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Embodied Madness: Contextualizing Biological Stress Among 19th and 20th-Century Institutionalized Euro-American Women

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EMBODIED MADNESS: CONTEXTUALIZING BIOLOGICAL STRESS AMONG 19TH
AND 20TH-CENTURY INSTITUTIONALIZED EURO-AMERICAN WOMEN

by

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DEDICATION

For my grandmother, Evelyn, and my Aunt Sandy, who were both constantly in my thoughts during this research. May you both rest peacefully.

To all who have suffered and are suffering the throes of mental illness and to each of the women resting in The Terry Collection who endured life in Missouri State Hospitals. You are remembered.

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ABSTRACT

The late 19th and early 20th-centuries in the United States were periods in which white women of middle and low socio-economic status were admitted into insane asylums at a higher rate than men for the first time in recorded history. An existent body of literature helps us to comprehend the social and cultural climate in which the institutionalization of women was both acceptable and commonplace; yet few studies have paired this research with the information that can be revealed on the bones of those institutionalized. A sample of 53 institutionalized women from the Robert J. Terry Anatomical Collection were analyzed for evidence of biological stress to understand how structural violence infringes upon the human body in ways that are embodied in both life and death. Individuals were macroscopically examined for skeletal trauma including cranial, and post-cranial fractures. The presence of pathologies such as porotic hyperostosis, cribra orbitalia, dental caries and abscesses, hyperostosis frontalis interna, and Schmorl's nodes were also considered. Trauma was found in various manifestations across the sample suggesting that mental institutionalization negatively contributed to the health of the women in this study.

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LIST OF ABBREVIATIONS

CDC	Centers for Disease Control
CO	Cribræ orbitalia
HFI	Hyperostosis frontalis interna
MSS	Missouri State School
PH	Porotic hyperostosis
SH1	State Hospital Number One
SH3	State Hospital Number Three
SH4	State Hospital Number Four
SLCS	St. Louis City Sanitarium
SLTS	St. Louis Training School
SN	Schmorl's node
TB	Tuberculosis

CHAPTER 1

INTRODUCTION

The late 19th and first half of the 20th centuries witnessed the confinement of white women into insane asylums rise to a rate that was higher than that of men for the first time in recorded history (Gittins 1998; Showalter 1980). An existent body of literature helps to further understand the social and cultural climate in which the institutionalization of women was both acceptable and commonplace; yet few scholars have studied the biological impact of mental institutionalization. Analyzing skeletal trauma provides insight into the relationship between past individuals and their physical and sociocultural environment (Lovell 2007). In this research, skeletal remains offer a unique glimpse into the experiences of women who endured years of institutionalization and ultimately death during the height of state-run mental hospitals in The United States. The pinnacle of state-supported mental hospitals was laden with issues of underfunding and overcrowding which had considerable effects on treatment and overall care. These women's skeletons present clues into understanding how their lived experiences translated into embodied stress and disease.

Categories and definitions of mental illness are socially and historically constructed; and part of this formation is intrinsically connected to gender role perceptions throughout time (Gittins 1998:98). The way that 19th and 20th-century societies discussed women and their bodies as nervous and diseased highlights how

women fell particularly vulnerable to categories of mental illness. A historical analysis of the development of psychiatry and American mental institutions provides insight into how many female bodies came to be wards of the state. The medicalization of women's supposed fragile foundation had a profound effect on male doctor's ability to exhibit scientific control over female minds and bodies. Medicalization extended into colloquial society and perpetuated the notion that women's "weaknesses" required medical intervention in order to be cured. The rhetoric surrounding female madness contributed to the chronic hospitalization of women who were mentally handicapped or classified as feeble-minded, epileptic, or psychotic, or interpreted as socially deviant. For the purposes of this thesis, terminology is particularly important to detangle as the terms hold historical and social weight. Foremost, "feeble-minded" was a 19th and early 20th-century term employed to describe the mentally disabled. Epileptic described individuals who suffered from neurological disorders that manifest as epileptic seizures. "Psychotic" encompassed a breadth of women who expressed symptoms of a supposed cognitive disconnect with reality. Finally, the "socially deviant" refer to those who did not conform with era-appropriate social norms.

