Office of Research and Strategic Planning
Criminal Justice Statistical Analysis Center

Office of RESEARCH & STRATEGIC PLANNING

January 2018

State of West Virginia
Department of Military Affairs and Public Safety
Division of Justice and Community Services

An Evaluation of the Prevention Resource Officer Program in West Virginia Middle and High Schools

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In recent years, the practice of assigning police officers to schools has become an increasingly common problem-solving response in the United States. Police officers assigned to schools are typically known as school resource officers (SROs). A school resource officer, as defined by the Omnibus Crime Control and Safe Schools Act of 1968, is "a career law enforcement officer, with sworn authority, deployed in community oriented policing, assigned by the employing police department or agency to work in collaboration with schools and community organizations" (Raymond, 2010, p. 1). Between 1997 and 2007, the number of school resource officers in the U.S. increased by 38 percent. According to the Office of Community Oriented Policing Services, about one-third of all sheriffs' offices and almost half of municipal police departments assign nearly 17,000 sworn officers to serve in schools. SRO programs have also been encouraged through federal funding support to local jurisdictions. Since 1999, the Office of Community Oriented Policing Services has awarded over $750 million to more than 3,000 grantees resulting in the hiring of more than 6,500 school resource officers (Raymond, 2010).

Although specific activities of SROs will vary among different programs, the three primary roles of SROs are safety expert and law enforcer, problem solver and liaison to community resources, and educator (Raymond, 2010; James & McCallion, 2013). As a safety expert and law enforcer, SROs preserve order and promote safety. Duties include handling calls for service, responding to crime

Report Highlights...

This study examines the impact of school-based Prevention Resource Officers (PROs) on measures of crime, discipline, and disorder in 238 middle and high schools in West Virginia.

Quasi-experimental techniques are used to estimate the impact of PROs and therefore strengthen the ability of the study to document a cause and effect relationship between the variables.

Analyses indicate that the presence of PROs increases the number of reported incidents related to drug crime as well as the number of out-of-school suspensions for drug crime, but decreases violent crime and disorder when multiple years are considered.

The results suggest that the placement of PROs in schools in West Virginia can be beneficial by increasing the detection and deterrence of certain forms of problem outcomes.

Implications for policy and practice and limitations and directions for future research are discussed.

and disorder incidents, and making arrests. They also act as first responders and support advance planning for managing crises. Secondly, an SRO serves as a problem solver and liaison to community resources. They assist in resolving problems that are non-criminal such as bullying or disorderly behavior that may contribute to criminal incidents. Problem-solving activities include developing crime prevention efforts and community justice initiatives, assisting in identifying environmental changes that can reduce crime, and assisting in developing policies that address crime. Their duties as a liaison to community resources involve referring students to professional services within the school and the community and building relationships with juvenile justice counselors. In the role of educator, SROs make classroom presentations and teach classes on topics related to policing for students, faculty, and parents (James & McCallion, 2013; Raymond, 2010). While the roles of SROs generally fall under three main categories, their specific duties can vary considerably and their responsibilities are not always clearly defined. For instance, school officials are known to view SROs in general as first responders while SROs see their role as going beyond that of the traditional security officer (Raymond, 2010).

The Prevention Resource Officer (PRO) program in West Virginia is a cooperative effort between schools and law enforcement, similar in nature to SRO programs. The PRO program places state certified police officers in local middle and high schools to prevent students from committing crimes, mentor youth, provide a safer environment, improve student attitudes and knowledge of criminal justice, and combine safety and child advocacy. PROs are present in one school at least 35 hours per week, attend extra-curricular activities, and facilitate at least one non-traditional educational class per week (e.g., juvenile law, domestic violence, underage drinking). In addition, they are trained to recognize danger, prevent violence, and respond to dangerous situations. In sum, although the terms used to describe the placement of police officers in schools working in a problem-solving capacity may differ, the objectives of the PRO program in West Virginia are largely consistent with the objectives of SRO programs in general.

PRIOR RESEARCH ON POLICE OFFICERS IN SCHOOLS

Although police officers are now widely used by schools, one issue concerning the use of SROs is whether they are effective in providing for school safety by preventing and reducing crime, arrests, disciplinary problems, and disciplinary actions and other problem outcomes. Research has shown that school resource officers do perform actions that could potentially contribute to improved school safety. A national survey on the role of law enforcement in schools found that schools with SROs had much greater levels of law enforcement involvement compared to schools that did not (Travis & Coon, 2005). Schools with SRO presence were more likely to report that school grounds were patrolled, safety and security inspections were conducted, student leads about crimes were investigated, arrests were made, and that there were responses to crime reports from staff and students. Police officers were also more likely to be involved in mentoring students and advising school officials, working with law enforcement to create an emergency plan agreement, developing a written plan to deal with shootings, large scale fights, hostages, and bomb

Report Highlights...

