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Fear of In-School Victimization: Contextual, Gendered, and Developmental Considerations

Kristin Swartz¹, Bradford W. Reyns², Billy Henson¹, and Pamela Wilcox¹

Abstract
This study explores gendered and age-graded effects of key theoretical predictors of fear of crime among a panel of approximately 4,000 public middle and high school students in Kentucky. Theoretically, fear of school crime is presumed to be driven by individual-level indicators of vulnerability, as well as by school-level indicators of crime/disorder and social integration. Multilevel analysis revealed little effect of school-level contextual factors, whereas the key individual-level indicators of vulnerability were quite robust in their effects across male and female students. Further analysis, however, revealed that school context in the form of school-level delinquency significantly moderated the effect of individual-level perceived risk of victimization on fear for female students especially. Results provided little evidence of age-dependent correlates. In one exception, the positive effect of perceived risk of victimization on both male and female student fear declined, as students moved from the 7th grade to the 10th grade.

Keywords
fear of crime, school crime, gender and fear, age and fear

Fear of crime has been a popular area of research in criminology since the mid- to late 1970s. Earlier studies in this tradition focused primarily on individual-level indicators of physical and social vulnerability as key correlates (e.g., Braungart, Braungart, & Hoyer, 1980; Garofalo, 1979; Ortega & Myles, 1987). Other works delineated neighborhood-level predictors, including neighborhood disorder/incivilities and community integration or cohesion in particular (e.g., Lewis & Maxfield, 1980; Lewis & Salem, 1986; Skogan, 1990; Taylor & Hale, 1986). These community-level works emphasize the fact that vulnerability to crime, and thus fear, may be a function of the strength and functionality of the social and physical environment, rather than stemming from the social and physical characteristics of the individual. More recently, scholars have integrated these approaches, examining multilevel

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influences—spanning individual and community levels—on fear of crime (e.g., Ferguson & Mindel, 2007; Ferraro, 1995; Lee & Ulmer, 2000; May, 1999; Perkins & Taylor, 1996; Wilcox Rountree, 1998; Wilcox Rountree & Land, 1996). Thus, a large number of fear of crime studies have accumulated over the past three decades, indicating that both individual and environmental influences are key in understanding fear of crime.

Research on fear of crime specific to the school context somewhat lags behind “general” fear of crime research (i.e., research addressing fear of community or societal crime), as school crime and its associated issues, including fear, did not garner much attention from scholars until the 1990s. Theoretically speaking, while models of fear of crime in the community seem appropriate for understanding fear of school crime, few studies have examined both individual-level and contextual influences on school-based fear. Furthermore, the few studies that do examine multilevel influences on school fear tend to use methods that do not allow for a true disentangling of individual or compositional correlates versus contextual correlates (see Benbenishty & Astor, 2005 for exceptions). As a result, there is little empirical evidence to date of the relative effects of student-level indicators of physical and social vulnerability versus indicators of a vulnerable school context in understanding student fear of school crime.

The current study, most fundamentally, addresses this gap in the literature by examining indicators of individual-level vulnerability as well as school-level indicators of crime, disorder, and social integration in hierarchical linear models of student fear. This analysis is conducted using four waves of longitudinal data from a panel of Kentucky adolescents. Additionally, we examine how these various multilevel influences on student fear of school crime may interact and may have both gendered and developmental aspects so as to better understand the need for general versus context-, gender-, or age-specific fear-reduction practices in schools. More specifically, we compare the influences of individual vulnerability, school crime and disorder, school integration/cohesion, and the interactions thereof, across male and female students. We also examine whether these various influences change over time, as students progress from the 7th grade to the 10th grade.

Theoretical Background

It has been established that “reactions to crime”—such as fear of crime—are important areas of research and that they should be viewed as social problems related but distinct from crime itself. The extant research on fear of crime, for instance, has demonstrated that far more people are fearful of crime than are people who actually experience crime victimization (e.g., Ferraro, 1995; Warr, 2000). Furthermore, research suggests that some individuals overestimate the likelihood of experiencing victimization while others underestimate the likelihood of experiencing criminal victimization (Warr, 2000). Such “imbalances” between actual crime risk and more subjective perceptions or feelings about crime are important because they suggest that many individuals may be overly cautious (i.e., restricting activities more than necessary), while other individuals may be overly risky in their behaviors (i.e., not taking enough precautions, given actual levels of risk). In short, ideally, equilibrium would exist between actual crime experiences and more subjective crime experiences. The evidence indicating possible disequilibrium, instead, invites further investigation into whether and under what conditions fear of crime is “rational.”

Individual Vulnerability and Fear

The “vulnerability perspective” suggests that perceived vulnerability to victimization drives overall feelings of worry or fear and it has traditionally been used to describe the micro-level (i.e., individual-level) characteristics behind fear. From this perspective, fear is rather rationally aligned with indicators of actual risk of victimization. For example, these perceptions of vulnerability are
presumed to be related to individual-level factors such as routine activities and lifestyles (e.g., engaging in "risky" activities such as staying out late and drinking), demographic characteristics (e.g., being female, non-White, or elderly), and prior victimization experiences. Such individual-level correlates of fear have traditionally been divided into two types: physical vulnerability and social vulnerability. Physical vulnerability refers to one’s ability to ward off a physical attack. So, for example, an elderly person may worry that they are not strong enough to defend themselves from an attacker, indicating physical vulnerability to victimization because of age and/or physical condition. Physical vulnerability has also often been discussed in terms of gender, with females expressing greater fear of crime, perhaps, due to frequent size and strength differences between themselves and probable perpetrators. Activities and lifestyles (e.g., being out late at night and walking alone) can also indicate physical vulnerability to victimization. Social vulnerability is arguably more complex, and involves a number of factors, including social characteristics such as race, education, and financial well-being. This perspective hypothesizes that non-Whites, the less-educated, and those of lower incomes should express feelings of greater vulnerability to victimization. Explanations for hypothesized effects of these social variables involve the ability to marshal resources, both financial and social, to respond to problems (e.g., material resources to recover property). Although demographic characteristics and routine activities can serve as valuable proxies for vulnerability, more direct ways of assessing individual vulnerability to future victimization include measuring previous victimization experiences and self-reported perceptions of the likelihood of victimization.

There is considerable support for demographic and other individual-level presumed measures of vulnerability as predictors of fear. For instance, it is often reported that the elderly are more fearful of victimization than are younger people and that women are more fearful than men (see Ferraro, 1995, for review). In terms of the effects of lifestyle and routine activities on fear, previous studies have found that lifestyles indicative of high public exposure (i.e., number of nights out), target suitability (i.e., expensive good/carrying values), and weak guardianship (i.e., few safety precautions) were related to fear (Wilcox Rountree, 1998; Wilcox Rountree & Land, 1996; but see Melde, Taylor, & Esbensen, 2009, for an exception). The effects of prior victimization on fear have been less consistent, with some studies indicating that previous victimization predicts fear (Braungart et al., 1980; Ferguson & Mindel, 2007; Garofalo, 1979; Skogan, 1987; Wilcox Rountree, 1998) and others casting doubt on this relationship (Hindelang, Gottfredson, & Garofalo, 1978; McGarrell, Giacomazzi, & Thurman, 1997; Melde, 2009). In contrast, individual perceptions of risk—in terms of assessed likelihood of experiencing victimization—have proven to be a particularly robust correlate of fear. Individuals who perceive a higher likelihood of becoming a victim tend to be far more fearful (e.g., Ferguson & Mindel, 2007; Ferraro, 1995; Fisher & Sloan, 2003; Lee & Ulmer, 2000; Wilcox Rountree, 1998).

