

## DATASCI201 Final Project

### **Behind Bars - The unreported crimes experienced by inmates**

August 8th, 2023

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#### **Overview**

##### **Intended Audience:** Human Rights Organizations

While hosting less than 5% of the world's population, the United States holds over 20% of the world's prison population. Roughly two million people are incarcerated at any given time in the United States. However, there are no crime statistics collected and recorded for this population. This is a severe human rights concern because, without transparency into the living conditions of incarcerated people, we cannot protect them from undue cruelty. Our team would like to conduct a study to shed light on the crimes to which those in prisons may be subjected.

We plan to investigate six key areas and their relationship with violent crimes in prisons. These areas are (1) living conditions, (2) working conditions, (3) mental health of the prisoners, (4) drug use, (5) gang activity, and (6) prison staffing. Previous literature suggests that some of these factors may play a role in violent crimes in prisons. It is estimated that about 200,000 inmates are affiliated with gangs and that “gangs are responsible for a disproportionate amount of prison misconduct and violence” (Pyrooz 2018). Drug use has been reported to be associated with violent crime as well. “Steve Gillan, general secretary of the Prison Officers’ Association said a 37 percent rise in attacks on staff in the last year could be partly attributed to drug use” (Ward 2015).

In this analysis, we will survey prisons nationwide to measure violent crime rates within the prisons. We will conduct a mixed research method study, with both qualitative and quantitative data, to gain insight into the presence and determinants of violent crime in American prisons. Suppose this analysis uncovers excessive violent crime in these prisons. In that case, we anticipate that the data analysis on determinants of this crime will be informative to legislative bodies looking to reform the prison system.

The rest of this document outlines the research questions, hypotheses, study design, data collection, sampling methodology, potential risks, and project deliverables.

#### **Research Question**

The prison is an unknown world due to public negligence. As the first project to uncover part of this world, our study is designed to assess violent crimes in jail by trying to answer one critical

question: **What causes violent crimes in prison?** We further conceptualized the following sub-questions:

- What are the living and working conditions? Do they influence the number of violent crimes in prison?
- Are living and working conditions the same throughout the country, or do they vary based on region?
- Why have prison gangs flourished? Control drug trade or protection? We will ask prison staff about which gangs are in a particular prison. Then ask gang members (under conditions of anonymity) why they joined and what they do.
- Does the accessibility to mental health care impact the number of violent crimes in prison?
- Could the lack of proper training for the correction officers working in the institutions impact the number of violent crimes in prison?

## **Definitions**

**Violent Crime:** In this study, we define violent crime according to the same definitions as the Bureau of Justice Statistics. This means violent crime includes "murder, rape, sexual assault, robbery, and assault." We are only including crimes committed by prisoners against prisoners. We are not investigating crimes perpetrated by or against prison staff for this analysis.

**Prison Gang:** For our research purposes, we define a gang as a group that “operates within the prison system as a criminally oriented entity that threatens, or is perceived to threaten, the orderly management of a prison.” It is also an observable feature of a gang that members may have “similar norms, values, and... a distinct code of conduct” and they may also be “organized along racial or ethnic lines” (Levan 2011).

## **Study Design**

We will be conducting an observational study using a mixed research method to assess what kinds of violent crimes are happening in prison and the motivations behind them. We expect it to be an **explanatory sequential design**, as the quantitative process precedes the qualitative part. Since the significant challenge we encounter is that there is little to no existing data regarding crimes happening in prisons, prospective data will be gathered from a single point in time specifically for this research. They may be expanded to a time-series dataset as legislation approves. Below are the steps we'll be taking for the research design:



1. Collecting quantitative data from 100 federal prisons in the United States
2. Running analysis to see:
  - if specific variables are highly correlated with the number of violent crimes committed (e.g., minimal wages);
  - if prisons with more violent crimes have similar characteristics (e.g., geographic locations, inmate races, etc.)
3. The research team will then focus on trends observed from step 2 and select inmates as interview participants accordingly. We plan to visit five prisons (each in different regions) to collect qualitative data points further to understand the rationale behind the quantitative study result.

## Data

Data will be collected in two phases, quantitative followed by qualitative. The qualitative data collection will build on the data collected from the quantitative phase of the project.

### Quantitative data

- Collect five years of reports from the Bureau of Justice Statistics (BJS) prison infirmaries. Many prison infirmaries do not report their data to the government. We would rely on help from the appropriate government agency to assist us in obtaining this information.
- Get the BJS's prison population count and square footage of living space for each prison.
- Analyze data from above to determine if the square footage is separated by the type/severity of prisoners (e.g., murderers, thieves).
- Every few years, the BJS takes a "Census of Jails." The most recent is 2019 (<https://www.icpsr.umich.edu/web/NACJD/studies/38323>). The 2019 census collected information on the number of confined inmates, number of persons supervised outside the jail, number of inmates participating in weekend programs, number of confined non-U.S. citizens, number of inmates by sex and adult or juvenile status, number of juveniles held as adults, number of inmates who were parole or probation violators, number of inmates by conviction status, number of inmates by felony or misdemeanor status, number of inmates held by race or Hispanic origin, number of inmates held for other jurisdictions or authorities, average daily population, rated capacity, admissions,

and releases, number of staff employed by local jails, facility functions, and number of jails under court orders and consent decrees.

