PREDICTING FEELINGS OF SCHOOL SAFETY FOR LOWER, MIDDLE, AND UPPER SCHOOL STUDENTS: A GENDER SPECIFIC ANALYSIS

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Though the literature is making advances in the study of fear for the general population, we still know very little about adolescent's perceptions of fear in the school setting. Moreover, the existing literature has primarily examined fear among older adolescents, and has not provided gender-sensitive analyses when exploring the factors related to fear. In this paper, we examine both the individual and contextual factors that predict male and female students' feelings of safety for 5th, 8th, and 11th graders who attend public schools in the state of Delaware. Previous victimization experiences were the most consistent predictor of fear for all grades regardless of gender. At the school level, students attending schools with higher rates of expulsion and suspension were also more fearful than students attending schools with lower rates of these sanctions. Importantly, all students who attended schools where rules were communicated and enforced fairly were less likely to perceive fear, net of the other individual and contextual level factors. Other variables including alcohol/drug availability had relationships with fear that varied across age and gender groups. These findings and their implications for policy are discussed.

Keywords: feeling of safety, fear of crime, bullying and victimization

INTRODUCTION

During the past two decades, rates of victimization among adolescent populations in general, and in the school setting in particular, have been decreasing. In fact, from 1992 to 2007, rates of nonfatal violence and theft occurring in schools have steadily declined and the percentage of all youth homicides occurring at school has remained at less than 2

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percent of the total number of youth homicides (National Center for Educational Statistics & the Bureau of Justice Statistics, 2009). Unfortunately, other indicators of school climate have not improved. For example, the percentage of students who were threatened with a weapon or who had been in a physical fight in the past 12 months while on school grounds has remained relatively constant over this time period (National Center for Educational Statistics and the Bureau of Justice Statistics, 2009). Moreover, the percentage of students being fearful of harm at school has remained relatively constant since 2001, despite decreases in rates of victimization.

Being fearful of victimization at school can obviously affect the receptiveness and capacity for student learning. For example, research has shown that student fear predicts a number of educational outcomes including school attendance, learning motivation, and academic achievement (Akiba, 2010; Bowen & Bowen, 1999; Lawrence & Mueller, 2003). In addition, being fearful has other negative psychological effects such as causing psychological distress, anxiety, and Post Traumatic Stress Disorder (Dao et al., 2006; Springer & Padgett, 2000). Fear also impacts other quality of life indicators, such as students restricting their activities to avoid fearful situations. And finally, research indicates that students who fear being victimized are more likely to carry a weapon such as a gun to school (Chandler, Chapman, Rand, & Taylor, 1998). Clearly, creating a school environment that instills feelings of safety should be a priority for school administrators. However, despite the importance of understanding the etiology of adolescents' fear of victimization, we still know very little about it, particularly how the factors related to fear vary by gender and grade in school. In addition, we know very little about the impact that the school context has on students' perceptions of fear. Although recent research is beginning to unravel the factors related to the fear of victimization in adolescent populations, the majority of this research relies on local nonrandom samples (May & Dunaway, 2000; Wallace & May, 2005; Wilcox, Augustine, Bryan, & Roberts, 2005), or fails to control for important contextual characteristics of the school environment, such as perceptions of rule enforcement, and indicators of a school's success like graduation rates. And as with other research, the majority of these studies simply control for gender in multivariate models predicting fear, but do not go as far as performing gender-sensitive analyses (for exceptions, see De Groof 2007; Franklin & Franklin, 2008; Schafer, Huebner & Bynum 2006; Wilcox et al., 2005). Because there is a strong relationship between gender and the probability of victimization (Rand & Catalano, 2007) and because most research finds a strong relationship between objective victimization and subjective perceptions of fear (Wallace & May, 2005; Wilcox et al., 2005), investigating the factors that may differentially predict fear across gender groups is important. Investigating perceptual fear in younger age groups is also unexplored territory. In this paper, we use a representative sample of 5th, 8th, and 11th graders to determine the individual and school-level factors that are most significant in predicting perceived fear of victimization for male and female students.

Explaining Fear

The catalyst for the more recent literature investigating subjective fear of crime most likely has its origins in Garofalo's (1979) study, which utilized the early National

Crime Survey (NCS) to unpack the relationship between victimization experiences and fear. The NCS, now called the National Crime Victimization Survey (NCVS), used a global question to measure fear that asked "How safe do you feel or would you feel being out alone in your neighborhood at night?" (Garofalo, 1979, p. 82). In this classic study, Garofalo (1979) found that previous victimization experiences were linked with perceptions of fear for all age and gender groups, but both older persons and females were more fearful of crime despite their lower rates of victimization.

Within just a few years, research began refining both the conceptualization and the operationalization of fear. When research examined more refined measures of fear that were operationalized to be crime and context specific, findings indicated that younger individuals were more fearful compared to the elderly (LaGrange & Ferraro, 1989; LaGrange, Ferraro, & Supancic, 1992). Regarding gender, some research has found that the general fear of crime perceived by females may actually be attributable to the more specific fear women have to the crime of rape. As Ferraro (1996, p. 669) explains, "….sexual assault may 'shadow' other types of victimization among women. Rape may operate like a 'master offense' among women, especially younger women who have the highest rate of rape, heightening fear reactions for other offenses." Research has generally supported this contention (Ferraro, 1996; Warr, 1985). For example, Warr (1985) found that the fear of rape significantly increased fear of other offenses such as robbery and burglary. In fact, when fear of rape was controlled in models predicting fear of other offenses, gender differences were either eliminated or completely reversed, with males becoming more fearful than females (Warr, 1985). Research that does not control for the specific fear of rape has generally found that females are still more fearful of victimization compared to males.

