

## **On the Association Between SROs, Private Security Guards, Use-of-Force Capabilities, and Violent Crime in Schools**

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*Although school crime and the use of security measures to combat school crime has been the focus of a number of prior empirical studies, there is substantially less information known about the relationship between school resource officers (SROs) and private security guards in schools and school crime. Using data from the 2006 School Survey on Crime and Safety, this study investigates the relationships among school characteristics and school crime with a particular focus on their differential effects across schools that utilize varying types of security personnel (e.g., no security, SROs only, or private security guards only) and use-of-force capabilities (e.g., oleoresin-capsicum spray/pepper spray, Tasers, and firearms). Results from a series of negative binomial regression models indicate that there is a considerable degree of variability in the effect of school characteristics on school crime across schools that utilize SROs only versus private security guards only. Additional results suggest that mid-level force capabilities are positively associated with school crime. Study limitations and implications are also discussed.*

**KEYWORDS** *School resource officers (SROs), security guards, policing, schools, violence*

After several high-profile incidents of lethal violence in schools over the last 20 years, increasing attention has been given to the protection of students

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and faculty and the reduction and prevention of crime in schools. While the overall prevalence of school violence is low (see Roberts, Zhang, & Truman, 2010), the mounting concern of school safety from students, parents, school officials, and law enforcement has led to the swift implementation and expansion of numerous school security measures. In an ideal world, schools serve as a refuge from the crime and moral indiscretions of general society. However, considering that adolescents engage in the most amount of antisocial behavior of any age group, it is intuitive to think that criminal activity could flourish in schools (see Felson, 1998). Not only are students and faculty personally and directly affected by instances of crime and violence at school, but these events disrupt the overall educational process and can also affect the surrounding community. Crime and violence in schools is a formidable concern and should not be taken lightly. For instance, during the 1999–2000 school year, almost three fourths (71%) of all U.S. schools experienced at least one violent incident (Miller & Chandler, 2005).

The reduction of crime and the preservation of safety at school is a crucial, and often difficult, task. Recently, many school districts have implemented crime-prevention strategies aimed at reducing crime and the fear of crime. These measures include partnering with local police departments to assign sworn officers as school resource officers (SROs), hiring nonsworn security guards, installing video cameras, utilizing weapon-detection systems (e.g., metal detectors), and blocking or restricting access to school facilities with entry-control devices (e.g., electronic key cards).

The current research examines the impact of SROs and security guards on crime and violence in schools. We also examine whether or not the use-of-force capabilities that these security personnel have influence the levels of crime and violence in schools. We utilize data from the 2006 School Survey on Crime and Safety (SSOCS). The SSOCS is a joint effort of the U.S. Department of Education and the National Center for Education Statistics. While school crime and violence, as well as safety measures, have been studied extensively (see Brooks, Schiraldi, & Zeidenberg, 1999; Clark & Lab, 2000; García, 2003; Gottfredson, Gottfredson, Payne, & Gottfredson, 2005; Simon, Crosby, & Dahlberg, 1999; Tillyer, Fisher, & Wilcox, 2010), there has been rather limited empirical analysis on SROs and nonsworn security guards as they relate to school crime.

## LITERATURE REVIEW

### School Safety Measures

Due to the persistent problem of crime in schools, education and law enforcement officials have taken serious action toward school crime prevention. According to Duke (2002), school safety became a national priority under President George H.W. Bush in 1989, when he convened the

Education Summit and met with the nation's governors. After this summit, the governors created eight goals that came to be known as Goals 2000; one of the goals was to create safe, drug- and weapon-free schools by the year 2000 (Lane, 2009). In the last two decades, many schools have modified the way they protect their students and employees through proactive techniques (García, 2003). Examples of these safety measures include the use of SROs and security guards, the installation of video cameras, the utilization of weapon-detection systems, the restriction of access to school facilities through entry-control devices, policies requiring translucent backpacks, the implementation of dress codes, and random searches of students' possessions and lockers. Reducing school violence is crucial to preserve the important processes underlying our country's educational goals. Despite the efforts of these prevention strategies, prior research remains inconclusive as to their effectiveness in reducing both crime and the fear of crime (Everett & Price, 1995; García, 2003; Tillyer et al., 2010).

