8-1-2009

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Recommended Citation

Fisher BS, May D. College Students' Crime-Related Fears on Campus: Are Fear-Provoking Cues Gendered? Journal of Contemporary Criminal Justice. 2009;25(3):300-321.

Journal of Contemporary Criminal Justice
Volume 25 Number 3
August 2009 300-321
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10.1177/1043986209335013
http://ccj.sagepub.com
hosted at
http://online.sagepub.com

College Students' Crime-Related Fears on Campus

Are Fear-Provoking Cues Gendered?

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Gender plays a central role in the study of crime-related fear as does the description of various fear-provoking cues in the environment. Despite the ever-growing body of crime-related fear research, few researchers have examined which fear-provoking cues, if any, are gendered. Using a large sample of undergraduates from a public university, this article explores the gendered nature of fear-provoking cues and crime-related fears while on campus. Bivariate and multivariate results suggest that fear-provoking cues are not gendered for fear of larceny-theft or fear of assault. These results inform the fear of crime research on a number of dimensions and have implications for future research.

Keywords: *fear of crime; fear-provoking cues; gender; college campus; cognitive mapping*

The notion that gender plays a central role in determining crime-related fear levels is so tightly woven into thinking about fear that it is by and large no longer subject to question. Decades of empirical scrutiny by sociologists, victimologists, psychologists, planners, and geographers have established that there are gender-based differences in fear levels across crime types and in certain types of environments, such as public places (Day, 1994; Fisher & Sloan, 2003; Klodawsky & Lundy, 1994; Lane & Meeker, 2003; May, 2001a; Nasar & Fisher, 1993; Reid & Konrad, 2004).

Despite these widely accepted gendered findings, much of the crime-related research has focused almost exclusively on why women are fearful (Madriz, 1997; Pain, 1997; Starkweather, 2007). A small, but growing, number of researchers have turned their attention to men as victims of fear and why they are fearful (Brownlow, 2005; Day, Stump, & Carreon, 2003). Only recently a few comparative research

Authors' Note: This study was supported by a research grant awarded to Professor David May from the College of Justice and Safety Research Committee at Eastern Kentucky University in 2007. The opinions expressed in this article do not represent those of Eastern Kentucky University; they are the authors' opinions.

pieces have been published that identify and explain which factors, if any, differentiate crime-related fear between women and men (Lane & Meeker, 2003; May, 2001b; May & Dunaway, 2000; May, Vartanian, & Virgo, 2002; Reid & Konrad, 2004; Schafer, Huebner, & Bynum, 2006; Smith & Torstenson, 1997; Wallace & May, 2005).

Avenues of research grounded in both environmental and spatial cognition and psychological theories have been used to identify what cues in the immediate environment provoke fear of crime and describe how these cues generate fear of crime and constrain behavior (Kitchin, 1996; Pain, 2001; Valentine, 1990). Researchers have shown that stimuli that generate fear among individuals (hereafter referred to as fear-provoking cues) vary from specific physical features of the built environment to the presence of others to the visibility of police officers whose duty is to provide surveillance and protection (Cordner, 1986; Fisher & Nasar, 1992; Herzog & Chernick, 2000; Herzog & Miller, 1998; Loewen, Steel, & Suedfeld, 1993; Nasar & Fisher, 1993; Warr, 1990, 2000; Winkel, 1986). Much evidence supportive of the positive relationship between individuals' assessment of these cues and their crime-related fears has amassed.

Researchers have offered a plausible explanation as to why these types of cues elicit an emotional fear response. They reason that persons infer from certain cues in the environment that this could be a situation in which possible impending physical danger or harm to oneself or property awaits them (see Fisher & Nasar, 1992; Herzog & Chernick, 2000; Nasar & Fisher, 1993). Fear-provoking cues speak to the amygdale—the brain's emotion region—not the neocortex—the logic and reasoning region (Begley, 2007).

Despite researchers' efforts and explanations, gaps in understanding the relationship between fear-provoking cues and subsequent fear of crime are evident. The current research takes several important steps in a long overdue effort to close the gaps about what is known about which, if any, fear-provoking cues differ across gender and which ones, if any, influence males' and females' fear of specific types of crime. We employ survey data from a large sample of undergraduate students at a 4-year public university to address three research questions about the possible gendered nature of cues and crime-related fear that have not been previously addressed. First, are fear-provoking cues gendered? Simply stated, do males and females evaluate cues known to provoke fear of crime the same way or differently? Second, which of these cues, if any, predict males' and females' fear of specific types of crimes? That is, are fear-provoking cues offense specific? For example, do certain fear-provoking cues predict fear of theft but not fear of violent crime? Third, do these cues equally predict specific crime-related fear across males and females? Simply put, do fear-provoking cues equally predict the same types of fear for males and females alike? Addressing these questions is among the first attempts to enhance our understanding about whether the relationship between fear-provoking cues and crime-related fears is a gendered one among college students while on campus.

Cognitive Mapping and Fear-Provoking Cues

From an evolutionary perspective, individuals use a cognitive map as an efficient mechanism for managing spatial and temporal information about the physical and social nature of their environment to guide behavioral decisions (Kitchin, 1996). Cognitive maps are important to individuals' safety; they protect people from harm. Environmental psychologists have suggested that these maps give individuals "a selective advantage in a difficult and dangerous world that is necessary for survival" (Kitchin, 1994, p. 2). Sighted individuals scan their immediate environment for cues of danger, physical threat, or harm that would make themselves, others, or their property vulnerable to attack. Merry (1981, pp. 11-12) described this process when she explained that

> [C]ues are structured into spatial, temporal, and personal cognitive maps that define places, times, and categories of persons who are likely to be safe or dangerous. The decision that a situation is (is not) dangerous depends on the intersection of these maps. To understand fear of crime, it is much less useful to ask how afraid an individual feels than it is to explore the content of his or her cognitive maps and the frequency with which he or she encounters situations these maps define as dangerous.