Research examining perceived fear across race and ethnic groups remains mixed as well, with some research finding minorities to be more fearful compared to Whites (Chiricos, Hogan, & Gertz, 1997), some finding no differences (LaGrange, Ferraro, & Supancic, 1992; Wilcox Rountree, 1998), and still others finding minorities to be more fearful of violence but not of property crime (Ferraro, 1996). These equivocal findings also extend to the relationship between an individual's individuals' socioeconomic status and perceived levels of fear.

Another refinement in the fear of crime literature has been the conceptual advancements regarding the distinction between the emotional reactions to crime and cognitive perceptions of "risk" (Ferraro & LaGrange, 1987). Wilcox Rountree (1998, p. 345) summarizes, "…scholars have emphasized the value in distinguishing a cognitive dimension of fear tapping perception of victimization risk from an emotional dimension of fear more closely tapping psychological or physiological reactions to the threat of victimization." Research that has examined both individuals' perceptions of fear and assessments of risk have generally found that these two constructs are significantly related, but that the correlations of each are somewhat different with risk assessments often mediating the effects of other variables on perceptions of fear (LaGrange, Ferraro, & Supancic, 1992; Wilcox Rountree, 1998).

Research has also underscored the importance of controlling for indicators of incivility when predicting the fear of crime. LaGrange, Ferraro, and Supancic (1992, p. 312)

defined incivilities as "low level breaches of community standards that signal an erosion of conventionally accepted norms and values," which includes both disorderly physical surroundings and disruptive social behaviors. The concept of incivility is also related to Wilson and Kelling's (1985) concept of "broken windows," and Warr's (1990) concept of "cues to danger" among others. Most of the early work examining the relationship between incivilities and fear used perceived measures, such as asking respondents about the neighborhood presence of such things as abandoned buildings, gangs or unsupervised youth, litter, graffiti, drunks or people using illegal drugs (Box, Hale, & Andrews, 1988; LaGrange, Ferraro, & Supancic, 1992; Lewis & Maxfield, 1980). In general, most research using perceptual measures has found that higher levels of incivility are related to higher levels of fear, even after controlling for the effects of previous victimization and other demographic variables. Recent work has begun to incorporate objective measures of incivility by having trained observers rate the extent of incivilities present in neighborhoods (Sampson & Raudenbush, 1999; Taylor & Hale, 1986), or control for the objective rates of crime within neighborhoods (Wilcox Rountree, 1998; Wilcox Rountree & Land, 1996). The effects of these objective measures of incivility on perceived levels of fear have been inconsistent. There have been a handful of studies that have examined gender-specific models predicting fear that have also included measures of incivility.The inconsistent constructs that have been measured, however, make comparisons across results difficult. For example, Schafer et al. (2006) and Franklin and Franklin (2008) both included indicators of neighborhood incivility and cohesion within gender-specific models predicting fear, but neither included a measure of personal victimization, which makes comparisons with research that does include this important variable problematic.

Predicting Adolescents' Fear

The review above has highlighted the important advancements made by research examining levels of fear in the general population, but research examining perceived levels of fear among adolescents, particularly within the context of schools, remains in its infancy. Moreover, there have been no published attempts to examine perceptions of fear for those under the age of 12. Several of the studies that have examined fear of crime at school have used the National Crime Victimization Surveys (NCVS) School Crime Supplement (SCS), which is administered to 12 through 18-year-olds who had attended school at any time during the preceding six months. The earliest study to use the SCS was done by Frank and Jackson (1991). Unfortunately, this research did not present multivariate analyses with more than two variables. Alvarez and Bachman (1997) used the SCS to examine the fear of being attacked both at school and while going to and from school. They found that experiencing both a theft and violent victimization increased the likelihood of being fearful at school. Indicators of a subculture of violence at school, which others have conceptualized as incivilities, including gang presence, attacks on teachers, easy alcohol and drug availability, and also increased levels of fear among students. Alvarez and Bachman (1997) found no differences in fear levels while at school across race, ethnicity or gender groups, though younger students and students from low income families did experience more fear compared to older students and those with higher family incomes. Findings were somewhat different when perceptions of fear while commuting to and from school were

examined. In this context, Black and Hispanic students were more fearful than Whites, as were females of all races.

Other researchers have collected data from local samples. For example, May and Dunaway (2000) surveyed public high school students in Mississippi about their perceptions of fear within different school contexts including being afraid to go to school because "I might become a victim of crime," being afraid to go to school events "because of fights," being afraid to stay late after school, and being afraid to go certain places at school. Using an index of fear created from these items, May and Dunaway (2000) found that the only significant predictors of student fear were perceived neighborhood incivilities and their perceived safety at school. They also found that Black males were more fearful than their White counterparts, but there were no differences in perceived fear by socioeconomic status, or for previous victimization experience. Regarding gender, results indicated that victimization increased levels of fear for girls but not boys.

