

Violent Crime and Enrollment Trends: A Quantitative Analysis Reassessing the Impact at Public Postsecondary Institutions in the United States

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ABSTRACT

This study examines the relationship between rates of reported violent crime and public institutional enrollment in postsecondary education between 1980 and 2020 in the United States. Focusing on violent crimes such as aggravated assault, forcible rape, and homicide, this research employs descriptive statistics, bivariate correlations, and regression analysis to examine the influence of rates of reported violent crime on public institutional enrollment in postsecondary education. The findings reveal a significant positive relationship between violent crime and public institutional enrollment, with forcible rape demonstrating a significant impact. These results challenge the hypothesis that higher crime rates prevent enrollment in postsecondary education suggesting instead that the rates of reported violent crime could be associated with increased student enrollment in public institutions. This research contributes to ongoing debates about the impact of reported violent crime on institutional enrollment in postsecondary education.

1. Introduction

Crime is defined by the adverse impact it has on both individuals and society. It is often viewed as the harm that is characterized by the negative effects associated with an event, the type of offense, and the victim's perspective. These harms include a varied range of consequences, such as economic harm and physical harm to individuals, fear of crime, increased use of physical damage, and wider use of victim services for communities and broader society. To minimize the impact of crime, it is often defined by people through the legislative process, codified, and expressed in law as a punishable act. Administrators, academics, and policymakers of educational institutions are responsible for enforcing this defined law to provide and maintain a safe environment to facilitate any activities within campus boundaries. However, despite good faith and best efforts, no institution of postsecondary education is free from crime. All educational institution acknowledges the reality of violent crimes that affect their respective institutional enrollment processes, the academic achievement of students, and the promotion of a safe campus environment.

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Several arguments can be made as to why rates of reported violent crimes are important specifically in measuring institution enrollment for degree-seeking postsecondary education (Mellins et al., 2017; Hart & Colavito, 2011; Carey et al., 2015). Most responsible educational institutions collect violent crime reports or criminal justice information from various sources and may consider it in evaluating the criteria for their enrollment process. Previously, private educational institutions and four-year schools appeared to be more likely to collect and use such information than public institutions (Jones, 2007; Stewart & Uggen, 2020). In recent years public institutions have also increased their proportion of collecting and using information related to rates of reported violent crimes in their enrollment processes by taking additional steps, the most common of which is consultation with academic deans and campus security personnel (Pierce et al., 2014). This finding shows that if it is discovered that an applicant has failed to disclose a violent crime record, there is a greater chance that the applicant is denied enrollment or has their offer of admission revoked.

Despite the existing literature on the relationship between violent crime and enrollment trends in postsecondary institutions, significant gaps exist in the scholarly literature concerning the specific influence of reported violent crime—particularly homicide, forcible rape, and aggravated assault—on enrollment in degree-seeking education. Although previous studies have examined various aspects of how reported violent crimes affect educational enrollment, few have systematically analyzed how particular violent crimes collectively influence public institution enrollment for postsecondary education. This oversight is critical, as the U.S. Department of Education has reported that public safety and crime rates can significantly impact students' decisions to enroll in postsecondary education (Laurito et al., 2019).

Additionally, while some research has focused on crime's impact on student retention and graduation rates, there remains a lack of comprehensive studies that isolate the effects of specific violent crimes on enrollment rates across various types of public institutions. This gap underscores a pressing need for empirical research that not only defines what constitutes a violent crime in this context but also investigates the effects of these crimes on postsecondary public institution enrollment practices. By addressing this gap, this research aims to provide a clearer understanding of the implications of reported violent crime for public institution enrollment, thereby contributing valuable insights to policymakers, administrators, and academics. This highlights the need for targeted interventions and informed decision-making.

This paper is divided into six different sections. The first part of the paper introduces the problems and literature gaps to situate the hypotheses within the relevant scholarly literature. The second part of the paper states the strong hypotheses based on which this paper will progress. Drawing from the course material and incorporating SPSS capabilities, the third section thoroughly explains the research design and methodology. The data sources identified for writing this notion are examined in the fourth part of this research. This section explains why there is a particular data set consideration, parameters, and other metadata characteristics that are relevant to the study. The following section of this research highlights the statistical analysis of the data and makes appropriate interpretations. Finally, the last chapter provides the broader implications of this analysis and suggests how future studies and scholars can extend this research.

2. Literature Review

The purpose of this review is to examine the relationship between violent crime and public institutional enrollment as well as to establish theoretical frameworks for this study. It establishes the context of the study by reviewing existing knowledge regarding violent crime, and enrollment decisions in public institutions for postsecondary education. Gaps in the

existing literature, scholarly discussions, and research are expanded by locating the hypothesis of the effect of reported violent crime rates on degree-seeking institutional enrollment for postsecondary education.

2.1. Existing Literature on Violent Crime and Public Institutional Enrollment

Although any public educational institution reviews violent crime records during its decision-making process, the question exists as to the extent to which, within that violent crime, three important variables are analyzed that influence enrollment decisions among those degree-seeking postsecondary education institutions, that is, aggravated assault, murder, and forcible rape. A study conducted at a medium-sized university with a student population of approximately 14,000 students found that public institutional enrollment decisions were less influenced by campus crime statistics (Carrico, 2016). On the other side, an examination conducted by Pierce et al. (2014) argued that a public institution for postsecondary education had denied admission or enrollment decisions to at least one person based on a violent crime history. The study further showed that more than half of respondents from schools that collect applicants' violent crime history information indicated that they would likely not accept an applicant with a history of forcible rape or sexual assault. Particularly, 54 percent reported that they would not enroll someone with a background history of rape or sexual assault.

Like Pierce et al. (2014), a study conducted by Weissman et al. (2010) on public institutional enrollment practices indicates that 55 percent of institutions require undergraduate applicants to answer violent crime history questions as part of the admissions process. Although this practice is more common at four-year public institutions, 40 percent of community colleges also report collecting such information. Even a relatively limited inquiry at some public institutions can sometimes require extensive reporting requirements: for example, some institutions require applicants with any violent crime convictions history to pay for a full national background check.