School resource officers (SROs) are sworn law enforcement officers deployed in community oriented policing and assigned by the employing police agency to work in collaboration with schools and community organizations.

The specific activities of SROs vary but their primary roles involve acting as a safety expert and law enforcer, problem solver and liaison to community resources, and educator.

Prevention Resource Officers are similar in nature to SROs and are assigned to schools in West Virginia to prevent crime, mentor youth, facilitate non-traditional educational classes, and provide for school safety.

threats, and conducting risk assessments of the security of school buildings or grounds (Travis & Coon, 2005).

Although research has found that SRO programs are generally implemented as planned, there is more conflicting and limited evidence in the literature on whether SROs are effective in impacting both perceived and actual school crime and safety outcomes, including perceived crime, criminal incidents, arrests, and disciplinary incidents such as expulsions and out-of-school suspensions. For instance, studies have reported expected, null, and opposite effects of police officers for a variety of outcomes including perceptions of safety, crime, arrests, and discipline (e.g., Finn & McDevitt, 2005; Fisher & Hennessy, 2016; Johnson, 1999; Na & Gottfredson, 2011; Swartz, Osborne, Dawson-Edwards, & Higgins, 2015; Theriot, 2009).

Perceptions of Crime and Safety

Some studies have examined participants' (e.g., students, school officials, and SROs) perceptions of the effectiveness of SROs in reducing crime and contributing to school safety, with conflicting evidence reported (Chrusciel, Wolfe, Hansen, Rojek, & Kaminski, 2015; Lambert, 2002; May, Fessel, & Means, 2004; Raymond, 2010). May et al. (2004) surveyed school principals in Kentucky and found that they strongly perceived that SROs had reduced crime and disorder problems in their school and provided positive contributions to their school environments. One explanation for this finding is that regular communication between school administrators and law enforcement personnel structures an understanding and therefore perceptions of effectiveness (May et al., 2004)

Other studies have reported that students did not believe that the presence of SROs reduced offending (Jackson, 2002) and that SROs have little impact on reducing weapon possessions and the presence of drugs in schools (Brown, 2006). These impacts could be attributed in part to the negative contact that young people may have with the police and the SRO. For instance, Jackson (2002) argues that police in schools may pose a psychological threat to students who view them as threatening to their freedom and ability to engage in legal activities that may be undesirable to police and administrators.

Reported Crime

Several school-level studies suggest that SROs might serve as a deterrent to crime. The placement of SROs has been found to be associated with a decrease in the number of assaults (Johnson, 1999) and decreased incidents of serious violence (Jennings, Khey, & Maskaly, 2011). However, null effects have also been reported for a number of outcomes. For instance, a pre-post evaluation of the SRO program in North Carolina on rates of reported crimes in high schools indicated no significant differences in reported crime between pretest and posttest measures or between SRO and non-SRO schools (Barnes, 2008). Some studies examining violence specifically have reported that SROs are not associated with a decrease in non-serious violent incidents (Jennings et al., 2011), and that schools with SROs added did not have less reported serious violent or non-serious violent crimes when examined in a longitudinal design (Na & Gottfredson, 2011). Some studies applying more methodologically rigorous approaches have found that SROs and law enforcement are associated with a higher number of reported weapon offenses, drug offenses, property crimes (Na & Gottfredson, 2011) and serious violence (Swartz et al., 2015), suggesting that the presence of police officers in schools increases the likelihood that crime will be detected, which contributes to the recording of these measures. In sum, this body of research on SROs in schools suggests that the use of law enforcement personnel may be counterproductive and perhaps more likely to increase the detection of crime rather than serve as deterrent to crime.

Arrests and Referrals

There is some evidence that the introduction of SROs in a number of specific locations and districts is associated with an increased amount of school-based arrests over time. Teske and Huff (2011) reported that with the placement of SROs in schools in Clayton County, Georgia in the mid-1990s, the number of referrals by police to juvenile court increased by almost 1,248 percent by 2004. Most of the referrals were for misdemeanor offenses involving school fights, disorderly conduct, and disrupting public schools, all issues previously handled in school with school disciplinary measures. During the same time, the more serious felony offenses did not increase. Teske and

Huff (2011) argue that the increase in referrals should be analyzed in a systems context and the role of each system within the larger juvenile justice system. Because police are trained to make arrests when they have probable cause, it is unlikely that they would act differently than their role dictates without any additional training.

More methodologically rigorous research comparing schools with SROs to schools without SROs indicates that students in schools with SROs present are more likely to be arrested for minor, low-level offenses than students in schools without SROs present. A study by Theriot (2009) compared the arrests of students at thirteen schools with an SRO to fifteen schools without an SRO in the same school district using data from three consecutive school years and found that schools with an SRO had more total arrests and more arrests for disorderly conduct than schools without an SRO. However, schools with SROs had lower arrest rates for assault and possessing a weapon on school grounds. This suggests the possibility that SROs might serve as a deterrent as students may be less likely to bring a weapon or fight. These studies provide some support that SROs might "criminalize" student behavior which leads to a substantial increase in the number of school-based arrests (Theriot, 2009). With the increase of SROs on school campuses, it has been argued that disciplinary problems traditionally handled by school teachers and principals are more likely to be handled by an SRO. For instance, disrupting class is treated as disorderly conduct, and a fight is treated as assault, and therefore the number of youths referred for delinquent and criminal prosecution will increase (Hirschfield, 2008).