One of the most sophisticated explorations of fear in an adolescent sample was conducted by Wilcox and colleagues (2005), who examined both perceptions of risk and perceptions of fear using crime specific questions. Using data collected in Kentucky, they found that the factors related most strongly to perceived fear across crime types (fear of physical attack, fear of theft, and fear of unwelcomed sexual remarks) were previous victimization experiences and students' assessments of their own risks of victimization. Students who were previously victims of these offenses and who had higher risk assessments of being victimized were more likely to perceive an emotional fear. Females did have an increased likelihood of experiencing a fear of sexual harassment, which appeared to be generalized to a fear of a physical attack. However, there were no clear relationships found between race or socioeconomic status and fear.

Others have also examined the effects of school security measures on perceptions of fear at school. Schreck and Miller (2003) utilized the School Safety and Discipline Component of the National Household Education Survey, which measured fear by asking students how fearful they were about victimization from thefts, robberies, and assaults. Unfortunately, the questions did not distinguish between worrying about victimizations at school and going to/from school, yet many of their findings are consistent with those of Alvarez and Bachman (1997). For example, they found that the strongest and most consistent predictor of students' "worrying about victimization" was related to previous victimization. Females and children in higher grades were each more likely to worry about multiple types of crime, but African Americans and children from families with higher incomes were only more likely to worry about becoming the victims of robbery. Students bringing weapons to school and the presence of gangs at school also increased the likelihood of students worrying about multiple types of victimization. The more troubling findings of Schreck and Miller (2003) related to the positive relationship between virtually all of the security measures and student worries about victimization. Schools with locked doors, restroom limits, metal detectors, and adult supervision in the hallway each increased at least one form of worry in student perceptions. These relationships held even after controlling for previous victimizations, the other contextual factors of the school, and

student demographic characteristics. This positive relationship between fear and school security measures has recently been confirmed by others using the most recent School Crime Supplement to the NCVS (Bachman, Randolph & Brown, 2011).

A more recent study conducted with Canadian students by Sacco and Nakhaie (2007) focused on how the relationships between students and their parents and teachers affected levels of perceived fear while at school and going to and from school. They found that social capital, which was defined by effective parenting (e.g., parents who are fair, understanding, help solve problems, provide praise, are interested in whom their kids are with), effective peer relationships (e.g., get along with others my age, others want me to be their friend), and effective teacher relationships (e.g., get extra help from teachers, believe teachers treat them fairly), all served to contribute to perceptions of safety among students. They also found that once these measures, along with the psychological measures of self-control and self-esteem were controlled, there were no significant differences in male and female students' perceptions of fear both at school and while going to and from school. Unfortunately, it is not clear what effect previous victimization had on student fears because Sacco and Nakhaie (2007) did not control for it in their models predicting fear.

Finally, a study assessing the correlates of fear for a sample of adolescents in Belgian is also worth noting because, although it was not specifically related to fear in schools, it did provide a gender-specific analysis. As with Sacco and Nakhaie (2007), De Groof (2008) examined the etiology of fear for males and females aged 14 to 18, with a specific focus on the effects of parenting styles and parental supervision on fear. However, unlike Sacco and Nakhaie (2007) who asked the students about the relationships with their parents, information on parenting styles in De Groof's (2008) study came directly from a survey with parents. Unlike May and Dunaway (2000), who found that prior victimization increased fear for girls and not boys, De Groof (2008) found that prior victimization increased fear for boys but not for girls. In addition to the different contexts between Belgium and the U.S., these mixed results may also be related to the measurement of fear within the school setting by May and Dunaway (2000) compared to the general measurement of community-based fear in De Groof's (2008) research. Results of De Groof's (2008) analyses also indicated that adolescents who were allowed to be more independent and engage in leisure activities outside the home were less fearful compared to those who spent comparably more time in supervised activities inside the home regardless of gender. The parenting constructs measured by De Groof (2008) were also very different from those examined by Sacco and Nakhaie (2007), so it is difficult to make any generalizations except for the fact that parenting does appear to impact adolescent's fear.

In sum, we still know very little about the factors related to adolescent fear in general and students' perceptions of fear at school in particular; we know even less about the factors that may differentially predict feelings of safety at school for boys and girls. Moreover, there is a paucity of research that examines the individual and school contextual factors related to younger aged boys' and girls' fear; the majority of the research to date has relied on samples of youth aged 12 and over and most research has failed to control for the contextual characteristics of schools. In this study, we will examine the extent to which

previous victimizations, indicators of school incivility such as the availability of drugs and a climate of bullying, and other individual and school-level factors affect male and female 5th, 8th, and 11th grade students' perceptions of safety at school.

METHODS

Data Collection and Sample

The data used in this study come from the Delaware School Survey (DSS). The survey is administered annually to a random sample of 5th, 8th, and 11th grade classrooms in all public schools within the state of Delaware. This study uses data from the 2007 sample, which includes 7,727 5th grade students, 6,788 8th grade students, and 5,623 11th grade students. This includes approximately 91%, 87%, and 82%, respectively, of students enrolled in the randomly selected classes, and at least 98% of students who were present on the day of administration and asked to complete the self-administered, anonymous, questionnaire.

