Capstone: Proposal

Relationship Between Past Trauma and

Mental Illness Prevalence, Among Incarcerated Women

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**Introduction and Objectives**

**Importance of Project**

*Incarceration background*

The United States has only 5% of the world’s total population, yet 25% of the world’s prison population (Walmsley, 2013). This statistic is primarily the culmination of a history of slavery and racist policies, such as “The War on Drugs” (Alexander, 2010). Although a higher proportion of men are incarcerated than are women, incarceration rates for women have been steadily increasing over the past several decades (The Sentencing Project, 2019). Female incarceration rates have increased by 750% between 1980 and 2017 - a growth rate, which is double that of males (The Sentencing Project, 2019). Among females, incarceration rates for Black women are twice as high as for White women (The Sentencing Project, 2019). It is not well understood *why* incarceration rates are increasing for females, but some studies have posited that mental illness, coupled with a lack of access to care and treatment, are at least partially responsible (Tripodi & Pettus-Davis, 2013).

*Mental health among incarcerated women*

States began closing their psychiatric hospitals in masses in the 1950s, due to their deplorable conditions (Cloud, 2014). Although asylums were rightfully closed, there was no organized system for mental health treatment to replace them (Cloud, 2014). This left large numbers of people without care, and prisons soon became de facto “mental institutions” (Cloud, 2014). As mental hospital rates declined, incarceration rates soared (Cloud, 2014). Today, 31% of women in jails have a serious mental illness (SMI), compared to 14.5% of men (Cloud, 2014). Primary types of SMI among incarcerated women include substance use disorder (SUD), major depressive disorder, and generalized anxiety disorder (Fazel, Hayes, Bartellas, Clerici, & Trestman, 2016). Because incarcerated women are also disproportionately lower income, they often lack access to proper mental health treatment (Cuddeback, Scheyett, Pettus-Davis, & Morrissey, 2010). This results in the local jail often being the first “opportunity” for mental illness screening and/or treatment (Cuddeback et al., 2010). Such treatment is vital for the success of individuals, as having a SMI significantly increases one’s risk of recidivism (Baillargeon et al., n.d.). Not only does mental illness increase one’s risk of recidivism, but it can also lead to physical illness and premature death (Viron & Stern, 2010). Despite this, incarcerated and formerly incarcerated people are also more likely to receive inadequate care (Viron & Stern, 2010).

There are a multitude of factors associated with mental illness. Among them, “adverse childhood experiences” (ACEs) and trauma are especially influential (Burke Harris, 2014). Examples of ACEs include having an incarcerated parent, being a victim of violence, witnessing violence, experiencing economic hardship, and having divorced parents, among others (Sacks, Murphey, & Moore, n.d.). Unfortunately, incarcerated women have higher rates of past trauma than non-incarcerated women (Tripodi & Pettus-Davis, 2013). Among incarcerated people, women also have higher rates of past physical and/or sexual abuse than do men (Tripodi & Pettus-Davis, 2013). In fact, 78% of incarcerated women - compared to only 15% of incarcerated men - report past instances of sexual or physical abuse (McDaniels-Wilson & Belknap, 2008). It is *less* understood, however, whether certain forms of trauma are more associated with mental illness and incarceration than others.

*Comorbidities of disability and mental illness*

Concurrently, both cognitive and physical disabilities are associated with mental illness (Einfeld, Ellis, & Emerson, 2011; Merikangas et al., 2015). These comorbidities translate to a disproportionately higher rate of people with disabilities inside prisons and jails, than in the general population (Vallas, 2016). Specifically, people in jail are four times more likely to report having a disability than their non-incarcerated counterparts (Vallas, 2016). Among incarcerated people with disabilities, there are also notable gender disparities (Vallas, 2016). 49.5% of incarcerated women, compared to 39.5% of incarcerated men, report having either a cognitive or physical disability (Vallas, 2016). Unfortunately, incarcerated people with a disability are also more likely to be mistreated and to be placed in solitary confinement (Vallas, 2016). Solitary confinement, especially, is associated with increased depression and suicidal ideation (Cloud, 2014). It is, thus, vital to provide proper and specialized care to incarcerated women with disabilities and/or mental illness.

**Project Objectives**

Current research supports that there are disproportionately higher rates of both mental illness and physical or cognitive disabilities among incarcerated people, when compared to the general population (Cloud, 2014; Vallas, 2016). Trends also show that female incarceration rates are far outpacing males, and that these disparities are more pronounced in jails than in prisons (Vallas, 2016). As such, this project aims to better understand which mental health issues women in jails struggle with most. The project will also explore associations between different types of past trauma and their associations with mental illness prevalence. A secondary aim of the project is to understand the possible interaction effect between having a disability and having a mental illness, among incarcerated women. This will hopefully expose the unique needs of incarcerated women and inform better approaches to treatment and care, both in and outside of jail.

**Approach**

**Methods, Design & Scope**

The following project will be a secondary analysis of publicly available data. The data are obtained from The National Archive of Criminal Justice Data (NACJD) through the University of Michigan. The United States Department of Justice, Bureau of Justice Statistics collected the data and serve as the Principal Investigators. The data are part of the “Survey of Inmates in Local Jails Series.” The data were collected in 2002 and were released to the public in 2012. This is the most current dataset that is available to the public from this series. A new dataset will not be released until 2022. The investigators conducted nationally representative personal interviews of 7,000 people incarcerated in local jails (James, 2004). Information on demographics, conviction types, income, correctional programs, mental health and substance use issues, and related treatment were collected (“Survey of Inmates in Local Jails, 2002 [United States],” n.d.).