A 2003 study examined a national data set with a sample of 9,150 student respondents, a total of 3,866 usable responses, and a response rate of approximately 42 percent and found that crime knowledge significantly influenced the decision to enroll in a public institution for degree-seeking post-secondary education (Janosik & Gehring, 2003). The study concluded with this finding by researching multiple student categories, from traditional students to specialized college students including medical and pharmacy residents. A contrasting study was found within the literature where, more than a decade after the 2003 study, it was shown that crime knowledge was unlikely to influence institutional enrollment decisions. Similarly, research into the postsecondary education context in Virginia explained that violent crime can be significantly explained by the number of students living on campus (Barnes, 2009). This analysis examined correlational and applied statistics from the 2004 academic year to examine the entire population of 4-year public, 4-year private, and 2-year public colleges and universities in the Commonwealth of Virginia.

Using regression analysis, a 2020 study examined the relationship between violent crime records and the college enrollment process where inquiry showed that black applicants with violent crime records were particularly penalized when disclosing a crime record at colleges with high campus crime rates (Stewart & Uggen, 2020). The findings of this study established that 4-year educational institutions clearly discriminate against applicants based on violent crime records. By comparing the rejection rates of college applicants with and without a crime record, the research concluded that applicants with a violent record are rejected at nearly three times the rate of applicants without a record from colleges that require violent crime history information.

Like Stewart and Uggen (2020), another study applied regression and demonstrated that enrollment is a direct determinant of reported violent crime at postsecondary education institutions by exploring a national data set spanning the period between 2000 and 2010. This research examined the possible effects on institution enrollment numbers over a period based on its violent crime rates on campus. Among the settings examined, the average level of enrollment was approximately 15,361 students. Research has shown a correlation between violent crime rates and enrollment rates. These institutions represented the first and fourth quarters of increased enrollment for the 2007 and 2012 periods where the findings were based on a study of 200 institutions of postsecondary education.

Makinen (2019) findings on the other side can be applied to influence change to prevent violent crime on college and university campuses. This analysis highlights contrasting reported data on postsecondary education enrollment with university police departments specifically dedicated to postsecondary education enrollment versus university police departments that are not dedicated to university police departments. This research found that the most reported violent crimes were disciplinary actions that were manifested by most arrests and criminal offenses. Paired-sample t-tests determined whether there was a statistical difference in the number of crimes reported by a dedicated university police department without postsecondary education enrollment and a dedicated university police department with postsecondary education enrollment for the crime categories of criminal offense, violence against women act offenses, arrests, disciplinary actions, and fires. Results demonstrated that hate crimes as a single crime category did not reveal any differences in crime reporting for postsecondary education enrollments with or without a dedicated university police department.

Considering the contents of the literature reviewed, the concept of violent crime is found to be vaguely described. Missing within existing knowledge is the study of crime or criminal behavior that can be classified as violent in nature and affects public institutional enrollment for post-secondary education. Therefore, it can be concluded that little consensus exists to support the existing relationship between reported violent crime and public institution enrollment for postsecondary education. Despite the differences expressed within the literature, none of the reviewed articles reported or defined the reported violent crimes of homicide, forcible rape, and aggravated assault together to study how these acts influence enrollment to public institutions for degree-seeking postsecondary education. Because of this absence within the reviewed literature, this article contributes to further review by providing a definition of what constitutes violent crime and how it affects enrollment in public institutions for postsecondary education. To define violent crime, the article uses the variables of reported crime of forcible rape, reported crime of aggravated assault, and reported crime of homicide and observes its effect on public institution enrollment. These variables were chosen because they represent examples of social instability that may affect enrollment in public institutions.

3. Theoretical Framework

Many theoretical perspectives have attempted to explain crime but most of the post-secondary education literature describing the correlation between education and crime is grounded in human capital theory (Becker, 2008; Ehrlich, 1975; Kwon, 2009). This theory posits that individuals who invest in education acquire skills and knowledge that enhance their productivity and economic opportunities thereby reducing the likelihood of engaging in criminal activities (Lochner, 2004). Specifically, the theory suggests that higher education can increase future earnings and employment prospects making the potential costs of criminal behavior outweigh the benefits. Early studies indicated that attaining a high school diploma significantly improved job security and prospects for advancement. The human capital

approach emphasizes that individuals with greater human capital—typically older, more educated, and more intelligent individuals—commit less crime because they can earn higher wages and have more to lose (Becker, 1993; Lochner & Moretti, 2004). Therefore, the theory provides a framework to predict how educational enrollment can influence rates of violent crime. As a result, the hypotheses for this study are derived from human capital theory.

The first hypothesis posits that increased rates of reported forcible rape are inversely related to enrollment at public institutions. As fear of crime escalates, potential students may opt against enrolling due to perceived safety concerns. Human capital theory predicts that individuals with higher educational attainment are less likely to perceive involvement in such crime as a viable option as they have more significant investments in their futures (Becker, 2008; Lochner, 2004). The second hypothesis suggests that higher rates of aggravated assault discourage enrollment in post-secondary public institutions. Prospective students might be deterred from applying to institutions in areas with elevated violent crime rates as they may associate such environments with a less educated population. Human capital theory indicates that as violent crime rates increase, the perceived returns on education diminish leading to decreased enrollment (Doss et al., 2017). The third hypothesis posits that a decrease in the rate of reported homicide will increase the ratio of enrollment at public institutions. Human capital theory suggests that as educational opportunities expand, individuals are less likely to resort to extreme violent behavior fostering a safer environment that encourages enrollment. Increased educational attainment reduces the perceived incentives for engaging in violent crime as individuals recognize the potential costs of such actions (Lochner, 2004). The human capital theory therefore provides a robust framework for understanding the dynamics between educational enrollment and violent crime rates. By testing these hypotheses this study aims to elucidate the complex relationship between violent crime and enrollment in public institutions across the United States.