In this thesis, I take a biocultural approach to investigate the effects of mental institutionalization on the skeleton. I propose that women who were institutionalized in state-supported asylums for the insane will demonstrate patterns of skeletal violence, stress, and trauma that will reflect trends of structural violence associated with institutionalization and societal marginalization. Structural violence can be defined as the social structures that expose individuals and populations to harm (Farmer 2003). More specifically, structural violence is considered to be, "a broad rubric that includes a host of

offensives against human dignity: extreme and relative poverty, social inequalities ranging from racism to gender inequality, and the more spectacular forms of violence that are uncontestedly human rights abuses...” (Farmer 2003:8).

The skeletal sample in this study is comprised of 53 Euro-American women institutionalized during the first half of the 20th-century in the state of Missouri, United States. These individuals were hospitalized in six different institutions across Missouri including: Fulton State Hospital, also known as State Hospital Number 1 (SH1), Nevada Insane Asylum, later titled State Hospital Number 3 (SH3), Farmington State Hospital, which later became State Hospital Number 4 (SH4), Missouri State School (MSS) later known as the Missouri State Colony for Feebleminded and Epileptic or Marshall State School and Hospital, St. Louis Training School (SLTS), and St. Louis City Sanitarium (SLCS), later the St. Louis State Hospital. Each of these institutions transformed over decades and as societal perceptions of mental illness changed so too, did their names. In this thesis, I use these institution’s evolving titles interchangeably but most often refer to each by their 20th-century names as “state hospitals” or simply, “institutions”. This study’s skeletal sample and associated certificates of death are maintained in the Robert J. Terry Anatomical Collection at The Smithsonian Museum Support Center.

I investigated this topic in order to understand if the effects of institutionalization can be seen through stresses expressed on the skeleton, and what these traumas can expose about life for women within state-run mental hospitals in the 20th-century. Additionally, a detailed history of mental institutionalization provides a more nuanced understanding of contemporary psychiatric treatments; specifically, towards

understanding that overcrowding, underfunding, and abuse continues to plague 21st-century psychiatric facilities (Virtanen et al. 2011; Woods and Ashley 2007).

There is a robust past involved in the discourse surrounding madness in women that can help explain the disparity in institutionalization rates between men and women. The ways in which people discussed madness as disease shines light on the popular perceptions of what constituted mad and what people believed to be the cause of madness. Language analysis is employed to provide insight into the medical and public's discussion of madness and how it contributed to the perception and treatment of mental illness. Critical historical writings and primary source documents reveal the mechanisms that operated to bring into imagination particular female maladies that could be defined and thus treated through medical care. Marrying the biological with the social and cultural provides a broader understanding of how these three components are inherently intertwined in ways that affect an individual's susceptibility to disease and stress. In this study, the historical and social context inform interpretation of skeletal markers, just as skeletal markers may also lead to investigation of hitherto undocumented structural violence associated with institutionalization. Ultimately, this research provides an example of how structural violence works to entrap and restrain marginalized populations in ways that become embodied and make an imprint that remains even after death.

This research considers the following questions:

1. How did mental hospitalization of women develop within the cultural and social setting of the 19th and 20th-centuries?

2. How was the medical and societal discussion revolving around “female madness” working to reify women as incurable and necessitating institutionalization?
3. Will women who were institutionalized demonstrate signs of violence, stress, or trauma on their skeletons?
4. If trauma is found, what can be inferred about life within the institution?
5. How does inequality and structural violence become embodied in ways that are manifested in both life and death?

To address these questions, it is important to first provide a historical discussion of how the American asylum system emerged and evolved over the period of a century. The remainder of this chapter will discuss the ideas underlying the creation of an entity to treat those identified as insane and in what ways the economy contributed to the erection of institutions. Next, the importance of architecture in American asylums is described. This chapter concludes with a detailed discussion of the emergence and development of Missouri state-funded institutions from which the women in this research come. The transformation of Missouri asylums from 1847 through the 1950’s is described in detail. Particular consideration is given to treatments employed over time as well as chronic issues of underfunding and overcrowding that plagued Missouri State Hospitals.