### Security Personnel and Weapons

In terms of prevalence, Theriot (2009) suggests that while a small number of SRO programs have existed since the mid-20th century, the number has substantially increased since the late 1990s. These officers represent a significant and popular trend in school violence prevention. While precise estimates are difficult to determine, Brown (2006) writes that there are roughly 20,000 police officers serving as SROs in American schools. Daily, there are more than 3,800 active SROs patrolling the halls of our nation's schools in an effort to reduce school crime and increase school safety (May, Fessel, & Means, 2004). Everett and Price (1995) found that half of the students in their sample reported that their school sought the services of police or security guards. While limited research has been conducted on SROs, even less empirical analysis has examined nonsworn security guards within schools. Based on statistics from a nationally representative sample of American school districts, Small et al. (2001) found that uniformed police officers work in 6% of elementary schools, 19% of middle schools, and 30% of high schools. Comparatively, security personnel are employed in 8% of elementary schools, 11% of middle schools, and 23% of high schools (Small et al., 2001).

Despite the increased use of security personnel in schools, there exists limited empirical evidence to suggest that SROs or security guards are effective in reducing crime or increasing school safety. Johnson (1999) found that crimes decreased in the sampled middle schools and high schools after adding SROs. Brown's (2005) findings indicate that more than two thirds (69%) of the high school students agreed that SROs do a good job of keeping schools safe, suggesting that SROs increase the perception of safety within the school. Results from May et al. (2004) suggest that SROs provide an important addition to school safety, but the results also reveal the value of

communication between school administrators, SROs, and law enforcement supervisors regarding the nature and duties of the SRO role (see also Lambert & McGinty, 2001).

Contrary to Johnson (1999) and Brown (2006), Jackson (2002) concluded that the addition of SROs to schools did not have any effect on students' perceptions of offending or delinquency. Additionally, research from Tillyer et al. (2010) found that the installation of SROs in these schools actually raised students' perceptions of victimization and fear of crime. Theriot's (2009) study evaluated the impact of SROs on school-based arrest rates by comparing arrests at 13 schools with an SRO to 15 schools without an SRO in the same district. He concluded that having an SRO did not predict more total arrests but did predict more arrests for disorderly conduct. Moreover, having SROs decreased the arrest rate for assault and weapons charges (Theriot, 2009), suggesting that the presence of an SRO may serve as a deterrent for more serious crimes.

The perceived effectiveness of nonsworn security guards in reducing or preventing school crime is also mixed and incomplete. According to Mayer and Leone (1999), having security guards in place significantly increased the perception of a more safe and secure school among a national sample of students. Additionally, results from Brown and Benedict (2005) demonstrate that students view SROs and security guards favorably. Seventy percent of students reported feeling safer by having SROs or security guards in their school. Fifty-seven percent of students believed that SROs help control school gang activity, while 55% felt the same about security guards. Almost seven in 10 (69%) students reported that seeing police in their school made them feel safer, while 71% felt the same about security guards (Brown & Benedict). Conversely, student and parent data from Schreck, Miller, and Gibson (2003) demonstrate that the presence of security guards did not significantly reduce overall, violent, or theft victimization. In fact, the coefficients were in the opposite direction as hypothesized. These findings may be due to the cross-sectional nature of the research. Thus, it may be that security personnel happen to be in schools that already had serious crime problems. Data from New York City indicate that 50% of students feel SROs or security guards in school does not make them feel safer (Fine, Freudenberg, Payne, Perkins, Smith, & Wanzer, 2003).

Despite the school security measures in place, there may be times when SROs and security guards must actively respond to incidents of crime and violence. The need to respond is complicated by their location in schools, which are overwhelmingly populated by minors. The ability to use physical and mechanical coercion to induce suspect compliance is a fundamental, yet critical, function of police work (Bittner, 1970). Historically, the force options available to law enforcement officers, outside of verbal commands, have been limited to physical force (e.g., punching, wrestling), impact weapons (e.g., batons), and firearms. Research suggests that the use of physical force

(Alpert & Dunham, 2000, 2004; Meyer, 1992; Smith & Petrocelli, 2002) and impact weapons (Heck, 2003; Smith et al., 2008) are the most likely to result in physical injury to both officers and suspects. Lethal force, while rare, heightens the likelihood of serious injury and death.