Hypothesis Formation. Hypothesis formation by Doss et al. (2017) set out to address how the incidence of societal assault and sex crime affects enrollment quantities in land-grant higher education institutions. Doss et al. (2017) applied a total of 105 land-grant institutions in a study that sought to answer the research question situated within the United States higher education system and analyzed the following two sub-questions:

- 1) Is there a statistically significant relationship between reported societal incidents of aggravated assault crimes and enrollment at land-grant higher education institutions?
- 2) Is there a statistically significant relationship between reported societal incidents of sex-related offenses and enrollment at land-grant higher education institutions?

This study showed a statistically significant interaction between reported societal incidents of aggravated assault crime and enrollment at land-grant higher education institutions ($p < .05$). The research question was addressed by retaining the hypothesis that no statistically significant interaction exists between the reported societal incidents of sex offense and enrollment at land-grant higher education institutions ($p > .05$). Thus, one statistically significant relationship was established through hypothesis testing that included the category of socially aggravated assault crimes and enrollment at land-grant higher education institutions.

Using the recommendation made by Doss et al. (2017) that future studies could examine the interaction between different crime categories and their potential interaction with different institutional enrollment, for instance, homicide, assault, rape, robbery, and arson; this study examines whether this recommendation can be applied to analyzing the interaction between reported violent crimes and public institutional enrollment. Keeping this in mind the following hypothesis is proposed:

Hypothesis 1. Reported Violent Crime of Forcible Rape: I hypothesize that the increase in the rate of reported violent crime of forcible rape decreases the ratio of enrollment at public institutions. I would expect this inverse relationship because research shows that the dropout rate of students who have been sexually abused is higher than the overall university dropout rate (Mengo & Black, 2016). Therefore, it is expected that the forcible rape has an interaction with the public institution enrollment in the United States.

Hypothesis 2. Reported Violent Crime of Aggravated Assault: I hypothesize that the increase in the rate of reported violent crimes of aggravated assault decreases the ratio of enrollment at public institutions. This variable was chosen because previous research shows an established relationship between assault and institutional enrollment (Doss et al., 2017). This is considered a predictor because the existing literature on violent crime, particularly offense-related crimes, increasingly takes assault as a primary explanatory variable. Therefore, it is expected that the aggravated assault has an interaction with the public institution enrollment in the United States.

Hypothesis 3. Reported Violent Crime of Homicide. I hypothesize that the decrease in the rate of reported violent crime of homicide increases the ratio of enrollment at public institutions. I expect homicide to be associated with public institution enrollment because academic enrollment may affect an individual's subsequent violent crime decisions, such as homicide. As discussed in the theoretical framework, an educated person enrolled in an educational institution may have less fear of homicide because punishment may be more costly.

4. Methodology and Study Design

The design and methods of this study employed a quantitative approach to analyze the relationship between violent crimes and enrollment at public institutions for postsecondary education. The selected variables of reported violent crimes—aggravated assault, forcible rape, and homicide—are analyzed using percentages, as these rates are compared to the enrollment figures at public institutions. According to the National Institute of Justice, "violent crime" encompasses any instance where a victim is harmed or threatened with violence. The Federal Bureau of Investigation's (FBI) Uniform Crime Reporting (UCR) program classifies violent crime into four primary offenses: murder and non-negligent homicide, forcible rape, robbery, and aggravated assault. Violent crimes, as defined by the UCR involve the use of force or the threat thereof. The selection of aggravated assault, forcible rape, and homicide for this research is justified on several grounds:

1. **Severity of Offenses:** These crimes represent some of the most severe forms of violence, directly impacting victims and communities. The seriousness of these offenses necessitates attention as they profoundly influence public perception of safety. For instance, studies have shown that increases in violent crime rates can lead to significant shifts in community dynamics and public trust in academic institutions (Malone, 2010).
2. **Psychological and Social Implications:** Research indicates that incidents of forcible rape and aggravated assault can generate heightened fear among prospective students. Mengo and Black (2016) found that fear of victimization can deter potential students from enrolling in institutions located in areas perceived as dangerous. Additionally, Doss et al. (2017) highlighted that perceived safety significantly influences institution choice demonstrating that students prioritize environments where they feel secure.
3. **Indicator of Social Instability:** Homicide serves as a definitive indicator of violent crime and social instability. As noted by the Bureau of Justice Statistics, high homicide rates can reflect broader societal issues including economic disparities and community disorganization (Blumstein, 2000). Thus, tracking homicide rates can provide insights

into the overall safety climate surrounding educational institutions, directly affecting enrollment decisions.

4. **Contribution to Existing Literature:** By focusing on these three specific offenses, this research aims to fill existing gaps in the literature regarding the impact of violent crime on educational enrollment. Prior studies have often aggregated violent crime data without a nuanced examination of individual crime types (Boutwell et al., 2016). This research seeks to contribute a detailed analysis that informs future policy decisions related to campus safety and community resources.

The time frame used for examining this research is from 1980 to 2020. The most recent reported crime data sets available from the FBI were selected within this time frame. Another reason for using this time limit is that the central limit theorem states that the sampling distribution of the mean approaches a normal distribution as the sample size increases (Field, 2020). This fact is especially true for sample sizes greater than 30. Therefore, a sufficiently large sample can predict population parameters such as mean and standard deviation. The sample size for this research, therefore, provided a basis for significant prediction by expanding the strength of the relationship between violent crime and public institution enrollment to 41 cases.

The population and sample for this study represent degree-granting postsecondary public institutions within the United States system of higher education. Public institutions offering postsecondary education were selected as the population for examination because they represent all 50 states, thereby providing the basis for a national study of violent crime and public institutional enrollment in degree-seeking postsecondary education. The dependent variable or outcome variable for this study consists of the total number of enrollments in public institutions for postsecondary education in the United States from the period from 1980 to 2020. The independent or predictor variables for this study are measured through reported violent crime of forcible rape, reported violent crime of aggravated assault, and reported violent crime of homicide. These measures of violent crime were selected because research shows that they represent a major factor that can affect enrollment in post-secondary education. (Mengo & Black, 2016; Jacobsen, 2017; Doss et al., 2017).