Disciplinary Actions

Research on the effects of SROs on disciplinary actions such as expulsions and suspensions have also reported conflicting findings. Several studies have reported null effects for suspensions (Link, 2010; Wilkerson, 2001) while some studies demonstrate that SROs have opposite effects by increasing the number of exclusionary incidents (Fisher & Hennessy, 2016; Rich-Shea, 2010). Rich-Shea (2010) compared 14 randomly selected public high schools with SROs to 11 high schools without SROs in Massachusetts across six waves of data and found that out-of-school suspension rates were higher in schools with SROs, although rates in both groups declined over the duration of the study. However, there was an increase in the rates of in-school suspensions for schools with SROs. When the two suspension types were combined, schools with SROs maintained a steady rate of suspension while schools without SROs decreased their rate of suspension. More recently, a meta-analysis by Fisher and Hennessy (2016) reported that the presence of SROs in high schools was associated with roughly one additional exclusionary discipline incident per week in a school of 1,500 students.

In sum, while the present body of literature on school-based policing has found that SROs and other forms of law enforcement personnel in schools operate as they are intended by providing for school safety and responding to school crime, research on their perceived and actual impacts on a variety of school safety

Report Highlights...

Research examining the impact of SRO programs has produced mixed findings that vary significantly across different types of problem outcomes.

While some studies find that the presence of SROs is associated with improved perceptions of school safety by teachers and staff, and with decreases in the number of violent incidents, other studies find that SROs are associated with increased numbers of arrests, disciplinary actions, and reported offenses.

One potential reason for these mixed findings is that the presence of police officers in schools increases the likelihood that criminal activity will be detected, thereby increasing the number of recorded incidents.

Current research seeks to further elucidate the effects of SROs by using more rigorous experimental or quasi-experimental research designs, and by conducting longitudinal studies that examine the impact of SROs on school safety and crime over time.

outcomes has produced largely conflicting evidence with null, expected, and opposite effects reported. This makes it difficult to reach any consensus about their effectiveness. However, studies employing the use of more methodologically rigorous designs, such as experimental, quasi-experimental, or longitudinal designs would allow for greater confidence in the results.

THE CURRENT STUDY

The purpose of the present study is to examine the effects of Prevention Resource Officers in West Virginia middle and high schools by comparing rates of criminal incidents across schools with and without PROs. This study is needed because there has yet to be a study evaluating the impact of PROs on school safety outcomes such as incidents, disciplinary problems, disciplinary actions, and other related outcomes in schools in West Virginia. Although PROs have been present in West Virginia schools for many years, little is known about their impact on indicators of school safety. Therefore, this study is necessary to justify the further escalation of PROs in schools.

This study utilizes a quasi-experimental design with propensity score techniques to strengthen the internal validity of the results. Furthermore, in contrast to previous research employing cross-sectional data for a single year, this study uses three years of data and considers the number of years police officers are present at a school. This is because the extent to which PROs are present at school may also affect the frequency of problem outcomes. Therefore, this study poses the following research questions: 1) Does the presence of a PRO in school reduce or increase incidents of crime, disciplinary problems, and disciplinary actions? 2) Does the number of years a PRO is present at school affect these problem outcomes?

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This study compares the incidence of crime, discipline, and disorder in middle and high schools in West Virginia with and without PROs.

Data for the analysis were obtained from the West Virginia Department of Education for the 2014, 2015, and 2016 school years.

The independent variables of interest are whether a PRO was present during the school in any year, and the number of years a PRO was present at school.

The dependent variables are the number of incidents of violent crime, drug crime, property crime, out-of-school suspensions for drug crime, out-of-school suspensions for violent crime, and disorder.

Because PROs are not randomly assigned to schools, this analysis uses a non-equivalent control group design and statistical techniques to estimate the causal effect of the independent variable on the dependent variable.

METHODOLOGY

Data

This study uses nonpublic agency records data from the West Virginia Department of Education (WVDE) on all primary, middle, high and combined schools in West Virginia for the 2014, 2015, and 2016 school years. This dataset includes information on incidents, removals, out-of-school suspensions, disciplinary problems, and school characteristics for each school. Data on Prevention Resource Officers for each of the school years were provided by the Division of Justice and Community Services (DJCS). These data included the name of the officer, county, and school name for each PRO, and were used to create the independent variables. Because school crime occurs more frequently in middle and high schools, this study excludes primary and combined schools. The final population of interest therefore includes 130 middle and 108 high schools as the units of analysis. Of these, 27 middle schools and 60 high schools had a PRO in place during at least one of the school years examined in the study.