- The BJS takes an “Annual Survey of Jails” (ASJ) every year that supplies data on characteristics of jails such as admissions and releases, growth in the number of jail facilities, changes in their rated capacities and level of occupancy, growth in the population supervised in the community, changes in methods of community supervision, and crowding issues. The ASJ also provides information on changes in the demographics of the jail population, the supervision status of persons held, and a count of non-U.S. citizens in custody. The latest survey is <https://www.icpsr.umich.edu/web/NACJD/studies/38573>.

### Qualitative data

We will identify five maximum security prisons from different regions across the United States.

- Identify test subjects.
  - Develop criteria for identifying prisoners to interview and review their prisoner records. We will incorporate data collected from the quantitative phases to help guide this process.
    - The identification process should be established to choose a range of prisoners based on their demographic characteristics and offenses.
    - Interview correctional officers for recommendations for prisoners in different categories.
- Interview prisoners (making sure to keep confidentiality and anonymity).
- Develop a survey of the living and working conditions in each prison. We will leave enough paper surveys at each prison for each prisoner to fill out and mail back.
- We will provide a \$25 pre-paid phone card for every interviewee and every prisoner who returns the survey.

## **Sample**

### Quantitative data

With information from the BJS, we should be able to get data from almost every prison in the United States (see description of ASJ above).

### Qualitative data

We will select twenty (20) prisoners from each prison to interview, which would give us a total of 100. The quantitative data will help inform the collection of the qualitative data. Still, we must develop criteria for this selection process to get a cross-section of the prison population.

## **Hypotheses**

Specific Aim 1: Understand the impact of prison living and working conditions on the number of violent crimes in prison.

H0: The living and working conditions do not significantly influence the number of violent crimes.

H1: The living and working conditions significantly influence the number of violent crimes.

Specific Aim 2: Investigate the geographic variation of living and working conditions across the United States.

H0: The living and working conditions have no significant spatial variation in all prisons across the United States.

H1: There are significant spatial differences in living and working conditions between prisons in different regions.

Specific Aim 3: Explore the reasons for rising prison gangs.

H0: Seeking protection is not the primary reason for rising prison gangs.

H1: Seeking protection is the primary reason for rising prison gangs.

Specific Aim 4: Explore the impact of accessibility to mental health care on the number of violent crimes in the prison

H0: The accessibility to mental health does not significantly influence the number of violent crimes.

H1: The accessibility to mental health significantly influences the number of violent crimes.

Specific Aims 5: Investigate the impact of staff training on the number of violent crimes in the prison

H0: Staff training does not significantly influence the number of violent crimes.

H1: Staff training significantly influences the number of violent crimes.

## **Variables**

The variables we will seek to collect in our quantitative analysis fall along the six key areas we hypothesize will be correlated to violent crimes in prisons. Living conditions will be operationalized as follows:

- Square footage of the prison living space
- The population of the prison
- Average leisure time

Square footage and population can be used to generate a more informative variable: population per square footage. Next, working conditions will be operationalized as follows:

- Average working hours
- Average hourly wages
- Number of workplace injuries

Mental health is harder to capture, but we intend to operationalize this concept as:

- Access to mental health resources

This will be a binary boolean variable. It will be true if the inmates can access substantive mental health assistance such as counseling or a support group. Next, we will operationalize drug use as follows:

- Kilograms of drugs confiscated per year

This metric does not directly measure drug usage, but it will be easier to obtain this data accurately. Inmates would most likely be reluctant to share their drug usage habits while incarcerated. Next, we will operationalize the prison staffing concept as follows:

- Quantity of prison staff
- Hours of staff training required

Lastly, the effect of gang activity on violent crime will be the subject of the qualitative section of this analysis. We plan to refrain from attempting to collect quantitative data on gang activity across our broader sample of prisons. Operationalizing these concepts and collecting data on the resulting variables will enable us to test our hypotheses.

## **Statistical Methods**

Since we are starting the project by collecting data from a few prisons in the country, our team will use inferential statistics to derive conclusions. We'll utilize linear regression as our primary analytical method by looking into the sample data and generalizing the result to the entire population. While quantitative data can be used as numerical independent variables, qualitative data points can be converted to dummy variables and used as categorical ones.