1.1 18th and 19th-Century Madness: From Chains to Moral Therapy

The 18th and 19th centuries consisted of unprecedented scientific innovation and transformation. Enlightenment period ideals brought a more formalized curiosity for devising explanations about the natural world outside the confines of religious beliefs. The commonly held belief during the pre-Enlightenment era was that disease affected those who were immoral and those who defied societal ideals (Porter 1997; Gamwell and

Tomes 1995). Contrary to a religious stance perpetuated by the church, some medical experts had already made connections between microorganisms and disease by the 18th-century. Among these concerted efforts were William Jenner's experimentation with cowpox that ultimately led to a vaccination for smallpox. Accompanying this advancement was Jenner's friend, John Hunter, whose rabies studies in animals vastly contributed to the formulation of the scientific method (Kiple and Ornelas 2001:26). Despite these advancements, an intricate and widespread acceptance of the scientific method and germ theory developed only gradually over the 19th-century and religious ideals prevailed.

Among Enlightenment medical inquiries was a newfound dedication to the treatment of the supposed morally deviant and insane. Prior to this time, no specific or cohesive measures had been devised to diagnose and treat those who expressed signs of mental illness. The mentally ill were often hidden away or disappeared by their families. In other cases, they were socially abandoned and destitute where they often ended up homeless, criminalized, and eventually imprisoned. Late 18th-century French physician, Dr. Philippe Pinel, is remembered for exclaiming that the mentally ill were not immoral or sinful, but rather, were diseased and should be housed in a distinct place for treatment rather than shackled in prison basements (Grob 1994:27). Pinel's assertions ignited a pioneering reform centered on "freeing the insane from chains and other benighted cruelties" (Porter 1997:495). Pinel urged that mental illness should not be criminalized and should be treated humanely as these individuals could not help their disparate states. Liberating the mentally ill from almshouses and prisons was coupled with Pinel's idea for a formalized treatment of mental illness: moral therapy. Repulsed by corporal

punishments, he theorized that moral therapy should honor the humanity and provide a curative environment for the mentally afflicted (Porter 1997). The principle idea underlying moral therapy was if the illness was detected within the first year of symptoms, a cure could be expected (Gamwell and Tomes 1995:39). This became the primary approach at American asylums throughout the 19th and into the 20th-century.

Beliefs concerning the correct approach to mental illness in a pre-psychiatric era were not always agreed upon and doctors had conflicting thoughts in regard to defining and treating madness. Many medical experts were simply unaware or rejected biological notions of disease susceptibility and contraction well into the 19th-century. Among these doctors was founding father and Philadelphian Dr. Benjamin Rush, also known as the father of American psychiatry. He urged that mental corruption resulted from a disruption of the humors and tempers within the body and that the proper cure would be to realign the imbalances through purging, blood-letting, or cupping. These types of invasive procedures were coined “heroic medicine” (Gamwell and Tomes 1995:19). From 1783-1813, Dr. Rush was an attending physician at Pennsylvania Hospital, the nation’s first hospital and the first to dedicate treatment to the insane. It was there that he was able to implement his medical treatments for the insane. His approach largely encouraged other physicians to infantilize patients and embrace a parent to child relationship in order to encourage submission by the patient (Gamwell and Tomes 1995:32). Rush published the first major American manuscript concerning mental illness in 1812 titled, “Medical Inquiries and Observations Upon the Mind” (Gamwell and Tomes 1995:19).

Though some doctors, including Pinel, dismissed heroic practices as inhumane, Dr. Rush’s treatments were utilized. In addition to “heroic” measures, he designed a

tranquilizer chair meant to calm the patient through restraint. The chair shackled the patient's arms and legs and encompassed their head inside of a box stuffed with linen. It included an attached waste bucket at the seat (Gamwell and Tomes 1995:33). Despite Rush's medical efforts, heroic medicine to balance the humors and tempers through cupping and bleeding, did not become the predominant method in American institutions for the insane. Oxymoronically, mechanisms like the tranquilizer chair continued to emerge as moral therapy rhetoric prevailed. Moral therapeutic ideals dominated institutional discourse but were never truly realized in most state-funded American institutions during the 19th and 20th-centuries. Other apparatuses and forms of treatment that harkened back to Rush continued to emerge and evolve.