Dependent Variables

There are six composite variables used as dependent

variables: 1) *violent crime*, 2) *property crime,* 3) *drug crime*, 4) *disorder*, 5) *OOS violent*, and 6) *OOS drug*. The first three variables measure the frequency of crime incidents in school. *Violent crime* is the sum of all recorded incidents of battery against a school employee, battery against a student, possession and/or use of a dangerous weapon, and threat of injury against an employee or a student. *Property crime* is the sum of all recorded incidents classified as vandalism or larceny. *Drug crime* is the sum of the recorded incidents involving the sale of a narcotic, use/possession of alcohol, and use/possession of illicit drugs. The extent of disciplinary problems in school is measured by the variable *disorder*, which is the sum of all recorded incidents of disruptive/disrespectful conduct, gang-related activity, physical fight without injury, and profane language, obscene gesture, or indecent act toward an employee or a student. Lastly, two variables are used to measure disciplinary actions. *OOS violent* is the sum of the out-of-school suspensions for violent incidents, while *OOS drug* is the sum of the out-of-school suspensions for drug-related incidents.

Independent Variables

There are two independent variables used for this study—whether a PRO was present in the school in any school year (coded 0 for "no" and 1 for "yes") and the number of years a PRO was present at school (ranging from 0 to 3). These measures are used as the treatments because it is hypothesized that the presence of SROs in schools will serve as a deterrent to crime by increasing the risk that crime will be detected. In addition, it is hypothesized that as PROs increase their time spent in schools, problem outcomes will decrease. One reason for the variation in terms of the number of years that PROs are present in some schools may be that grant funds are available to only support PROs for a limited number of years.

The covariates used in this study include the average percentage of students who are coming from a household with low socioeconomic status (*percent low SES*), the average percentage of students that are identified as having limited English proficiency (*percent EL*), the average percentage of students that are male (*percent male*), the average percentage of students that are minorities (*percent minority*), and the average number of students enrolled over the three-year period (*enrollment*). These variables were selected as covariates because they are likely correlated with school crime outcomes (Cook, Gottfredson, & Na, 2010).

Analytic Strategy

PROs are assigned to schools through non-random procedures, such as whether PROs are available and/or needed and whether funding is available to support a PRO. Therefore, this study uses a quasi-experimental design with non-equivalent groups. Because observational data lacks the use of random assignment of units to experimental and control groups, there is potential for selection bias due to variables that correlate with both the probability of treatment assignment and the outcome. In addition, the use of cross-sectional data makes causal inferences difficult because temporal ordering of variables cannot be established. However, propensity score analysis can be used to estimate the causal effect of a treatment with observational data (Austin, 2011). In propensity score analysis, treatment and comparison schools are compared on their propensity scores: the conditional probability of receiving a treatment given a set of observed pre-treatment covariates. Propensity score analysis reduces selection bias in observational data by equating treatment and control units on observed covariates known to affect the outcome.

The first step in the propensity score analysis is to estimate propensity scores for all observations using a logistic regression (Garrido, Kelley, Paris, Roza, Meier, Morrison, & Aldridge, 2014). The independent variable PRO is dichotomous and is therefore used as the dependent variable and the covariates are used as the independent variables in a logistic regression to obtain propensity scores (i.e., predicted probability of receiving treatment) for all schools. After the propensity score has been calculated for each school, the next step was to ensure there is overlap in the range of propensity scores across treatment and comparison groups ("common support"). To make inferences about treatment effects, each school must have a positive probability of receiving the treatment. Common support was assessed by examining a graph of propensity scores across treatment and comparison groups.

The next step was the choice of the matching or weighting algorithm. This step determines how the propensity score is used to compare treatment and comparison groups (Garrido et al., 2014). This study uses

inverse-probability of treatment weighting (IPTW), which is the optimal method for estimating the average treatment effect on the entire sample (Stuart, 2004). The purpose of weighting is to make treatment and comparison groups as similar as possible by applying more weight to treated subjects with a lower probability of treatment and less weight to treated subjects with a higher probability of treatment, and likewise applying more weight to untreated subjects with a higher probability of treatment, and less weight to untreated schools with a lower probability of treatment (Cerulli, 2015). Therefore, each treatment school receives a weight equal to the inverse of the propensity score, and each comparison school receives a weight equal to the inverse of one minus the propensity score.

The weights are then used to form a pseudo-population in which the covariates and treatment assignment are independent of each other, a condition that would be expected under randomization. The weighted groups are not identical to the population that was observed but are representative of a sample that would have been drawn from a population in which there was no confounding effect (Thoemmes & Ong, 2016). The advantage of inverse-probability weighting is that unlike matching algorithms, observations are not discarded if they do not match (Garrido et al., 2014). Therefore, the smaller sample size examined in this study would make it more ideal to use a weighting rather than a matching algorithm.