Ultimately, these cognitive maps shape an individual's sense of potential criminal victimization, and it is from these maps that individuals draw inferences about their fear levels. Van der Wurff, Van Staalduinen, and Stringer (1989, p. 145) noted that as individuals venture into a specific place, they immediately heed the "criminalizability" of that space.

Given the gendered focus of this article, the nexus between cognitive maps and crime-related fear gives rise to an issue directed at possible differences between males and females in their perceptions of fear-provoking cues. At the core of this issue are three quite simple, yet unanswered questions: (a) Do males and females differ with respect to their assessment of fear-provoking cues? (b) Do the same or different free-provoking cues predict fear of different types of crimes, namely property and violent ones? (c) Are these fear provoking cues the same for males and females? The answers to these questions, however, are not so obvious.

Psychology and geography research offer a plausible answer. Researchers have reported that females and males differ in their everyday spatial knowledge and in their processing of information (see Kitchin, 1996; Pain, 2001; Valentine, 1990). Although there are competing theories as to why these gender differences exist, this line of inquiry could be extended to understanding crime-related fear among males and females. To illustrate, this research suggests that the difference in spatial knowledge and processing could have differential effects on males and females. If this is so, then this leads to questions concerning which specific cues increase their respective

crime-related fear. Important to the focus of this article, the logic of this line of research suggests that these specific cues to fear may differ for males and females. In other words, these cues are gendered because males and females perceive different cues when creating their respective cognitive maps of the environment.

Another plausible answer to these questions is also evident in the psychology and geography research. Findings based on data from 1st-year undergraduates reported by Kitchin (1996), however, are in contrast to most studies reporting gender differences in knowledge of the physical environment, or in other words, their respective cognitive map. Kitchin argued, with some caution, that differences in cognitive map knowledge and abilities between females and males are not as pronounced as once reported. His results suggest that males and females have equal cognitive mapping knowledge. Extending the logic of his results to fear-provoking cues would suggest that these cues may not be different for males and females. In other words, females and males perceive the same cues as fear provoking, and thus with respect to specific fear-provoking cues there is no difference between them. In the current article, we examine empirically Kitchin's argument to see if gender differences exist in assessing fear-provoking cues and then examine their predictive utility with respect to fear of crime.

Regardless of whether there are differences or similarities in fear-provoking cues between males and females, researchers have shown that specific cues are associated with crime-related fears. Their work informs our discussion of specific cues that males and females perceive in their environment and might use each to assess their crime-related fear. We now turn to a discussion of these diverse, yet relevant, bodies of research.

Fear-Provoking Cues

There is ample evidence cutting across a variety of academic disciplines that supports a significant association between specific features of the immediate physical environment and crime-related fear (Brownlow, 2005; Fisher & Nasar, 1992; Merry, 1981; Nasar & Fisher, 1993; Warr, 1990, 2000). However, the findings from fear-provoking cues research suggests that there is not one cue that influences fear but rather a constellation of cues that include specific features of the physical environment to the presence of others to the visibility of police officers whose duty is to provide surveillance and protection. The research investigating each of these types of cues and its relationship to influencing fear is briefly discussed below.

Lighting

Visibility of an environment is an important component of individuals being able to see what awaits them. At the core of the concept of lighting is the notion of individuals

being able to see potentially threatening or harmful situations, including being able to see a hiding place for a predator.

Studies have focused on understanding the relationship between the degree of illumination in the environment and fear of crime levels. Among the most consistent findings is that lower lighting levels heighten fear. For example, in a study of perceived safety on a university campus, Kirk (1988) reported that the two factors most often chosen as making the environment appear unsafe were poor lighting and places for attackers to hide. Loewen et al. (1993) asked undergraduates to list features of the outdoor environment that they thought could make it safe from personal victimization. The most frequently cited feature was light followed by open spaces and access to real refuge. In a second study, they showed students slides of varying features, including light, and students ranked their perceived safety. Students deemed scenes that were unlit as the most unsafe. The correlation of light with perceived safety was the highest, .70, among all the other features. Stamps (2005) presented perhaps the most rigorous evidence concerning the lighting and fear relationship. Using meta-analysis to estimate the effect of this relationship across 19 published studies, he reported the lightness of a scene was correlated with perceived safety at −.68 (95% CI −.88-.22). The meta-analysis results, coupled with the results from these individual studies, add support to the claim that illumination of an environment is a powerful correlate of perceived safety.

Foliage

Foliage, such as flowers, grasses, bushes, and trees, are widely planted to provide aesthetic beauty to environment. Consistent with the emphasis in the environmental criminology literature, the growth and density of foliage can also block visual views into spaces and provide hiding places for would be offenders and thus result in heightened crime-related fear (see Fisher & Nasar, 1992; Herzog & Chernick, 2000; Loewen et al., 1993; Nasar & Fisher, 1993).