The relationship between violent crime and public institutional enrollment is tested using bivariate correlation, a simple regression, and multiple regression. These tests are applied to analyze the relationships between the predictor variable and the outcome variable. Furthermore, null hypothesis testing is used to test whether the reported incidence of violent crime affects the number of public institution enrollment to post-secondary education-seeking degrees or rejects the established hypothesis. The alternative hypothesis is used to test against the null hypothesis to show a relationship between violent crime and public institutional enrollment.

The significance level of the null hypothesis test is $p < 0.05$ to test the statistical significance of the relationship between the outcome variable and the predictors and establish support or fail to establish support for the above hypotheses. This means that any P. value less than 0.05 will be statistically significant and rejects the null hypothesis that violent crimes and any predictor/s either at the bivariate level or collectively are fully regressed on the outcome variable. Thus, by implication, the available data will support the alternative hypothesis by arguing that there is a relationship between reported incidents of violent crime and public institutional enrollments for degree-seeking post-secondary education. Being clear about the level of significance ensures against P-hacking declaring and stating hypotheses that are consistent with the research objective so that they do not have to be modified to fit the data. Furthermore, to produce robust analysis, the use of bivariate correlation, simple linear model, and multiple

regression allows for greater prediction of the strength of relationships and the direction of variabilities between outcome variables with associated predictors.

Importantly, the research applied a hierarchical data entry method to identify the technique of data entry that may affect the variability of the results associated with the predictors. Forcible rape was entered as a first predictor variable in data entry as it is predicted to have the strongest effect on establishing a relationship with public institution enrollment. Assessment of multicollinearity is accomplished by testing the Pearson correlation coefficient if the measures of the predictor variable in the statistical model are correlated, reflecting the potential strength of the relationship. The outcome variable used in this research is discrete data that contains specific and fixed data values determined by percentage calculation.

This research adapts the graphic representation of the data to display the results. Specifically, the data are implemented through SPSS, which allows data representation of dependent variables and analysis through measures of independent variables. Findings are analyzed through the lens of the human capital theory of violent crime and draw scholarly attention to understanding how violent crime influences degree-seeking enrollment at a post-secondary public institution. In particular, the findings provide an analysis of the hypotheses and how well they perform under statistical tests. Furthermore, the analysis contributes to the field of peace and conflict studies in understanding the relationship between violent crime and public institutional enrollment. In conclusion, the research reflects the broader implications of this study. It also highlights areas for future consideration and potential gaps that require detailed exploration.

4.1. Data Sources

The data is collected from two main sources. First, the Federal Bureau of Investigation (FBI) was used to collect data on violent crimes under the Uniform Crime Reporting (UCR) program which generates reliable statistics for use in the field of law enforcement. The bureau has collected violent crime statistics data since the 1960s. The rationale behind choosing this source is that it provides detailed data on reported incidents of violent crime and other relevant incidents that help measure the research hypotheses, including reported violent crimes of forcible rape, reported violent crimes of aggravated assault, and reported violent crimes of homicide. An important reason to rely on this data is that it is the primary source for an overall analysis of violent crime in the United States.

Another data source comes from the National Center for Education Statistics (NCES), which is the primary federal agency that collects and analyzes education-related data. Therefore, NCES data are adapted to analyze whether violent crime affects public institutional enrollment. This data source provides the total number of enrollments in degree-granting public postsecondary institutions by attendance status, student gender, and institutional controls. As mentioned above, the time frame considered for both predictor and outcome variables to access data is between 1980-2020.

5. Results

To illustrate the key features of the distribution of data in a convenient form, a histogram is used which provides a visual representation of the frequency distribution of the data on the outcome variable in Figure 1. The histogram was applied to make any unusual observations, to detect outliers, or to find out if there were any gaps in the data. A bell-shaped curve, known as the normal curve, is drawn on histograms, which serve as a graphical representation of the normality of a distribution and spotting the modality of a distribution. When observing the

visual representation by adapting the histogram (Figure 1), the data does not appear to be relatively normally distributed. The left side of the data distribution has a long tail; hence the data appears to be relatively negatively skewed around -0.398. Since the sample size is less than 50, this relatively skewed data falls between a Z value of negative -1.96 and positive 1.96 (Field, 2020). Additionally, the mean value of this data is 75.82 with a standard deviation of 2.30. With 95% confidence, the true mean falls between 75.090 and 76.544.

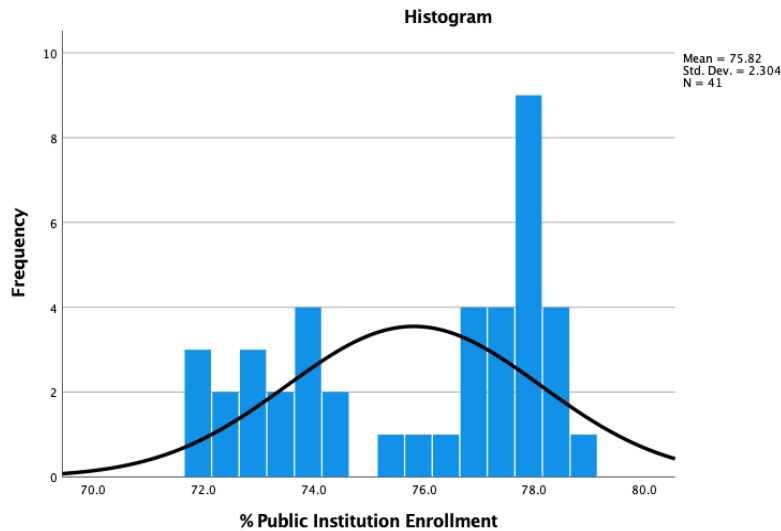


Figure 1. Visual Representation by Histogram

Interpreting Figure 2, it can be concluded that there is a negative kurtosis with a value of -1.477, meaning that the distribution is flatter than the normal distribution. Regarding normality, the rule to remember is that if the values are greater than ± 1.0 , the skewness or kurtosis for the distribution is outside the range of normality, so the distribution cannot be considered normal. To recall again, skewness and kurtosis values must fall between -1.96 and $+1.96$ to pass the normality assumption of $\alpha = 0.05$. In the descriptive statistics below (Figure 2), although the z-score for skewness fell within the desired range ($Z_{sk} = -1.07$), the z-score for kurtosis ($Z_k = -2.04$) did not fall within that range. Therefore, using $\alpha = 0.05$, the sample seems to pass the normality assumption for skew but fails the normality assumption for kurtosis.