The demographics of the sample are displayed in Table 1. Official Department of Education (DOE) statistics about the population from which the sample was drawn are provided next to the sample demographics. The sample appears to be roughly representative of the grades from which it was drawn. While the sample was very similar to official school demographics for gender, minor differences can be seen between the sample and population data for race/ethnicity. This discrepancy is likely due to differences in how the data are collected, as the DOE population statistics require respondents to select only one category, whereas the DSS allows multiple responses to be selected to indicate mixed races, thus the sample has a higher proportion of responses that are considered "other."

DEPENDENT VARIABLE

Table 1: Demographics of the sample

	5th Grade		8th Grade		11th Grade	
	Sample	Population	Sample	Population	Sample	Population
Gender						
Male	50.9 (3,859)	50.6 (4,576)	50.1 (3,332)	51.4 (5,273)	49.1 (2,722)	51.0 (4,194)
Female	49.1 (3,720)	49.4 (4,462)	49.9 (3,316)	48.6 (4,994)	50.9 (2,823)	49.0 (4,027)
Race						
White	43.4 (3,354)	53.4 (4,827)	51.0 (3,464)	52.9 (5,431)	59.0 (3,317)	61.9 (5,087)
Black	24.9 (1,925)	32.2 (2,910)	27.2 (1,843)	34.9 (3,584)	24.1 (1,357)	28.3 (2,328)
Hispanic	11.8 (914)	10.8 (980)	10.2 (689)	9.2 (941)	7.3 (412)	6.4 (523)
Other	19.9 (1,534)	3.6 (321)	11.7 (792)	3.0 (311)	9.6 (537)	3.4 (283)

Fear: The dependent variable for all grades is the students' response to the statement, "I feel safe in my school." While this is a different way to measure "fear" compared to the School Crime Supplement of the NCVS that asks students, "How often are you afraid of harm at school?," we believe that our measure still captures the subjective feelings of fear that students may experience. Fifth grade students were presented with possible responses of only yes (coded as 0) or no (coded as 1), while 8th and 11th grade students were given responses of never, not often, some of the time, often, and most of the time (most of the time = 1, never = 5). In both cases, higher scores indicate a greater level of feeling fearful. The univariate distributions for all variables for the 5th grade are presented in Table 2; the distributions for 8th and 11th graders are presented in Table 3. As can be seen 11% of 5th graders reported they did not feel safe in their school, compared to mean fear ratings of 1.84 and 1.74 for 8th and 11th graders respectively. Bivariate analyses by grade and gender indicate that the only significant gender differences between perceptions of safety occurred in the 5th grade, where males were more likely to feel unsafe (12.1%) compared to females (10.4%). For the 8th grade, 7.6% of females and 8.5% of males reported "not often" or "never" feeling safe compared to 5.7% of females and 6.0% of males in the 11th grade. As such, in contrast to the literature that finds females are more likely to be fearful, the only significant difference found here were for males in the 5th grade feeling less safe than their female counterparts.

Table 2: Descriptive Statistics for 5th Grade

	Mean	SD	Min	Max	N
Fear	.11	.32	.0	1.0	7399
Substance Use	1.26	.65	1.0	6.0	7310
Victimization					
Verbal Abuse	.42	.49	.0	1.0	7723
Bullying	.28	.45	.0	1.0	7723
Fights	.18	.38	.0	1.0	7723
Shoving	.23	.42	.0	1.0	
School Bullying	.53	.50	.0	1.0	7280
School Rule Enforcement	3.83	1.09	1.0	5.0	7326
Substance Availability					
Buy Cigarettes	.13	.34	.0	1.0	7421
Get Alcohol for Free	.11	.32	.0	1.0	7465
Buy Alcohol	.10	.30	.0	1.0	7434
Percent Low Income	43.76	21.46	2.2	87.6	81
Student/Teacher Ratio	15.83	1.74	11.7	21.6	81
Percent Suspended/Expelled	6.26	6.54	.0	25.9	81
Percent Graduated	91.88	14.35	29	100	78

