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# College Students' Fear of Crime and Perception of Safety: The Influence of Personal and University Prevention Measures

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## ABSTRACT

This research examines college students' fear of crime and safety perceptions and its relationship to their perceptions of university safety efforts and personal preventative behavior. Quantitative results show that the only variable trending toward being a significant predictor of fear of crime on campus is perception of lighting on campus. Significant predictors of the perception of safety at the university are perception of campus lighting, perception of safety measures in place, and avoidance of locations during the day. Those who perceive that there is adequate lighting and sufficient safety measures feel safe, while those who avoid locations during the day feel unsafe. Qualitative data gathered through open-ended survey questions provide information on why respondents are fearful on and off campus and how respondents change their routine activities on campus to avoid victimization. This research offers universities suggestions on how to reduce students' fear and increase their perception of safety.

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## KEYWORDS

Fear; prevention measures; campus safety; college students; routine activities

## Introduction

Although, colleges and universities are relatively safe (Office for Victims of Crime, 2017; Zhang, Musu-Gillette, & Oudekerk, 2016), the Department of Education indicates there were 37,389 reported criminal offenses at 6506 institutions in 2016 (U.S. Department of Education, 2018). As the number of individuals pursuing an undergraduate degree is projected to increase by 14% by 2026 (to 19.3 million) (National Center for Education Statistics, 2017), understanding college students' fear of crime and safety perceptions is necessary.

One of the effects of crime and victimization is fear. Fear of crime has three components: cognitive (perceived risk of victimization), emotional (feelings about crime), and behavioral (response to perceived risk of victimization) (May, Rader, & Goodrum, 2010). Although, there is adequate research on college students' fear of crime, much of it focuses on the relationship between fear of sexual assault and fear of other crimes (Fisher & Sloan, 2003; Hilinski, 2009; Kelly & Torres, 2006; Lane, Gover, & Dahod, 2009;

Wilcox et al., 2006). There is need for continued research that focuses on students' perceptions of safety rather than only fear (Hummer & Preston, 2006; Jennings, Gover, & Pudrzynska, 2007; Tomsich, Gover, & Jennings, 2011; Tseng, Duane, & Hadipriono, 2004), and students' perceptions of universities' protective policies and actions (Schaefer, Lee, Burruss, & Giblin, 2018). Warr (2000) points out that one of the unanswered questions about fear of crime is the relationship between "precautionary behaviors" and fear (p. 458).

Furthermore, while previous research has examined the frequency of crime on campuses located in urban areas (Fernandez & Lizotte, 1995; Fox & Hellman, 1985), very little research has examined fear of crime of students attending universities in urban areas (Day, 1999; Hignite, Marshall, & Naumann, 2018; Tomsich et al., 2011). Tomsich et al. (2011) point out that most studies on crime and victimization on campus "have drawn samples of college students from traditional campuses rather than urban campuses" (p. 195). While very little research included students attending urban universities, research has not specifically considered the fear of crime and perception of safety of students attending college in a high-crime area. This lack of research may be because universities have typically been viewed as "ivory towers" or "safe havens" where crime does not occur (Fisher, Daigle, & Cullen, 2010). When serious criminal activities occur on college campuses, it is not thought to be caused by the college environment but either by a student with mental health issues or a "criminal intruder" who enters the campus (Fisher et al., 2010, p. 1). While this myth that college campuses are "safe havens" has been debunked to some degree due to tragic campus incidents (i.e. Virginia Tech shooting) the possibility that criminal activity from neighboring high-crime areas could permeate the campus and influence students' fear of crime both on and off campus has been ignored. This research contributes to the fear of crime literature by examining if students' perceptions of university safety efforts, personal preventative behavior, and routine activities predict fear of crime and perceptions of safety at a university located in a high-crime area. Through qualitative data gathered through open-ended survey questions, the research explores why students are afraid on or off campus and how they change their routine activities to avoid the risk of victimization. Exploring students' perceptions of safety off campus is particularly important given that research indicates students are more likely to be victimized off campus (Hart, 2013). Analysis of responses to open-ended survey questions offers an opportunity for a better understanding of students' fear of crime and safety perceptions by providing more nuanced data. Understanding college students' fear and perceptions of safety is necessary given the growing number of individuals pursuing an undergraduate degree (National Center for Education Statistics, 2017), and possibility that crime in surrounding areas may encroach on the campus and influence students' fear on campus and safety perceptions on and off campus.

