finally, this study has found that perception of school rules influences student perceptions of safety. Two methods by which to decrease fear and increase perceived safety would be to review school rules/sanctions with students each semester/term (i.e., increase knowledge) and elicit student feedback concerning the rules (i.e., assess perceived fairness and enforcement).

The present analyses were cross-sectional and future research should utilize longitudinal data to examine how changes in school structures, policy, and problems may influence perceptions of safety and fear of victimization. This would allow for a greater ability to infer causality (if time order can be established), tests for recursive models, and tests for the mediating effect of perceived risk on fear. Also, researchers should examine how relationships and students’ social capital within the school community affect perceptions of safety and fear. For example, qualitative research has found that students reported positive relationships between students and teachers as one of the qualities that makes a school safe (Bosworth, Ford, and
Similarly, Hong and Eamon (2012) found that teachers’ willingness to assist students with personal problems predicted higher perceived safety. Finally, future research should consider the effects of students’ residential neighborhood on perceptions of safety and fear. For example, May and Dunaway (2000) found that students who observed disorder in their neighborhoods were more likely to express fear of victimization at school. Similarly, Kitsantas and colleagues (2004) concluded that perceptions of safety in the student’s neighborhood significantly predicted perceptions of safety at school (Kitsantas, Ware, and Martinez-Arias 2004).

As with any empirical study, my study is not without limitations. Despite three waves of available data, I was only able utilize the first wave of data as the base year was the only wave that contained items for the school environment. Also, the dependent variable item of “I don’t feel safe at this school” combines the constructs of perceived risk and fear. As Ferraro and LaGrange (1987) emphasize, items using both “safe” and “feel” may confound perceived risk and fear of victimization. A better item for student fear should include the words “worry” or “afraid” and not contain the words “safe” or “likelihood.” Finally, a measure for student mobility (e.g., the number of new students, the number of students who had left) used as a proxy for population mobility (i.e., an important indicator in social disorganization theory) would have been especially useful in testing my conceptual model.

NOTES

1. The most common form of victimization in schools is theft (Robers et al. 2013).
2. The primary concern of the present study is student fear of victimization at school. However due to data limitations, the dependent variable in my models is student perceptions of safety, or their response to the statement “I do not feel safe at this school” (NCES 2012).
3. Theoretical and empirical advances have determined the age and gender effects on fear may have been due to the way in which fear had been measured. More sophisticated conceptualization and operationalization of fear has
revealed that females are less fearful than males (Ferraro 1996; Warr 1985) and younger individuals are more fearful than the elderly (LaGrange and Ferraro 1989; LaGrange, Ferraro, and Supancic 1992). The debate on how sociodemographics are related to fear is on-going and the results are mixed.

4. Within the perceived disorder perspective, terms such as “signs of crime” (Skogan and Maxfield 1981), “broken windows” (Kelling and Wilson 1982), and “incivilities” (Lewis and Maxfield 1980; LaGrange et al. 1992) have been used interchangeably to refer to physical and social concerns such as vandalism, abandoned buildings, loitering teenagers, and drug use. For the purpose of this paper, I use the term “disorder” (Skogan 1990).

5. See Maas and Hox (2005) for a study on sufficient sample sizes for multilevel modeling.

6. At the student-level, all items except for one were missing less than two percent of the 14,466 respondents. The student’s birthplace item was missing 12.74% of students; however, mode imputation of the United States would only result in conservative estimates as I am interested in the percentage of students who are foreign-born. At the school level, only two items were missing on more than four percent of schools. Ten percent of schools were missing on the item for broken windows and the mode of broken windows not being observed was imputed. As with student’s birthplace, mode imputation of not having observed broken windows should only result in conservative estimates. Student enrollment was missing on 16% of the schools and the mean response category of 1,000 to 1,199 students was imputed.

7. Coefficient alpha is not a perfect measure for reliability. Although it is influenced by the internal consistency between the individual items contained in the scale, it can also be affected by the number of items in the scale (Nunnally 1978). Scales with few items may not have satisfactory alpha values (Cronbach 1970), but this limitation can be offset by large sample sizes (Stanley 1971). Fortunately, the present study does have a large sample size. Also, analyses were performed where all of the scale items were used as separate independent variables and results were not significantly or substantively different than those contained in the reported analyses.
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Table 1: Descriptive Statistics by School (n=736)