Table 3: Descriptive Statistics for 8th and 11th Grades

	8th Mean	11th Mean	8th SD	11th SD	Min	Max	8th N	11th N
Fear	1.84	1.74	1.08	.98	1.0	5.0	6629	5507
Substance Use								
Lifetime Cigarette Use	1.84	2.62	1.65	2.27	1.0	7.0	6533	5465
Past Year Cigarette Use	1.53	2.16	1.37	2.09	1.0	7.0	6493	5409
Past Month Cigarette Use	1.30	1.76	1.03	1.77	1.0	7.0	6492	5410
Lifetime Alcohol Use	2.40	3.78	1.82	2.24	1.0	7.0	6536	5455
Past Year Alcohol Use	1.90	2.99	1.44	1.99	1.0	7.0	6464	5433
Past Month Alcohol Use	1.40	1.86	.95	1.33	1.0	7.0	6456	5423
Lifetime Marijuana Use	1.65	2.68	1.55	2.30	1.0	7.0	6511	5472
Past Year Marijuana Use	1.47	2.24	1.30	2.04	1.0	7.0	6457	5430
Past Month Marijuana Use	1.24	1.67	.92	1.53	1.0	7.0	6441	5422
Victimization								
Verbal Abuse	30%	21%	.46	.41	.0	1.0	6782	5623
Bullying	22%	10%	.41	.30	.0	1.0	6782	5623
Threats	21%	12%	.40	.32	.0	1.0	6782	5623
Shoving	31%	15%	.46	.35	.0	1.0	6782	5623
Fights	16%	08%	.37	.28	.0	1.0	6782	5623
Fights with Weapons	07%	04%	.26	.20	.0	1.0	6782	5623
School Bullying								
In School	3.10	2.72	1.15	1.01	1.0	5.0	6655	5530
In Busses and at Bus Stops	2.58	2.33	1.13	.96	1.0	5.0	6474	5293
School Rule Enforcement								
Rules are the Same	3.59	3.22	1.38	1.39	1.0	5.0	6424	5429
Strictly Enforced	3.69	3.55	1.06	1.04	1.0	5.0	6399	5429
Everyone Knows the Rules	3.68	3.65	1.14	1.08	1.0	5.0	6395	5407
The Rules are Fair	3.00	3.01	1.23	1.14	1.0	5.0	6415	5425
Substance Availability								
Buy Cigarettes	40%	63%	.49	.48	.0	1.0	6782	5623
Buy Alcohol	27%	50%	.44	.50	.0	1.0	6782	5623
Buy Marijuana	33%	61%	.47	.49	.0	1.0	6782	5623
Could Have Used Cig	32%	55%	.47	.50	.0	1.0	6782	5623
Could Have Used Alcohol	36%	67%	.48	.47	.0	1.0	6782	5623
Could Have Used Mrj	27%	58%	.44	.49	.0	1.0	6782	5623
Percent Low Income (8th)	38.13	----	19.78	----	5.5	87.6	42	---
(11th)	----	28.91	----	12.55	.0	47.0	---	33
Student/Teacher Ratio (8th)	16.58	----	2.07	----	11.1	21.6	42	---

	(11th)	----	15.86	----	2.04	11.1	21.1	---	33
Percent Suspended	(8th)	16.16	----	10.98	----	1.2	36.6	42	---
or Expelled	(11th)	----	19.15	----	12.46	.43	46.7	---	33
Percent Graduated	(8th)	88.79	----	11.63	----	54.0	100.0	39	---
	(11th)	----	94.71	----	3.87	86.0	99.8	---	32

Independent Variables

School Bullying: To ascertain the extent of bullying within the school environment, fifth grade students were asked to report whether "kids pick on other kids" (0 = no, 1 = yes). Eighth and eleventh grade students were asked two questions "students are bullied by other students" and "students are bullied by other students on the school buses and at the bus stops," each with the same never to most of the time range of responses as before (in this instance, 1 = never and 5 = most of the time). These variables have a scale reliability alpha of .72 and when combined into a single factor construct incorporate 78% of their common variance. For all grades, this variable was then aggregated to the mean for the school. As the mean indicates in Table 2, over half (53%) of fifth graders reported that kids pick on other kids at their school. Eighth graders also report higher mean ratings of bullying at their schools compared to 11th graders (Table 3).

School Rule Enforcement: Fifth grade students were asked a single question about whether they believed school rules are strictly enforced (0 = no, 1 = yes). Secondary students, however, were asked four questions regarding whether everyone knows what the school rules are, whether the rules are strictly enforced, whether the rules are fair, and whether the punishments for breaking the rules are equally enforced. Possible responses included strongly agree, agree, neither, disagree, and strongly disagree (1 = strongly disagree, 5 = strongly agree). These items had an alpha of .71 and explained 56% of the common variance. This construct was also aggregated to the school mean.

Prior Victimization: An index was used to measure students' previous victimizations. Questions in the index asked if the respondent had experienced verbal abuse (called "name-calling" on the 5th grade survey), bullying, threats, shoving/pushing, fighting, and weapon-related threats or fighting in the past 30 days from other kids at their school (0 = not victimized, 1 = victimized). Fifth grade included only four of these six measures, with threats and fights with weapons excluded. The scale reliability was .75 for fifth grade and .80 for eighth grade, with 58% and 50% of the variance explained respectively. This construct was measured at the individual level only. Examining the means for individual indicators of victimization, it appears that 5th and 8th grade students were more likely to experience a recent victimization compared to 11th graders.

Substance Use and Availability: The final constructs from the DSS data include substance use and substance availability. For fifth grade, substance use is limited to a six point scale for alcohol use. Secondary grades included a battery of nine questions relating to alcohol, tobacco, and marijuana, each with questions about past month, past year and

lifetime use. All grades for all substances were coded as 1 for no substance use higher values (maximum of 6 for 5th grade and 7 for 8th/11th grades) indicating increasing levels of substance use. This scale had a reliability of .92 and an explained variance of 63%. This construct was kept at the individual level. Substance availability was measured using a three item construct for fifth grade, including whether students know where to buy alcohol, where to get it for free, and where to buy cigarettes (0 = don't know, 1 = know). A six item construct was used for secondary grades, tapping knowing where to buy or get, as well as having the opportunity to use, tobacco, alcohol, and marijuana (0 = could not buy/get or use, 1 = could). The reliability alphas for these scales were .73 and .81, respectively, and the explained variances were 65% and 54%. This construct was aggregated to the school mean.