Since the early 1990s, the development of less-than-lethal weapons has been geared toward reducing injuries to officers and suspects and, when possible, reducing the use of deadly force. These concerns are particularly salient when considering the weapons that school security personnel are authorized to carry. The two most popular less-than-lethal weapons currently employed by law enforcement officers are oleoresin capsicum (OC Spray) and conducted energy devices (CEDs). Both weapons are intended to cause temporary incapacitation so that officers can safely and effectively subdue suspects. Research indicates that both OC Spray (Downs, 2007; Kaminski, Edwards, & Johnson, 1999; Mesloh, Henych, Hougland, & Thompson, 2005) and CEDs (Mesloh et al., 2005; White & Ready, 2007) are generally effective at inducing suspect compliance and reducing suspect injury (Hougland, Mesloh, & Henych, 2005; Jenkinson, Neeson, & Bleetman, 2006; MacDonald, Kaminski, & Smith, 2009; Taylor & Woods, 2010; White & Ready, 2007). Results on officer safety indicate that the use of CEDs result in fewer injuries and less serious injuries to officers (Hougland et al., 2005; Jenkinson et al., 2006; MacDonald et al., 2009; Taylor & Woods, 2010), but the findings on OC Spray are mixed, with some indicating a reduction in injuries to officers and others finding no effect or an increase in injuries officers (MacDonald et al., 2009; Smith et al., 2008).

There has been some criticism of both OC Spray and CEDs, including issues related to health risks, their use on inappropriate populations, their overreliance by officers, and their potential for abuse. However, medical research indicates that the health risks that have been attributed to these less-than-lethal weapons are more than likely caused by conditions other than exposure to the weapons (Kaminski, 2009; Vilke & Chan, 2007). Specifically, results suggest that the inhalation of OC Spray did not present any significant respiratory or pulmonary risk to study subjects alone or when combined with positional restraint, and these findings were consistent across subpopulations of overweight subjects and those with respiratory abnormalities (Chan et al., 2000; Vilke & Chan, 2007). Other research has found that CED exposure does not pose any long-term medical risks to healthy subjects (Kroll & Ho, 2009; Vilke & Chan, 2007). There are a number of concerns about the effect of CED exposure on certain populations, including pregnant women, young children, and visibly frail individuals (Cronin & Ederheimer, 2006; Strote & Hutson, 2008), but the extant research indicates that fatal CED exposures involved individuals predisposed to sudden death from other causes (Kaminski, 2009; Vilke & Chan, 2007). Certainly, while less-than-lethal weapons do present some risk of injury, inappropriate use, overreliance by officers, and

abuse, there is general agreement that these issues can be remedied by adhering to a set of guidelines for proper use (Alpert & Dunham, 2000; Cronin & Ederheimer, 2006).

## THE CURRENT STUDY

The current study investigates the relationship between school characteristics and school crime by security personnel type. Using data from the 2006 SSOCS, we evaluate the similarities and differences in how school characteristics relate to school crime in schools that do not have any security personnel or utilize SROs only or private security guards only. Furthermore, we also examine whether or not the use-of-force capabilities that these security personnel have is associated with school crime.

## METHOD

### Sampling Procedure

The data used in this study were collected as part of the 2006 SSOCS by the National Center for Education Statistics (NCES), an arm of the U.S. Department of Education. The survey asks school administrators to report on the contextual conditions, types of safety measures utilized, and the number of crimes occurring at their school. The schools in the sampling frame represent a nationally representative cross-section of public schools (of all levels) based on the NCES 2003–2004 population survey of all public schools and school districts. Additional details on the research design can be found elsewhere (Dinkes, Cataldi, & Lin-Kelly, 2007). The current study uses data from 1,853 elementary, middle, and high schools as well as combined schools. Descriptive statistics for the sample and the measures described below can be found in Table 1.

### Measures

#### DEPENDENT VARIABLE

The dependent variable used in this analysis represented a count of the number of serious violence incidents reported by the school administrators. The count-based measure included the following types of offenses: number of rapes, sexual batteries, robberies (strong armed and armed), assaults (aggravated [e.g., with a weapon] and unarmed), threats of assault (aggravated and simple), and fights between students.<sup>1</sup>