## **Potential Risks**

Selection Bias: Potential selection bias may occur when certain inmates are selected to be interviewed by our research team, especially under the circumstance that there is no historical data on crimes in prisons that can help us establish the selection criteria;

Lack of Intention: Correctional officers in prisons may not have the intention to cooperate and report the crime data as the research team requests, so we should be aware of potential roadblocks in the data collection process;

Response Bias: Inmates may not respond to the questions based on what they truly believe and what is really happening in prison due to various reasons;

Risk to Researchers: Researchers, especially interviewers, confront a significant amount of risks related to their physical safety, as the interviewing subject of the research is considered a high-risk group. Specific training and preparations should be provided beforehand, and certain protective measures should be implemented so researchers can conduct the interviews without getting harmed/injured;

Risk to inmates: According to the voluntariness section in the Belmont Report, inducements to participate in interviews and surveys may become undue influences and possibly an act of manipulating emotions, especially for the vulnerable population, inmates in our case. The research team has to be mindful of ethical concerns about prisoners' human rights, ensure all inmates' names mentioned in interviews are kept anonymous, and put all documents (either paper or electronic ones) in secure places;

Regulation Constraints: The research team will need to get approval from the Federal Bureau of Prisons on the meeting location, visiting hours, interview lengths, etc., so interviews with prisoners may have to be conducted in a limited number of visits, even if we don't get the desired result.

## **Deliverables**

As the first study focuses on violent crimes behind bars, the sensitive topic and studying objects indicate that this prospective project will be a long-term study with multiple stages.

Year 1—Collect existing data, conduct quantitative analysis, identify appropriate prisons, and build connections with prison staff and potential interview candidates.

- We will start by collecting existing records and data from multiple sources, such as federal agencies, non-profit organizations, and prisons.
- Using existing records, we will conduct quantitative analysis to determine the significant factors explaining the number of violent crimes behind the bar.
- We will identify five prisons in different geographic regions based on the quantitative results.
- We will connect with the prison staff and management to establish collaborative relationships.

- We will start building the interview candidate pools by consulting the prison staff and contacting candidates.

#### Year 2–Establish a digital database and design survey and interview questions based on the communication experience in the previous year

- We will extract valuable information and variables from the records collected, build the primary database, and clean and harmonize the data.
- We will further refine the conceptualized research questions and design survey and interview questions based on the suggestions from and the communication experience with the prison staff and prisoners.

#### Year 3 & 4 –Conduct survey and interview

- We will conduct a survey first among the prisoners.
- Based on the feedback from the survey and previous communication experience, we will finalize the interview candidates and conduct semi-structured interviews with prepared questions in audio format. The interviews will be conducted individually and anonymously.

#### Year 5–Perform qualitative analyses

- The survey results will be integrated into our database.
- The audio recordings will be transcribed, and the qualitative analyses will be used to extract the information related to our research questions and other unexpected critical information to provide valuable insights and details on quantitative results.

#### Year 6-Write manuscript, present results, and prepare for future studies

- We will develop this project into multiple manuscripts in different fields, including politics, data, and spatial science.
- We will present the results to different audiences, including academic audiences, human organizations, and federal agencies.
- For future studies, we will promote and encourage the collaboration of more prisons to build data-sharing platforms and increase information transparency.

#### Year 7–Follow up and collect more data if needed and possible

- We will keep regular contact with collaborative prisons by sending updates even after the end of data collection.
- If needed and allowed, we will conduct additional interviews in follow-up to collect more data.



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## Statements of Contribution

- **Chih Ling (Phoebe) Yueh:** I contributed by writing the research study design, statistical method, and potential risks part. Every member in the team contributed to the project and were all very responsible for his/her part of work. One thing I think our design could be done better is to have more plots and graphs as data becomes richer, so the audience can get more involved with the research topic!
- **Reza Akhtar:** I contributed by writing the overview, the definitions, and the variables sections and participated in the project's overall planning. Our group has been able to divide work and review each other's work fairly. I think it would have been advantageous to have more time to make our report more cohesive after finishing our portions of the work. I think that we could have also cut back on some of the scope which would have allowed us to go deeper into specific topics.
- **Qiong(Joan) Zhang:** Collectively, I contributed to the design and development of this project, including discussing all potential topics, deciding the final topic, proposing research questions, conceptualizing sub-questions, organizing meetings, and completing and reviewing the final proposal. Individually, I contributed by writing Research Questions, Hypothesis, and Deliverable sections. The communication and openness are fantastic in our group. Only one improvement I think we could have is adding an insider or a consultant who is familiar with the topic and the prison system in the team.
- **Stuart Holland:** I contributed to this project by writing the data collection and sample section, suggesting overarching themes our project should focus on, gathering prior research and reference material, and was responsible for editing and proofreading the proposal. The team communicated well on Slack and fairly divided up the work. We decided who was responsible for which roles and everyone contributed.