<table>
<thead>
<tr>
<th></th>
<th>Mean/Percent</th>
<th>S.E.</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does not feel safe</td>
<td>10.66%</td>
<td>10.32</td>
<td>0 - 56.25%</td>
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<tr>
<td>Structural Characteristics</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poverty</td>
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<td>1.87</td>
<td>1-7</td>
</tr>
<tr>
<td>Percent Black</td>
<td>13.58%</td>
<td>20.86</td>
<td>0 - 100%</td>
</tr>
<tr>
<td>Percent Hispanic</td>
<td>14.17%</td>
<td>20.72</td>
<td>0 - 100%</td>
</tr>
<tr>
<td>Percent Foreign-Born</td>
<td>8.88%</td>
<td>11.78</td>
<td>0 - 70%</td>
</tr>
<tr>
<td>Formal Social Control</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student-Teacher Ratio</td>
<td>22.86</td>
<td>20.89</td>
<td>2.99 - 360</td>
</tr>
<tr>
<td>School Rules</td>
<td>2.07</td>
<td>0.30</td>
<td>1.06 - 3</td>
</tr>
<tr>
<td>Perceived Disorder</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical Disorder</td>
<td>0.17</td>
<td>0.46</td>
<td>0 - 3</td>
</tr>
<tr>
<td>Coercive Security</td>
<td>0.87</td>
<td>0.89</td>
<td>0 - 4</td>
</tr>
<tr>
<td>Social Disorder</td>
<td>1.22</td>
<td>0.42</td>
<td>0.06 - 2.52</td>
</tr>
<tr>
<td>Noise</td>
<td>0.02</td>
<td>0.14</td>
<td>0 - 1</td>
</tr>
<tr>
<td>Victimization</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Personal</td>
<td>0.65</td>
<td>0.28</td>
<td>0-2</td>
</tr>
<tr>
<td>Property</td>
<td>0.54</td>
<td>0.21</td>
<td>0-1.31</td>
</tr>
<tr>
<td>Controls</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urbanicity</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urban</td>
<td>33.15%</td>
<td></td>
<td>0 - 100%</td>
</tr>
<tr>
<td>Suburban</td>
<td>48.10%</td>
<td></td>
<td>0 - 100%</td>
</tr>
<tr>
<td>Rural</td>
<td>18.75%</td>
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<td>0 - 100%</td>
</tr>
<tr>
<td>School Type</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public</td>
<td>77.85%</td>
<td></td>
<td>0 - 100%</td>
</tr>
<tr>
<td>Catholic</td>
<td>12.77%</td>
<td></td>
<td>0 - 100%</td>
</tr>
<tr>
<td>Other Private</td>
<td>9.38%</td>
<td></td>
<td>0 - 100%</td>
</tr>
<tr>
<td>School Size</td>
<td>4.66</td>
<td>2.32</td>
<td>1-9</td>
</tr>
</tbody>
</table>
Table 2: Zero Order Results (n=736)

<table>
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<tr>
<th>Structural Characteristics</th>
<th>Coefficient (b)</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poverty</td>
<td>0.021***</td>
<td>0.002</td>
</tr>
<tr>
<td>Percent Black</td>
<td>0.179***</td>
<td>0.017</td>
</tr>
<tr>
<td>Percent Hispanic</td>
<td>0.100***</td>
<td>0.018</td>
</tr>
<tr>
<td>Percent Foreign-Born</td>
<td>0.158***</td>
<td>0.032</td>
</tr>
<tr>
<td>Formal Social Control</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student-Teacher Ratio</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>School Rules</td>
<td>-0.124***</td>
<td>0.012</td>
</tr>
<tr>
<td>Perceived Disorder</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical Disorder</td>
<td>0.017*</td>
<td>0.008</td>
</tr>
<tr>
<td>Coercive Security</td>
<td>0.028***</td>
<td>0.004</td>
</tr>
<tr>
<td>Social Disorder</td>
<td>0.127***</td>
<td>0.008</td>
</tr>
<tr>
<td>Noise</td>
<td>0.112***</td>
<td>0.028</td>
</tr>
<tr>
<td>Victimization</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Personal</td>
<td>0.089***</td>
<td>0.013</td>
</tr>
<tr>
<td>Property</td>
<td>0.128***</td>
<td>0.018</td>
</tr>
<tr>
<td>Controls</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urbanicity (ref. urban)</td>
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<tr>
<td>Suburban</td>
<td>-0.016</td>
<td>0.009</td>
</tr>
<tr>
<td>Rural</td>
<td>-0.031**</td>
<td>0.011</td>
</tr>
<tr>
<td>School Type (ref. public)</td>
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<tr>
<td>Catholic</td>
<td>-0.094***</td>
<td>0.011</td>
</tr>
<tr>
<td>Other Private</td>
<td>-0.083***</td>
<td>0.012</td>
</tr>
<tr>
<td>School Size</td>
<td>0.010***</td>
<td>0.002</td>
</tr>
</tbody>
</table>

* p < 0.05, ** p < 0.01, *** p < 0.001
### Table 3: OLS Regressions of the Proportion of Students Reporting They do not Feel Safe by School (n=736)