Past research has identified that foliage shapes individuals' perceptions of safety, with different dimensions of foliage time and again having a negative effect on individual's sense of safety. For example, Shaffer and Anderson (1983) asked college students to evaluate scenes from 180 parking lots. They found that students rated their security higher in parking lots where the vegetation was well managed and not overgrown. Kuo, Bacaicao, and Sullivan (1998) reported that tree density and grass maintenance had strong effects on individuals' sense of safety in an urban plaza. Using a sample of undergraduates to rank a series of settings presented in slides, Herzog and Chernick (2000) examined the relationship between personal danger and a host of features, including the amount of foliage. They reported that in urban settings, the amount of foliage was a significant predictor of danger. As expected, as the amount of foliage increased in urban setting so did individuals' perception of danger.

Groups Loitering

Social environments provide signals that individuals incorporate into their fear assessment (Warr, 1990). Individuals consider incivilities visible "signs of crime" indicating that dangerous elements are present and their personal safety might be compromised and threatened, hence results in their heightened fear of crime (see Skogan, 1990). The presence of individuals who indicate that possible dangerous elements are present, for example loitering youth, consistently has been linked to heightened fear levels among males and females. Much research supports the notion that signs of social incivilities, in particular youths congregating on streets and rowdy youths, provoke high levels of fear in individuals (see Skogan, 1990; Warr, 1990, 2000).

Visibility of Police

There is intuitive and philosophical evidence for an inverse relationship between police presence/effectiveness and fear of crime, yet relatively few researchers have examined the role of police visibility in reducing fear of crime. Winkel (1986) determined that when police officers administered surveys to neighborhood residents, respondents were less fearful than other residents that were administered surveys by researchers who were not in police uniforms; based on this finding, he suggested that police visibility reduces fear of crime. Cordner (1986) determined that a moderate reduction in fear of crime occurred when police saturated neighborhoods as part of a citizen-oriented police enforcement (COPE) strategy that involved increased foot patrol and citizen-police interaction in an attempt to solve community problems. Salmi, Gronroos, and Keskinen (2004) determined that among teenagers, those who saw police on foot patrol most frequently were less fearful of violent crime. Among both adults and teenagers, however, those who saw police most often during motorized patrol were more fearful of both personal and property crimes. Yet another study found no relationship between police presence and fear of crime (Ferguson & Mindel, 2007), while Holmberg (2002) determined that increased patrols by police led to increased fear of crime. Skogan and Hartnett (1997) provided among the strongest evidence linking the visibility of community-oriented policing efforts (i.e., walking on foot) to reducing fear of crime. Their findings from their pre/posttest evaluation design showed that residents who subsequently observed police involved in community-oriented activities felt safer. As such, the effects of the visibility of the police on fear findings at best are mixed and hence the relationship between police visibility and fear of crime is somewhat inconclusive.

Volumes of research have reported that each of these cues—poor lighting, overgrown or excess shrubbery, groups loitering, and lack of presence of police—are significantly related to fear of crime. However, and somewhat surprisingly, no researchers have examined all of these fear-provoking cues in one study. In addition,

little is known about which of these specific cues, if any, affect which types of crime-related fears. Simply asked, do specific fear-provoking cues predict different offense-specific fears? For example, does poor lighting predict fear of being attacked, beaten up, and sexual assault or just one of these crime-related fears? The current study is the first to our knowledge to consider all four of the previously discussed fear-provoking cues in a single study. To begin to answer our offense-specific fear questions also requires examining if fear-provoking cues are gendered.

Are the Cues That Predict Crime-Related Fear Gendered?

As we have discussed, cognitive maps are helpful in understanding how sighted individuals assess their fear of crime level. The growing body of research on fear-provoking cues also provides insights into what cues influence individuals' fear of crime. Bringing these bodies of research together raises issues as to whether the cues that predict crime-related fear are gendered. For example, does poor lighting influence fear of crime for both males and females, or does poor lighting only influence females' fear of crime? Does police presence predict males and females being fearful or only predict males being fearful?

It is somewhat surprising that researchers have largely neglected the integration of these bodies of research to examine if the relationship between cues and crime-related fear are similar or different across males and females. In part, the lack of attention may lie in the fact that researchers' focus has primarily highlighted females' experiences of crime-related fear (Madriz, 1997; Pain, 1997; Starkweather, 2007; for exception see Brownlow, 2005; Day et al., 2003; Lane & Meeker, 2003; May, 2001b; May & Dunaway, 2000).

Among the very few published studies to offer some guidance into addressing our gendered-based questions about the fear-provoking cues relationship is Brownlow's (2005) study of fear among young men and women in Philadelphia's Cobb Creek Park. From the focus group discussions with these youth and their rating of slides from the park, he concluded that "clear differences distinguish how the young men and women of the study negotiated their fears in public spaces" (p. 589). He reported that unlike their female counterparts, males do not judge an environment safe based on the presence or absence of environmental cues. Brownlow found that males judge an environment based on their sense and perceptions of their negotiation of an environment, namely whether they see themselves as being able to flee a risky or uncertain situation. Males consider their youth, physical strength, and speed to be a key in managing dangerous situations. These results suggest that environmental cues to crime-related fear differ across sexes. His conclusions provide starting points to unpacking the gendered nature, if it exists, of cues predicting students' crime-related fear while on campus.