**TABLE 1** School Descriptive Statistics

	<i>M</i> /%	<i>SD</i>	Range
Type of security personnel			
No SROs or private security utilized	56.90%	—	—
SROs only utilized	34.20%	—	—
Private security only utilized	8.90%	—	—
Use-of-force capabilities			
SRO-only schools ( <i>N</i> = 635)			
SRO with firearm only	16.40%	—	—
SRO with mid-level force only	1.70%	—	—
SRO all force	29.90%	—	—
SRO unarmed	52.00%	—	—
Private-security-only schools ( <i>N</i> = 163)			
Private security with firearm only	6.70%	—	—
Private security with mid-level force only	3.70%	—	—
Private security all force	17.80%	—	—
Private security unarmed	71.80%	—	—
School demographic characteristics			
Large	29.80%	—	—
Medium	38.20%	—	—
Small	18.80%	—	—
Middle school	34.80%	—	—
High school	33.90%	—	—
Combined school	5.00%	—	—
City	25.60%	—	—
Urban fringe	38.40%	—	—
Town	10.30%	—	—
Ethnic heterogeneity	53.60%	—	—
Additional school characteristics			
Frequency of racial tensions	1.84	0.75	1–5
Frequency of bullying	2.88	1.05	1–5
Frequency of disrespect in class	2.71	1.09	1–5
Frequency of disorder in class	1.51	0.79	1–5
Frequency of gang activity	1.38	0.68	1–5
% likely to attend college	57.73	24.93	0–100
% low test achievement	13.62	13.71	0–100
% limited English proficient	8.19	14.48	0–100
% special education	13.78	9.21	0–100
% value academic achievement	68.03	22.88	0–100
Number of school safety measures	7.01	2.14	0–14
Students from high-crime neighborhood	2.19	0.77	1–4
School in high-crime neighborhood	2.30	0.58	1–4
Dependent variable			
Violence	27.40	40.59	0–588

*Note.* SRO = school resource officer.

## Independent Variables

### TYPE OF SECURITY PERSONNEL

The school administrators were asked to provide information on the number of SROs and/or security guards that were present at their particular school. These counts were dichotomized to represent three types of security

personnel: (a) school had no SROs or private security guards, (b) school had SROs only, or (c) school had private security guards only. Schools that utilized both SROs and private security guards were eliminated from the analysis because of the inability to isolate the independent effects of SROs and private security guards on the dependent variable of interest.

#### USE-OF-FORCE CAPABILITIES

The use-of-force capabilities were represented by three dichotomous measures indicating whether or not the SROs or private security guards who were present in the school had the capability of (a) deadly force only (e.g., were armed with firearms), (b) mid-level force only (e.g., OC Spray/pepper spray and/or Tasers), or (c) the capability and availability of using all levels of force (OC Spray/pepper spray, Tasers, and firearms). Schools where the SROs or the private security guards were unarmed were the reference category.

#### SCHOOL DEMOGRAPHIC CHARACTERISTICS

The demographic characteristics of the schools primarily focused on school size and geographic location. Specifically, the size of the school was represented by a series of dummy variables indicating whether the school was considered a large-, medium-, or small-sized school relative to being a very small school (e.g., less than 300 students). The type of school was represented by a series of dummy variables, including whether the school was a high school, middle school, or a combined school relative to being an elementary school. Dummy variables were included for whether the school was located in an urban fringe area or a town relative to being located in a rural area, which served as the reference category. In addition, an ethnic heterogeneity measure was included and was coded as 1 if greater than 50% of the students in the school were considered a racial or ethnic minority group.

#### ADDITIONAL SCHOOL CHARACTERISTICS

A number of additional school characteristics were incorporated into the models, a number of which have been shown to be correlated with school crime (Jennings, Khey, Maskaly, & Donner, 2011/*this issue*). Specifically, these variables included: the frequency of bullying, racial tensions, student disrespect in the classroom, disorder in the classroom, and the frequency of gang-related activity as reported by the school administrators. A series of variables were included that measured the percentage of the student body listed as: likely to attend college, performing in bottom 15% of national tests,

limited English proficiency, special education status, and those intrinsically valuing academic achievement. Other control variables included a count of the number of school safety features (17 maximum) listed in SSOCS currently utilized by the school to combat violence, and two additional 4-point ordinal measures asking administrators to rank the amount of crime in the neighborhoods where students live and also the neighborhood where the school was located.

### Analytic Strategy

Considering that the outcome variable was a count-based measure and that there was a significant degree of skewness beyond what is expected in a Poisson distribution, all of the multivariate models were estimated as negative binomial regression models (Long, 1997). The first set of negative binomial regression models estimate the effects of school characteristics on the incidence of school violence in separate models for schools utilizing no SROs or private security guards, schools only utilizing SROs, and schools only utilizing private security guards. Additional negative binomial regression models evaluate the effects of school characteristics on the incidence of school violence with a particular focus on the use-of-force capabilities available to either the SROs or the private security guards. All models were estimated in Stata 11.0 and adjusted for the appropriate weights to compensate for any potential nonresponse bias and make the sample more representative of schools nationwide (Dinkes et al., 2007).