An assessment of how well covariates were balanced across treatment and comparison groups in the weighted sample was made by first computing mean standardized differences and variance ratios between treatment and comparison units for each of the covariates before and after weighting on the propensity score, where standardized differences equal to zero and variance ratios equal to one indicate perfect balance. Balance was then checked using the overidentification test to test whether statistically significant imbalance remained in the covariates across treatment and comparison units after weighting on the propensity score.

The final step involved estimating and interpreting the treatment effect in the weighted sample. This study estimates the average treatment effect in the population (ATE), which represents the average effect that would be observed if all treated and untreated units received treatment, compared with if none of the treated and untreated units received treatment (Li, 2012). There are several types of estimators that can be used to estimate treatment effects. This study uses the inverse-probability weighting estimator which uses a model to predict the treatment (StataCorp, 2015). It estimates the probability of receiving treatment for each observation.

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The propensity score is the conditional probability of receiving the experimental treatment or stimulus, such as being assigned a PRO to the school, given a set of variables correlated with the outcome.

Research has found that some of the factors most strongly correlated with school crime and other problem outcomes include the size of the school, ethnic composition of the student body, and school-level poverty.

For each school, a propensity score between 0 and 1 is calculated indicating the probability of being assigned a PRO based on five variables: percent low socioeconomic status, percent male, percent minority, percent limited English proficiency, and enrollment count.

The propensity scores are used to reduce differences in these characteristics between schools with PROs and schools without PROs which could potentially explain any relationship between the cause and effect.

The analytic method allows the results of the study to be interpreted in terms of the Average Treatment Effect (ATE) in the population, which is the average effect that *would* be observed if *all* of the schools in the population had a PRO present at the school compared to if *none* of the schools in the population had a PRO present at the school.

The estimated inverse-probability weights are then used to compute weighted averages of the observed outcomes for each treatment level (StataCorp, 2015). This weighting scheme accounts for the unobserved outcomes that would be observed if treated units did not receive treatment and vice versa, to better approximate the true mean of outcomes for each treatment level. The contrasts of these weighted averages provide the estimates of the ATEs.

RESULTS

Descriptive Statistics

Of the 238 middle and high schools, 230 were included in the analysis because some schools did not have data for all three years. Table 1 demonstrates that over the three-year period from 2014 to 2016, middle and high schools in West Virginia experienced an average of 58 incidents of violent crime, 21 incidents of property crime, 11 incidents of drug-related crime, and 813 incidents of disciplinary problems per school. Table 2 shows that the majority of middle and high schools in West Virginia did not have any PRO presence during any of the three school years. Slightly over one-third of middle and high schools had a PRO in any year (36.6%) while less than 15% of schools had PROs present for all three school years. Table 3 presents descriptive statistics for covariates. On average, over two-thirds of students were identified as coming from a household that is of low socioeconomic status (*M* = 67.1), while less than 10% were identified as minority, and less than 1% were identified as having limited English proficiency. The average enrollment in the population of middle and high schools was approximately 583 students.

Table 3 presents mean comparison statistics across schools with and without a PRO. When the statistics are examined by whether schools had a PRO present in any of the school years, there are a few notable differences. Although there was little difference in the means for violent crime and property between schools with and without PROs, there were twice as many drug crimes in schools with PROs (*M* = 16.59) compared to schools without PROs (*M* = 8.01). In contrast, schools without PROs had approximately 146 fewer incidents of disorder compared to schools with PROs. When the statistics are broken down by the number of years that a PRO was present at school, several patterns emerge (Table 4). First, as the number of years that a PRO is present in school increases from one to three, the means for violent crime, property crime, and disorder decrease. However, the results for incidents of drug crime, out-of-school suspensions for violent crime, and out-of-school suspensions for drug crime were less intuitive. Although the means for these outcomes were lower for schools that had a PRO in two of the years than schools that had a PRO for only one year, the means were higher for schools that had a PRO for all three

Table 1

Summary Statistics for All Variables

Variable	Mean	SD	Range
Violent Crime	57.78	54.70	1 - 303
Property Crime	20.52	16.13	0 - 97
Drug Crime	11.21	13.83	0 - 82
Disorder	813.11	805.81	12 - 7,936
OOS Violent	27.08	28.53	0 - 185
OOS Drug	8.72	12.15	0 - 80
PRO any year	0.37	0.48	0 - 1
PRO 1 year	0.14	0.35	0 - 1
PRO 2 years	0.08	0.27	0 - 1
PRO 3 years	0.15	0.36	0 - 1
Percent Low SES	67.15	24.97	17.83 - 100
Percent EL	0.74	1.33	0 - 11
Percent Male	51.47	2.13	45.43 - 57.31
Percent Minority	7.51	8.86	0 - 47.74
Enrollment	582.66	318.69	100 - 1,874

Table 2

Summary Statistics for Independent Variables (N = 238)

Variable	N	%
No PRO in any year	151	63.4
PRO in any year	87	36.6
1 year	33	13.9
2 years	19	8.0
3 years	35	14.7
Total	238	100.0

Note: Each observation represents a single middle school or high school.