| Descriptives | | | | |
|---------------------------------|----------------------------------|-------------|-----------|------------|
| | | | Statistic | Std. Error |
| % Public Institution Enrollment | Mean | | 75.817 | .3598 |
| | 95% Confidence Interval for Mean | Lower Bound | 75.090 | |
| | | Upper Bound | 76.544 | |
| | 5% Trimmed Mean | | 75.872 | |
| | Median | | 76.800 | |
| | Variance | | 5.306 | |
| | Std. Deviation | | 2.3036 | |
| | Minimum | | 71.9 | |
| | Maximum | | 78.8 | |
| | Range | | 6.9 | |
| | Interquartile Range | | 4.3 | |
| | Skewness | | -.398 | .369 |
| | Kurtosis | | -1.477 | .724 |

Figure 2. Descriptive Statistics

With the observation of the pattern of percentage of public institution enrollment and the conclusion that the data are not randomly distributed, further analysis is needed to understand the interaction between public institution enrollment with one of the predictor variables. For

this, the bivariate correlation between forcible rape and public institutional enrollment is analyzed. It is a statistical way of measuring the extent to which two variables are related. Bivariate correlation measures the array of reactions among variables. This test explains the relationship, strength, and significance between two variables. It is therefore important to examine research hypotheses of causation and association. The bivariate correlation in Figure 3 predicts the value of the dependent variable of public institutional enrollment based on changes in the independent variable, that is forcible rape.

After completion of the analysis of the relationship between these two variables, the robustness of simple regression with bootstrap confidence intervals is chosen. The bootstrapping technique is used to estimate bias, which is the systematic difference between our variance/mean ratio (VMR) and our estimate of the true value.

Therefore, the bootstrapping statistical procedure resamples the dataset to create multiple replicate samples that allow calculation of standard errors, construction of confidence intervals, and hypothesis testing for the sample statistics. Similarly, one of the reasons for choosing forcible rape among the predictor variables is that a hierarchical data entry, as mentioned above, placed forcible rape first. Forcible rape is the "key variable" among the predictors, which deserves particular attention because the hypothesis places forcible rape above aggravated assault. This novel analysis will account for the variability of the relationship between outcomes and predictors. Bivariate correlation is introduced first in Figure 3 which will be followed by simple regression.

| Correlations | | | |
|---------------------------------|-----------------------------|--|---------------------------------|
| % Public Institution Enrollment | | | % Public Institution Enrollment |
| | | | Rate of Forcible Rape |
| | Pearson Correlation | | 1 |
| | Sig. (2-tailed) | | .528** |
| | N | | <.001 |
| | N | | 41 |
| | Bootstrap ^c Bias | | 41 |
| | Std. Error | | 0 |
| Rate of Forcible Rape | 95% Confidence Interval | | -.002 |
| | Lower | | .157 |
| | Upper | | .186 |
| | Pearson Correlation | | 1 |
| | Sig. (2-tailed) | | .528** |
| | N | | <.001 |
| | N | | 41 |
| | Bootstrap ^c Bias | | -.002 |
| | Std. Error | | .157 |
| | 95% Confidence Interval | | .186 |
| | Lower | | .186 |
| | Upper | | .821 |
| | Pearson Correlation | | .528** |
| | Sig. (2-tailed) | | <.001 |
| | N | | 41 |
| | N | | 41 |

** . Correlation is significant at the 0.01 level (2-tailed).

c. Unless otherwise noted, bootstrap results are based on 1000 bootstrap samples

Figure 3. Bivariate Correlation

According to this bivariate correlation, one can identify not only the strength and size of the interaction between the variables but also define the significance of that relationship. $R = (0.528, p < .001)$, at least this large, is significant, indicating the probability of locating a correlation if the null hypothesis, that is, no relationship was true. Since $R = 0.528$ (Figure 3) is close to a perfect correlation of positive and given its corresponding P. value ($p < .001$) is smaller than 0.05, I reject the null hypothesis of no relationship, however, there is a strong interaction between the variables. As such, this result does not support my initial hypothesis of a negative relationship, that as the rate of reported forcible rape increases, the ratio of public institutional admissions will decrease, because one variable is positively associated with an increase in the other variable. This means public institution enrollment as the outcome variable, and the predictor variable of the reported forcible rape establishes a relationship. In this sense, there is

a strong and positive relationship between the two variables which moves in the same direction. A similar relationship is established here; as forcible rape increases, so does public institution enrollment, and since the sample is run thousands of times based on bootstrap confidence intervals that are less affected by extreme scores, I can say with 95% confidence that an increase in public institutional enrollment is half a percentage point between .187% and .821%.

At this point, however, it is important to caution against any conclusions as further analysis remains to be done using simple regression. Simple regression analyzes the variability of the outcome variable that is estimated from the predictor variable, leading to possible interaction between these variables (Allen, 2004). Therefore, a simple regression analysis is applied to the magnitude of the relationship between a single independent variable, that is, forcible rape, and a dependent variable, that is, public institution enrollment based on a straight-line observation.

| Model Summary | | | | | |
|---------------|-------------------|----------|-------------------|----------------------------|--|
| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | |
| 1 | .528 ^a | .279 | .261 | 1.9807 | |

a. Predictors: (Constant), Rate of Forcible Rape

| ANOVA ^a | | | | | | |
|--------------------|------------|----------------|----|-------------|--------|--------------------|
| Model | | Sum of Squares | df | Mean Square | F | Sig. |
| 1 | Regression | 59.253 | 1 | 59.253 | 15.103 | <.001 ^b |
| | Residual | 153.005 | 39 | 3.923 | | |
| | Total | 212.258 | 40 | | | |

a. Dependent Variable: % Public Institution Enrollment
b. Predictors: (Constant), Rate of Forcible Rape