## Literature review

Many view college campuses as safe (Nicoletti, Spencer-Thomas, & Bollinger, 2010), and most students report feeling safe on campus (McConnell, 1997; Robinson & Roh, 2013). However, any college campus is vulnerable to crime, which affects students,

faculty, and staff. Opportunity theory (OT) can be applied to crime that occurs on college campuses (Lynch, 2011). When individuals perceive that there is an opportunity to be victimized, this could result in fear (Ferraro, 1995). Routine activities theory (RAT), an OT, identifies three factors that must be present for a crime to occur: motivated offenders with criminal intentions, suitable victims or targets, and the absence of capable guardians who can prevent the crime from occurring (Cohen & Felson, 1979). Felson (1986) broadened the concept of “guardianship” to include “handlers” or individuals who may have control of a potential offender (e.g. family, friends, teachers) and can influence his/her decisions. Handlers not only need to be personally close to the potential offender, they must also be willing to and have the opportunity to step in to prevent or stop the crime (Tillyer & Eck, 2011). Additionally, “place managers” prevent crime by controlling or supervising specific locations (e.g. security officer, building manager) (Eck, 1994). While handlers know the potential offender, managers do not know the offender but prevent the potential crime by monitoring a location (Tillyer & Eck, 2011). The role of the “guardian” is to protect the potential victim, so for example could be a police officer protecting individuals or store owners guarding property (Miró, 2014). As summarized by Felson (1995), “Crime opportunity is least when targets are directly supervised by guardians; offenders, by handlers; and places, by managers” (p. 55).

Research has applied RAT to fear of crime and perception of risk. Rengifo and Bolton (2012) conclude there was a greater perception of crime risk for those who engaged in more frequent voluntary routine activities. Those engaging in more social activities may “normalize exposure to threatening environments or use recreation as a coping mechanism” or those who are more often out socializing may be more aware of potential risks (Rengifo & Bolton, 2012, p. 113). Roundtree and Land (1996) found that routine activities better predict fear of specific crimes (i.e. burglary) and when activities increased so did perception of vulnerability and fear.

Factors that may make college campuses targets for criminals include layout. Crime is possible on campuses because “universities are by their very nature open-access environments where people move between and among buildings and outdoor spaces...” (Rasmussen & Johnson, 2008, p. 6). Determining which individuals have a legitimate reason to be on campus and those who do not also presents a challenge (Sloan, Fisher, & Wilkins, 1996), and campuses provide “24-hour access often via public thoroughfares” (Gomme & Micucci, 1997, p. 45). Despite the attempt to limit outsider access with increased security measures, such as stationed guards or ID access to buildings, it is difficult to monitor every individual on campus and secure all buildings at all times. This may be particularly problematic for colleges and universities located in high-crime areas. Some research has examined crime frequency on urban campuses, although, colleges in urban areas are not necessarily in high-crime areas. Fernandez and Lizotte (1995) found that crime rates in the area around the university did not influence the frequency of campus crime, while other research concluded that urban campuses have slightly higher rates of violent crime (Fox & Hellman, 1985). Research on fear among students on urban campuses is limited, and none specify the crime level in the urban area. Tomsich et al. (2011) sampled students at an urban university (Denver) to examine gender differences in fear and behaviors that may prevent victimization. Day (1999) focused on the fear of

sexual assault by women attending an urban university, and concluded their fear of sexual assault dictates their use of public spaces. Hignite et al. (2018) sampled students in an urban area and concluded that higher fear of crime and perception of likelihood of victimization on campus predicts students' protective behavior on campus. Research has also concluded that residents of neighborhoods with more crime are more fearful of crime (Kanan & Pruitt, 2002; Mesch, 2000; Pearson, Breetzke, & Ivory, 2015; Wyant, 2008; Zhao, Lawton, & Longmire, 2015), and those living near neighborhoods with higher violent crime rates are more likely to report fear of violent crimes (Barton, Weil, Jackson, & Hickey, 2017).

In addition to possible exposure to crime in neighboring areas, college students also have frequent exposure to other students who could be motivated offenders. In fact, students are commonly victimized by other students (Nicoletti et al., 2010). Students' predictable routines can increase their chances of victimization as they are observed by motivated offenders. Individuals may try to reduce their likelihood of victimization by changing behavior. *Constrained behavior* is an "adaptions in one's life-styles because of the perceived risk of victimization in daily activities" (Ferraro, 1995, p. 55). This includes both avoidance behavior (i.e. avoiding location) and defensive behaviors (i.e. gun ownership, carrying mace, or keys defensively) (Ferraro, 1995; Rader, Cossman, & Allison, 2009). College students engage in constraining behavior to reduce their likelihood of victimization (Jennings et al., 2007) or to reduce their fear (Griffith, Hueston, Wilson, Moyers, & Hart, 2004), and those who take more protective measures have higher fear of crime (Ferraro, 1995; Ferguson & Mindel, 2007; Lane et al., 2009; Mesch, 2000; Rader, May, & Goodrum, 2007; Rader et al., 2009).

Students' perceptions of university efforts to improve safety may also influence fear and perceptions of safety. Fear of crime or safety perceptions may be related to poor lighting (Castro-Toledo et al., 2017; Day, 1999; Fisher & May, 2009; Stamps, 2005; Tseng et al., 2004). Research including college students concludes that their fear can be affected by the locations they frequent (Steinmetz & Austin, 2014; Warr, 2000), and that they may feel vulnerable where they believe a criminal may be hiding, or in areas with large open spaces or areas with poor lighting (Fisher & Nasar, 1992). Research also supports that lighting in urban areas or neighborhoods reduces crime (McCormick & Holland, 2015; Quinet & Nunn, 1998; Xu, Fu, Kennedy, Jiang, & Owusu-Agyemang, 2018) and improves safety perceptions (Loewen, Steel, & Suedfeld, 1993; Nasar & Bokharaei, 2017).