**Contextual Crime, Disorder, Integration, and Fear**

As stated above, vulnerability to victimization was originally theorized to stem from individual-level characteristics. However, macro-level researchers quickly identified characteristics of the environment that could also suggest vulnerability and thus influence fear. Aspects of the environment receiving the most attention in terms of predicting fear of crime include disorder and social integration. According to the disorder perspective, signs of physical incivility (e.g., graffiti, abandoned buildings, and broken windows) or signs of social incivility (e.g., congregating youths, the presence of prostitutes or homeless people) have fear-provoking effects (e.g., Merry, 1981; Skogan, 1990; Wilson & Kelling, 1982). That is, the presence of these elements serves as signals that the area may not be safe, and individuals thus react to such cues with fear. A good deal of research shows support for this idea, indicating that community-level disorder, or perceived community disorder,
is positively and significantly related to fear of crime (Ferguson & Mindel, 2007; Ferraro, 1995; Franklin, Franklin, & Fearn, 2008; LaGrange, Ferraro, & Supancic, 1992; Melde, 2009; Melde et al., 2009; Perkins & Taylor, 1996; Skogan, 1990; Taylor, 2001; Wilcox Rountree & Land, 1996). Although disorder is thought to be more visible than actual community crime, a number of studies have also included community rates of crime in estimating residents’ fear. In general, area crime rates are inconsistently related to fear (c.f., Ferraro, 1995; Lee & Ulmer, 2000; Wilcox Rountree, 1998).

The social integration perspective suggests that socially cohesive communities have lower levels of fear than those that are not as socially cohesive. Theoretically speaking, cohesive communities provide social cues to residents that neighbors are more likely to keep watchful eye and intervene if necessary. Social integration has been operationalized in a variety of ways, but at heart involves some notion of capacity of the community for self-regulation through mutual feelings of investment in the neighborhood, mutual trust, and a collective willingness to work together and intervene on behalf of the community. The empirical evidence, again, is mostly in accord with the idea that socially integrated or cohesive neighborhoods and communities experience less fear of crime (Ferguson & Mindel, 2007; Franklin et al., 2008; Lewis & Salem, 1986; Wilcox Rountree & Land, 1996).

**Fear at School: Vulnerability, Disorder, and Social Integration**

In general, schools are thought of as safe havens for children. The highly structured environment and numerous guardians (i.e., teachers, administrators, and staff) are intended to both control students and eliminate the likelihood of violence. This is necessary because the presence of violence in schools may cause students to be afraid, which could in turn disrupt their willingness and ability to learn (Scheckner, Rollins, Kaiser-Ulrey, & Wagner, 2002). Nonetheless, we know that a substantial number of students do not feel safe at school. According to the 2007 School Crime Supplement to the National Crime Victimization Survey, about 5% of students ages 12 to 18 stated that they were afraid of being seriously harmed at school. According to the same report, about 7% of students surveyed stated that they avoided certain school locations and events because they fear being seriously harmed. Although the percentage of fearful students may seem low, it is higher than the percentage of the same students who were afraid of being seriously harmed outside of school (Dinkes, Kemp, Baum, & Snyder, 2009). Furthermore, just like in the general population, there appears to be some evidence of disequilibrium between actual risk of crime and fear of crime among school students. More specifically, students express relatively high levels of fear for serious crimes that they are not likely to actually experience at school, whereas actual victimization risk exceeds levels of fear for other, less serious school-based offenses (Wilcox, Campbell Augustine, Bryan, & Roberts, 2005).

The school-based literature has incorporated the vulnerability, disorder, and social integration perspectives into examinations of adolescent fear of school crime, and there are now a number of studies that address these perspectives, spanning different samples of adolescents. First, with respect to the vulnerability perspective, the school-fear literature has highlighted rather consistently that sociodemographic characteristics and lifestyle variables presumed to approximate vulnerability are related to student fear at school. For instance, fear is often higher among younger students, female students, those with greater exposure to delinquent friends and those with weaker guardianship in terms of parental and/or school attachments (e.g., see Alvarez & Bachman, 1997; Dinkes et al., 2009; Hutchinson Wallace & May, 2005; May & Dunaway, 2000; Schreck & Miller, 2003; Welsh, 2001; Wilcox et al., 2005; Wilcox, May, & Roberts, 2006).

Beyond “lifestyle” and sociodemographic proxy measures of vulnerability, quite a few studies have found that more “direct” measure of victimization vulnerability—previous in-school victimization and perceptions of the likelihood of being victimized at school—are positively related...
to student fear (Alvarez & Bachman, 1997; Hutchinson Wallace & May, 2005; May & Dunaway, 2000; Schreck & Miller, 2003; Wilcox et al., 2005; Wilcox et al., 2006). Astor, Benbenishty, Zeira, and Vinokur (2002) reported evidence that this vulnerability effect is seen cross-culturally as well. In their study, prior victimization was related to fear among high school students in Israel. In fact, previous victimization had the effect of altering students’ routine activities due to fear of further violent victimization (i.e., they may decide not to attend). A recent study by Melde and Esbensen (2009), however, provides more equivocal support regarding the effects of victimization and perceived risk of victimization. Their analysis of students from select schools in nine U.S. cities found that victimization and delinquent lifestyle were negatively related to fear. However, perceived risk of victimization was positively related to student fear of in-school crime.

Thus, with a few important exceptions, the fear-of-school crime literature has generally been supportive of the vulnerability perspective. Similarly, the disorder and social integration perspectives have been fruitfully albeit less frequently applied to understanding fear of school crime. For instance, several studies have found that student-reported perceptions of school disorder (i.e., reports of bullying, students carrying weapons, presence of gangs, presence of drugs, and attacks on teachers) were significantly related to fear at school (Alvarez & Bachman, 1997; Melde & Esbensen, 2009; Schreck & Miller, 2003). While not measuring school-level disorder per se, May and Dunaway (2000) found that student perception of incivility in the community was positively and significantly correlated with student fear of crime at school. Finally, Roberts, Wilcox, May, and Clayton (2007) examined fear of crime in schools from the perspective of teachers. In their study, school-level disorder—as measured by aggregated teacher perceptions of conditions such as broken lockers, peeling paint, litter, and graffiti on school grounds—was an important correlate of teachers’ perceptions of school safety.