Figure 4. Simple Regression Model Summary

According to the simple regression model summary, R Square= .28, which is the variability in the outcome variable explained by the predictor variable. This means that forcible rape reports for 28% of the variance in public institutional enrollments. Furthermore, to get an estimate of the significance of the model's prediction, the ANOVA table is analyzed where a significant F Statistic $f = (15.1, P. < .001)$ is found (Darlington & Hayes, 2017). The P value suggests that the probability that we would find an F statistic at least this large if the null hypothesis of a relationship were not true is less than 0.001. In other words, the model is a good fit for the data, and the relationship between the two variables is beyond the range of random chance, with 95% confidence. Thus, we can reject the null hypothesis and my first hypothesis of negative relationship. However, simple regression predicts only 28% of the variability.

| Coefficients ^a | | | | | | |
|---------------------------|-----------------------|-----------------------------|------------|---------------------------|--------|-------|
| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | 67.558 | 2.148 | | 31.459 | <.001 |
| | Rate of Forcible Rape | .236 | .061 | .528 | 3.886 | <.001 |

a. Dependent Variable: % Public Institution Enrollment

| Bootstrap for Coefficients | | | | | | |
|----------------------------|-----------------------|--------|-------|------------|------------------------|--|
| Model | | B | Bias | Std. Error | Bootstrap ^a | |
| | | | | | Sig. (2-tailed) | 95% Confidence Interval Lower Upper |
| 1 | (Constant) | 67.558 | -.061 | 2.461 | <.001 | 62.630 72.341 |
| | Rate of Forcible Rape | .236 | .003 | .074 | .016 | .102 .387 |

a. Unless otherwise noted, bootstrap results are based on 1000 bootstrap samples

Figure 5. Model Parameters

Figure 5 provides estimates of the model parameters (the beta values) and the significance of these values. Because β_0 is the Y-intercept, this value in Figure 5 is 67.56 (B for the constant). This value can be interpreted as meaning that when no forcible rape is reported (when $X = 0$), the model predicts that 67.558 students will be enrolled in the public institution. We can also read off the value of β_1 from the table, which is 0.236. Figure 5 provides estimates of the model parameters (beta values) and the significance of these values. Since β_0 is the Y-intercept, this value in Figure 5 is 67.56 (for the B constant). Forcing this value into the absence of reports of forcible rape (when $X = 0$), the model predicts that 67,558 students will enroll in public institutions. The value of β_1 is also indicated in the table, which is 0.236. Although this value is the slope of the line for the model, this value represents the change in the outcome related to a unit of change in the predictor. In other words, if the predictor variable (forcible rape) increases by one unit, then the model predicts 0.236 more enrollment to a public institution for degree-seeking postsecondary education. In terms of β for the reported violent crime of forcible rape, this outcome means that reported rape makes a significant contribution ($p < 0.001$) to predicting public institutional enrollment.

The bootstrap re-estimates the standard error (these changes from 0.01 in the original table to the bootstrap estimate of 0.008). However, this is a very small change that does not negatively affect the output. Bootstrap confidence intervals and the significance values in Figure 5 are essential to report and interpret because they do not trust the assumptions of normality or homoscedasticity. If our sample is one of the 95% yielding confidence intervals that include the population value, the bootstrap confidence interval signified that the population value of β for the reported violent crime of forcible rape is likely to fall between 0.102 and 0.387 and does not include zero because of this interval. Through this, we can conclude that there is a genuine positive relationship between reported forcible rape and public institutional enrollment. Additionally, the level of significance associated with this confidence interval is $p = 0.001$, which means it is highly significant and rejects the null hypothesis.

As noted earlier, simple regression predicts only 28% of the variability, and therefore, there remains 72% of the relationship unaccounted for. For this reason, the test is forwarded to examine the relationship of the variables with multiple regression. But before diving into multiple regression, the correlation matrix is considered to analyze the relationship between predictors and outcomes and to observe for multicollinearity. If there is no multicollinearity, there is no significant correlation within the data ($r > 0.9$) between the predictor variables. Observing only the predictors (violent crimes) and disregarding the outcome variable (public institution enrollment) for now, the highest correlation lies between the reported violent crime rate of homicide and the reported violent crime rate of aggravated assault, which is significant at 0.01. level ($r = 0.719$, $p < 0.001$).

| | | Correlations | | | |
|---------------------|---------------------------------|---------------------------------|-----------------------|----------------------------|------------------|
| | | % Public Institution Enrollment | Rate of Forcible Rape | Rate of Aggravated Assault | Rate of Homicide |
| Pearson Correlation | % Public Institution Enrollment | 1.000 | .528 | .798 | .870 |
| | Rate of Forcible Rape | .528 | 1.000 | .525 | .575 |
| | Rate of Aggravated Assault | .798 | .525 | 1.000 | .719 |
| | Rate of Homicide | .870 | .575 | .719 | 1.000 |
| Sig. (1-tailed) | % Public Institution Enrollment | . | <.001 | <.001 | <.001 |
| | Rate of Forcible Rape | .000 | . | .000 | .000 |
| | Rate of Aggravated Assault | .000 | .000 | . | .000 |
| | Rate of Homicide | .000 | .000 | .000 | . |
| N | % Public Institution Enrollment | 41 | 41 | 41 | 41 |
| | Rate of Forcible Rape | 41 | 41 | 41 | 41 |
| | Rate of Aggravated Assault | 41 | 41 | 41 | 41 |
| | Rate of Homicide | 41 | 41 | 41 | 41 |

Figure 6. Pearson Correlation Coefficient

Despite the significance, the coefficient itself is relatively small ($r > 0.9$) and therefore there appears to be no collinearity. Noticing the outcome variable, the rate of reported crime of homicide as a predictor correlates best with the outcome ($r = 0.870$, $p < 0.001$). The Pearson correlation coefficient hence analyzed the potential positive strength of the relationship between the independent variables and the dependent variable in Figure 6.