Figure 1.1 Tranquilizer chair, 1811. Image from the National Institutes of Health United States National Library of Medicine

1.2 Economy Produces Need for State-Supported Asylums

The mentally ill were traditionally taken care of by families at home or abandoned on the streets where they frequently ended up in prisons or almshouses (Gamwell and Tomes 1995; Foucault 1965). As urban centers became extremely populated in a

confined area, the mentally ill could no longer be as easily hidden by families or abandoned where few would notice. The 19th-century industrialized society contributed to the expulsion of caring for the mentally ill at home (Gamwell and Tomes 1995:20). This was primarily due to a lack of time to manage their needs and health. Women were expected to be well-rounded domestic caregivers with many children to provide the future workforce of industrial manufacturers. Disabled or deviant children were considered burdens that spoiled the moral purity of the other children.

The mentally deficient were seen as inherently corrupt and as insufficiently contributing to industrial society. Political powers did not want these morally “defunct” individuals to corrupt future generations of laborers by their inability to work (Tomes 1984:127). The asylum remedied this social problem. There was finally a distinct and mass-scale entity that could house those who threatened the social order or who deterred from the economic potential of families. The imagined institution held therapeutic potential to transform the mentally ill into acceptable citizens who could assimilate into the new social order. It provided hope for a retreat away from the overwhelming stimuli of industrial society, which “overtaxed the nervous system” and likely contributed to patient’s mental afflictions (Gamwell and Tomes 1995:90). Building upon Pinel’s early theoretical approaches, the asylum provided an institutional solution to a domestic situation as it relieved families of the “burden of being their keepers” (Tomes 1984:128). In the perception of mid-19th-century reformers for the mentally ill, the asylum offered a place for refuge, healing, and ultimately, a cure.

Despite the clear political desire for treating madness outside of prisons and poorhouses, advocates still had to plea for funding of mental institutions. In a similar vein

to the earlier Pinel, Antebellum-era national advocate and reformer for the insane and poor, Dorothea Dix, often reached out to state legislatures to request their help. In 1843, she wrote to the legislature of Massachusetts: “I come as the advocate of helpless, forgotten, insane, idiotic men and women; of beings sunk to a condition from which the most unconcerned would start with real horror; of beings wretched in our prisons, and more wretched in our almshouses” (Gamwell and Tomes 1995:55). Five years later, proponents for the construction of Fulton State Hospital, Missouri’s first asylum for the mentally ill, drew upon her words to convince the state legislature to dedicate funds to this mission:

These unfortunate beings have claims, those claims which bitter misery and adversity creates, and which it is our solemn obligation as citizens and legislators to cancel...Examine with patient care the condition of this suffering, dependent multitude, which are gathered to your alms houses, and your prisons...weigh the iron chains and shackles...the infinitely more revolting and shocking exposure of women; with combinations of miseries and horrors that will not bear recital. (Lael et al. 2007:15).

Advocates like Pinel and later, Dix adamantly spoke against criminalizing mental illness. They attempted to redefine how the mentally ill were perceived by informing society that these individuals could not help their disparate states and they were in need of patient and kind medical attention specific to disorders of the mind.

The Industrial Revolution in the United States resulted in a mass market for consumer goods and population increase which spurred a fundamental shift in American culture (Tomes 1984). In the 19th-century, society transitioned out of small, local production and into mass-scale industrialization. Urban metropolises vastly expanded and people convened in industrialized centers where there were more opportunities for work.

Migration to developing cities caused a spike in urban overcrowding in locations that were already struggling with issues of pollution and sanitation. In addition to issues arising out of demographic changes, these transformations also disrupted traditional values of education and family.