After downloading the SAS file, the data were converted to both R and Excel files. The codebook was then examined to determine primary variables of interest. Demographic variables, such as sex, race, and age will be analyzed, and people who identify as “male” will be excluded from the analysis. Prevalence rates of specific types of mental illnesses in the sample will also be assessed. The primary dependent variable of interest will be mental illness (yes/no). This variable will be created by aggregating all mental illness types in the dataset. Independent variables of interest will include the following: “parents/guardians abused alcohol/drugs,” “parents/step-parents served time,” “ever been shot at,” “physically abused prior to current admission,” and “ever been sexually assaulted/molested.” These variables were selected, because they are examples of ACEs and past trauma. Possible confounding variables will include: Race, “education level prior to admission,” and “amount of income in month prior to admission.” The variable, “have a disability” will also be examined as a potential effect modifier.

After cleaning the data, descriptive statistics will be run in R Studio and applicable tables will be created. The data will then be examined to test for basic assumptions. Due to the dichotomous nature of the variables, it is likely that a logistic regression with odds ratios will be selected for the statistical analysis of how different forms of past trauma can predict mental illness prevalence among incarcerated women. Crude odds ratios and adjusted odds ratios will be run and compared. Any applicable graphs of the analyses will also be completed in R Studio and added to the report, as necessary. Upon completion of the statistical analysis, the results will be interpreted, and practical implications will be discussed. Specifically, inferences will be drawn on how the results can be applied to the two local jails in St. Louis City: The Medium Security Institution (“The Workhouse”) and the City Justice Center.

**IRB Approval**

This capstone project will consist of a research report, utilizing nationally representative, publicly available data on jail inmate health. Though academic in nature, the report will also be written to suit Public Health professionals as the audience. I do not currently have IRB approval for the report. Because I want to maintain the possibility of publishing my work and/or presenting at a conference, I will take the necessary steps to obtain IRB approval. My project will likely be exempt, as I am conducting a secondary analysis on de-identified publicly available data.

**Competencies Addressed**

**Foundational competencies**

*Apply systems thinking tools to a public health issue*

This competency will be addressed by building either a causal loop diagram or a stock and flow diagram to help describe the issue of mental illness in local jails. The models will be described in simple terms, avoiding complex system dynamics jargon, so that any reader can understand.

*Discuss the means by which structural bias, social inequities and racism undermine health and create challenges to achieving health equity at organizational, community and societal levels*

This will be addressed through the comprehensive literature review, as well as a data analysis that focuses on disparities. The intersection of mental health and incarceration cannot be discussed without detailing and explaining how racism has caused such extreme social inequities and structural biases.

*Analyze quantitative and qualitative data using biostatistics, informatics, computer-based programming and software, as appropriate*

This competency will be addressed during the data analysis process. I plan to utilize R and SAS for most of my data cleaning and analysis. For causal loop diagrams and/or stock and flows, I will use Stella Architect. If needed, I will also use Tableau for data visualization.

*Interpret results of data analysis for public health research, policy or practice*

Once data analysis is complete, I will interpret the results in a manner that is suitable for public health research. This competency will primarily be displayed in the discussion section of the report.

**Specialization competencies**

*Describe preferred methodological alternatives to commonly used statistical methods when assumptions are not met*

The methods section of this report will detail which assumptions were/weren’t met and how that dictated which statistical tests would be most appropriate for the analysis.

*Apply and interpret common statistical methods for inference (e.g., ANOVA, linear and logistic regression, survival analysis) found in public health studies*

Through the literature review, I will interpret a multitude of public health studies, related to the mental health of incarcerated women. I will read through the statistical methods used and apply those results to my own work.

*Describe principles and the application of key concepts from probability and inference (e.g., random variation, measurement error, confounding bias, effect modification) to colleagues without extensive statistical training*

The discussion section of the paper will avoid complex statistical terminology to ensure that colleagues without statistical training can understand the results.

**Timeline**

**Present - April 5th**

* Thoroughly research topic and identify primary sources
* Examine the gaps in the literature

**Present - December 6th**

* Write draft for literature review

**December 6th - April 16th**

* Finalize literature review
* Create causal loop diagram and/or stock & flow diagram (learned in system dynamics) to later add as figures in the report → talk to System Dynamics lab for assistance

**December 18th - 29th**

* Finalize what variables will be used for demographic data, potential confounders, and primary independent variables of interest

**December 30th - January 12th**

* Clean data of interest

**January 13th - January 26th**

* Examine descriptive statistics of data via R and/or SAS

**January 27th - February 2nd**

* Run measures of effect and measures of association, using prevalence odds ratios, chi-square, and/or logistic regression

**February 3rd - February 16th**

* Create tables and graphs for data, including descriptive statistics

**February 17th - March 1st**

* Refine/edit the tables/graphs

**March 2nd - March 15th**

* Write methods section for report

**March 16th - March 22nd**

* Write results section

**March 23rd - April 5th**

* Write discussion section

**April 6th - April 12th**

* Write abstract

**April 13th - April 16th**

* Review full draft of research report and consult with advisors

**April 17th - April 20th**

* Finalize full research report and submit for capstone!

**Results** *(due in Capstone II)*

This section will report the results of the data analysis. Data visualization will likely be created through R and/or Tableau.

**Conclusions and Potential Implications** *(due in Capstone II)*

This section will discuss the implications of the results. Connections will be drawn for how this report can inform criminal justice conversations in St. Louis. The data will also be connected to the “Mental Health Profile” that St. Louis City and County Health Departments completed for the region. Moreover, limitations will be discussed, such as how old the data are, and that recent data are extremely difficult to obtain. I will then list the strengths of the research report and how it can inform future discussions. Finally, I will detail various gaps in the data to determine what more must be researched to better understand mental health needs among incarcerated women.

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