Returning to the multiple regression topic, an estimate of the variability associated with a single predictor variable can be obtained as well as the variability observed by the predictor variables collectively can be considered. Simple regression can also be compared against multiple regression and analyze if there is an expansion or contraction of the predictive power of multiple regression as more predictors are added. Figure 7 describes the overall fit of the model. There are two separate models in the table below because a hierarchical method was chosen earlier with two blocks and repeated was presented summary statistics for each model. Model 1 is the first step adapted within the hierarchical process when only forcible rape was used as a predictor. Model 2 implies using all three predictors which is clearly mentioned in the footnotes below the table.

| Model Summary ^c | | | | | | | | | |
|----------------------------|-------------------|----------|-------------------|----------------------------|-----------------|-------------------|-----|-----|---------------|
| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | R Square Change | Change Statistics | | | |
| | | | | | | F Change | df1 | df2 | Sig. F Change |
| 1 | .528 ^a | .279 | .261 | 1.9807 | .279 | 15.103 | 1 | 39 | <.001 |
| 2 | .905 ^b | .819 | .804 | 1.0193 | .540 | 55.126 | 2 | 37 | <.001 |

a. Predictors: (Constant), Rate of Forcible Rape

b. Predictors: (Constant), Rate of Forcible Rape, Rate of Aggravated Assault, Rate of Homicide

c. Dependent Variable: % Public Institution Enrollment

Figure 7. Multiple Regression

The column categorized as R is the multiple correlation coefficient between predictors and outcomes. As mentioned above, the simple correlation between forcible rape and public institution enrollment rate is 0.528. The next column provides the value of R², which measures how much variability in the outcome is reported by the predictors. Its value for the first model is 0.279, which means that forcible rape accounts for 28% of the variance in public institutional enrollment. When the other two predictors are included (Model 2), this value increases to 0.819, or 82% of the variance in public institutional enrollment. Thus, if forcible rape reports 28%, aggravated assault and homicide reports for an additional 54%. i.e., $82\% - 28\% = 54\%$.

Adjusted R² illustrates how well the model generalizes to a larger group of population, and ideally, should have a value equal to, or very close to, the value of R². In this study, the variance of the model is small ($0.819 - 0.804 = 0.015$ or about 15%). This contraction means that if the model was defined from the population instead of the sample it would report about 15% less variance in the outcome, thus indicating that the model has sound cross-validity.

| ANOVA ^a | | | | | | |
|--------------------|------------|----------------|----|-------------|--------|--------------------|
| Model | | Sum of Squares | df | Mean Square | F | Sig. |
| 1 | Regression | 59.253 | 1 | 59.253 | 15.103 | <.001 ^b |
| | Residual | 153.005 | 39 | 3.923 | | |
| | Total | 212.258 | 40 | | | |
| 2 | Regression | 173.812 | 3 | 57.937 | 55.759 | <.001 ^c |
| | Residual | 38.446 | 37 | 1.039 | | |
| | Total | 212.258 | 40 | | | |

a. Dependent Variable: % Public Institution Enrollment

b. Predictors: (Constant), Rate of Forcible Rape

c. Predictors: (Constant), Rate of Forcible Rape, Rate of Aggravated Assault, Rate of Homicide

Figure 8. F Statistics

As in simple regression (Figure 4), Figure 8 demonstrates an F-statistics of whether the model is significantly better at predicting the outcome than using the average outcome. The above F-statistic (Figure 8) embodies the ratio of the progress in the prediction of the resulting model fitting relative to the inaccuracy in the model. Like Figure 7, this figure reports information for each model separately. Figure 8 contains the sum of squares, residual sum of squares, and their respective degrees of freedom for the model which is necessary to analyze for interpretation. The degree of freedom for SSM is the number of predictors (1 for the first model and 3 for the second model). The degrees of freedom for SSR are the number of observations (40) minus the number of coefficients in the regression model. The first model has two coefficients with one each for the predictor and the constant while the second has four with the constant plus one for each of the three predictors. Thus, Model 1 has 39 residual degrees of freedom while Model 2 has 37 residual degrees of freedom. The mean sum of squares (MS) is the sum of squares divided by the degrees of freedom. Whereas the F-statistic is the mean improvement in prediction (MSM) divided by the average error in prediction (MSR). If the null hypothesis were true, the p-value reports that the probability of getting an F is at least as large using the outcome mean to predict the public institution enrollment. The F-statistic appears to be 15.103, $p < 0.001$ for the initial model, which is a predictor of forcible rape, and 55.759, $p < 0.001$ for the second, that is aggravated assault and homicide. Hence, both models significantly improved the ability to predict the outcome variable compared to not fitting the model.

| Excluded Variables ^a | | | | | | | |
|---------------------------------|----------------------------|-------------------|-------|-------|---------------------|-------------------------|-------|
| Model | | Beta In | t | Sig. | Partial Correlation | Collinearity Statistics | |
| 1 | Rate of Aggravated Assault | .719 ^b | 6.407 | <.001 | .721 | Tolerance | VIF |
| | Rate of Homicide | .846 ^b | 8.685 | <.001 | .815 | .724 | 1.380 |
| | | | | | | .669 | 1.495 |

a. Dependent Variable: % Public Institution Enrollment
b. Predictors in the Model: (Constant), Rate of Forcible Rape

Figure 9. Excluded Variables

Excluded variables are those predictor variables that were either not added and/or not recalled in the final model, as shown in Figure 9. Given a two-block hierarchy with one predictor variable (and two excluded out of three) in Block 1, and three predictor variables (none excluded) in Block 2, Figure 9 demonstrates excluded variables only on the first block of the

hierarchy in the initial simple regression, because no predictor variables were excluded in the multiple regression analysis. Figure 9 estimates the b-value and corresponding t-statistic for each predictor if it entered the model at this point. By Adapting the stepwise method, the predictor with the highest t-statistic will enter the next model. In this way, the predictors will be continued to enter till there are no t-statistics with significance values less than 0.05. The partial correlation reported signifies any contribution the excluded predictor will make if it were entered into the model. Since many outputs have been examined so far, confidence intervals and significance tests of model parameters still appear in doubt. To minimize this doubt bootstrapping technique with bias-corrected (BCa) confidence intervals was performed to produce confidence intervals and p-values.