Consistent with the social integration perspective, Welsh (2001) reported that indicators of a positive school climate—including scales tapping “respect for students,” “planning and action,” “fairness of rules,” and “clarity of rules” were inversely related to student fear among students in his Philadelphia-based sample. Similarly, Skiba et al. (2004) found that measures of “school climate and connectedness”—including items tapping teacher care/concern, clarity/fairness of rules, and student involvement—were more predictive of student perceptions of school safety than were items tapping actual levels of school violence. Support for the social integration perspective has been found cross-culturally as well in the work of Astor et al. (2002). They reported that a positive “school climate” was important in reducing fear of crime among children in both the United States and the Israel (Astor et al., 2002; see also Benbenishty & Astor, 2005). The key subscales of their “school climate” measure tapped teacher support, student participation, clarity of rules, and overall school maintenance.

In sum, several studies in a variety of settings have supported the notion that aspects of a school’s order, organization, and integration are important in making inhabitants feel safe. The limited evidence to date implies that context seems to matter in terms of “main effects” on student fear. Still, more research is needed. First, many of the findings consistent with “contextual” effects have actually emerged from studies that did not explicitly account for individual-level versus school-level influences, thus making it difficult to infer whether the effects of disorder and integration are truly due to context or simply due to individual differences (see Benbenishty & Astor, 2005 and Roberts et al., 2007, for exceptions). Furthermore, despite some evidence of the effects of school context, we know little about how such school-level contextual factors condition or moderate aspects of individual vulnerability. In other words, beyond multilevel main effects on student fear, it is probably that there are interactive effects such that individual indicators of vulnerability matter more or less, depending on school environment. One objective of the current study is thus to extend the literature on student fear of in-school crime by examining these interactions. In this regard, we suspect that individual indicators of vulnerability are likely to be positively related to student fear in relatively
safe and orderly school environments, in particular. In more disorderly or disorganized schools, however, such individual characteristics may have tempered effects on fear, as negative cues from the environment overwhelm vulnerability in affecting student concerns.

**Student Fear: Gender- and Age-Specificity?**

The balance between students’ fear of school crime and their risk or vulnerability may be dependent on their gender or age. Some students may experience too much fear of crime, relative to their risk of victimization, while some students may not experience enough fear of crime, relative to their risk. For example, female students’ level of fear compared to their actual risk may exceed that of males; or the excess of fear compared to actual risk may increase or dwindle as students age. Such conditional effects are important to assess from a policy standpoint—that is, understanding the potential gender- and age-specificity of student fear will help implement better policies for regulating fear, if regulating fear is indeed necessary, and for ensuring that these policies are targeting the correct segments of the population.

As suggested above, though evidence of effects of both individual-level vulnerability and school-level crime/disorder and integration on student fear is mounting, the current study moves beyond previous studies by better specifying individual-level versus school-level effects and by exploring interactions among these various influences on school fear. In addition, the current study moves beyond previous literature by addressing whether the various perspectives on student fear are gendered and/or developmentally dependent.

Recently, understanding gender differences in both adult and adolescent “general” fear of crime (i.e., not at school) has been explored in some detail. A good deal of research, for instance, examines gender differences in fear of victimization in light of the “shadow of sexual assault hypothesis,” emphasizing women’s or girls’ greater fear due to heightened concern over sexual assault victimization specifically (e.g., Ferraro, 1995; Fisher & Sloan, 2003; Lane & Meeker, 2003; May, 2001; May & Dunaway, 2000; Schaeffer, Huebner, & Bynum, 2006; Warr, 1984, 1985). Other work has explored gender differences in the influences of environmental cues about risk/danger. Fisher and May (2009), for instance, examined whether characteristics of the physical and social environment, including lighting, foliage, loitering youth, and police presence, were correlated with fear of crime differently for male versus female college students. Their multivariate analysis of survey data from undergraduate students at one public university revealed no gender-specific effects. Their findings are in sharp contrast to Brownlow’s (2005) focus group study of the gendered nature of fear-producing cues at a Philadelphia park. In general, Brownlow found that men’s fear was much less tied to environmental cues of danger in the park in comparison to women’s fear. Instead, men’s fear was more tied to individual physical vulnerability (i.e., size, strength, and speed).

Age-related differences in fear have also been an important topic of study. However, most of this work has focused on understanding age as a correlate of fear as opposed to understanding whether other covariates of fear are age-varying or age-dependent. For instance, a lengthy debate in the literature explores whether the elderly are more afraid of crime despite their low levels of victimization (c.f., Clemente & Kleiman, 1976; Lindquist & Duke, 1982; Ferraro, 1995; Ferraro & LaGrange, 1987; Yin, 1980). Beyond the debate over the direct effects of age, however, extant literature reveals little about how correlates of fear vary as a function of age.

What about gendered and developmental perspectives regarding adolescent fear of school crime specifically? In this regard, little research exists, but there are notable studies of relevance to this focus. First, Hutchinson Wallace and May (2005) studied gender differences in predictors of school fear consistent with the individual-level vulnerability perspective. Their analyses revealed disparate coefficients across males and females for the effects of parental attachment on fear; this was a much stronger (negative) predictor of fear for male students as opposed to female students. In contrast, the
effects of victimization on fear were similarly strong and positive across male and female students. Additionally, May and Dunaway (2000) found substantial differences in the effects of victimization and perceptions of school safety on student fear across gender, with those effects being more strongly positive for female as opposed to male students.

Research by Astor and colleagues has highlighted how effects of the school context on student fear might be both gender- and age-specific. Astor et al. (2002), for instance, reported that school climate in terms of social integration and order/maintenance was important in reducing fear for female students specifically (see also Benbenishty & Astor, 2005). Related research has also found that female students are much more likely to identify particular areas at school as dangerous and that this perceived danger appears associated with aspects of the physical space that suggest low territoriality—or undefined, “unowned” space (Astor, Meyer, & Behre, 1999). Astor, Meyer and Pitner (2001) found that specific “unowned,” dangerous spaces were more likely to be identified among middle school as opposed to elementary school students. They attributed much of this difference to school type, with the proposition that there is simply less space in elementary and middle schools that falls outside the control of teachers. However, remaining grade-level differences existed within any one school type such that students associated certain areas of their schools with different levels of safety versus risk, depending on grade level. Astor et al. (2001) inferred from this finding that developmental differences might exist regarding the importance of the school environment as cues about victimization risk.

To summarize, there is a need for more study of the possible gendered and developmentally dependent individual- and school-level correlates of student fear. Evidence to date is scant and inconsistent. Although there is no strong a priori theory to guide hypotheses about how individual and contextual correlates of fear might vary depending on gender and age of student, such exploration seems nonetheless essential from a practical standpoint. Simply put, if fear-reduction strategies used by schools are to be optimally effective, it is necessary to better understand whether context-specific, gender- and age-specific programming and practice are warranted.