## Methodology

The sample includes college students enrolled at the main campus of a private university that enrolls approximately 3600 undergraduate students. For the 2015–2016 academic year, the majority (56%) of undergraduate students were women, and most (70%) were Caucasian. Forty-seven percent of undergraduates live on campus, while the remaining 53% live off campus (surrounding neighborhood) or commute.<sup>1</sup> In

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<sup>1</sup>This information was gathered from a report published by the Office of Institutional Research & Effectiveness in November 2015 available on the University's website. An exact reference is not provided because this would reveal the university.

2015, there were reports of nine criminal offenses on campus (four burglaries, three fondling incidents, two dating violence incidents) and one report of an aggravated assault in an area designated “non-campus.”<sup>2</sup> The university is located in a very high crime area. The 2015 violent crime rate for the area was 1615.69 per 100,000 residents, and the property crime rate was 2941.61 per 100,000 residents, compared to the state rates of 315.1 per 100,000 residents (violent) and 1812.8 per 100,000 residents (property).<sup>3</sup>

After receiving approval from the university’s Institutional Review Board, in May 2016 surveys were distributed via email to 1300 randomly selected students who were 18-year old or older and enrolled in at least nine credits during the semester. Although, those considered full-time take 12 credits (four classes), the researchers included students taking nine credits because those taking three classes should have enough experience on campus to be able to adequately answer questions about fear and safety. The e-mail list was generated by the University’s Director of Institutional Research and Effectiveness, who used the RANDBETWEEN function in Excel to generate a random number for each student meeting the inclusion criteria for the research. The file was then sorted by the random number and students randomly assigned to numbers 1 to 1300 were selected for this research.

The researchers used the online survey program Toluna QuickSurveys™. Several follow-up emails had to be sent out to students over a four-week period in order to obtain a larger sample size. A total of 133 participants responded to the survey (a 10.2% response rate).<sup>4</sup> The low response rate was expected because the survey was distributed at the busiest time in the semester (in May). The researchers recognized that participation would be influenced by timing, but chose not to delay the research until the end of the following September, after the rush of the start of a new semester. The low response rate was not unexpected given that other researchers confirm low response rates for online surveys (Nulty, 2008), and other researchers who distributed an online survey to college students also experienced a low response rate (less than 10%) (Woolnough, 2009). Also, while students were told that their name could be entered into a raffle for a gift card, the incentive was low (\$25 USD gift card). Lastly, one of the researchers had prior difficulty with students at this university responding to surveys (online or paper).

Of the respondents, 16% classified themselves as Freshman, 14% as Sophomores, 26% as Juniors, 38% as Seniors, and 6% as fifth-year Seniors. Over half (56%) classified themselves as living on campus, 29% as living off campus (area surrounding campus), and 15% as commuter. Over half of respondents (57%) were female. “Other” was offered as a response for participants who are non-binary; no one selected this response. Of the respondents, 61% were Caucasian, 12% were African American, 12%

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<sup>2</sup>Noncampus includes buildings or property owned or controlled by an institution that is used in direct support of, or in relation to, the institution’s educational purposes, is frequently used by students, but is not within the same geographic area of the institution. Refer to: <https://ope.ed.gov>

<sup>3</sup>All information was gathered from the Federal Bureau of Investigation *Uniform Crime Report* (<https://ucr.fbi.gov/crime-in-the-u.s/2015/crime-in-the-u.s.-2015>). An exact reference is not provided because this would reveal the location.

<sup>4</sup>Ferraro and LaGrange also criticize previous studies on fear of crime for ignoring the range of emotions associated with fear, ignoring the varying degrees of fear, and using the term “crime” without recognizing fear may be dependent on the type of crime (i.e. violent personal, property, organized, political, etc.).

were Asian, 7% were Hispanic, and 8% were more than one race/ethnicity. The sample is representative of the gender composition of the student body (56% female). The sample has a slightly lower percent of Caucasian students compared to undergraduate student body (61% compared to 70%) but almost the same percent of African American students (12% of sample, 13% of student population).

### **Design and analysis**

Since fear of crime includes both emotional and cognitive sides (Ferraro & LaGrange, 1987), this research includes separate questions about fear and perception of safety. The best way to measure fear of crime has been scrutinized and criticized by scholars (Ferraro & LaGrange, 1987; Hale, 1996; Warr, 2000). Warr (2000) points out the “bewildering variety of questions” used by those studying fear of crime (p. 457), as well as problems with the lack of understanding that fear has many components (emotional, cognitive, perceptual). In addition, one’s perception of his/her risk of victimization is used as a substitute for fear; researchers indicate that they are measuring fear of crime when they are measuring the perception of the risk of victimization (Ferraro & LaGrange, 1987; Hale, 1996). In light of scholars’ criticism of the way fear has been measured, separate questions were asked about fear, perception of safety, and perceived risk of certain crimes (see also Jennings et al., 2007).<sup>5</sup>

Given the variety of ways that fear has been measured, the survey was developed after careful review of the literature on fear of crime.<sup>6</sup> To examine the dependent variable *fear of crime*, participants were asked to respond using a five-point Likert-type scale: “How fearful are you about crime on campus?” (1 “not at all fearful” and 5 “very fearful”). To examine the dependent variable *perception of safety*, respondents were asked their agreement with the statement “I feel safe at the university” using a five-point Likert-type scale (1 “strongly disagree” to 5 “strongly agree”). Respondents used the same Likert-type scale to answer four questions about their safety perception during the day, at night, on campus, and off campus. The survey included two open ended questions: “If you are ever afraid on campus at any time, why are you afraid?” and “If you are ever afraid off campus (the area surrounding campus), why are you afraid?”