| Bootstrap for Coefficients | | | | | | | |
|----------------------------|----------------------------|--------|------------|------------------------|-----------------------------|--------|--------|
| Model | B | Bias | Std. Error | Bootstrap ^a | | | |
| | | | | Sig. (2-tailed) | BCa 95% Confidence Interval | | |
| | | | | | Lower | Upper | |
| 1 | (Constant) | 67.558 | .100 | 2.518 | <.001 | 62.600 | 73.277 |
| | Rate of Forcible Rape | .236 | -.002 | .075 | .012 | .095 | .373 |
| 2 | (Constant) | 66.765 | -.041 | 1.220 | <.001 | 64.641 | 69.165 |
| | Rate of Forcible Rape | -.008 | .001 | .041 | .842 | -.101 | .066 |
| | Rate of Aggravated Assault | .013 | .000 | .004 | .002 | .006 | .022 |
| | Rate of Homicide | .779 | -.010 | .132 | <.001 | .500 | .993 |

a. Unless otherwise noted, bootstrap results are based on 1000 bootstrap samples

Figure 10. Bootstraps Confidence Interval

The output (Figure 10) reports the bootstrap confidence intervals for each predictor along with their significance value. This suggests that rate of reported violent crime of forcible rape, $b = 0.24$ [0.95, 0.37], $p = 0.01$; rate of reported violent crime of aggravated assault, $b = 0.013$ [0.06, 0.022], $p = 0.02$; and rate of reported violent crime of homicide, $b = 0.78$ [0.50, 0.99], $p = <0.001$; all significantly predicts public institution enrollment. As a reminder, these bootstrap confidence intervals and significance values overlook the assumptions of normality or homoscedasticity, therefore delivering an accurate estimate of the population value of b for each predictor that contains the population value, assuming that the sample with confidence intervals is one of the 95%.

Analyzing the data from a theoretical—human capital perspective, the findings show a relationship between violent crime and public institutional enrollment. The study hypothesized negative relationships between various forms of violent crime and enrollment rates based on existing literature that connected victimization experiences such as forcible rape and aggravated assault with higher dropout rates and reduced enrollment. However, the results demonstrated a counterintuitive positive correlation, particularly with forcible rape where an increase in reported incidents was associated with a rise in public institutional enrollment. This unexpected relationship warrants exploration beyond traditional human capital theory, which posits that increased crime would deter degree-seeking institutional enrollment for postsecondary education. One possible interpretation is that the increased enrollment in the face of rising crime rates might reflect a societal response to perceived threats. As communities become more aware of the risks associated with violent crime, individuals may view education as a critical means of personal empowerment and social mobility. Higher enrollment could signify a proactive approach among students and families seeking safety and stability through education amidst a climate of fear and uncertainty. This perspective aligns with theories of resilience and agency suggesting that individuals may pursue educational opportunities as a countermeasure against violent conditions.

Moreover, the findings could indicate a shifting perception of educational institutions as safe havens or supportive environments where individuals believe they can find community, resources, and strategies for coping with violence in their surroundings. Institutions may implement enhanced safety measures or support systems in response to rising crime rates making them more attractive to prospective students. Thus, rather than leading to withdrawal the presence of violent crime might spur greater engagement with educational institutions as a means of seeking support.

Additionally, this relationship raises important questions about the demographic and socio-economic contexts of the degree-seeking students enrolling in public institutions. For instance, it may be that certain populations, particularly those from marginalized communities perceive education as a crucial pathway to overcome the challenges posed by increasing rates of violent crimes in their neighborhoods. The motivations driving enrollment in these contexts might diverge from traditional metrics of academic success reflecting a complex interplay of survival, resilience, and aspiration in the face of adversity. Therefore, while the study's hypotheses anticipated a negative relationship between violent crime and enrollment the observed positive correlation opens avenues for further research into the social dynamics that play a crucial role in enrollment in public institutions.

5.1. Implications

This study explored and analyzed the relationship between violent crime and public institutional enrollment. My research revealed an unexpected positive correlation between reported incidents of violent crime, specifically forcible rape, and public institution enrollment rates. This counterintuitive result challenges conventional assumptions that increasing crime would deter students from pursuing higher education. Instead, it suggests that in an environment characterized by rising threats, prospective students may increasingly view education as a vital means of empowerment and stability.

For administrators, this finding underscores the necessity of adopting proactive measures to enhance campus safety and community support systems. Implementing comprehensive safety strategies, such as improved lighting, surveillance, and accessible reporting mechanisms can help alleviate students' concerns about violence on campus. Additionally, fostering an environment that emphasizes resilience through educational programs and mental health resources is crucial. According to a report from the American Council on Education (2020), institutions that prioritize student well-being and create inclusive environments not only enhance safety perceptions but also positively impact student success rates. Higher education leaders must recognize that their institutions can serve as safe spaces, providing not only educational opportunities but also essential resources and support for students navigating adverse circumstances.

The National Center for Education Statistics (NCES) also highlights that students from marginalized backgrounds often face unique challenges that affect their educational journeys. By actively addressing these challenges, public institutions can position themselves as beacons of hope and opportunity in times of crisis. The implications extend beyond mere enrollment figures. Policymakers must consider how demographic and socioeconomic factors influence students' decisions to enroll in public institutions amid violence. Understanding that certain populations may prioritize education as a pathway to overcoming challenges highlights the need for targeted support initiatives that address the unique experiences of these students. A study by the Institute for Higher Education Policy (2018) indicates that initiatives focused on financial aid, mentoring, and community engagement significantly improve enrollment and retention rates among underrepresented students. By investing in community outreach and

tailored programs, institutions can foster an inclusive environment that attracts a diverse student body even in the face of increasing rates of violent crime. For instance, partnerships with local organizations can enhance student support services and create a network of safety and advocacy reinforcing the notion that education is not only a refuge but also a catalyst for community resilience.

Therefore, the findings of this study prompt educational leaders to reevaluate their strategies for understanding the complex dynamics between violent crime and degree-seeking institutional enrollment. By emphasizing the importance of safety and support and recognizing education as a potential refuge administrators and policymakers can better align their efforts with the realities faced by prospective students. This research serves as a foundation for further exploration into these relationships, paving the way for more informed decisions that enhance enrollment rates in public institutions amidst ongoing challenges related to violent crimes.

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