Lighting and Gender

As we discussed, previous research has reported that lighting affects sighted individuals' ability to see a potentially dangerous environment. Research has also shown that lighting is a significant correlate and predictor of fear of crime, in part, because poor lighting does not offer adequate illumination to observe environmental cues to danger such as being physically attacked or having property stolen. Poor lighting in certain areas, such as parking garages that have perceptional tendency to be isolated, may have more pronounced effects on predicting fear than poor lighting in more public spaces such as sidewalks. Regardless of the exact place of the lighting, poor lighting on campus might have different effects on whether males and females are fearful. In line with Brownlow's conclusions, we would expect that poor lighting might influence whether females' are fearful but not whether male counterparts are fearful. Research has shown that most females are physically and sexually vulnerable to attack and are physically challenged to thwart off such an attack. Most males, however, would have physical strength and ability to thwart off such an attack but, in line with Brownlow's work, if they cannot see how to escape when confronted this situation might make them fearful. So, poor lighting might equally influence both sexes' fearfulness.

Foliage and Gender

Researchers have shown that foliage influences individuals' fear of crime because it provides refuge or hiding places for a predator who can surprise attack a victim or even walk from inside or behind the greenery. On one hand, foliage such as overgrown shrubbery might have a positive effect on fear for women because of their sexual and physical vulnerability and physical ability to thwart an attack. Overgrown foliage on campus might not influence males' fear because of their physical confidence to thwart attack but could also present an element of confrontation that might heighten their fear. Hence, the effect of foliage on crime-related fear may be the same for males and females.

Youth Loitering and Gender

The presence of others, especially youth, congregating or loitering has been shown to heighten fear of victimization. Researchers attribute the elevated fear in these types of situations to individuals' perceiving a breakdown in social control, suggesting that if confronted by these youth, the infraction would go unchallenged by others. Much research has shown that this cue results in a lack of a sense of social control in that others may not effectively respond to the situation at hand (Skogan, 1990; Warr, 2000). For males, this might be especially so in light of research that shows that for many men public places and situations that challenged their gender

identify, in particular their masculinism, generated fear (Day et al., 2003). Supportive of Day et al.'s (2003) results are those reported by Brownlow (2005), who reported that males felt less safety and security in situations where they lack the ability to flee a risky or uncertain situation. Groups loitering around campus may well predict males' fear but not females' fear. Another plausible speculation is that both sexes might sense a lack of social control in this situation in that others may not effectively respond to the situation at hand or that they would be unable to escape attack since they are outnumbered. The fear that confrontation would increase risk of being victimized might loom equally for both sexes.

Police Visibility and Gender

The relationship between police visibility and fear of crime for the sexes is less clear. The relationship appears to be contingent on the type of activities the police are engaged in during the time they are visible. As such, it is quite possible that the impact of police visibility on fear of crime will vary by gender as well. Increased visibility of police might reduce fear of crime among women because of their vulnerabilities discussed above yet may have no effect on male fear because they lack those same vulnerabilities.

Drawing from the research examining cognitive mapping, fear provoking cues, and fear of crime it is plausible that fear-provoking cues have different effects on whether or not males' and females' are fearful of being victimized. But it may be equally likely that there are no cues that significantly predict whether males and females are fearful, and hence there are no fear-provoking cue differences predicting fear across the sexes. Because we are not certain whether cues that predict crime-related fear are gendered or not, we turn to our empirical analyses to explore this overlooked relationship.

Method

Data Collection

In March 2008, we asked for and received a list of all the general education courses offered during the current spring term on campus at a large public institution in the south. The list contained approximately 700 general education classes. We randomly selected 25 of those courses and e-mailed each professor who was listed as the instructor for the course, requesting permission to administer the survey at one of his or her class meetings.

Twenty-four of the 25 professors agreed to allow a research team member to administer the Campus Safety and Security Survey to the students enrolled in his or her course. In the one course in which we did not obtain approval, the instructor who

was listed was not actually teaching the course, and he referred us to the instructor who was actually teaching the course. We contacted this instructor three times but were unsuccessful in obtaining his approval. As such, we were unable to arrange data collection from the students registered for that course.

At the mutually agreed on time, a research team member visited the classroom and read a protocol that (a) described the process through which their course was selected, (b) asked the students for their cooperation, (c) ensured them that their responses were voluntary and anonymous, (d) asked for their assistance with the data collection effort, and (e) advised them that if they had already completed the survey, to inform the research team member. The surveys were then distributed to the students, who took approximately 10 minutes to complete them. The data collection period lasted 4 weeks from March 23 to April 25, 2008.

Across the 24 participating courses, there were 904 students enrolled on February 17, 2008, the day the sample was randomly selected. None of the classes that we visited had the same number of students in attendance as were enrolled for that course; as such, data from students not attending were not obtained. In addition, a small number of students (approximately 2% of those contacted) were registered for more than one of the 24 classes we visited and thus completed the survey only in the first course we visited. Furthermore, eight students either declined to participate or submitted a blank survey at the end of the data collection period. Finally, one student indicated that they were a graduate student; this person was subsequently deleted prior to data analysis to insure that only undergraduate students had participated in the study. Our final sample consisted of 607 students, resulting in a response rate of 67.1%.[1]

Dependent Variables

The dependent variable is fear of criminal victimization while on campus. We included a number of questions that asked the student about being afraid of being a victim of different types of crime while on campus. Students were asked to indicate their level of agreement on a 4-point Likert-type scale with the following statements:

While on campus at (name of school):
- I am afraid of being attacked by someone with a weapon.
- I am afraid of having my money or possessions taken from me.
- I am afraid of being beaten up.
- I am afraid of being sexually assaulted.

For the purpose of this study, the first item will serve as an indicator of fear of aggravated assault, followed by fear of larceny-theft, fear of simple assault, and fear of sexual assault.