The late 19th-century evolving economy changed culture and ultimately the functions of education and the family (Tomes 1984). Middle and lower-class women became almost exclusively responsible for the morality of the family. They were expected to “inculcate habits of industry and self-discipline” into their children, as well as provide comfort and good-spirits to their factory-laboring husband (Tomes 1984:127). Working-class women who left the home, were often required to transition from the domestic to manufacturing labor (Gamwell and Tomes 1995:105). Lower-class women were not excluded from traditional male labor and were obligated to contribute to the mass-production of resources in a developing industrialized nation. Families were no longer dispersed across states where they had traditionally been capable of making wages to survive. The state drew in laborers in order to operate factories necessary in maintaining production for industrialization. Local work was replaced by twelve-hour-a-day shifts in factories in the midst of polluted city dwellings. The radical shift in the 19th-century routine greatly impacted divine values and norms.

Industrialization caused the church and government to lose conventional control over individuals and their moral obligations. Traditional American values were seen as having been eroded by the dissolution of local production and stress caused by industrialized society. Diverging from strictly church-produced ideologies, Progressive-era reforms emerged in the 1890’s in an attempt to maintain social order in the midst of a

fragmented American society (Wiebe 1966). The Progressive Movement was devised by educated, middle-class professionals that focused on the creation of reforms in the face of a condensed population that lacked organized groups for public health and social justice matters. The 19th-century was seen as antiquated and disorganized; and Progressive-era working professionals desired a clear shift towards supporting scientific-industrialization (Wiebe 1966:129). Most of these reformers veered away from promotion of individual success to a focus on issues shared by the broader community. Disenchanted by the government's fragmentation and inability to impose social order, Progressive-era reformers sought power to make large-scale changes themselves (Weibe 1966:168). Progressivism motivated and thus contributed to the increased support of mentally institutionalizing people. Not all of these new reformers shared common ideologies for organized reform.

Industrialization, science, and medicine contributed to the creation of unprecedented social reform in late 19th and 20th-century societies. These movements fought to adapt the existing social order to their new reforms (Weibe 1966:165). A contentious divide existed between Progressive-era reformers which contributed to a fundamental divergence in their societal contributions to the perception of the mentally ill. On one side, some reformers believed that social order was threatened by the socially deviant, and those who were physically or mentally incapacitated. As these individuals were often considered incapable of performing industrial labor, they frequently fell into the social peripheries and labeled as destitute. Reformers who believed that the mentally ill were inferior propagated ideas of Social Darwinism, eugenics, and the control of human heredity (Paul 1995). Their social reforms focused on removing those considered

“impure” or “unfit” to reproduce. These individuals included immigrants, the destitute, the socially deviant, and the mentally ill. Proponents of these movements thought of these citizens as corrupting future generations and spreading disease. In a 1914 textbook titled *New Civic Biology* by George William Hunter, the author warned of the dangers inherent in the feeble-minded:

...not only do harm to others by corrupting, stealing, or spreading disease, but they are actually protected and cared for by the state out of public money. Largely for them the poorhouse and the asylum exist. They take from society, but they give nothing in return. They are true parasites. (Hunter 1914, 263).

Imbedded in the reforms were systemic prejudices against individuals who did not uphold societal standards of a model citizen. These reformers did not advocate for the individual well-being of the mentally ill, but instead focused on eradicating them through hereditary control.

Hereditary regulation was executed through Social Darwinian practices such as mandatory sterilization for those deemed as “unfit” to reproduce. In 1927, Carrie Buck sought to change her fate as Virginia’s first subject for sterilization. Her case made it to the Supreme Court where in reference to Carrie, her mother, and her daughter, Justice Oliver Wendell Holmes emphatically declared, “Three generations of imbeciles are enough” (Lombardo 1985:30). The *Buck v. Bell* case, as it came to be known, undeniably solidified the strength of the Eugenics movement and inspired other states to follow suit with laws similar to the one created in Virginia and reinforced with Supreme Court endorsement. Between 1927 and 1972, more than 8,300 patients of state mental institutions were sterilized in Virginia, and more than 60,000 across the United States (Lombardo 1985:31). The Progressive reformer’s suggestions strongly persisted during

the first half of the 20th-century, and slowly dwindled in the latter half. Eugenics and Social Darwinism were manifested to extremes during World War II (Paul 1995:86). Ultimately, the reformers who advocated for social purity perpetuated harmful and ideologically unsound beliefs to a vulnerable society undergoing substantial change.