The independent variables are students’ perception of the university’s safety measures, personal prevention measures, and change in routine activities. For *perceptions of the university’s safety measures*, two questions asked students to evaluate campus safety using a Likert-type scale (“I feel the university has sufficient safety measures in place to protect students, faculty, and staff” and “Campus safety does a good job at crime prevention.”) Using a Likert-type scale, students were also asked to agree or disagree with the following statements: “I feel safer now knowing there are increased<sup>7</sup>

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<sup>5</sup>Refer footnote 4.

<sup>6</sup>Many common measures of fear of crime were not appropriate for our research (i.e. Gallup Poll, afraid to walk alone at night within a mile of home).

<sup>7</sup>The researchers recognize that using the term “increased” may have confused participants to think the researchers were asking about greater security over time. It would have been more appropriate to ask whether students feel safer when they see more security on campus. Given the importance of this question and our belief that it still measures the perception of the presence of security patrols, the researchers decided to not eliminate this variable. Also, qualitative responses reveal that students focus on the absence of security when reflecting on their fear of crime.



security patrols," "I feel safer now knowing there is only card access to dorms and academic buildings," "There is adequate lighting on campus." For personal *prevention measures*, participants selected what preventive measures they take ("yes" or "no" response). Two preventive measures were avoidance behavior (avoided on campus place during the day, at night) and four measures were defensive behaviors (carried mace/pepper spray, asked someone to walk with them after dark due to fear, used campus-sponsored crime prevention service, and carried keys in a defensive manner). For the *routine activities* variable, one question asked, "Have you in the past year changed your routine activities on campus in order to avoid the risk of victimization?" For those who answered affirmatively, an open-ended question asked, "What routine did you change to avoid the risk of victimization?"

Quantitative data were analyzed using IBM SPSS Statistics Software. After bivariate analysis was conducted (*t*-tests, ANOVAs, correlations) regression models evaluated if independent variables predicted a dependent variable while controlling for other variables of interest. Results from bivariate analyses were used to build the regression models. Open-ended responses to survey questions were analyzed to find common themes (thematic analysis). All verbatim responses were printed and closely read by the researchers. Core themes emerged from multiple reads of open-ended responses (Rubin & Rubin, 1995). The more frequently the same concept occurs, the more likely it is a theme (Ryan & Bernard, 2003). The researchers used open coding, meaning no pre-determined codes were identified prior to analysis (Bernard, Wutich, & Ryan, 2017; Braun & Clarke, 2006; Gibbs, 2018). Given the brevity of open-ended responses, the researchers did not consider using qualitative data analytic software but rather color coded responses with common themes, searching for repetition, similarities, and differences. While inter-rater reliability was not formally examined, both researchers separately analyzed the responses to the open-ended questions. The primary researcher then reviewed the notes and codes created by the second researcher; there was little to no discrepancy in identified themes.

## Results

### *Quantitative results on students' fear of crime*

Most (55%) students are "not at all fearful" or "not fearful," while 18% are "neutral" in their fear of on campus crime, and 27% are "fearful" or "very fearful." While the focus of this article is not on the relationship between fear and demographic variables, there was a significant effect for gender  $t(122) = -3.128, p < .05$ , with women having higher scores for fear of crime, but not a significant effect for race, year in school, or resident status (on campus, off campus, commuter) on fear of crime on campus.<sup>8</sup> Most (57%) respondents agree or strongly agree that sufficient safety measures are in place at the university, 65% agree or strongly agree that they feel safer with ID access to buildings, 55% agree or strongly agree that they feel safer with increased security patrols, and 53% agree or strongly agree that there is adequate lighting on campus. However, less than half of students (36%) agree or strongly agree that campus safety does a good

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<sup>8</sup>Results of ANOVAs available upon request.



job of preventing crime. Based on this data, it seems that while most students recognize the crime reduction efforts made by the university, most do not have a positive perception of the ability of campus safety to prevent crime.

When examining the correlation between fear of crime on campus and perceptions of campus safety and security measures, there was a statistically significant negative relationship between fear of crime and all five of the perceptions of university safety measures (increased security patrols; ID access to buildings; and perception of adequate campus lighting, campus safety does a good job, and university has sufficient safety measures in place). The relationships were weak to moderate.<sup>9</sup> Therefore, as there is increase in perceptions that there are sufficient safety measures to keep students safer, fear on campus is lower.