## RESULTS

Table 2 presents the results from the first set of negative binomial regression models. Seven variables were significantly associated with school crime in schools where no security personnel was present. Specifically, school crime was positively associated with all of the school sizes, large- ( $b = 1.07$ ,  $SE = 0.19$ ,  $p < .001$ ), medium- ( $b = 0.76$ ,  $SE = 0.16$ ,  $p < .001$ ), and small-sized ( $b = 0.83$ ,  $SE = 0.18$ ,  $p < .001$ ) schools relative to very small schools (with < 300 students). School crime was also higher in middle schools relative to elementary schools ( $b = 0.51$ ,  $SE = 0.14$ ,  $p < .001$ ) and in schools where there was a greater frequency of bullying ( $b = 0.35$ ,  $SE = 0.07$ ,  $p < .001$ ), student disrespect in class ( $b = 0.24$ ,  $SE = 0.08$ ,  $p < .01$ ), and school safety-based security measures employed ( $b = 0.07$ ,  $SE = 0.03$ ,  $p < .05$ ). In contrast, greater percentages of students who are likely to attend college were negatively and significantly (albeit marginally) associated with school crime ( $b = -0.01$ ,  $SE = 0.01$ ,  $p < .10$ ).

**TABLE 2** The Effects of School Demographics and Additional School Characteristics on the Incidence of School Violent Crime by Type of Security Personnel

	No Private Security or SROs			SROs Only			Private Security Only		
	<i>b</i>	<i>SE</i>	I.R.R.	<i>b</i>	<i>SE</i>	I.R.R.	<i>b</i>	<i>SE</i>	I.R.R.
School demo. characteristics									
Large	1.07***	0.19	2.92	1.23***	0.210	3.41	1.66***	0.400	5.28
Medium	0.76***	0.16	2.15	0.8***	0.200	2.22	1.32**	0.390	3.76
Small	0.83***	0.18	2.30	0.32 <sup>+</sup>	0.230	1.52	0.81	0.510	2.24
Middle school	0.51***	0.14	1.67	0.83***	0.140	2.30	0.54 <sup>+</sup>	0.280	1.71
High school	0.09	0.18	1.09	0.37*	0.170	1.45	0.44	0.310	1.55
Combined school	0.23	0.27	1.25	0.85**	0.320	2.33	0.44	0.440	1.55
City	0.09	0.18	1.09	0.38*	0.180	1.46	-0.08	0.350	0.92
Urban fringe	0.11	0.17	1.12	0.27	0.140	1.31	0.35	0.370	1.41
Town	-0.01	0.23	0.99	0.31	0.180	1.36	-0.30	0.570	0.74
Ethnic heterogeneity	0.13	0.01	1.14	-0.28***	0.120	0.75	-0.30	0.260	0.74
Additional school characteristics									
Freq. of racial tensions	0.10	0.09	1.10	0.04	0.080	1.04	0.06	0.160	1.06
Freq. of bullying	0.35***	0.07	1.41	0.30***	0.070	0.14	0.06	0.100	1.06
Freq. of disrespect in class	0.24**	0.08	1.28	0.15*	0.060	1.16	0.37***	0.110	1.45
Freq. of disorder in class	-0.02	0.10	0.99	0.10	0.090	1.10	-0.01	0.170	0.99
Freq. of gang activity	0.08	0.12	1.08	0.13	0.090	1.14	0.49**	0.190	1.64
% likely to attend college	-0.01 <sup>+</sup>	0.01	1.00	-0.01	0.010	0.99	-0.01**	0.001	0.99
% low test achievement	0.01	0.01	1.01	0.01	0.010	1.01	0.03***	0.001	1.03
% limited English proficient	-0.01	0.01	0.99	-0.01*	0.001	0.99	-0.02***	0.001	0.98
% special education	-0.01	0.01	0.98	0.01	0.010	1.00	0.01	0.010	1.01
% value academic achievement	-0.01	0.01	1.00	-0.01	0.010	1.00	0.01	0.010	1.01
Number of school safety measures	0.07*	0.03	1.07	0.08**	0.030	1.08	0.12*	0.060	1.13
Crime in students N.H.	0.04	0.11	1.04	0.02	0.080	1.03	-0.39*	0.250	0.67
Crime in schools N.H.	0.22	0.15	1.24	0.18	0.130	1.19	0.71**	0.290	2.04
$\chi^2$ ( <i>df</i> = 23)	238.41			271.80			106.87		
Log likelihood	-150265.25			-56446.58			-15307.08		
<i>N</i>	1,055			635			163		
McFadden's Pseudo <i>R</i> <sup>2</sup>	0.04			0.06			0.11		

Note. Demo. = demographic; Freq. = frequency; I.R.R. = incident rate ratio; N.H. = neighborhood; SRO = school resource officer.