In the original instrument, students were asked to indicate the relative strength with which they agreed with the above statements (e.g., *strongly agree*, *somewhat*

agree, *somewhat disagree*, *strongly disagree*). With the exception of one variable (fear of larceny-theft, where 7% strongly agreed), less than 5% of the respondents strongly agreed that they were fearful of that situation. As such, we created a dichotomous measure of each of the four types of fear, with those who strongly agreed or agreed that they were fearful coded as 1 and those who strongly disagreed or disagreed coded as 0.

Independent Variables

The survey data allowed us a unique opportunity to examine the relationship between different fear-provoking cues and types of fear of victimization because included in the survey were five cue-specific fear of crime measures. Students were asked to indicate their level of agreement on a 4-point Likert-type scale with the following[2]:

Since the beginning of this school year, I have been fearful of crime victimization on campus because of . . .
poorly lit parking lots
poorly lit sidewalks and common areas
overgrown or excess shrubbery
groups congregating or loitering
visibility of public safety officials

In the original question, students were asked to indicate the relative strength with which they agreed with the above statements (e.g., *strongly agree*, *somewhat agree*, *somewhat disagree*, *strongly disagree*). Due to the skewed nature of the distribution of each variable, we created a dichotomous variable from each of the five cue-specific fear of crime measures, with those who strongly agreed or agreed that they were fearful coded as 1 and those who strongly disagreed or disagreed were coded as 0.

Each of these cue-specific variables measures a different factor that past research has found to be associated with high levels of fear of crime. The two poor lighting variables measure students' ability to see if a threatening or dangerous situation is in view (e.g., to observe if predator is close). The overgrown or excess shrubbery variable captures the notion of possible hiding places for would-be offenders. Groups congregating or loitering is an indication of some level of social incivility that could create an impression about the concentration of possible motivated offenders. Visibility of public safety officials is a measure of police presence that provides formal guardianship.

Control Variables

Two sets of control variables were used in our analyses. First, due to their association with fear of criminal victimization reported in the past research, we also

included measures of age, student's current academic classification (freshman, sophomore, junior, and senior), course load status (full- or part-time student), and residence status (on- or off-campus). Summary statistics for the control variables are presented in Table 1.

The results presented in Table 1 show that over half (55.9%) of the sample were females. Almost two in three were freshmen or sophomores (66.1%), freshmen being the largest academic group across all categories (37.1%). Most were full-time students (96.4%) and were between the ages of 18 and 24 (86.9%), with the mean age of the sample being nearly 21 (20.88) years of age. Approximately half of the respondents lived on-campus (52.6%).

Given that the emphasis of this research is on gender differences in fear of criminal victimization, we examined how the distribution on the aforementioned variables varied by sex. These results, presented in Table 1, demonstrate that the distribution of student classification (p = .002) and residence status (p =.078) were significantly different between females and males.

Second, given previous research, the importance of perceived risk of victimization as a significant predictor of fear of crime cannot be overlooked in any analysis. In light of the consistent positive effect of perceived risk on fear of crime, we included perceived risk as a control variable. Perceived risk of victimization was defined as the chance that a specific type of crime would happen to the student while on campus during the coming year. Students were asked to rate their perceived risk of specific types of crime on a 10-point scale from 1 meaning that *it is not at all likely to happen* to 10 meaning *it is very likely to happen*.

Perceived risk of four specific types of crimes was used as control variables: larceny-theft and aggravated, simple, and sexual assault. Each specific type risk was used as a control variable for the specific type of fear. For example, perceived risk of larceny-theft was used as a control variable only for predicting fear of larceny-theft.

Much of the past research has shown that females, in particular college women, have higher perceived risk of different types of victimization than males (Fisher & Sloan, 2003; see May, 2001a, for review; for exception see Lane and Meeker, 2003). As shown in Table 1, our student sample follows this previously reported college student risk pattern reported by Fisher and Sloan (2003): females reported being more at risk of victimization than males. In other words, females' perceived risk mean for each type of crime was significantly higher than the respective males' mean.

Data analysis. The data analyses consist of descriptive statistics, independent sample t tests and Spearman's rank order correlation. Gender-specific multivariate logit models were estimated to determine the effects, if any, of fear-provoking cues on being fearful or not being fearful of four types of crime.[3] Equality of coefficients tests were calculated to determine if the specific cues coefficients were significantly different between females and males.

Table 1
Sample Characteristics (N = 607)

		Sex		
	Total Sample	Females	Males	
Characteristic	% (*n*)	% (*n*)	% (*n*)	*p* Value
Sex				
Female	55.9 (335)			
Male	44.1 (264)			
Current academic classification				
Freshman	37.1 (221)	43.8 (145)	28.8 (76)	.002
Sophomore	29.0 (173)	26.3 (87)	32.6 (86)	
Junior	20.1 (120)	16.3 (54)	24.6 (65)	
Senior	13.8 (82)	13.6 (45)	14.0 (37)	
Type of student				
Traditional[a]	87.1 (520)	88.9 (296)	84.8 (223)	.145
Nontraditional/exchange	12.9 (77)	11.1 (37)	15.2 (40)	
Current course load				
Full time	96.4 (563)	96.0 (313)	96.9 (249)	.145
Part time	3.6 (21)	4.0 (13)	3.1 (8)	
Residence status				
On campus[b]	52.6 (314)	56.0 (187)	48.5 (127)	.078
Off campus	47.4 (283)	44.0 (147)	51.5 (135)	
	M (*SD*)	*M* (*SD*)	*M* (*SD*)	
Age in years	20.88 (4.53)	20.75 (4.90)	21.06 (3.98)	.418
Perceived risk				
Larceny-theft	4.58 (2.76)	4.86 (2.84)	4.22 (2.58)	.005
Aggravated assault	2.52 (1.90)	2.81 (1.98)	2.13 (1.67)	.000
Simple assault	2.86 (2.03)	3.29 (2.12)	2.26 (1.67)	.000
Sexual assault	2.44 (2.10)	3.13 (2.24)	1.55 (1.48)	.000