School-level variables: To provide additional information about school contexts, four variables that were provided by schools in their respective school profiles (Delaware Department of Education, n.d.) were also used in models predicting fear. The first variable measured the socioeconomic status of schools and was operationalized as the percent of a school's population who were classified as "low income" as measured by the state's uniform measure of students below a specific threshold (similar to, but higher than, the poverty line) within each school. Second, the student/teacher ratio represents each school's average number of students per teacher. The average ratio of students to teachers was 15.8 in 5th grades, 16.58 in 8th, and 15.8 in 11th grades. Both of these variables are based on the same school year in which the survey data was collected. Another indicator of school incivilities was the percent of students enrolled at the beginning of the previous school year who were either suspended or expelled at some point during the year. Suspension/expulsion rates increased across grades with just over 6% of 5th grader being suspended or expelled, 16% of 8th graders, and 19% of 11th graders. Finally, to ascertain the successfulness of a school, graduation rates were operationalized as the percent of students initially enrolled that went on to graduate the previous spring in each school. It is important to note that although suspension/expulsion rates and graduation rates are related concepts, the strength of their correlation is not high enough to cause colinearity concerns ($r = -.55$), and tests for multicolinearity similarly indicated no problems resulting from including both models (all VIFs < 6).

Analysis Strategy

In the analyses that follow, we will present grade and gender-specific models predicting levels of fear using both individual and school-level independent variables. Data collected from within a nesting structure, such as is the case with the school environments here, are particularly vulnerable for violating the regression assumption of a lack of autocorrelation (Berry, 1993). Therefore, it is typically necessary to correct for such autocorrelation at the second or higher levels when performing regression analyses by using techniques other than ordinary least squares regression (OLS), such as hierarchical linear modeling (HLM) (Raudenbush & Bryk, 2002). Additionally, because school-level characteristics will also be used as predictors of fear, this study will employ HLM for regression analyses rather than traditional OLS or logistic regressions. For ease of interpretation, pre-

dictor variables not already centered with a grand mean of zero due to the factor extraction process were grand mean centered in preparation of HLM analysis. Additionally, because theory suggests that males and females may experience fear differently, separate models will be run for boys and girls to see if causal factors vary by gender.

RESULTS

The results from the grade and gender-specific HLM analyses are presented in Table 4. Among 5th grade students, substance use and victimization are significant level-one predictors. Specifically, the more 5th graders use alcohol, the more likely they are to be fearful and those who have experienced more victimization are also more likely to be fearful. This applies to both males and females. With regard to race, the category of "other race" was the only group more fearful than white students, but this was only for males. Both African-American and Hispanic students did not differ in their perceptions of fear compared to their white counterparts. At the school level, an atmosphere of bullying, substance availability and percent suspended/expelled each were significant predictors. Those 5th graders who attended school in environments with a higher level of bullying, a greater level of substance availability, and a greater percent of suspended/expelled students were all more likely to experience fear. These second level findings apply to both males and females, except for the percent suspended/expelled, which was significant only for males.

At the 8th grade level, substance use and victimization again are significant predictors with a positive relationship with fear. Moreover, the "other race" category again was significant only for males. At the school level, more gender differences emerge compared to the 5th grade students. Bullying and percent suspended are significant for females, with those in schools with more bullying and more suspensions experiencing more fear. Among males, the same relationship is found for suspended/expelled, but further, male students where rule enforcement is higher and, counter-intuitively, substance availability is greater are both less fearful.

For the models predicting fear at the 11th grade, fewer significant predictors are found. Among the individual level variables, only victimization and students in the "other race" category for males only were significant. At the school level, both percent suspended and rule enforcement were significant and in the expected direction. For males only, the model also suggests that greater substance availability in the school leads to less fear.

DISCUSSION

This study has provided a gender and grade-specific analysis of the individual and school contextual level predictors of fear for 5th, 8th, and 11th grade students who attended public schools in the state of Delaware. The results have illuminated the importance of examining grade and gender-specific models while simultaneously controlling for the contextual characteristics of the school. Unlike much of the extant literature that has focused exclusively on individual factors to explain fear, it was found that even after controlling for

Table 4: HLM Regression Predicting Fear - Unstandardized Coefficients (SE)