While most (79%) responded that they did *not* avoid specific locations during the day, most (56.5%) responded that they did at night. Most (75%) students did not carry mace or pepper spray on campus,<sup>10</sup> 79.5% did not utilize campus-sponsored prevention services (escort, emergency phone), and 54% have not carried their keys defensively. However, most (58%) have asked someone to walk with them at night due to fear. Independent samples *t*-tests revealed a statistically significant relationship for each of the six preventive measures; those who take preventive measures have a higher level of fear of crime on campus.<sup>11</sup>

Although, most (71%) indicated they had not changed their routine activities in the past year in order to avoid the risk of victimization, there was a significant difference in level of fear for those who changed their routine activities in the past year ( $M = 3.40$ ,  $SD = 0.946$ ) from those who have not changed their routine activities in the past year ( $M = 2.32$ ,  $SD = 1.03$ );  $t(121) = -5.359$ ,  $p < .001$ . Therefore, level of fear is higher for those who change their routine activities. An open-ended question allowed respondents who changed their routine activities in the year prior to the survey to provide information on changes they made. Over half (56%) of those who changed their routine activities indicated that they walked a different way or avoided a location (unlit area, parking lots), 15% drive when possible rather than walk, 15% avoid traveling alone, 9% carry mace or keys defensively, and 6% do not work or enroll in classes at night.

Results from the regression model predicting fear of crime on campus are presented in Table 1. The regression model was built using the variables that showed a significant relationship at the bivariate level. Gender was included in the model because unlike race, year in school, and resident status, there was a significant effect for gender and fear of crime. Collinearity was not a concern (VIF values less than 5). The regression analysis reveals that all models are significant. To see variables that are significant predictors of fear of crime in each model after the other variables are controlled for statistically, and the percent of variance in fear of crime for each model, refer to Table 1. In the final model predicting fear of crime, the only variable that is

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<sup>9</sup>Results of correlation available upon request.

<sup>10</sup>Possession of mace and pepper spray is permitted at the university, but only with prior registration with and the written approval of the Department of Campus Safety. This policy may influence the small percentage of students who carry mace.

<sup>11</sup>Results available upon request.

**Table 1.** Regression models predicting fear of crime.

Variable	Model 1			Model 2			Model 3			Model 4		
	<i>B</i>	<i>SE</i>	$\beta$	<i>B</i>	<i>SE</i>	$\beta$	<i>B</i>	<i>SE</i>	$\beta$	<i>B</i>	<i>SE</i>	<i>&amp;Beta;</i>
Constant	4.748	.444		3.433	.486		3.376	.483		3.429	.487	
Increased security patrols	.006	.123	.005	.086	.115	.082	.103	.114	-.108	.062	.124	.059
ID access to buildings	-.052	.119	-.042	-.143	.113	-.117	-.132	.113	-.182	-.148	.114	-.121
Adequate lighting	-.298	.095	-.310**	-.171	.089	-.177 <sup>1</sup>	-.175	.089	.025 <sup>2</sup>	-.170	.089	-.177 <sup>1</sup>
Campus safety good job	.032	.138	.031	.029	.126	.028	.027	.125	-.198	.040	.126	.038
Sufficient safety measures	-.312	.127	-.296*	-.204	.119	-.194	-.208	.118	.116	-.196	.119	-.186
Avoid areas, day				.459	.242	.167	.318	.255	.047	.336	.256	.122
Avoid areas, night				.159	.207	.072	.105	.208	.003	.130	.210	.059
Carry mace/pepper spray				.023	.220	.009	.008	.218	.165	-.086	.245	-.035
Use campus-sponsored crime prevention services				.503	.249	.186*	.447	.250	.165	.412	.253	.152
Carry keys defensively				-.043	.196	-.019	-.077	.195	-.035	-.064	.196	-.029
Asked someone to walk with you				.549	.216	.246*	.504	.216	.226*	.410	.242	.184
Changed routine activities							.384	.230	.158	.368	.231	.151
Gender										.214	.249	.097
Adjusted <i>R</i> <sup>2</sup>		.214			.367			.378			.376	
<i>F</i>		7.253**			7.063**			6.820**			6.336**	

\**p* < .05;\*\**p* < .01.<sup>1</sup>*p* = .059;<sup>2</sup>*p* = .051.

trending toward significance (*p* = .059) after the other variables are controlled for statistically is the perception that there is adequate lighting on campus. While most variables showed a significant relationship with fear of crime at the bivariate level, perception of campus lighting in the only variable that is close to being a significant predictor of fear.

### **Quantitative results on students' perception of safety**

Given the difference in the emotional and cognitive sides of fear (Ferraro & LaGrange, 1987), the research also examined the relationship between feeling safe at the university and perceptions of campus safety and security measures, personal prevention measures, and changing routine activities. Most respondents (72%) agree or strongly agree, 23% neither agree nor disagree, and 16% disagree or strongly disagree that they feel safe at the university. When looking at perception of safety both on and off campus during the day and at night, students have the highest mean perception of safety on campus during the day (4.08), and the lowest on campus at night (3.14). The mean perception of safety off campus was lower at night (3.61) compared to during the day (3.76). At night, students feel safer off campus at night compared to on campus despite that the university is located in a high-crime area.