Other Progressive reformers included those who advocated for formulated social programs and movements that the federal government failed to provide (Weibe 1966:166). Reforms included child labor and worker unions, advances in education, women's suffrage, public health implementation, and mental health assistance. The Mental Hygiene Movement emerged in 1909 with a desire to prevent mental health disorders and promote mental wellness. This movement focused on improving psychiatric study and treatment, as well as asylum conditions. A major contributor to this movement was Dr. Adolf Meyer who pleaded for involvement of doctors, educators, and the public in promoting mental hygiene. He wrote:

This type of [social] work needs financial support and the moral and intellectual support of the leaders of public opinion. So far only the more glaring problems—the problems of institutions and that of feeble-mindedness—have attracted attention. It seems difficult to make the Government realize the advantages of an active and liberal policy unless public opinion and a united profession stand behind the movement. (Meyer 1918:633)

These reformers devoted their advocacy to efforts focused on the broader humanitarian issues that society encountered. Their contributions are imbedded in the foundation of contemporary public health policies.

Progressive-era reformers were faced with new challenges to devise a remedy for supposed moral corruption and deficiency during a period of rapid societal transformation. Reforms were not always agreed upon by Progressive reactionaries.

Undoubtedly, this era of expedited change contributed to competing views regarding mental illness and treatment of disease.

1.3 The Emergence and Changing American Asylum

The emergence of the American asylum marked a shift from madness being criminalized to understanding madness as an illness that could be cured (Foucault 1964). The formal study of mental illness was simultaneously developing in the United Kingdom and the United States and medical knowledge was frequently exchanged between the two regions. American pioneers Dr. Samuel Woodward and Dr. Pliny Earle were instrumental in the steady growth of the discipline of madness in the United States. They were among the original 1844 founders of the Association of Medical Superintendents of American Institutions for the Insane during the same period that the *American Journal of Insanity*, later the *American Journal of Psychiatry* emerged (Porter 1997:501). The asylum led to a rapid increase in the formal study of mental illness and eventually birthed the field of psychiatry (Porter 1997). The creation of the asylum, along with the production of literature and professional associations, facilitated the discussion of madness among the medical community. A collaborative discussion was fundamental in the development of psychiatry, mental disease recognition, and treatment.

Admittance into the 19th-century institution was not a complex process. Unlike the contemporary psychiatric era that requires a breadth of medical exams and documentation to get admitted into a psychiatric ward, the late 19th and early 20th-century institutions did not require so much evidence for admittance. In order to commit a relative to the institution, families needed only one committal letter from a physician, and

in some states, two were needed. This relatively simple process represents how easily families could “dispose of their unwanted” (Gamwell and Tomes 1995:62). The desire to remove morally deviant individuals from society vastly contributed to formal efforts to devise treatments, funding, and architecture.

Equally important was the institution. It housed and maintained the patients that provided doctors with an abundance of case studies, which resulted in a new type of the patient-doctor dynamic. Interest in mental illness by freshly formulated societies of medical doctors led to rapid communication of doctors across the nation that were interested in studying the insane. The mad patient was viewed as enigmatic and became *materia medica*, an object to be observed and tested upon (Porter 1997). The confinement and isolation of the mentally ill created a platform where they were observed, diagnosed, and ushered into particular treatments that they had little to no control over. Frequent new cases enabled “diagnosticians to build up clearly defined pictures of psychiatric diseases, capable of being recognized symptomatically (Porter 1997:505). As patients could not leave the institution without medical discharge, they were in the care of the overruling word of the physician. It was not uncommon for institutionalized patients to reject their diagnosis and confinement. The architectural construct was seen as crucial in the methodology for curing the mentally ill.