	5th Grade		8th Grade		11th Grade	
	Male	Female	Male	Female	Male	Female
Level 1:						
Substance Use	.012 (.006)*	.018 (.006)**	.051 (.025)*	.071 (.026)*	.035 (.019)	.034 (.029)
Victimization	.042 (.007)**	.034 (.006)**	.214 (.023)**	.221 (.020)**	.172 (.024)**	.155 (.019)**
Black	.021 (.014)	-.004 (.013)	-.067 (.047)	.048 (.045)	-.034 (.049)	.015 (.045)
Hispanic	-.023 (.018)	-.015 (.017)	-.118 (.070)	.090 (.063)	.015 (.076)	.079 (.070)
Other Race†	.034 (.016)*	.009 (.013)	.177 (.063)*	.027 (.060)	.167 (.065)*	.065 (.067)
Level 2:						
Bullying	.027 (.013)*	.045 (.015)**	.096 (.055)	.146 (.052)**	.055 (.053)	.071 (.066)
Rule Enforcement	-.002 (.008)	-.011 (.008)	-.103 (.048)*	-.076 (.051)	-.118 (.033)**	-.116 (.044)*
Substance Availability	.028 (.011)**	.038 (.012)**	-.092 (.041)*	-.004 (.041)	-.071 (.028)*	-.043 (.036)
Percent Low Income	-.001 (.000)	-.001 (.001)	.003 (.002)	.001 (.002)	.004 (.003)	-.001 (.004)
Student/ Teacher Ratio	-.005 (.004)	.000 (.005)	.002 (.017)	-.007 (.018)	.004 (.017)	-.004 (.021)
Percent Suspended/ Expelled	.003 (.002)*	.000 (.002)	.011 (.004)*	.011 (.004)*	.007 (.003)*	.010 (.004)*
Percent Graduated	-.000 (.001)	.000 (.001)	.004 (.003)	.004 (.003)	.003 (.011)	-.011 (.013)
Intercept	.103	.111	1.766	1.769	1.643	1.787

* Coefficient is significant at the .05 level
** Coefficient is significant at the .01 level
***White students excluded to form the reference category

individual factors such as previous victimization, several contextual characteristics of the school environment affected feelings of safety.

While several factors consistently predicted feelings of safety across grade and gender, there were also differences. Somewhat surprisingly, there was little variation in the factors that predict fear across the race/ethnic subgroups. Except for the group of "other race," which is difficult to interpret because it contains a diversity of students, there were virtually no race/ethnicity differences in any of the models. That is, Black and Hispanic students were no more likely to be fearful than their White counterparts after controlling for other factors.

Consistent with much research (Alvarez and Bachman, 1997; Wilcox et al., 2005), previous victimization was the most consistent predictor of fear across all grades and for both males and females. In fact, the only factor that significantly increased fear across all grades and for both males and females was prior victimization.

The other individual level variable associated with increased perceptions of fear for younger students was drug and alcohol use. Fifth grade girls and both 8th grade girls and boys who used drugs and alcohol were more fearful than their counterparts who had not. This may be related to these students being involved in more delinquent subcultures in general, which also places them at risk of victimization. The fact that alcohol/drug use did not significantly increase levels of fear for older students may be related to the normalization of these behaviors in high school. Somewhat surprisingly, substance availability in schools had different effects on fear across grade levels. Fifth grade students who went to schools where alcohol and cigarettes were more available were more fearful compared to their counterparts who went to schools where they were not. However, the availability of cigarettes, alcohol, and marijuana in middle and high school actually decreased perceptions of fear, significantly so for males. This is inconsistent with the positive effect on fear for the individual-level indicator of alcohol/drug use for students in these grades. It is worth noting that this puzzling finding does not exist at the bivariate level. For males in 8th grade, the correlation between substance availability and fear, though not significant, was positive (r = .033). The 11th grade male sample indicates a negative relationship, though with a very small effect (r = -.012). It was only after controlling for other variables in the model that this counterintuitive relationship emerges as significant for 8th graders.

Several other contextual effects of the school environment were also found to affect students' perceptions of safety. The measures of school incivilities generally increased students' perceptions of fear. For example, in three of the models (5th grade males and females and 8th grade females), those who were in schools with higher levels of bullying also perceived greater levels of fear, even after personal victimization experiences were controlled. This positive effect was true for the other models as well but failed to attain significance in the multivariate models. Finally, there was a relationship between the percent of school suspensions and expulsions and fear; youth attending schools with a higher percent of students who were suspended or expelled all had increased levels of fear compared to those attending schools with fewer expulsions.

Schools where bulling was more prevalent also predicted fear for younger students; 5th and 8th grade students who attended schools where bullying was more frequent were more likely to be fearful, net of any personal victimization they had experienced themselves. At least for younger students, then, a school atmosphere where bullying behavior is tolerated has serious consequences for the emotional well-being of students. Because previous research indicates that bullying has other deleterious consequences for students including depression (Seals, 2003) and other health issues such as headaches, gastric distress (Nanselet al., 2001; Salmon and West, 2000) and scholastic competence (Mouttapa, Valent, Gallaher, Rohrback, & Unger, 2004), efforts to reduce bullying in schools, particularly at the lower and middle school levels, would appear to be important.

Importantly, other contextual factors appeared to ameliorate the conditions conducive to fear in schools. In all of the models, there was a negative relationship between school environments that more aggressively and fairly enforced the rules and perceptions of fear; this effect was significant for both 11th grade males and female and for 8th grade males. The negative effect across models indicates when students believed that the school rules were "strictly enforced" and "fair" in their schools, they were less likely to be fearful while at school. Importantly, these measures have also been found to reduce school disorder (Mayer and Leone, 1999). Together, these findings would seem to indicate that well-defined and communicated school discipline codes are very important in producing safety in schools, at both the subjective and objective levels. Importantly, it takes relatively few resources to communicate school rules and the consequences for rule breaking compared to the "secure building" methods of surveillance cameras and metal detectors.