There was not a significant effect for gender, race, year in school, or resident status (on campus, off campus, commuter) on perception of safety at the university.<sup>12</sup> There was a statistically significant moderate positive relationship between perception of

<sup>12</sup>Refer footnote 8.

**Table 2.** Regression models predicting perception of safety at university.

Variable	Model 1			Model 2			Model 3		
	<i>B</i>	<i>SE</i>	$\beta$	<i>B</i>	<i>SE</i>	<i>&amp;Beta;</i>	<i>B</i>	<i>SE</i>	$\beta$
Constant	.870	.286		1.324	.335		1.295	.335	
Increased security patrol	.165	.085	.182 <sup>1</sup>	.109	.084	.121	.120	.085	.132
ID access to buildings	.049	.080	.047	.089	.080	.084	.091	.080	.086
Adequate lighting	.195	.065	.227**	.133	.066	.158*	.133	.065	.155*
Campus safety does a good job	-.084	.094	-.092	-.060	.091	-.065	-.061	.091	-.067
Sufficient safety measures	.473	.086	.514**	.433	.086	.471**	.430	.086	.468**
Avoid on campus areas, day				-.531	.169	-.222**	-.603	.179	-.252**
Avoid on campus areas, night				-.044	.141	-.022	-.086	.145	-.044
Use campus-sponsored crime prevention service				-.092	.174	-.038	-.122	.176	-.051
Carry keys defensively				.011	.130	.006	-.012	.131	-.006
Change routine activities							.200	.165	.093
Adjusted <i>R</i> <sup>2</sup>		.508			.543			.545	
<i>F</i>		26.618**			17.366**			15.843**	

\**p* < .05;\*\**p* < .01.<sup>1</sup>*p* = .054.

safety and the five variables on the university's efforts to reduce fear and increase perceptions of safety. As perceptions that there are sufficient safety measures to keep students safer are higher, perception of safety is also higher.<sup>13</sup> Regarding students' efforts to protect themselves, results find a statistically significant difference in perceptions of safety and avoidance of areas during the day and at night, carrying of keys defensively, and using campus-sponsored services. Those who engage in these avoidance or defensive behaviors have lower perceptions of safety on campus. There is no statistically significant difference in perceptions of safety and asking someone to walk with you at night or carrying mace/pepper spray.<sup>14</sup> As previously stated, most (71%) indicated they had not changed their routine activities in the past year in order to avoid the risk of victimization. However, there was a significant difference in feeling safe at the university for those who changed their routine activities in the past year ( $M = 3.16$ ,  $SD = 1.079$ ) from those who have not changed their routine activities in the past year ( $M = 3.73$ ,  $SD = .899$ );  $t(129) = 3.122$ ,  $p < .01$ . Perception of safety is lower for those who change their routine activities.

The regression model was built using the variables that showed a significant relationship at the bivariate level. Collinearity was tested and was not a concern (VIF values less than 5). There was not a significant effect for gender with feeling safe on campus, so gender was not included in the regression model. The regression analysis reveals that all models are significant. To see variables that are significant predictors of safety in each model after the other variables are controlled for statistically, and the percent of variance in perception of safety for each model, refer to Table 2. In the final model, three variables (perception of lighting on campus, perception that there are sufficient safety measures in place, and avoiding locations during the day) are significant predictors of perception of safety when controlling for the other variables

<sup>13</sup>Refer footnote 9.<sup>14</sup>Results of *t*-tests available upon request.

statistically. As agreement that there is adequate lighting and perception that there are sufficient safety measures in place increases, so does perception of safety. However, those who avoid locations during the day are less likely to feel safe.

### ***Qualitative results on students' fear of crime on and off campus***

In-depth analysis of open-ended survey questions, missing from previous research on fear of crime, results in a better understanding of why students are afraid on campus. Fifty-eight students responded to the open-ended question, "Why are you afraid on campus?" The most common theme that emerged was that students are afraid on campus when it is dark (mentioned by 37 of 58 individuals who responded to question). Some specified that they are afraid when alone at night on campus, others specifically mentioned poor lighting, and some mentioned both factors. A respondent explains, "I am normally nervous around campus if it is dark. Since I am a commuter and my friends live on campus, I usually walk to my car alone. That can be scary, especially if you have a heavy backpack and are carrying a laptop." Another respondent reflects, "I am sometimes afraid on campus if I am alone in the dark. I get nervous if there is no one around and someone suddenly appears. I make sure to be aware of my surroundings." One participant responded she is afraid, "At night when there is minimal lighting on some parts of campus I feel nervous." Another participant shares a similar perception, "Whenever I am afraid on campus it is usually when it's dark out or visibility is limited. I feel crime is more likely to happen at times like these since the opportunity is there." This respondent clearly notes that lack of lighting creates "opportunity" for crime.

A second theme that emerged from the qualitative responses about fear on campus is that students are fearful because the campus is located in a high crime area (discussed by 38 of 58 individuals). One respondent indicates that she is afraid on campus when she hears "gunshots in the distance." Another respondent states, "I am mainly afraid of maybe someone coming from across the [foot] bridge [from area with high crime]." One respondent states that he is afraid of being "mugged or physically attacked by an aggressor who may live locally." One respondent agrees that she is afraid of "residents of [surrounding area] coming on campus."