<sup>+</sup>*p* < .10. \**p* < .05. \*\**p* < .01. \*\*\**p* < .001.

Comparatively, in schools utilizing SROs only, all of the school sizes relative to being a very small school were once again significantly related to school crime. However, middle schools (*b* = 0.83, *SE* = 0.14, *p* < .001), high schools (*b* = 0.37, *SE* = 0.17, *p* < .05), and combined schools

( $b = 0.85$ ,  $SE = 0.32$ ,  $p < .01$ ) with SROs relative to elementary schools with SROs had more school crime. Schools that utilized SROs only that were located in the city were positively and significantly related to a higher frequency of school crime ( $b = 0.38$ ,  $SE = 0.18$ ,  $p < .05$ ), whereas SRO-only schools with ethnic heterogeneity had less school crime ( $b = -0.28$ ,  $SE = 0.12$ ,  $p < .001$ ). Similar to the previous model, SRO-only schools with a greater frequency of bullying ( $b = 0.30$ ,  $SE = 0.07$ ,  $p < .001$ ), student disrespect in class ( $b = 0.15$ ,  $SE = 0.06$ ,  $p < .05$ ), and school safety measures ( $b = 0.08$ ,  $SE = 0.03$ ,  $p < .01$ ) had a higher incidence of school crime. In addition, SRO-only schools with greater percentages of students with limited English proficiency had less school crime ( $b = -0.01$ ,  $SE = 0.001$ ,  $p < .05$ ).

Finally, the regression model based on the schools utilizing private security guards only was noticeably and substantively different from the previous two models and particularly from the model based on SRO-only schools. Specifically, only large- ( $b = 1.66$ ,  $SE = 0.40$ ,  $p < .001$ ) and medium-sized ( $b = 1.32$ ,  $SE = 0.39$ ,  $p < .01$ ) schools were positively associated with school crime relative to very small schools, and there was only a marginally higher incidence of school crime in middle schools relative to elementary schools ( $b = 0.54$ ,  $SE = 0.28$ ,  $p < .10$ ). Once again, student disrespect in the class ( $b = 0.37$ ,  $SE = 0.11$ ,  $p < .001$ ) and employing school safety measures ( $b = 0.12$ ,  $SE = 0.06$ ,  $p < .05$ ) were positively and significantly associated with school crime, and the percentage of students with limited English proficiency was negatively and significantly associated with school crime ( $b = -0.02$ ,  $SE = 0.001$ ,  $p < .001$ ). In contrast, in schools utilizing private security guards only, a higher frequency of gang activity ( $b = 0.49$ ,  $SE = 0.19$ ,  $p < .01$ ) and schools having a greater percentage of students with low test achievement ( $b = 0.03$ ,  $SE = 0.001$ ,  $p < .001$ ) had a higher incidence of school crime. In addition, private-security-guard-only schools with a greater percentage of students who were likely to attend college ( $b = -0.01$ ,  $SE = 0.001$ ,  $p < .01$ ) and where the students were from higher crime neighborhoods ( $b = -0.39$ ,  $SE = 0.25$ ,  $p < .05$ ) had less school crime, whereas in private-security-guard-only schools that were located in high-crime neighborhoods there was more school crime ( $b = 0.71$ ,  $SE = 0.29$ ,  $p < .01$ ).

Table 3 displays the results from the second set of negative binomial regression models that examined the relationship between varying use-of-force capabilities along with the school characteristics on school crime by security personnel type (e.g., SROs only versus private security guards only). Regarding the use-of-force capabilities in schools with SROs only, mid-level force capability (e.g., OC Spray/pepper spray and/or Tasers) was positively and significantly related to school crime relative to no use-of-force capabilities compared to the other force capabilities (e.g., firearm only and all force levels), which were in the opposite direction (although not significant). All of the school demographic characteristics were positively and significantly related to school crime, with the exception of ethnic

**TABLE 3** The Effects of Use-of-Force Capabilities, School Demographics, and Additional School Characteristics on the Incidence of School Violent Crime for Schools with SROs Only or Private Security Guards Only