1.4 Architecture: The 19th-Century Kirkbride Model

Architecture fundamentally influences those confined in its inner spaces as well as shape the perception of those who view the structure from the exterior. Spaces and structures can provoke an array of emotions and can dictate ideas surrounding control and

freedom. The changing landscape of the 19th-century influenced many social reformers and medical doctor's ideas about the contraction of mental disease. The prevailing belief was that one's surroundings impacted their mental state and that removal from toxic environments into clean air and natural beauty was mandatory for recovery. The design of asylums was carefully planned and the curative power was constructed in the structure (Yanni 2003). "There is no reason why an individual who has the misfortune to become insane, should, on that account, be deprived of any comfort or even luxury..." wrote 19th-century Dr. Thomas Kirkbride (McElroy 2017, webpage). Dr. Kirkbride was the most influential in the architecture of American insane asylums. He served patients at the private Pennsylvania Hospital for the Insane, the asylum that directly emerged in the mid-19th-century from Dr. Benjamin Franklin and Dr. Benjamin Rush's earlier Pennsylvania Hospital. Additionally, he is almost exclusively responsible for the unique structure of every asylum built after the mid-19th century, so much so that his design bears his name: Kirkbride Architecture or the Kirkbride Model (Yanni 2007:38).

The ideal model was rather simple in design, but powerful in thought. It contained a central unit to house the attendants, nurses, and doctors, with the hospital superintendent residing at the top of the structure. The central area also included communal areas for patient interaction and activities. One wing was designated for men, and the other for women. The most outer, lateral limits of the wings were designed for difficult patients that could disrupt the peace of the central areas. Like 18th century Dr. Pinel, Kirkbride was an advocate of moral therapy and believed and imbedded the theory into his architectural plan. In the same vein as Pinel, Kirkbride believed that the mentally ill were not inherently corrupt, but were deeply affected by the transition from rural

homesteads to long work days in polluted industrial areas that disrupted the traditional familial structure. His treatment plan rejected the brutal ideas of past heroic medical practices and physical restraints, and focused on a gentle approach that involved recreational activities, the outdoors, and conversation. It was believed if the individual was removed from the corruption of industrial society and received adequate fresh air and time in nature, their various mental afflictions could be remedied (Yanni 2003).

The remainder of this chapter shifts to a focus on the emergence and development of Missouri State Hospitals specifically in order to highlight the particular institutions and treatments that the individuals in this study experienced. A focus is given to the chronic underfunding and overcrowding that the institutions faced as well as the evolving treatment mechanisms and therapies employed over the century considered. The sections are in chronological order.

1.5 Missouri Institutions in the 19th-Century

Missouri was one of the first states in the country to successfully convince the state legislature to dedicate funds towards an asylum for the mentally ill. In 1847, the state legislature approved the erection of a mental asylum. Four years later, the Missouri State Lunatic asylum, presently known as Fulton State Hospital Number One opened its doors to just under seventy patients. An additional asylum was erected in St. Louis in 1869 but did not receive state funding, so it was titled St. Louis County Lunatic Asylum, later known as the St. Louis City Sanitarium (SLCS). After the state began funding the institution in 1948, it became the St. Louis State Hospital. A few decades later, Missouri State Hospital for the Insane, or State Hospital Number Three (SH3), emerged in the

town of Nevada, Missouri in 1886. The conclusion of the 19th century brought about the erection of the Missouri State School in 1899. In 1903, State Hospital Number 4 (SH4) opened its doors to patients in Farmington, Missouri. (Robinson 1954:781). Finally, the St. Louis Training School opened in 1922 specifically for the feeble-minded (Bliss 1926:628). Transitioning ideas concerning mental health from the 19th to 20th-centuries contributed to the term “state hospital” replacing the former “lunatic asylums” or “asylums for the insane” around the turn of the century (Missouri Department of Mental Health 2017).

There is sparse comprehensive literature published about each of these individual institutions although state annual reports containing demographic information are available and were utilized. The exception to literature available is Fulton State Hospital (SH1) which is the subject of *The Evolution of a Missouri Asylum* (Lael, Brazos, and McMillen 2007). This book includes detailed descriptions of the asylum’s construction and development. Much of the following information concerning Missouri’s state asylums are derived from this comprehensive examination of state-funded mental health projects in Missouri. Although its focus is on Fulton State Hospital specifically, the other institutions across Missouri operated, diagnosed, and treated patients in a very similar manner as they were all state-supported facilities. Furthermore, the book captures over a century’s history of the evolving nature of America’s mental healthcare system and its impact in Missouri. The *American Journal of Psychiatry* along with Missouri-specific newspaper articles are also used to trace growth and changes of the asylums in this sample.