A third theme that emerged is that respondents are fearful on campus because of the lack of campus security officers on campus, perception that the officers are unable to provide protection because they are unarmed, or slow response time or lapse in time to notify students of an incident (mentioned by 13 of the 58 individuals who responded to question). One respondent explains fear is caused by, "the amount of time campus safety takes to respond. We have also had multiple events take place on campus that we did not receive a campus safety alert for or it was hours late." Another participant agrees, "Campus safety isn't very reliable, they don't communicate well and they don't respond quick enough." Another respondent reflects, "Campus safety does not carry guns which makes me feel like they can't do much to help." One respondent also responds, "when it's late at night I am afraid because it feels like the campus is deserted and if something were to happen there would be no one around. I feel like campus safety is more present off campus than they are on campus."

Given that the campus is located in a high crime area, it is important to explore why students are afraid in the area surrounding the campus. Forty-six participants responded to the open-ended question, "What are you afraid of off campus" and the same themes emerged as did for fear on campus. The most common theme that emerged was that students are afraid off campus when it is dark (mentioned by 35 of 46 individuals), and 11 respondents specifically referred to poor lighting. One respondent indicated, "I don't travel off campus much but I do notice that it is very dark crossing [main road]. Needs a lot more lighting." Another agrees, "It can be very dangerous. It's hard to see at night. More crimes happen at night." Two additional respondents reflect, "It's darker than on campus" and "There aren't many street lights in the neighborhoods off campus."

A second theme that emerged was that respondents are afraid off campus because it is a high crime area (mentioned by 27 of 46 individuals). One respondent states, "There are multiple news stories of violence and muggings in [the area]." Another respondent agrees, "[The area] is not known to be a very good area or very safe." Third, respondents are fearful because of the lack of campus security officers that patrol off campus and lack of local police department presence (mentioned by 10 of 46 individuals). One respondent explains, "I am afraid because I am not afforded the same security as if I was actually on campus. I never see campus security driving off campus and if they are not around I feel more vulnerable." Another respondent explains, "I am afraid because there is not enough police presence to ensure you are safe traveling to and from destinations." The reasons for fear are the same both on and off campus, providing insight for institutions of higher education on the best ways to reduce students' fear and improve their perception of safety.

## Discussion

Students' fear of crime and perception of safety should be important to universities not only because it could influence students' academic careers and success, but could also influence student enrollment and retention. Tseng et al. (2004) reflect that on-campus crime could "undermine the quality of the learning environment" (p. 23). Consistent with previous research (Robinson & Roh, 2013), this research finds that most students (55%) are not fearful of crime on campus and most (72%) feel safe on campus. Understanding perceptions of safety off campus is important, particularly for students attending universities in high-crime areas. While very little research has examined fear of crime of students attending universities in urban areas (Day, 1999; Hignite et al., 2018; Tomsich et al., 2011), research has not specifically considered fear of crime and perception of safety of students attending college in a high-crime area. While Hignite et al. (2018) include students in an urban area, it is not clear if the college is located in a high-crime area and their analysis does not examine if and how the campus location is related to students' fear or protective behaviors, nor do they explore safety perceptions off campus.

The fact that quantitative data reveal that the perception of safety was the lowest on campus at night, even compared to off campus at night, is particularly interesting, since many responses to open-ended questions reveal students' fear both on and off

campus because the campus is in a high-crime area. Responses to open-ended questions shed light on why students feel less safe on campus at night compared to off campus in the high-crime area. First, students may feel safer off campus than on campus at night because there may be a greater police presence (local police, campus safety) at night off campus than on campus. Responses to open-ended questions indicate that students are fearful on campus because of the lack of campus security officers on campus. This perception may be warranted, since the university contracts an outside security firm to provide additional protection off campus at night. Local police and campus security act as guardians and place managers who protect potential victims or their property (Miró, 2014; Tillyer & Eck, 2011). Students may feel unsafe on campus at night because they do not see guardians or place managers. While they focus on fear rather than perceptions of safety, research supports that police presence reduces fear (Boateng, 2018; Kelling, 1990; Moore & Trojanowicz, 1988; Zhao, Schneider, & Thurman, 2002), as does the perception of the presence of campus security (Crowl & Battin, 2017). Second, when explaining why students may feel safer off campus than on campus at night it is possible that students are not walking off campus at night but instead stay in their cars. Students can travel in cars or the university shuttle around campus in the evening, but the campus includes areas that are not accessible by car or shuttle (e.g. green space between main buildings). Future research should specifically examine if students are traveling by car or foot when in the area surrounding campus, especially given that previous research (Tewksbury & Mustaine, 2003) found that students' use of self-protective devices (i.e. mace, gun) depends on if they walk to "leisure-related activities" (p. 321). Third, it is also possible that students' perception of safety on campus at night is influenced by their fear of those coming onto campus at night from the surrounding high-crime neighborhood. In other words, students' perception of safety may not solely be based on the location they are in (on or off campus) but by what they fear. Students' fear of those living in the surrounding community is reflected in the qualitative responses that make reference to "someone coming from across the [foot] bridge" or "an aggressor who may live locally." Brantingham and Brantingham (1994) point out that students are at risk of being victimized by members of the campus community as well as outsiders to the campus community.