Table 3

Comparison of Summary Statistics Across Schools With and Without Prevention Resource Officers

	No PRO (N = 151)		PRO in any year (N = 87)		Total	
Variable	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**
Violent Crime	57.44	54.51	58.36	55.36	57.78	54.71
Property Crime	20.01	15.06	21.38	17.86	20.53	16.14
Drug Crime	8.01	8.44	16.59	18.69	11.22	13.84
Disorder	867.63	910.75	721.85	583.53	813.12	805.82
OOS Violent	25.60	27.63	29.56	29.99	27.08	28.54
OOS Drug	5.97	7.58	13.34	16.34	8.73	12.16
Percent Low SES	71.97	25.28	59.08	22.37	67.15	24.98
Percent EL	0.83	1.56	0.57	0.81	0.74	1.34
Percent Male	51.63	2.07	51.19	2.22	51.47	2.13
Percent Minority	7.10	8.40	8.20	9.59	7.51	8.86
Enrollment	522.34	258.56	683.64	380.37	582.66	318.70

years compared to schools that had a PRO for two years.

PRO schools also differed from non-PRO schools on several of the covariates. Schools that had PROs present had lower average percentages of students who came from a household that had low SES (*M* = 59.1). In addition, PRO schools had a slightly lower percentage of students identified as having limited English proficiency (*M* = 0.57). PRO schools had higher percentages of students identified as minority (*M* = 8.2) and enrollment size (*M* = 683.6).

Propensity Score Analysis

Table 5 presents the mean standardized differences (MSDs) and variance ratios between treatment and comparison groups for each of the covariates before and after weighting on the propensity score. Before weighting, mean standardized differences for the covariates ranged from -0.54 to 0.49, but after weighting the MSDs ranged from -0.13 to 0.04. An examination of the variance ratios in the weighted samples suggests that the variable

Table 4

Summary Statistics by Prevention Resource Officer Years in School

	Had PRO 1 year (N = 33)		Had PRO 2 years (N = 19)		Had PRO 3 years (N = 35)	
Variable	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**
Violent Crime	68.16	55.85	54.32	48.90	51.60	58.37
Property Crime	26.91	21.36	19.68	14.01	17.26	15.16
Drug Crime	19.91	19.76	12.05	12.53	16.03	20.29
Disorder	847.19	630.12	787.95	576.69	571.37	522.15
OOS Violent	32.22	27.94	26.89	22.75	28.57	35.37
OOS Drug	15.88	17.07	9.89	11.10	12.89	18.00
Percent Low SES	62.91	23.44	53.74	17.19	58.46	23.74
Percent EL	0.44	0.50	0.70	1.02	0.63	0.92
Percent Male	51.14	2.13	51.00	2.56	51.33	2.17
Percent Minority	6.66	7.67	7.37	5.97	10.07	12.29
Enrollment	732.55	450.34	710.44	346.68	624.38	326.95

Percent EL remains significantly imbalanced across the groups with a variance ratio of 0.41. Therefore, the overidentification test was used to objectively assess whether there was statistically significant imbalance in covariates across treatment and comparison groups after weighting. The overidentification test failed to reject the null hypothesis that all five of the covariates were balanced after weighting the groups on the propensity score (χ^2 (6) = 1.51, $p > 0.05$), providing indication that the propensity score model has been correctly specified.

After ensuring that covariates were balanced, treatment effects were estimated. Table 6 presents the average treatment effects of PRO presence in schools. When examining the ATEs for all treated and untreated schools that had a PRO in any year compared to schools that did not have a PRO in any year, statistically significant effects were observed for two of the six outcomes: drug crime and out-of-school suspensions for drug crimes. The ATE indicates that having a PRO present at school (for at least one year) results in an increase of 3.64 incidents of drug crimes (β = 3.64, *SE* = 1.34, $p < 0.01$) and an increase of 3.28 incidents of out-of-school suspensions for drug-related crimes (β = 3.28, *SE* = 1.18, $p < 0.01$) on average.

To obtain the ATEs accounting for the number of years a PRO was present at the school, the inverse-probability weighting estimator was used with a multinomial logistic model to predict the treatment rather than the default binary logistic model. Six of the effects were observed to be statistically significant. Having a PRO present at school for one year resulted in an increase of over three incidents of drug crime (β = 3.80, *SE* = 1.63, $p < 0.05$) and over three out-of-school suspensions for drug crimes (β = 3.15, *SE* = 1.40, $p < 0.05$) on average. Furthermore, having a PRO present at school for three years (compared to no years) resulted in an increase of over four incidents of drug crime (β = 4.32, *SE* = 1.90, $p < 0.05$) and nearly four incidents of out-of-school suspensions for drug crime (β = 3.64, *SE* = 1.55, $p < 0.05$) on average. However, PRO presence in

Report Highlights...