The Current Study

In the current study, an examination of the relative influences of personal vulnerability to crime at school, environmental disorder, contextual crime, and school-level efficacy on students’ fear of crime is conducted through the use of multilevel modeling. Drawing from the extant theoretical and empirical literature on fear of crime within the community context, we extend the fear of crime research by applying these theoretical perspectives within the school context. We further extend the current research on fear of crime at school using statistical models that allow for the true contextual influences of school climate on student fear to be distinguished from the individual influences on student fear and that allow for individual–school interactions to be appropriately estimated. We also use gender-specific models and longitudinal data, thus allowing for the examination of potential gendered and age-graded processes behind student fear. This study, in sum, addresses four main research questions. First, how do the various influences of personal vulnerability versus contextual crime, disorder, and social integration correlate with fear in the school context? Second, how do these various influences interact in predicting student fear? Third, are the main and interactive effects on fear similar across male and female students or, alternatively, are they gender-specific? Fourth, how do these various influences on fear change as students progress from 7th grade to the 10th grade?

Data

This analysis primarily uses student and teacher survey data from the Rural Substance Abuse and Violence Project (RSVP), funded by the National Institute of Drug Abuse (DA-11317). This was a prospective longitudinal study conducted between the years of 2001 and 2004. For the current
study, we used all four waves of the student component of the RSVP. The student data consist of annual survey responses from a panel of students who were enrolled in seventh grade during the 2000–2001 academic year. The student panel was selected using a multistage procedure beginning with a stratified sampling of 30 of Kentucky’s 120 counties. Within the 30 selected counties, principals from all public schools containing 7th graders were contacted for inclusion in the study, with 65 of the 74 schools agreeing to participate. A total of 9,488 seventh graders were contained within the 65 participating schools, and all were targeted for inclusion in the sample. Active parental consent was obtained for 4,102 of the targeted students, for a 43% response rate. Completed surveys were received from 3,692 students in Wave 1, 3,638 students in Wave 2, 3,050 students in Wave 3, and 3,040 students in Wave 4. Overall, there was participation from 3,976 students in one or more waves of the study.

The 3,976 students who provided data in at least one wave were embedded within a total of 111 unique school contexts over the course of the 4-year study, as most students traversed from an elementary or middle school to a high school. Teachers from each school containing sampled students in any year of the study were also targeted for survey data collection. On the same day that student surveys were administered, a faculty/staff survey was group administered to teachers in each school containing students in the sample. The faculty/staff survey focused largely on teachers’ perceptions of various aspects of the school climate, including perceptions of disorder, crime, and social integration among and between students, parents, teachers, and administrators. In total, approximately 4,500 teacher surveys were completed over the course of the study. To create the school-level measures of disorder and social integration, individual teacher perceptions about these aspects of climate were aggregated within schools. Finally, several additional school-level enrollment and demographic characteristics are measured using data from the Kentucky Department of Education.

To optimize the number of school contexts represented in the analyses presented below, we pooled student data across all four waves of the study to create 13,420 observations (student-years) across 111 school contexts. After listwise deletion of cases with missing data on either individual- or school-level measures, 11,643 observations within 102 school contexts remained for analysis.

Measures of Variables

The dependent variable for the analysis presented below is fear of school crime, measured by students’ responses to questions about five crime-specific fears. Specifically, students were asked, “In the current school year, how often are you afraid that you will be ____?” The specific fears about which students were asked included fear of physical assault (simple and serious), robbery, theft, being threatened with a gun, and being threatened with another weapon. Each of the 5 items had an associate ordinal scale ranging from 1 = never to 5 = always. An overall measure of student fear was created by averaging the responses over the 5 crime-specific fear items (Cronbach’s α = .73). Descriptive statistics shown in Table 1 reveal that, on average, student fear was 1.69, falling between “never” and “not very often.”

Key individual-level independent variables included measures of personal vulnerability. We measured individual-level vulnerability, most directly, through assessment of previous victimization and perceptions of risk. First, previous school victimization was measured as the average number of times during the current school year that students had experienced five different types of victimization on school grounds or during school-related activities (Cronbach’s α = .80). The types of victimization assessed through these questions were the same types of victimization asked about in the questions regarding fear of victimization described above (physical assault, robbery, theft, gun threat, and other weapon threat). The response categories for victimization ranged from 0 = none to 10 = 10 or more. Responses across all five types of victimization were averaged for each student.
Second, perceived risk of victimization was measured as the average level of the perceived likelihood of experiencing the same five different types of crime on school grounds or during school-related activities, during the current school year (Cronbach’s \( \alpha = .80 \)). The component items for this measure were originally coded on an ordinal scale, with 1 identifying a very low chance and 5 identifying a very high chance.

Although we focus primarily on previous victimization and perception of risk as key indicators of individual-level vulnerability, we also control for other indicators, including low self-control, delinquent peer association, self-reported delinquency, parental attachment, school attachment, peer attachment, grade, gender, race, and family socioeconomic status (SES). Previous victimization research has demonstrated that these characteristics are important predictors of school-based victimization (e.g., Campbell Augustine, Wilcox, Ousey, & Clayton, 2002; Schreck, Miller, & Gibson, 2003; Welsh, 2001; Wilcox, Skubak Tillyer, & Fisher, 2009). As such, we view them as indicators of vulnerability and posit that they would be positively related to school fear.

Impulsivity was measured with the average score from an 11-item index assessing multiple dimensions of low self-control, including frustration, temper control, attention span, and restlessness (Cronbach’s \( \alpha = .91 \)). Each of the 11 items used a 4-point Likert-type response scale. Delinquent peer associations was measured with a 17-item measure asking respondents whether their closest

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### Table 1. Variables, Scales, and Descriptive Statistics