	SROs Only			Private Security Only		
	<i>b</i>	<i>SE</i>	I.R.R.	<i>b</i>	<i>SE</i>	I.R.R.
Use-of-force capabilities						
Firearm only	-0.22	0.220	0.80	0.26	0.32	1.30
Mid-level force only	0.41**	0.150	1.50	-0.48	0.36	0.62
All force levels	-0.10	0.130	0.90	0.04	0.46	0.48
School demo. characteristics						
Large	1.17***	0.210	3.23	1.67***	0.410	5.33
Medium	0.77***	0.200	2.15	1.31***	0.410	3.71
Small	0.42*	0.220	1.52	0.78	0.500	2.18
Middle school	0.83***	0.140	2.28	0.64*	0.320	1.89
High school	0.38*	0.160	1.46	0.56 <sup>+</sup>	0.340	1.76
Combined school	0.68*	0.300	1.97	0.65	0.440	1.92
City	0.36*	0.180	1.43	-0.12	0.350	0.89
Urban fringe	0.32*	0.150	1.37	0.32	0.360	1.38
Town	0.35*	0.170	1.42	-0.29	-0.560	0.75
Ethnic heterogeneity	-0.26*	0.120	0.77	-0.21	0.260	0.81
Additional school characteristics						
Freq. of racial tensions	0.06	0.070	1.06	0.07	0.160	1.07
Freq. of bullying	0.30***	0.060	1.34	0.04	0.100	1.07
Freq. of disrespect in class	0.14*	0.060	1.15	0.37***	0.110	1.05
Freq. of disorder in class	0.07	0.060	1.07	-0.02	0.180	0.99
Freq. of gang activity	0.13	0.090	1.14	0.43*	0.190	1.54
% likely to attend college	-0.01*	0.003	0.99	-0.01*	0.005	0.99
% low test achievement	0.01*	0.005	1.01	0.02*	0.008	1.02
% limited English proficient	-0.01*	0.005	0.99	-0.02***	0.005	0.98
% special education	0.01	0.003	1.00	0.01	0.010	1.01
% value academic achievement	-0.01 <sup>+</sup>	0.003	0.99	0.01	0.010	1.01
Number of school safety measures	0.09**	0.030	1.09	0.12*	0.060	1.13
Crime in students N.H.	0.02	0.090	1.02	-0.40 <sup>+</sup>	0.250	0.67
Crime in schools N.H.	0.17	0.130	1.18	0.75*	0.310	2.12
$\chi^2$ ( <i>df</i> = 26)		269.93			167.52	
Log likelihood		-56296.50			-15277.88	
<i>N</i>		635			163	
McFadden's pseudo <i>R</i> <sup>2</sup>		0.07			0.11	

Note. Demo. = demographic; Freq. = frequency; I.R.R. = incident rate ratio; N.H. = Neighborhood; SRO = school resource officer.

<sup>+</sup>*p* < .10. \**p* < .05. \*\**p* < .01. \*\*\**p* < .001

heterogeneity, which was negatively and significantly associated with school crime ( $b = -0.26$ ,  $SE = 0.12$ ,  $p < .05$ ). The majority of the effects for the additional school characteristics for SRO-only schools was similar to the results in the first set of models based on SRO-only schools.

Regarding the final regression model, none of the use-of-force capabilities was significantly associated with school crime in schools utilizing private security guards only. Large- ( $b = 1.67$ ,  $SE = 0.41$ ,  $p < .001$ ) and medium-sized ( $b = 1.31$ ,  $SE = 0.41$ ,  $p < .001$ ) schools and middle ( $b = 0.64$ ,

$SE = 0.32, p < .05$ ) and high ( $b = 0.56, SE = 0.34, p < .10$ ) schools were positively and significantly associated with school crime relative to very small schools and elementary schools, respectively. Once again, student disrespect in class ( $b = 0.37, SE = 0.11, p < .001$ ), gang activity ( $b = 0.43, SE = 0.19, p < .05$ ), low test achievement ( $b = 0.02, SE = 0.008, p < .001$ ), and schools located in high-crime neighborhoods ( $b = 0.75, SE = 0.31, p < .05$ ) were positively and significantly associated with higher incidences of school crime. Finally, private-security-guard-only schools with greater percentages of students likely to attend college ( $b = -0.01, SE = 0.005, p < .05$ ), greater percentages of students with limited English proficiency ( $b = -0.02, SE = 0.005, p < .001$ ), and with students from high-crime neighborhoods ( $b = -0.40, SE = 0.25, p < .10$ ) have a lower frequency of school crime.