The analysis indicates that the treatment and comparison groups were equivalent on the variables related to the outcome. These variables do not influence the assignment of a PRO to school or the outcomes.

The presence of a PRO in any school year increases the number of reported drug crimes and out-of-school suspensions for drug crimes.

When PROs were present in school for all three years, the effect on drug crime and suspensions for drug crime remained significant and positive but there was a decrease in violent crimes and incidents of disorder.

PROs were observed to have no impact on property crimes or out-of-school suspensions for violent crime regardless of the number of years they were present in the school.

Table 5

Covariate Balance Summary

	Standardized differences		Variance ratios	
Covariate	***Original***	***Weighted***	***Original***	***Weighted***
Percent Low SES	-0.54	0.01	0.78	0.94
Percent EL	-0.20	- 0.13	0.27	0.41
Percent Male	-0.20	0.04	1.15	1.38
Percent Minority	0.12	- 0.04	1.30	1.06
Enrollment	0.49	0.04	2.16	1.41
		χ^2 (6) = 1.51, $p > 0.05$		

Table 6

Average Treatment Effects

Outcome	ATE (SE)	t
Violent Crime	-10.27 (5.81)	-1.77
1 year vs 0 years	-0.52 (8.16)	-0.06
2 years vs 0 years	-16.86 (12.66)	-1.33
3 years vs 0 years	-16.57 (7.08)	-2.34*
Property Crime	-1.59 (1.92)	-0.83
1 vs 0	1.46 (2.57)	0.57
2 vs 0	-4.56 (3.43)	-1.33
3 vs 0	-4.26 (2.37)	-1.80
Drug Crime	3.64 (1.34)	2.72**
1 vs 0	3.80 (1.63)	2.33*
2 vs 0	-1.55 (1.85)	-0.84
3 vs 0	4.32 (1.90)	2.27*
OOS Violent	-1.90 (2.94)	-0.65
1 vs 0	2.65 (4.82)	0.55
2 vs 0	-5.52 (6.15)	-0.90
3 vs 0	-2.98 (3.92)	-0.76
OOS Drug	3.28 (1.18)	2.77**
1 vs 0	3.15 (1.40)	2.24*
2 vs 0	-0.65 (1.59)	-0.41
3 vs 0	3.64 (1.55)	2.35*
Disorder	-178.82 (100.56)	-1.78
1 vs 0	-162.33 (114.84)	-1.41
2 vs 0	-117.22 (109.17)	-1.07
3 vs 0	-322.79 (150.30)	-2.15*

*$p < .05$. **$p < .01$.

schools for all years was also found to result in a decrease of sixteen incidents of violent crime (β = -16.57, *SE* = 7.08, $p < 0.05$) and more than three hundred incidents of disorder (β = -322.79, *SE* = 150.30, $p < 0.05$) on average. No statistically significant effects were observed for any of the outcomes when PROs were present in school for two years.

DISCUSSION AND CONCLUSION

The goal of the current study was to examine whether the presence and extent of PROs in middle and high schools in West Virginia affect the incidence of school crime, disciplinary problems, and disciplinary actions. To address this question, this study used propensity score analysis to control for differences between treatment and comparison groups associated with non-random assignment.

The results of the quasi-experimental analysis showed that when comparing PRO schools to non-PRO schools that were comparable on key characteristics, the presence of PROs had significant but varied effects on several important types of problem outcomes. The first set of findings indicate that the presence of PROs increases the number of reported drug-related incidents and out-of-school suspensions. This suggests that the presence of PROs could make the detection of drug-related crime more likely, thereby contributing to the reporting of drug-related incidents and subsequent sanctions for students.

The second set of findings relates to the number of years that schools in the sample had PROs in place. Here, the results show that schools that had PROs present for three years had lower rates of violent crime and disorder than schools that did not have a PRO. This suggests that PROs may have a deterrent effect on the behaviors that result in these kinds of incidents. However, since this effect was not observed among schools that had PROs in place for only one or two years, this also suggests that this deterrent effect requires some time to manifest. It may take several years for students to change their behavior as they respond to the presence of PROs in public spaces where incidents related to violence and disorder are most likely to occur, and for the additional services that PROs provide (such as classes or trainings) to have an effect. Together, these findings suggest that the presence of PROs can improve school safety, but that these effects are likely to vary across different types of problem outcomes and may not be apparent until the PRO has been in place for some time.