a. Traditional students are those who are between the ages of 18 and 24 years old. Nontraditional students are those 25 years and older. Less than 1% (0.5%, n = 3) of the sample are an exchange student.
b. On campus includes on campus dormitories (50.9%, n = 304) and on-campus apartments and family housing (1.7%, n = 10).

Results

Are Fear of Criminal Victimization-Provoking Cues Gendered?

The first step in examining whether fear-provoking cues are gendered was to explore the proportion of females and males who reported that a specific cue provoked their fear of victimization while on campus. As presented in Table 2, at first glance it appears that fear-provoking cues might be gendered. There are statistically

Table 2
Type of Fear-Provoking Cue by Sex of Respondent

	Proportion Agreeing Cue Provoked Them to Be Fearful of Victimization While on Campus				
	Females	Males	Proportions Test	Rank Order	
Type of Cue	% (*n*)	% (*n*)	*z* Score (*p* Value)	Females	Males
Poorly lit parking lots	64.5 (213)	34.0 (88)	7.37 (.000)	1	2
Poorly lit sidewalks and common areas	62.1 (205)	30.4 (79)	7.66 (.000)	2	3
Groups congregating or loitering	53.0 (175)	37.2 (97)	3.84 (.0001)	3	1
Visibility of public safety officials	35.0 (114)	22.7 (58)	3.24 (.0001)	4	4
Overgrown or excessive shrubbery	32.1 (105)	18.9 (49)	3.63 (.0003)	5	5

Spearman's rank order correlation = .70, $p = .19$.

significant differences in the proportion of female students who agreed that specific cues provoked fear of crime victimization while on campus when compared to their male counterparts. For example, 65% of females reported that poorly lit parking lots provoked their on-campus fear of victimization compared to 34% of males, a 30 percentage point difference. About a third of females (32%) reported that overgrown or excessive shrubbery provoked their fear, whereas 19% of males reported feeling fear, a 13 percentage point difference.

These results, however, may be a bit misleading since research has consistently shown that females in general are more fearful than males, and our sample also shows this pattern as female students are more fearful than males for each of our four crime-related fears (larceny-theft, aggravated assault, simple assault, and sexual assault).

Another way to examine these fear-provoking cues results is to look at the ordering of the cues between females and males by rank ordering females' and males' proportion from largest proportion agreeing that the cue provoked them to be fearful of victimization while on campus to smallest proportion who agreed. From this lens, the rank ordering can be seen as an indicator of the relative magnitude of the order of fear-provoking cues between females and males from largest to smallest percentage agreeing. As can be seen in Table 2, the Spearman's rank order correlation of their ranking is quite strong, but it is not statistically significant ($p = .19$). There appears to be no significant difference between females and males in the rank ordering of the fear-provoking cues, suggesting that these cues do not vary by gender in their ranking and, therefore, might not be gendered.

Are the Cues That Predict Crime-Related Fear Gendered?

The second step of our analyses examined which cues, if any, predict crime-related fear for females and males and which cues, if any, are different across female and male students. Findings from Table 3 indicate that different fear-provoking cues are evident for females and males. Across fear of larceny-theft, aggravated assault, simple assault, and sexual assault, the visibility of public safety officials increased females' fearfulness. Overgrown or excessive shrubbery also increased women's fearfulness of larceny-theft and aggravated and sexual assault. Poor lighting on sidewalks and common areas also increased their fear of larceny-theft and aggravated assault. Groups loitering only increased females' fear of simple assault. Poorly lit parking lots did not predict fearfulness of any type of crime for females. For males, only two cues were significant predictor of fearfulness. Overgrown or excessive shrubbery increased their fear of aggravated assault. Groups congregating or loitering increased their fearfulness of larceny-theft.

Turning to possible gendered effects of cues on crime-related fear, the results from the equality of coefficients test indicate that none of the cues had significantly different effects across females and males. None of the fear-provoking cues had a stronger effect for either sex compared to the other, thus suggesting that fear-provoking cues are not gendered.

Discussion

Among the major goals of this exploratory study was to begin to close the gaps about what is known about fear-provoking cues among females and males and to examine if these cues were gendered. To these ends, the results reported are among the first steps to unpacking the relationship among different fear-provoking cues and crime-related offense specific fear among females and males and provide informative findings for future research.

The wide range in proportions (19%-65%) of both females and males who indicated that specific cues provoked them to be fearful of criminal victimization while on campus gives credence to the past research findings that individuals see and distinguish cues in their immediate environment as fear generating. Interestingly, despite the relative difference in these proportions between females and males, there was not a statistically significant relationship between the rank orders of these proportions, suggesting that fear-provoking cues, at least in at the bivariate level, are not gendered. In addition, when considering the multivariate results, there were no significant differences across gender in the impact of the cues on either fear of larceny-theft, aggravated assault, or simple assault. As such, it appears that the fear-provoking cues under study are not gendered as Brownlow's research suggests.