## DISCUSSION

A considerable amount of research has been published documenting the prevalence of school crime and the use of safety measures in school to reduce/prevent school crime (see Brooks et al., 1999; Clark & Lab, 2000; García, 2003; Gottfredson et al., 2005; Simon et al., 1999; Tillyer et al., 2010). Nevertheless, empirical assessments of the relationship between SROs and private security guards and school crime have been noticeably rare. Furthermore, no research to date has examined the variation in use-of-force capabilities available to SROs and private security guards and its association with school crime alongside other relevant school characteristics. Recognizing these research deficiencies, this study sought to provide a systematic exploration into both of these research questions. A number of important findings emerged and are further elaborated below.

Regarding the association between school characteristics and school crime by security personnel type, school crime was generally higher in larger-sized schools and in middle schools relative to elementary schools regardless of whether SROs or private security guards were utilized. However, an important caveat is needed here. When comparing the magnitude of the effects for school size, the effect of medium-sized and large-sized schools on school crime was nearly one and a half times greater in schools with private security guards only compared to schools with SROs only. Perhaps this is an indication that the presence of SROs might minimize some of the effect of school size on school crime. The frequency of student disrespect in class was also a consistent predictor of school crime in schools with no security personnel, SRO-only schools, and private-security-guard-only schools. Therefore, this finding suggests that the presence or lack of presence of security personnel does little for reducing violence in schools with chaotic classrooms.

Another interesting finding that was observed was the consistency and direction of the effect of the percentage of students with limited English

proficiency. Specifically, in schools with greater percentages of students with limited English proficiency, school crime was significantly less. This result is largely consistent with the literature on acculturation, indicating that crime is lower among individuals who are less acculturated (Pérez, Jennings, & Gover, 2008). Aggregated to the school level, these results indicate that schools that have greater percentages of less-aculturated students have a lower incidence of crime. Finally, school crime was significantly higher in private-security-guard-only schools with a frequency of gang activity, yet this finding was not observed in SRO-only schools. This may provide some evidence suggesting that SROs can be effective in reducing gang-related activities in the school, thereby reducing the incidence of gang-related school violence, which is a benefit that is not observed in schools that utilize private security guards only.

Turning toward the relationship between use-of-force capabilities available to the school security personnel and school crime, the findings provided some mixed results. School crime was significantly higher in SRO-only schools where the officers had mid-level force capabilities (e.g., OC Spray/pepper spray and/or Tasers). This finding compared to the negative associations for firearms and all force levels (although not significant) demonstrates that more extreme use-of-force capabilities available to SROs may provide some degree of deterrence for school crime whereas mid-level force capabilities are not necessarily providing the same deterrent effect. Comparatively, it does not appear that any use-of-force capabilities across the continuum provide a significant benefit in terms of deterrence in private-security-guard-only schools. Although the use of OC Spray and CEDs appears to be the safest less-than-lethal method of dealing with physically resistant suspects, generally, and, therefore, seem to be the most appropriate for the school environment, they may not necessarily be the best use-of-force capability in terms of reducing school violence, particularly in schools that utilize SROs.

Before discussing the implications of this research, it is important to mention several study limitations. First, this study is cross-sectional in nature. Therefore, any relationships identified here are correlational, and this precludes us from making any definitive statements about the causal order of security personnel and school crime. For instance, we are unable to determine if schools that were experiencing high crime decided to employ either SROs or private security guards to combat the school crime problem and/or whether the presence of and use-of-force capabilities of the SROs or private security guards specifically caused a reduction in school crime. Future research is encouraged to further address this issue when longitudinal data are available. Second, the study is also limited in that the data was collected from school administrators rather than directly from the students. Although the school demographics (size, geographic location, etc.) would not be variable across the sources, it is possible that some of the measures such as

perceptions of racial tensions, bullying, student disrespect in class, and gang activity may be reported differently by students compared to school administrators. Future research should attempt to further investigate this issue when data permits.

Ultimately, Brown (2006) categorizes SROs as a new breed of public servant: “a hybrid of educational, correctional, and law enforcement official” (p. 593). The results of this study offer some evidence indicating that utilizing this new breed of public servants (e.g., SROs) and being aware of the varying use-of-force capabilities may be an effective way for dealing with school crime and its associated school characteristics beyond utilizing only private security guards.

## NOTE

1. It is important to note that this measure was created by the Department of Education prior to distributing the dataset.

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