Naturally, this study is not without some limitations. First, as we have already underscored, researchers have measured fear in numerous ways, and our single measure that asked students about their "feelings of safety in school" was less than ideal. However, we believe this operationalization is still tapping into perceptual feelings of fear and/or feeling unsafe. Other questions in this survey may have been unclear to respondents. For example, the question that asked about having been bullied did not actually define for students what bullying was. As such, interpretations of the question may vary by cultural, gender, or experiential differences. Second, students who are fearful may be less likely to attend school regularly, especially in later grades where attendance traditionally is lower. This may have biased the sample in unknown ways. The scope of the data and results also may be limited given that the sample is purely Delaware public and public-charter students. Private schools and other states' public schools may have different cultures or environments that would provide different conclusions. And finally, the cross-sectional nature of the data did not allow us to control for the time order of the variables.

Despite these limitations, we believe this study provides an important step toward delineating the grade and gender-specific relationships between perceptions of fear at school and both individual and school level factors. Our findings have clear implications for school administrators, particularly in the educational landscape of "no child left behind." While school administrators undoubtedly face a number of hurdles, fostering an environment that encourages and promotes learning and creativity is obviously a challenge. Making the school premises safe and secure is inextricably related to achieving this goal. Feeling pressure from parents and marketing, administrators may fall prey to a huge private industry emerging that promises quick fixes to security needs. Unfortunately, previous research indicates that many obtrusive security measures, such as metal detectors and security guards, serve to increase student perceptions of fear (Bachman, Randolph and Brown, 2011; Mayer and Leone, 1999) and have no significant impact on reducing victimization (Burrow & Apel, 2008). Our results, coupled with others (Mayer & Leone, 1999) indicate that there are relatively inexpensive policies administrators can implement to increase perceptions of safety in schools. Importantly, administrators should be aware that they have to the power to decrease students' fear and foster environments that are

conducive to learning. A seemingly easy and inexpensive policy would be to communicate and enforce the rules equitably. Another policy recommendation would be to create environments where bullying is not tolerated, particularly for lower and middle school students. To do this, administrators must first dispel the myths that bullying is a normal part of growing up, or that it is only performed by marginal students. Administrators should heed warnings from others, however, that successful bullying prevention programs are not quick fixes, but instead rely on multiple strategies that involve families, teachers and students (Vernberg & Biggs, 2010).

Future research should continue to probe available data for idiosyncratic subgroup etiological differences, particularly differences by race, gender, and social class. There is also a vast gap in our understanding of how students perceive the safety of their schools on an individual level. The extant research would be well served by adding the voices of students to understand their perceptions of safety in their own words. This area of inquiry could also be advanced by observational studies, which examine the interpersonal dynamics that play out in schools at the ground level. We hope the current research will serve as a catalyst for future work that continues to unravel the complexities between perceptions of fear, individual factors, and the school environment.

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ENDNOTE

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1. After an extensive literature review over two decades ago, Ferraro and LaGrange (1987) contended that the phrase "fear of crime" had acquired numerous meanings and called for researchers to be more explicit in their conceptual and operational definitions. Unfortunately, there still exists a wide variety of questions that are used to solicit information about respondents' feelings of fear and safety. This may be due to the different agendas of the federal agencies that sponsor school surveys. For example, the School Crime Supplement to the Bureau of Justice Statistics sponsored National Crime Victimization Survey asks students "How fearful of an attack or harm are you in school?" This question clearly places emphasis on crime. However, the Center For Disease Control and Prevention sponsored state school surveys are concerned with risk taking behaviors in addition to crime, and have operationalized students' subjective feelings of fear by asking them about their "feelings of safety" at school. While these are clearly two different ways to solicit students' perceptions, we believe both questions are tapping into perceptual feelings of fear and/or feeling unsafe.

2. For 5th grade alcohol use, responses included never (1), before but not in past year (2), a few times in past year (3), once or twice a month (4), once or twice a week (5), and almost every day (6). For 8th/11th grades, responses for alcohol and marijuana use included 0 times (1), 1-2 times (2), 3-5 times (3), 6-9 times (4), 10-19 times (5), 20-39 times (6), and 40 or more times (7). Tobacco use was measured with responses of none (1), less than 1 (2), 1-5 cigarettes (3), 6-10 cigarettes (4), 11-20 cigarettes (5), 21-30 cigarettes (6), and 31 or more cigarettes (7).

3. Just as with other forms of regression, standard HLM regression is based on the assumption that the dependent variable is continuous and normally distributed. In the case of these dependent variables, two are ordinal and the other is dichotomous. In order to correct for this, specific types of HLM regression are usually used (ordinal HLM and Bernoulli HLM respectively). In the case of this study, however, the analyses need to be somewhat comparable between all dependent variables. Thus, we have elected to run and present models using standard HLM analyses so that the model results can be more easily compared to one another. In the interest of ensuring that violating the assumptions of continuous HLM regression did not alter the results, the alternative models were also run. The results from the ordinal and Bernoulli models did not significantly differ from those presented and would result in the same substantive conclusions.

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