Table 3
Fear of Type of Crime Logit Models Results

	Larceny-Theft			Aggravated Assault			Simple Assault			Sexual Assault
	Females	Males		Females	Males`		Females	Males		Females
Independent Variable: Specific Fear -Provoking Cue	b (*SE*)	b (*SE*)	Equality of Coefficient Test *z* Score	b (*SE*)	b (*SE*)	Equality of Coefficient Test *z* Score	b (*SE*)	b (*SE*)	Equality of Coefficient Test *z* Score	b (*SE*)
Poorly lit parking lots	.12 (.37)	.13 (.53)	−.02	.20 (.44)	.71 (1.01)	−.46	.83 (.56)	.47 (.91)	.34	.49 (.42)
Poorly lit sidewalks and common areas	.86 (.36)**	.47 (.56)	.59	1.03 (.44)***	1.28 (1.02)	−.23	−.05 (.48)	1.32 (.93)	−1.31	.58 (.15)
Overgrown or excessive shrubbery	.64 (.33)**	.32 (.44)	.58	.61 (.35)*	1.86 (.70)***	−1.60	.58 (.39)	.55 (.63)	.04	.70 (.35)**
Groups congregating or loitering	.43 (.29)	.99 (.40)***	−1.13	.27 (.33)	.99 (.83)	−.81	.84 (.39)**	.84 (.70)	.00	.42 (.33)
Visibility of public safety officials	.54 (.31)*	.06 (.47)	.85	.59 (.33)*	.51 (.75)	.10	.61 (.37)*	−.15 (.82)	.84	.95 (.34)***
Constant	−3.14 (1.09)***	−1.71 (1.50)		−4.80 (1.21)****	−4.22 (2.90)		−5.0 (1.38)****	−3.73 (2.07)*		−4.33 (1.17)***
Model chi-square(*df*)	88.62 (10)	51.75 (10)		76.52 (10)	48.29 (10)		38.11 (10)	34.30 (10)		129.67 (10)
Significance	.000	.000		.000	.000		.000	.000		.000

Note: The respective perceived risk, age and current residence status, academic classification and course load were used as control variables.
*$p < .1$, **$p < .05$, ***$p < .01$, ****$p < .001$.

There are a number of plausible explanations why our results suggest that fear-provoking cues are not gendered. With the exception of the limited number of lighting and foliage studies, most of the fear-provoking cues research has not been done within a university setting. The unique nature of the university setting, especially being relatively safe and secure, may contribute to the lack of associations found in our study. It might be that the unique setting of a campus, relatively open to all yet populated with young studious adults, faculty, and staff on a daily basis, might influence the type of persons who loiter around the grounds. Many college students may find comfort (and therefore be less fearful) in seeing members of the college community congregating on campus.[4]

Another explanation for the lack of "gendered findings" revolves around the fact that the questions used to measure fear-specific cues were not as detailed as they could have been. As discussed earlier, these questions did not incorporate the element of time of day, which may have reduced the impact of the fear-specific cue on the fear of the respondent. For example, it is possible that groups congregating or loitering and visibility of public safety officials at night might have different impact on fear of crime among females (or, conversely, males) than these cues during the day. Future research should carefully word these measures to distinguish between daytime and nighttime cues to further explore this effect.

Despite the fact that female students are more fearful than their male counterparts for each offense-specific fear, the relative safety and security of the university setting may also reduce the impact of gender on these relationships, as neither male or female students were generally fearful on campus. With the exception of fear of larceny-theft, where two in five respondents (40.0%) agreed that they were fearful of victimization on campus, the levels of fear among these respondents were relatively low (18.4% agreed that they were at least somewhat fearful of aggravated assault and only 12.2% agreed that they were fearful of simple assault). In light of these findings, future research should attempt to replicate and build from our current study in nonuniversity settings, such as residential communities or even computer-generated settings that vary characteristics by known fear-generating cues, to determine if the relative safety and security of the university setting masks any impact that fear-provoking cues might have on fear of criminal victimization. Equally important to future research is examining whether this relationship is gendered. The past fear-provoking research provides ample evidence to suggest that there is quite a strong association between fear-provoking cues and fear of crime but the question about this relationship conditioned on gender remains ripe for inquiry.

Despite the lack of gender differences in the association between fear-provoking cues and offense-specific fear, the reported results inform the research community about gender differences in fear of crime on a number of dimensions. First, the multivariate results offer some support for the "shadow of powerlessness" that has been used to explain differences in fear of crime among adolescent males (May, 2001b).

As May (2001b) suggests, males who feel that they have less power in a situation are likely to be more fearful of that situation. Both Day et al.'s (2003) and Brownlow's (2005) research are supportive of May's shadow of powerlessness suggestion. Their research jointly suggests that males are fearful in environments in which they experience a loss of control because, for some males, their masculine gender identity (e.g., aggression, physical strength) is challenged. For males, there were only two significant associations between fear-provoking cues and fear of crime found in the current study. For males, fear of crime because of groups congregating or loitering had a statistically significant association with fear of larceny-theft and fear of crime because of overgrown or excessive shrubbery had a statistically significant association with fear of aggravated assault. In both of these situations, this relationship might be explained by the challenges to their gender identity some males feel in these types of environments.