<table>
<thead>
<tr>
<th>Variables</th>
<th>Scale</th>
<th>M</th>
<th>SD</th>
<th>Minimum</th>
<th>Maximum</th>
<th>N</th>
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</thead>
<tbody>
<tr>
<td>Dependent variables</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fear of Victimization</td>
<td>(Level of Fear of Victimization)</td>
<td>1.689</td>
<td>0.740</td>
<td>1</td>
<td>5</td>
<td>12,777</td>
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<tr>
<td>Independent variables</td>
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<tr>
<td>Level 1</td>
<td></td>
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<tr>
<td>Previous</td>
<td>(0 = none ... 10 = 10+)</td>
<td>0.745</td>
<td>1.310</td>
<td>0</td>
<td>10</td>
<td>12,766</td>
</tr>
<tr>
<td>Victimization Perceptions of Risk</td>
<td>(I = very low risk ... 5 = very high risk)</td>
<td>1.743</td>
<td>0.743</td>
<td>1</td>
<td>5</td>
<td>12,786</td>
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<tr>
<td>Impulsivity</td>
<td>(I = Low to 4 = High)</td>
<td>1.813</td>
<td>0.676</td>
<td>1</td>
<td>4</td>
<td>12,741</td>
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<tr>
<td>Delinquent Peers</td>
<td>(0 = No, 1 = Yes)</td>
<td>0.256</td>
<td>0.265</td>
<td>0</td>
<td>1</td>
<td>12,900</td>
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<tr>
<td>Delinquency</td>
<td>(I = never . . . 5 = daily or almost daily)</td>
<td>1.125</td>
<td>0.351</td>
<td>1</td>
<td>5</td>
<td>12,801</td>
</tr>
<tr>
<td>Parental</td>
<td>(I = Low to 5 = High)</td>
<td>3.724</td>
<td>0.771</td>
<td>1</td>
<td>5</td>
<td>12,715</td>
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<td>Attachment</td>
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<td></td>
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<tr>
<td>School</td>
<td>(I = Low to 4 = High)</td>
<td>3.165</td>
<td>0.555</td>
<td>1</td>
<td>4</td>
<td>12,818</td>
</tr>
<tr>
<td>Attachment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Peer Attachment</td>
<td>(I = Low to 4 = High)</td>
<td>3.560</td>
<td>0.616</td>
<td>1</td>
<td>4</td>
<td>12,734</td>
</tr>
<tr>
<td>Gender</td>
<td>(0 = Male, 1 = Female)</td>
<td>0.527</td>
<td>0.499</td>
<td>0</td>
<td>1</td>
<td>11,643</td>
</tr>
<tr>
<td>Race</td>
<td>(0 = White, 1 = Non-White)</td>
<td>0.097</td>
<td>0.296</td>
<td>0</td>
<td>1</td>
<td>12,860</td>
</tr>
<tr>
<td>Socioeconomic</td>
<td>(I = Low to 7 = High)</td>
<td>4.307</td>
<td>1.539</td>
<td>1</td>
<td>7</td>
<td>11,516</td>
</tr>
<tr>
<td>Status</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Level 2 Wave/Grade</td>
<td>(Waves # 1–4)</td>
<td>2.420</td>
<td>1.113</td>
<td>1</td>
<td>4</td>
<td>12,900</td>
</tr>
<tr>
<td>School Disorder</td>
<td>(Average # of teacher-reported disorder)</td>
<td>1.801</td>
<td>0.336</td>
<td>1.15</td>
<td>2.85</td>
<td>102</td>
</tr>
<tr>
<td>School Efficacy</td>
<td>(Average level of teacher-reported efficacy)</td>
<td>3.680</td>
<td>0.353</td>
<td>2.84</td>
<td>4.37</td>
<td>102</td>
</tr>
<tr>
<td>School Delinquency</td>
<td>(Average level of teacher-reported delinquency)</td>
<td>1.250</td>
<td>0.510</td>
<td>0.35</td>
<td>2.44</td>
<td>102</td>
</tr>
</tbody>
</table>

Note. Schools (N = 102); Individuals (N = 12,900).
friends participated in a series of delinquent behaviors during the current school year (1 = yes, 0 = no). These behaviors included things such as drug and alcohol use, truancy, drunk driving, school suspension, carrying a weapon at school, being arrested, drug dealing, theft, assault, and vandalism. To calculate the respondents’ exposure to delinquent peers, the responses to these 17 dichotomous items were averaged (Cronbach’s $\alpha = .92$). Respondent delinquency was measured with 14 survey items asking students to self-report how often in the current school year they committed acts such as robbery, theft, assault, carrying weapons to school, using weapons in fights, and vandalism (Cronbach’s $\alpha = .90$). Response categories for the self-reported delinquency items ranged from 1 = never to 5 = daily or almost daily.

To measure attachment to parents, we used a 24-item index, using 5-point Likert-type scale items. The items captured specific aspects of the respondents’ relationships with both their mothers and fathers, including the level of love and respect, degree of communication, and level of supervision provided. The responses to these 24 items were then averaged (Cronbach’s $\alpha = .93$). To measure attachment to school, an index that averaged student responses across 6 items was used. The questions used were measured with a 4-point Likert-type scale, and they asked how strongly the students agreed or disagreed with various statements about their relationships with teachers, the importance of education, and their attitudes toward school (Cronbach’s $\alpha = .70$). The grade point average (GPA) of the student was used as an additional measure of commitment to school. Student GPA was measured with a single item asking students to report their grades in school. Responses ranged from 1 (mostly Fs) to 5 (mostly As). To measure attachment to peers, an index that averaged student responses across 6 items was used. The questions used were measured with a 4-point Likert-type scale measuring the nature of respondents’ relationships with their closest friends (Cronbach’s $\alpha = .91$).

Respondent’s race was measured as a dichotomous measure of non-White (non-White = 1) or White (White = 0). Socioeconomic status was measured as the average of two 7-point scale items asking about the educational attainment of the respondent’s father and mother. The response categories for each item ranged from 1 (completed grade school or less) to 8 (graduate or professional school). Finally, to assess developmental changes in fear and its correlates, we created four dummy variables representing the four waves of survey administration, with “Wave 1” used as the reference category. In Wave 1, all respondents were in the 7th grade; by Wave 4, most had traversed successfully onto the 10th grade.

At the school-level, key independent variables include measures of environmental disorder/crime and social cohesion/integration. School-level disorder was measured as the within-school average teacher-reported incivilities. This variable was created by first averaging the responses from an 8-item index for each teacher (Cronbach’s $\alpha = .84$). Teachers were asked to indicate to what extent they agreed that things such as broken lockers, graffiti, and litter/trash, were problematic at their school (1 = strongly disagree to 5 = strongly agree). Teacher index scores were aggregated within schools to create the school-level measure. Consistent with the disorder perspective, we also measure school-level crime. This was measured as the within-school average teacher-reported delinquent misconduct. The measure was created by averaging individual teachers’ responses across 15 different survey items asking them how many times they had witnessed a range of delinquent behaviors by students in the current school year, including things such as physical fights, student weapon possession, drug sales, and theft (Cronbach’s $\alpha = .81$). For each of the 15 items, possible responses ranged from 0 (never witnessing the situation) to 10 (witnessing the situation ten or more times). Again, teacher index scores were then aggregated within schools to create a school-level measure of crime.

School-level efficacy—consistent with the social cohesion/integration perspective—was measured as the within-school average teacher-reported cohesion, trust, and cooperation at school. This variable was created by averaging the responses from a 19-item index for each teacher-respondent (Cronbach’s $\alpha = .84$). The 19 items each used a Likert-type scale and asked the respondent to
indicate to what extent they agreed with statements such as “The administration and teachers collaborate toward making the school run effectively,” “The administration is supportive of teachers,” “Students don’t really care about this school,” and “ Teachers and students get along well at this school.” Average index scores for each teacher were aggregated within schools.