<table>
<thead>
<tr>
<th></th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
<th>Model 4</th>
<th>Model 5</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>b (S.E)</td>
<td>b (S.E)</td>
<td>b (S.E)</td>
<td>b (S.E)</td>
<td>b (S.E)</td>
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<td><strong>Structural Characteristics</strong></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Poverty</td>
<td>0.007 (0.002)**</td>
<td>0.007 (0.002)**</td>
<td>0.007 (0.002)**</td>
<td>0.005 (0.002)*</td>
<td>0.005 (0.002)*</td>
</tr>
<tr>
<td>Percent Black</td>
<td>0.134 (0.018)***</td>
<td>0.118 (0.018)***</td>
<td>0.111 (0.018)***</td>
<td>0.100 (0.018)***</td>
<td>0.116 (0.018)***</td>
</tr>
<tr>
<td>Percent Hispanic</td>
<td>0.057 (0.019)**</td>
<td>0.050 (0.019)**</td>
<td>0.050 (0.018)**</td>
<td>0.018 (0.018)</td>
<td>0.031 (0.018)</td>
</tr>
<tr>
<td>Percent Foreign-Born</td>
<td>0.036 (0.033)</td>
<td>0.035 (0.032)</td>
<td>0.030 (0.032)</td>
<td>0.026 (0.031)</td>
<td>0.036 (0.030)</td>
</tr>
<tr>
<td><strong>Controls</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urbanicity (urban)</td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Suburban</td>
<td>-0.006 (0.008)</td>
<td>-0.009 (0.008)</td>
<td>-0.009 (0.008)</td>
<td>-0.003 (0.008)</td>
<td>-0.005 (0.007)</td>
</tr>
<tr>
<td>Rural</td>
<td>-0.018 (0.011)</td>
<td>-0.018 (0.011)</td>
<td>-0.019 (0.011)</td>
<td>-0.011 (0.011)</td>
<td>-0.015 (0.010)</td>
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<td>School Type (public)</td>
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<td></td>
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<tr>
<td>Catholic</td>
<td>-0.066 (0.012)***</td>
<td>-0.054 (0.012)***</td>
<td>-0.053 (0.012)***</td>
<td>-0.034 (0.012)**</td>
<td>-0.035 (0.011)***</td>
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<tr>
<td>Other Private</td>
<td>-0.046 (0.014)**</td>
<td>-0.034 (0.014)*</td>
<td>-0.034 (0.014)*</td>
<td>-0.009 (0.014)</td>
<td>-0.010 (0.013)</td>
</tr>
<tr>
<td>School Size</td>
<td>0.002 (0.002)</td>
<td>0.002 (0.002)</td>
<td>0.001 (0.002)</td>
<td>-0.002 (0.002)</td>
<td>-0.001 (0.002)</td>
</tr>
<tr>
<td><strong>Formal Social Control</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student-Teacher Ratio</td>
<td>-0.000 (0.000)</td>
<td>-0.000 (0.000)</td>
<td>0.000 (0.000)</td>
<td>0.000 (0.000)</td>
<td>0.000 (0.000)</td>
</tr>
<tr>
<td>School Rules</td>
<td>-0.079 (0.011)***</td>
<td>-0.078 (0.011)***</td>
<td>-0.052 (0.011)***</td>
<td>-0.037 (0.011)***</td>
<td></td>
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<tr>
<td><strong>Perceived Disorder</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical Disorder</td>
<td>0.000 (0.007)</td>
<td>0.001 (0.007)</td>
<td>0.001 (0.007)</td>
<td>0.001 (0.007)</td>
<td>0.001 (0.007)</td>
</tr>
<tr>
<td>Coercive Security</td>
<td>0.005 (0.004)</td>
<td>0.003 (0.004)</td>
<td>0.003 (0.004)</td>
<td>0.004 (0.004)</td>
<td>0.004 (0.004)</td>
</tr>
<tr>
<td>Social Disorder</td>
<td>0.079 (0.010)***</td>
<td>0.060 (0.010)***</td>
<td>0.060 (0.010)***</td>
<td>0.056 (0.013)***</td>
<td></td>
</tr>
<tr>
<td>Noise</td>
<td>0.035 (0.023)</td>
<td>0.027 (0.023)</td>
<td>0.027 (0.023)</td>
<td>0.027 (0.023)</td>
<td>0.027 (0.023)</td>
</tr>
<tr>
<td><strong>Victimization</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Personal</td>
<td>0.056 (0.013)***</td>
<td></td>
<td>0.056 (0.013)***</td>
<td>0.056 (0.013)***</td>
<td>0.056 (0.013)***</td>
</tr>
<tr>
<td>Property</td>
<td>0.040 (0.017)*</td>
<td></td>
<td>0.040 (0.017)*</td>
<td>0.040 (0.017)*</td>
<td>0.040 (0.017)*</td>
</tr>
<tr>
<td><strong>Constant</strong></td>
<td>0.065 (0.016)***</td>
<td>0.234 (0.028)***</td>
<td>0.232 (0.029)***</td>
<td>0.095 (0.033)**</td>
<td>0.019 (0.034)</td>
</tr>
<tr>
<td><strong>R-Squared</strong></td>
<td>0.2759</td>
<td>0.3226</td>
<td>0.3239</td>
<td>0.3799</td>
<td>0.4123</td>
</tr>
</tbody>
</table>

* p < 0.05, ** p < 0.01, *** p < 0.001