Implications for Policy and Practice

The results presented above present several significant policy implications. First, they suggest that while PROs do appear to have a deterrent effect on some types of problem outcomes, this effect is not likely to be observed in the first year or two after the hiring of a PRO, and it is likely accompanied by a detection effect for other types of problem outcomes whereby PROs increase the likelihood that some criminal

activity will be observed and recorded. Consequently, policymakers and school administrators should take this into account when assessing the impact of PROs.

Second, this study also suggests that the presence of a PRO is associated with an increase in the number of suspensions for drug-related offenses. Therefore, schools hoping that PROs will help reduce incidents of exclusionary discipline should carefully consider evidence from this study as well as prior research when weighing the costs and benefits of hiring a PRO. Although school police officers can develop positive and beneficial relationships with students, some schools may prefer to utilize guidance counselors or social workers for this role, as this would allow students to develop positive relationships with adults while minimizing the increased disciplinary risk associated with school police (Kupchik, as cited in Fisher & Hennessy, 2016).

Third, these results suggest that extant data sources can be used to help enhance the effectiveness of PROs by informing decisions about where PROs are placed and by aiding efforts to assess their impact on school safety. The findings above indicate that the deterrent effects of PROs are likely to be greatest in schools where violent incidents and student disorder are significant concerns, but it remains unclear whether PROs have a significant deterrent effect on the occurrence of drug or property crime. Consequently, administrators and policy-makers should take this information into account when making decisions about the allocation of PROs and any potential expansion of the PRO program. Likewise, the findings presented here indicate that efforts to evaluate the impact of PROs should seek to examine their long-term effects and incorporate data from multiple academic years. While the present study was able to obtain data for three academic years, our understanding of the impact of PROs could also benefit from future studies which examine these effects over a longer time period.

Finally, the national literature on SROs also suggests several recommendations for maximizing the effectiveness of PROs. In regard to violent incidents, recent research suggests that the impact of SROs is enhanced when SROs focus their interactions on students who are believed to be at risk of committing acts of violence or disorder, work to direct these students to services they may need, and investigate why these problems exist (Raymond, 2010). Likewise, the literature also recommends that emphasis be placed on training SROs to identify recurring problems using crime analysis and on implementing targeted strategies that focus on addressing specific problems at their school (Atkinson, 2002; Kenney & Watson, 1998). These problem-solving strategies have been shown to be successful in schools. While there are some slight differences between the PRO program in WV and the SROs utilized in other states, these recommendations can be expected to further enhance the impact of PROs on school crime.

Report Highlights...

This study provided empirical evidence on the impacts of school-based prevention resource officers (PROs) in West Virginia middle and high schools.

Because it is likely that drug crimes occur with an attempt at remaining hidden, the increase in drug crimes and suspensions suggests that PROs increase the detection of these types of incidents as they respond to investigate them after it has been brought to their attention, at which point they are likely to document the incident.

In contrast, because violent crimes and acts of disorder often occur in areas where there are many students, such as in hallways and classrooms, the finding that PROs decreased violent crime and disorder suggests that as they had a more visible presence in areas of the school where crimes tend to occur, they acted as an effective deterrent.

The data do not provide information on how PROs specifically operate within schools or utilize their time spent on crime prevention activities.

Because deterrent effects were limited and only observed when PROs were available in all three school years observed in the study, more research is needed to evaluate how PROs are used in schools so that they can more effectively deter crime.

Limitations and Directions for Future Research

While this study makes several significant contributions to our understanding of the effects of police officers in schools, there are some limitations that should be noted. One such limitation is that the independent variables used in this study indicate only whether a PRO was present or absent at a given school, and do not provide information about how the PROs operate within the school. In some schools, PROs may have been very proactive in addressing crime problems and spent much of their time actively patrolling the school grounds, while in others, PROs may have spent more time prioritizing other activities, such as facilitating non-traditional educational classes or being present during extracurricular activities. How individual PROs operate within schools is likely to have an important effect on outcomes, and more research is needed to determine which types of activities are the most effective at preventing crime and changing student behavior.

Another limitation of the study concerns the use of propensity scores to simulate the random selection process associated with true experimental research designs. While this method is recognized as a highly effective way of controlling for potential confounding variables and differences between cases, it can only address observable factors for which there is sufficient data (Garrido et al., 2014). Although the present study incorporated a number of covariates that have been shown by prior research to be likely predictors of the occurrence of crime in schools, it is possible that the results could still be influenced by other factors that were not included in the analysis because they were not anticipated or because of data limitations. Future studies can work to address this concern by further investigating the predictors of school crime in WV and by expanding existing data sources.

Ultimately, the present study can be considered to be an important initial step in efforts to examine the impact of the PRO program in WV. While the results of this study offer evidence that the placement of police officers in schools can be effective in both the detection and deterrence of school crime and disorder, more research is needed to investigate the ways in which the presence of PROs can potentially alter the school environment and change student behavior. The present study suggests that these efforts, accompanied by enhanced data collection and continued cooperation between stakeholders, are likely to yield new insights and further recommendations for enhancing this important program.

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