At the school-level, control variables for school size, racial composition, and the SES of the school (as indicated by percentage of students receiving free or reduced price lunches) were also measured. However, preliminary analysis indicated that none of these controls were significant nor did their inclusion alter other results. We thus chose not to include them in the final models reported herein.5

**Analytic Strategy**

To address our research questions, we use a hierarchical logistic modeling (HLM) approach and the HLM 6 software specifically (Raudenbush & Bryk, 2002). HLM is appropriate due to the clustered data of students nested within schools nonrandomly. These models are capable of appropriately recognizing that students within the same school may be more similar to one another compared to students of a different school. In other words, HLM recognizes the nonindependence among students nested within school contexts. Neglecting to account for this nonindependence can result in biased standard errors, increasing the likelihood of reaching erroneous conclusions (Raudenbush & Bryk, 2002). The second benefit of using multilevel modeling to address the current research questions is that HLM is capable of simultaneously investigating the variance components of the outcome variables at multiple levels—that is, the student-level and school-level variance components, in this study specifically—while maintaining the appropriate level of analysis for the independent variables. HLM reveals how much of the variance in the outcome variable can be attributed to individual-level factors, such as personal vulnerability, versus contextual factors, such as school disorder and school efficacy.

Our analysis proceeds with these following steps. First, gender-specific models are used to compare the vulnerability, disorder, and social integration theses for male and female students, respectively. Second, we examine whether the individual and contextual covariates associated with these various theoretical perspectives interact. These interaction effects are also examined in gender-specific models. Third, we explore possible interactions between wave (grade level) and measures of vulnerability, disorder, and social integration to assess whether key individual and contextual correlates are perhaps “age-graded” in their effects on student fear. This final analysis was also conducted separately for males and females to assess whether developmental processes of fear, if they existed at all, were perhaps gendered. Tests of differences in coefficients across male and female models were conducted for all parts of the analysis (Paternoster, Brame, Mazerolle, & Piquero, 1998).6

**Results**

Table 2 presents results from gender-specific two-level hierarchical linear models of student fear, emphasizing the relative influences of personal vulnerability and contextual disorder and disorganization. Recall that we measured individual-level vulnerability most directly through previous in-school victimization and perceived risk of school victimization. Regarding the school-level perspectives on fear, we included three variables capturing “disorder” and “integration”—school disorder, school delinquency, and school efficacy.

The models shown in Table 2 reveal that the key individual-level indicators of vulnerability were significantly, positively related to student fear in both the male and the female subsamples. That is, as perceived risk and previous victimization increased, so did fear of victimization. Hence, support for the vulnerability perspective regarding school-based fear, net of school-level contextual characteristics, appears strong and robust across gender.
Table 2. Hierarchical Linear Models for Fear of Victimization at School by Gender

<table>
<thead>
<tr>
<th></th>
<th>Model A: Males</th>
<th>Model B: Females</th>
<th>Test of Equality of Regression Coefficients</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Coefficient</td>
<td>SE</td>
<td>Coefficient</td>
</tr>
<tr>
<td><strong>Level 1</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intercept (Fear of Victimization)</td>
<td>1.694*</td>
<td>0.009</td>
<td>1.684*</td>
</tr>
<tr>
<td>Previous victimization</td>
<td>0.110*</td>
<td>0.010</td>
<td>0.110*</td>
</tr>
<tr>
<td>Perceptions of risk</td>
<td>0.585*</td>
<td>0.023</td>
<td>0.585*</td>
</tr>
<tr>
<td>Impulsivity</td>
<td>0.028*</td>
<td>0.009</td>
<td>0.022*</td>
</tr>
<tr>
<td>Delinquent</td>
<td>-0.024</td>
<td>0.036</td>
<td>-0.001</td>
</tr>
<tr>
<td>Parental attachment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>School</td>
<td>0.003</td>
<td>0.011</td>
<td>0.012</td>
</tr>
<tr>
<td>Peer attachment</td>
<td>-0.012</td>
<td>0.012</td>
<td>-0.020*</td>
</tr>
<tr>
<td>Race</td>
<td>0.030</td>
<td>0.033</td>
<td>-0.040</td>
</tr>
<tr>
<td>SES</td>
<td>-0.000</td>
<td>0.000</td>
<td>0.001*</td>
</tr>
<tr>
<td>Wave/grade</td>
<td>-0.028*</td>
<td>0.009</td>
<td>-0.038*</td>
</tr>
<tr>
<td><strong>Level 2</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>School disorder</td>
<td>0.028</td>
<td>0.031</td>
<td>0.004</td>
</tr>
<tr>
<td>School delinquency</td>
<td>0.015</td>
<td>0.022</td>
<td>0.018</td>
</tr>
<tr>
<td>School efficacy</td>
<td>-0.011</td>
<td>0.024</td>
<td>0.003</td>
</tr>
</tbody>
</table>

**Random effects**

<table>
<thead>
<tr>
<th></th>
<th>Model A: Males</th>
<th>Model B: Females</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variance Component SD Chi-Square</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intercept</td>
<td>0.002*</td>
<td>0.043 141.290</td>
</tr>
<tr>
<td>Level 1 error</td>
<td>0.286</td>
<td>0.534 0.244 0.494</td>
</tr>
</tbody>
</table>

*Note. SES = socioeconomic status. Schools ($N = 109$); Individuals ($n = 5,504$ males; $n = 6,139$ females).

* $p \leq .05$.

Table 2 also shows that the individual-level control variables of wave (grade level) and impulsivity were significant for both males and females. Wave was negatively associated with fear of victimization, implying that as students progress from 7th to 10th grade, their fear of victimization decreased. Impulsivity, however, was positively associated with fear of victimization. For female students, the control variables of parental SES and attachment to peers were also significant. Parental SES was positively associated with fear of victimization, whereas peer attachment was negatively associated with female fear of victimization. Although these variables were nonsignificant in the model for males, the last column of Table 2 (displaying the $z$ scores from the test for equality of regression coefficients) shows that their effects were not significantly different across male and female students. In fact, results from comparison of coefficients indicate that the only regression coefficient at the individual-level, which differ significantly across male and female students was respondent’s delinquency involvement.
However, respondent’s delinquency involvement was not a significant predictor of student fear for either gender.

At the school-level, neither of the contextual perspectives—the “disorder” perspective or the “social integration” perspective—was supported for either gender. Measures of school disorder, school delinquency, and school efficacy were all nonsignificant for both male and females students. Again, the $z$ scores from the test for equality of regression coefficients ($z = .05$) reveal that the effects of these contextual variables on the fear of victimization did not significantly differ across male and female students. Overall, then, the findings in Table 2 provide support for the personal vulnerability model but not for the disorder or social integration models when considering fear of school victimization. Furthermore, it appears that variables associated with these three perspectives influence male and female student fear similarly.

Despite little evidence thus far to support the idea that school-level contextual factors influence student fear at school, net of individual characteristics, it is possible that context exerts its influence in a moderating as opposed to a direct fashion. In other words, school-level characteristics might condition or alter the effects of individual-level correlates of student fear. To examine whether the effects of personal vulnerability on fear are contingent on environmental disorder, contextual crime, and contextual efficacy, cross-level interactions between the two personal vulnerability measures (perceived risk of victimization and previous victimization), and the school context variables were entered into the gender-specific models. These findings are reported in Table 3.