The research finding that most (71%) respondents indicated they had not changed their routine activities in the past year in order to avoid victimization risk is consistent with previous research that found that few students change their daily activities due to fear (Griffith et al., 2004). Fear is significantly higher for those who change their routine activities, and perception of safety is significantly lower for those who change their routine activities. It is possible that although, students may be changing their routine activities due to fear or a low perception of safety, such changes are not reducing their fear or improving their safety perception.

Results also indicate there is a significant correlation between fear of crime and perceptions of safety and perceptions of the measures the university takes to promote safety. Bivariate analyses show that as perceptions of the university's measures taken to promote safety increase, fear decreases, and perception of safety increases. However, in the final model predicting fear of crime only one variable (perception of

adequate campus lighting) is trending toward significance ( $p = .059$ ) after the other variables are controlled for statistically. The final model to predict perceptions of safety at the university reveals that three variables (lighting on campus, perception that sufficient safety measures are in place, avoidance of areas on campus during the day) are significant after the other variables are controlled for statistically. Although, regression analysis did not reveal that increased security or perception that campus safety prevents crime significantly predicts fear of crime or perception of safety, responses to open-ended questions indicate that students are afraid on and off campus because of lack of campus safety officers on campus and lack of campus security officers and local police off campus.

These conclusions lead to recommendations on reducing fear and improving perceptions of safety that can be useful to other universities. First, consistent with previous research (Fisher & Nasar, 1992), quantitative data and in-depth analysis of opened-ended survey responses reveal students feel lighting is very important to their fear and perception of safety. Additional research supports that fear of crime may be related to poor lighting (Castro-Toledo et al., 2017; Fisher & May, 2009; Kirk, 1988; Stamps, 2005), and lighting reduces crime (Painter & Farrington, 1997, 2001; Robinson, 1999). Universities should provide more lighting on campus and work with local communities to ensure that areas off campus are well-lit. University officials must be aware of ways to prevent crime, reduce students' fear, and improve safety perceptions through environmental design (i.e. lighting, landscaping, campus design) (Woodward, Pelletier, Griffin, & Harrington, 2016). Also, it seems possible that there is never going to be too much lighting, since most (53%) of the sample indicated on-campus lighting is adequate but the main theme that emerged from the responses to open-ended questions on fear on campus pointed to poor lighting and fear in the dark. Second, while universities located in high-crime areas cannot change their location, efforts should be made to increase the number of safety officers patrolling both on and off campus, and work with local police to ensure a greater police presence. Universities located in high-crime areas can work with community leaders on strategies to reduce crime. For example, as broken windows theory suggests that crime is more likely in areas that show signs of physical disorder (i.e. trash, vandalism) (Wilson & Kelling, 1982), faculty, staff, and students from this university have worked in the community to make visible improvements to the surrounding area, such as painting projects, planting gardens, and cleaning up trash around elementary schools. Third, as the perception that the university has sufficient safety measures in place is a significant predictor of perception of safety, future qualitative research should explore what students deems to be "sufficient measures" and should ask students for specific suggestions on ways to increase their perception of safety.

Despite contributing to the literature on fear of crime, this research has limitations. First, it only includes students from one university, so results cannot be generalized. The researchers recognize the lack of generalizability of data due to the sample size and response rate and discuss possible reasons for the low response rate in the methodology section of the article. While a larger sample could have improved the research, both regression models only have 10 or 13 predictor variables, which is appropriate for the sample size, since the suggestion tends to be that the sample is 10 times the number of predictor variables (Agresti & Finlay, 2009; Miller & Kuncze, 1973). Researchers should also refrain from distributing surveys to students during the busier times of the semester. Online survey participation will most likely be lower, and



asking professors to allow the distribution of surveys during the class period would be a greater imposition during busy times of the semester. Second, as previously stated, Ferraro and LaGrange criticize previous studies on fear for failing to consider that fear may be dependent on the type of crime. Future qualitative research should question students about the types of crime they fear and why, since respondents included in this research were only asked their perception of likelihood of specific crimes, not their fear of specific crimes. Third, given that fear is significantly higher and safety perception is significantly lower for those who change their routine activities, the qualitative responses included in this research only provide insight on *how* students change their routine activities to avoid the risk of victimization. With the understanding that fear, perception of safety, and perception of victimization risk are different concepts, future qualitative research should explore if specific changes made influence fear or safety perceptions. Moreover, if respondents make behavioral changes that do not reduce fear or improve safety perceptions, then why change such routines?

Despite these limitations, this research contributes to literature on research on fear of crime among college students. Some researchers recently note that while there have been multiple studies on fear of crime in communities, less research has focused on fear on college campuses (Boateng, 2018; Boateng & Adjekum-Boateng, 2017). It also contributes to the lack of research on students' perceptions of universities' protective measures noted by Schaefer et al. (2018). If college and university administrators better understand students' fear and perceptions of safety, they can develop prevention programs and develop innovative strategies to reduce fear and improve safety perceptions.

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