Males may feel that their odds of resisting larceny-theft are reduced in a group setting where they are surrounded by a number of young adult males and females (the demographic most likely to loiter and congregate on a university campus); as such, the powerlessness they feel to overcome these odds may be responsible for the significant association between fear caused by groups loitering and fear of larceny-theft. These feelings of powerlessness may also explain male fear of aggravated assault in this sample as well. Although males may think that they can evade a person who wants to commit aggravated assault against them in a poorly lit parking lot or sidewalk or when public safety officials are not present, they may think they are less likely to be able to evade an assailant who confronts them in an area with overgrown shrubbery. As such, those males most fearful because of the overgrown shrubbery cue are significantly more fearful of aggravated assault than their male counterparts who are not as fearful because of that cue. This evidence of the impact of the shadow of powerlessness related to gender identify suggests that this line of thinking is a potentially rich area of exploration for the continued research into the possible gendered relationship between fear-provoking cues and offense-specific fear.

A second interesting gender-specific finding concerns the relationship between the visibility of police and crime-related fear for females. Females (but not males) who were most fearful of crime because of the visibility of public safety officials were significantly more likely than their counterparts to be fearful of every crime under consideration. Given that over 90% of both male and female respondents felt that the university public safety officials were either somewhat or very visible, this finding would appear to indicate that the visibility of police increases fear of crime for females but not for males. Nevertheless, analysis of a follow-up question reveals that this may not be the case. For males, one in three (38.1%) respondents agreed that they would "feel safer if public safety officials were more visible than they currently are"; two in three (67.9%) females agreed with that statement. As such, the presence of police may be more relevant for decreasing fear of crime among females than males. Given that this finding has not been uncovered in any study of which we

are aware, this provides another particularly rich area of research that could inform the study of fear of crime.

In much the same way that the shadow of powerlessness may partially explain fear of victimization among the males in this sample, there is some evidence to suggest that the shadow of sexual assault (see May, 2001a, for review; Fisher & Sloan, 2003) may partially explain fear of victimization among the female students in this sample as well. Females who were most fearful because of overgrown or excessive shrubbery and visibility of public safety officials (but none of the other specific fear-provoking cues) were significantly more likely to be fearful of sexual assault than their counterparts were. This finding would suggest that certain cues, in this case, overgrown shrubbery and low police visibility, are relevant to increasing women's fear of sexual assault. This result can also be seen through the lens of several studies that have found that women are primarily fearful of being sexually assaulted, especially in public places at night because they are afraid of being attacked by a stranger (see Fisher & Sloan, 2003; Merry, 1981; Pain, 2001; Valentine, 1990). Again, this line of thinking provides another rich area of exploration in the area of gendered fear-provoking cues and fear of crime, in particular fear of sexual assault.

Although we have uncovered a number of interesting findings, this study is not without limitations. First, and most importantly, future researchers should develop measures of fear-provoking cues that incorporate richer descriptions of a specific cue. For example, although our survey question asked students about fear of groups congregating or loitering, the question was not specific about the demographic or nonstudent status composition of the group, the location, the activity of the group who was loitering, or the time of day the group was loitering. Anecdotal evidence suggests that those groups loitering on the campus under study here were mostly male college students loitering outside of one or more dormitories on campus who routinely verbally harass other students (particularly female students). The one measure included in the survey used to collect group loitering information did not allow us to fully examine these relationships which Warr's (2000) work suggests influences fear of crime. In addition, as alluded to above, the measure of visibility of public safety officials could be improved by following the example of Salmi et al. (2004) reviewed earlier but including even more types of police visibility (e.g., foot patrol, bicycle patrol, face-to-face interaction) to better unpack the police presence and crime-related fear relationship, especially to see if this relationship is gendered. The day–night distinction with respect to fear-provoking cues and fear of crime is also another measurement issue that was not fully addressed in the current research. It could well be that certain fear-provoking cues, for example poor lighting, only influence certain offense specific fears during the night time but not during daylight. We could not address such issues in our work but leave this issue to future researchers to address.

Whether fear-provoking cues are gendered is clearly an issue deserving more scholarly attention. The current study is an important first exploration to informing an agenda for future researchers to examine the possible gendered nature of fear-provoking cues.

Like we have done in the current research, we would encourage future researchers to draw from the variety of disciplines that has examined different aspects of crime-related fear and integrate their theoretical approaches and findings to more fully comprehend which, if any, fear-provoking cues are gendered and their effects on offense-specific fears. Hopefully, in the next decade, a better understanding of the possible gendered relationship between fear-provoking cues and crime-related fear will mature and provide practical means to address fear-provoking cues and thereby reduce crime-related fears among both females and males.

Notes

1. The response rate is based on the total number of students completing questionnaires divided by the total number of students registered in the 24 courses on February 17, 2008. Because it is highly likely that several students had withdrawn (and were thus unavailable to complete the questionnaire in March and April when the data were collected) and because analysis conducted at the request of the reviewers indicated that 66% of the students registered for the courses were in attendance on the day the research team visited the courses, we are certain that the reported response rate is a conservative response rate. Nevertheless, we feel this response rate is the one of which we can be most certain and thus that rate is reported.

2. Thank you to the reviewer for reminding us about the time of day dimension (day or night) of fear-provoking cues. We recognize this important aspect but unfortunately we cannot address it in the current study. The survey questions asking about the cues did not incorporate time. Future researchers who extend the current study should incorporate the reviewer's comment.

3. The fear of sexual assault model could not be properly estimated for males. The coefficients and standard errors of the independent and control variables were biased and inefficient most likely due to the skewed nature of fear of sexual assault. Only 3% of males ($n = 9$) agreed that they were fearful of being sexually assaulted.

4. Thank you to Reviewer 2 who suggested this line of thinking to us.

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