For male students, none of the cross-level interactions were significant. It appears, therefore, that the effects of indicators of personal vulnerability are not dependent on the school context for males. Rather, the effects of victimization and perceived risk on male student fear are consistent, regardless of school disorder, crime, or efficacy. However, for females, the cross-level interaction between perceived risk of victimization and school delinquency was significant. The positive effect of perceived risk of victimization on female fear was tempered as school delinquency increased. That is, the risky context of higher levels of school delinquency weakened the impact on female fear of individual thoughts about the likelihood of actually being victimized. As such, our findings suggest that school context does matter in understanding female fear, making cognitive assessments of risk less predictive.

To more fully explore any possible gender effects of these cross-level interactions on fear of victimization, the last column of Table 3 displays the $z$ scores from the test for equality of regression coefficients ($z = .05$). The results indicate that none of the regression coefficients differed significantly across male and female students. Although the interaction between perceived risk of victimization and school delinquency was not significant in the male model and significant in the female model, according to the test for equality of regression coefficients, the coefficients were not significantly different across gender.
To discern possible developmental effects of the various influences on fear of victimization, interactions between wave (grade level) and perceived risk of victimization, previous victimization, school disorder, school delinquency, and school efficacy were estimated. These interaction effects are displayed in Table 4. The model indicated a significant negative interaction between perceived risk of victimization and grade for both males and females. The test of equality of regression coefficients demonstrated that the effect of this interaction was not gender-specific. This interaction, for both males and females, suggests that as students progressed from Wave 1 to Wave 4 (typically representing movement from the 7th to 10th grades), the influence of perceived risk of victimization on fear of crime diminished.

Conclusions and Discussion

The current study was guided by four research questions. First, to what extent do the three leading theoretical explanations of fear of victimization (i.e., individual vulnerability, disorder, and social integration) explain fear among adolescent students in a school context? Quite a large body of evidence indicates that all three of these perspectives are important factors in predicting fear of victimization in community contexts, suggesting that multilevel influences on fear are operating. Accordingly, the second research question asks whether influences from these different levels interact. For instance, does individual vulnerability affect fear differently depending on the community context (i.e., disorderly community and cohesive community)? Third, to what extent are these perspectives of fear, and interactions among them, gendered? Finally, are the effects of indicators of individual vulnerability, disorder, and social integration developmentally dependent such that the effects of these influences vary by grade level (7th to 10th grades) of the respondents? Each of these research questions will be addressed in turn.

Table 4. Gender Differences in Interactions Between Grade Level and Individual Vulnerability, School Crime/Disorder, and School Efficacy

<table>
<thead>
<tr>
<th>Model A: Males</th>
<th>Model B: Females</th>
<th>Test of Equality</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Coefficient</td>
<td>SE</td>
</tr>
<tr>
<td>Victimization × Grade Level</td>
<td>0.009</td>
<td>0.008</td>
</tr>
<tr>
<td>Perceived Risk × Grade Level</td>
<td>-0.055*</td>
<td>0.017</td>
</tr>
<tr>
<td>School Disorder × Grade Level</td>
<td>-0.018</td>
<td>0.025</td>
</tr>
<tr>
<td>School Delinquency × Grade Level</td>
<td>0.032</td>
<td>0.021</td>
</tr>
<tr>
<td>School Efficacy × Grade Level</td>
<td>0.032</td>
<td>0.022</td>
</tr>
</tbody>
</table>

Note: *p ≤ .05.

To discern possible developmental effects of the various influences on fear of victimization, interactions between wave (grade level) and perceived risk of victimization, previous victimization, school disorder, school delinquency, and school efficacy were estimated. These interaction effects are displayed in Table 4. The model indicated a significant negative interaction between perceived risk of victimization and grade for both males and females. The test of equality of regression coefficients demonstrated that the effect of this interaction was not gender-specific. This interaction, for both males and females, suggests that as students progressed from Wave 1 to Wave 4 (typically representing movement from the 7th to 10th grades), the influence of perceived risk of victimization on fear of crime diminished.

Individual and Contextual Effects

The individual vulnerability perspective on fear of victimization was supported, with the two key measures of individual vulnerability (previous school victimization and perceived risk of school victimization) exhibiting statistically significant effects. Regarding the effect of the school context, we found no support for the expected relationships on student fear at school. Namely, school disorder and school delinquency did not adversely affect students’ worry about crime nor did socially cohesive school environments shield students from feelings of fear.
Cross-Level Interactions

In terms of whether the effects of personal vulnerability are contingent on school context, we found that for males, the school context did not influence the effect of personal vulnerability on fear of victimization. However, for females, the effect of personal vulnerability was contingent on school context. Analysis revealed that the interaction of perceived risk of victimization and school delinquency was negatively significant for females. In other words, as school delinquency increased, the influence of perceived risk of victimization on fear weakened or lessened. Although this interaction effect was significant for females and nonsignificant for males, the gender-specific coefficients were not significantly different.

Are the Correlates of Fear Gendered?

For the most part, our analysis revealed few gender differences in terms of the correlates of student fear. For both males and females, grade level, impulsivity, perceived risk, previous victimization, and an interaction between grade level and perceived risk influenced fear of victimization in similar ways. There were a few variables that exhibited statistically significant effects for females only, including SES, peer attachment, and the above-mentioned interaction between perceived risk and school-level delinquency. However, the effects for each of these variables on male versus female fear were not significantly different. Hence, we found an impressive pattern of gender neutrality regarding the correlates of fear at school.

Are the Correlates of Fear Age-Dependent?

With respect to developmental stage as a potential influence on fear of victimization, we found that grade in school did indeed matter in explaining students’ fear. Specifically, students’ grade level in school, measured in the current study as 7th to 10th grades, proved to be an important (negative) correlate of fear for both boys and girls. This main effect of age/grade is consistent with previous literature (e.g., see Dinkes et al., 2009, for recent review). In addition to this main effect, however, students’ grade level interacted with individual perceived risk of victimization in predicting fear of victimization. The significant effect of this interaction term indicates that perceived risk may matter more when students are earlier in their school careers than later when they have entered high school or are preparing to enter high school. In other words, individual perceptions of risk of victimization matter less in understanding student fear as students mature. This interaction effect, like all other effects, was similar across males and females. Does individual perception of risk matter less over time because school-level environmental conditions matter more? Our results indicate that the answer to this question is “no.” Because the interactions between wave (grade-level) and measures of school disorder, school delinquency, and school efficacy were not statistically significant, it does not appear that these influences on fear vary as students age and transition through school.

Implications for Practice

In many respects, our findings highlight the considerable promise of school crime- and fear-prevention programs targeting individual-level risk factors as opposed to school-level conditions. However, our findings also indicate that actual victimization experiences and perceived risk of victimization were consistent and robust predictors of fear across models. This implies that generally students’ fears are at least somewhat aligned with actual risk and perceived risk of victimization. On one hand, this may imply that there is not that great a need for fear-prevention programs in schools. After all, certain levels of fear—those aligned with victimization vulnerability—are “healthy” in that they undoubtedly lead to appropriate levels of caution. We would not want to reduce student
fear to the point that indicators of risk are not important, as this would seemingly leave students “not fearful enough,” and thus more likely to engage in risky (victimization-enhancing) behavior.

On the other hand, significant overall effects of indicators of vulnerability on student fear do not preclude the idea that some students may be “overly fearful” in relation to risk while others may not be fearful enough. Additionally, the “balance” between risk and fear may be somewhat conditional on student and/or school characteristics. For instance, our data indicated that the linkage between students’ perceptions of risk and their levels of fear declines with age. Future research should explore such conditional effects more fully so that fear-of-crime programming can be more specifically targeted at those groups of students whose fear is less closely aligned with risk of victimization.

Given the general pattern of correlation between indicators of victimization vulnerability and fear of crime, programs that are aimed at reducing school-based victimization (i.e., anti-bullying programs) and the individual-level correlates thereof (i.e., programs aimed at enhancing self control) should reduce student fear as well. However, addressing individual vulnerability to victimization will not necessarily affect student fear to the same degree in all school contexts. Our findings indicated that student fear is simply less tethered to cognitive perceptions of risk/vulnerability in higher crime schools. Schools with more pervasive crime problems should thus address the school climate as well as individual-level risk factors, if hoping to see reductions in student fear on par with schools that have lower overall levels of delinquency. Additionally, as alluded to above, our finding imply that programs targeting individual-level vulnerability to crime/victimization are most likely to reduce fear at younger as opposed to older ages. Finally, our findings hint that fear-prevention programming—aimed at addressing individual vulnerability or school climate—is likely to produce gender-neutral effectiveness. This is a major implication in an era where gender-specific approaches to criminal justice assessment and treatment are gaining considerable momentum (Van Voorhis, 2004; Van Voorhis, Salisbury, & Wright, 2008).

Limitations and Directions for Further Research

Although the implications for fear-reduction practice in schools are important, they are based on conclusions that must be appropriately qualified and replicated in further studies. More specifically, the preceding discussion needs to be considered in the context of three potential methodological limitations of the current study. First, while the sampling and survey methodologies used for data collection were strong, data were only collected from students in public schools and there was considerable nonresponse. Second, all students in the sample attend school in Kentucky, a state that is not representative demographically of the wider United States. This potentially limits the generalizability of the results to student populations beyond Kentucky and Kentucky’s school system. Third, the developmental perspective was gauged in terms of four waves of data with developmental stages beginning in the 7th grade and continuing through the 10th grade. It is possible that different developmental effects operate at different developmental stages. Despite these possible methodological limitations, there is no theoretical reason to expect that the causal mechanisms related to fear of school crime should be different among Kentucky students than students elsewhere in the United States or among public school students versus students in private schools.

The issue related to developmental stages and the possibility of observing different effects on fear across different developmental stages warrants further attention. Therefore, future research may consider the possible role that correlates of fear (e.g., individual vulnerability) play across different developmental stages than those examined in the current study. For instance, it was reported here that the effect of perceived vulnerability on fear declines as student progress through school from 7th to 10th grade. Because we do not have data from these students from earlier in their school careers, we do not know when these effects reached their zenith. In other words, future research may
examine these effects across longer periods of time (e.g., starting in elementary school rather than middle school and high school). This is not to suggest that the research design in the current study was methodologically weak. To the contrary, the 4-year panel design is one of the strengths of the study; however, examining a longer developmental period may have provided more information about how certain fear-reduction practices are likely to change in terms of their impact over time. A more lengthy longitudinal study might also have provided the prospect of uncovering added influences on fear that were not observed here (e.g., disorder and cohesion).

Notes
1. Melde, Taylor, and Esbensen (2009) found that gang membership was positively related to vulnerability in terms of both victimization and perceived risk of victimization. However, they found that gang membership was negatively related to fear/anxiety about victimization.
2. Physical environmental features beyond disorder (i.e., built environment) have also been identified as having fear-inducing qualities. For instance, Fisher and Nasar (1992, 1995) reported that site-specific aspects of the physical environment (e.g., narrow corridors) can have the effect of not only creating feelings of fear among site-users but also hot spots of fear (see also Merry, 1981; Nasar & Fisher, 1993).
3. For more details about sampling and attrition, see Wilcox, May, and Roberts (2006) and Wilcox, Skubak Tillyer and Fisher (2009).
4. Nine schools in the sample did not participate in the teacher-survey portion of the study, and students from those schools were therefore dropped from the analysis. Teacher nonparticipation did not appear to be systematic.
5. The data for these structural characteristics of the schools were collected from the Kentucky Department of Education.
6. Although not shown herein, we did initially estimate intercept-only models before proceeding to multivariate HLM analyses. The variance components for unconditional models was significant for males ($\mu_{ij} = .02, \ SD = .14, \ chi^2 = 260.10, \ p < .00$), and for females ($\mu_{ij} = .01, \ SD = .11, \ chi^2 = 251.08, \ p < .00$), indicating that cross-school variation in the fear of victimization exists for both genders. Because there is significant variation to explain at Level 2, it is appropriate to proceed with the HLM analysis.
7. The interaction effects shown in Table 3 were estimated in models that controlled for the main effects of all study variables. For simplicity, however, we only show the results for the interaction terms. The findings regarding the main effects of all study variables (for both males and females) were unchanged from those reported in Table 2.
8. Similar to results from Table 3, interactions effects displayed in Table 4 were estimated in models that controlled for the main effects of all study variables. The findings regarding the main effects of all study variables (for both males and females) were unchanged from those reported in Table 2.

Authors’ Notes
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References


**Bios**

**Kristin Swartz** is currently a Ph.D. student in the School of Criminal, Justice at the University of Cincinnati. Her primary research interests include communities and crime, especially the influences of culture on crime and the influences of criminal justice policies on communities. She is also interested in fear of crime and victimization.

**Bradford W. Reynolds** is an assistant professor in the Department of Political Science and Criminal Justice at Southern Utah University. He received his Ph.D. in 2010 from the University of Cincinnati. His research focuses on victims of crime, especially the intersection of technology and victimization, and opportunities for victimization. His recent work has appeared in Crime Prevention and Community Safety, Deviant Behavior, and Police Quarterly.

**Billy Henson** is currently a Ph.D. student in the School of Criminal Justice at the University of Cincinnati and a crime analyst with the University of Cincinnati Policing Institute, in conjunction with the Cincinnati Police Department. His primary research interests include crime prevention, policing, interpersonal violent and sexual victimization, fear of crime, and cybercrime.

**Pamela Wilcox** is Professor in the School of Criminal Justice at the University of Cincinnati. She received her Ph.D. (1994) in sociology from Duke University. She has published numerous works aimed at developing and testing theories of crime, victimization, and crime prevention, with an emphasis on criminal opportunity structures at multiple levels of analysis.