Missouri's state-supported mental institutions were erected in the 19th century, with the exception of State Hospital Number Four (SH4) opening just after the turn of the 20th-century. Each building's architecture was modeled off of the Kirkbride plan excluding SH4 in Farmington, which was designed using the "cottage plan" (Robinson 1954:781). The cottage plan originated in an 18th-century church community of Gheel, Belgium. Originally, the church was a place for where the mentally ill could seek refuge, which encouraged the townspeople to contribute care to those seeking asylum. This community-driven initiative inspired 19th-century American doctors and reformers who did not favor the Kirkbride model (Yanni 2003:43). The cottage system called for a dispersal of asylum patients across individual buildings that were typically not more than two stories tall, unlike that of the Kirkbride mega-structures. Like the Kirkbride model, employees and the hospital superintendent lived in a building oriented in the center of the landscape, with patient housing in the surrounding areas. A unique aspect of the cottage plan was the underground tunnels constructed to unite the cottages. Furthermore, like Kirkbride's various wings designed to manage each type of patient, the cottages were devised to house different categories of patients—violent individuals away from all other patients, as well as female and male separation separation (Philo 1989:282). SH4 was the only hospital in Missouri originally designed on the cottage plan. Later, other institutions adopted the model as institutions expanded and built surrounding structures for additional housing and treatment employment.

Just before the opening of The Missouri State Lunatic Asylum (later, Fulton State Hospital) in 1851, the Board of Managers devised a detailed plan for the asylum's operations including particular job details and instructions for every member of personnel

(Lael et al. 2007:20). Most important in these descriptions is the obligation to treating each patient in a humane manner, and dedicating time to their care. The guidelines read:

The attendants shall treat the patients with uniform attention and respect...under all circumstances, be tender and affectionate...Those who do not at heart adopt this sentiment are unfit to take charge of the insane, and those who violate this principle are not wanted here (Lael et al. 2007:21).

Thus, it is clear that the asylum project at Fulton began with sincere efforts towards dedicating adequate time and consideration to the moral treatment and cure of the insane.

As is the case with many large-scale and multi-faceted projects, SH1 tried to adapt to its rapidly morphing demographics. In 1854, just three years after admitting patients, those in charge at the asylum were still adjusting to the growing demands and needs. These demands including more buildings to house the growing number of patients, increased staff, and replacement of antiquated equipment as medical treatments for the insane evolved. A similar case of overcrowding occurred at the St. Louis City Insane Asylum. After opening in 1869, the hospital immediately exceeded capacity for its infrastructure, surpassing 150 patients. A decade later, 303 patients were housed in the asylum and by 1900, the hospital contained 659 patients with very little change in the number and type of buildings available (Evenson et al 1994:1025). Similar scenarios plagued every institution as patient admissions continued to rise and exceed holding capacity of the original building structures and staff available for their care.

In SH1's early days, a dedication to Pinel's moral treatment of patients was still commonplace and Superintendent Turner R.H. Smith rejected violent approaches to treatment like earlier 19th century Dr. Rush's heroic medicine (Gamwell and Tomes 1995:19; Lael et al. 2007:22). This did not render violence absent in institutions. With the

growing perception of the mentally ill corrupting society, institutions were becoming more popular. Asylums quickly became overcrowded which often led to between-patient violence, and accidental violence through neglect by employees.

Overcrowding plagued SH1. Less than a decade after the asylum's opening, Superintendent Smith reported having to assign two patients per bedroom as the population at Fulton had exceeded original projections (Lael et al. 2007). Unfortunately, overcrowding in every institution across Missouri, as well as the country, became a fundamental issue for asylums throughout the 19th and 20th-centuries (Robinson 1954). Hospital superintendents tried to appeal to state legislatures for more funds for additional buildings and employees. No institution was meeting the patient to employee ratio suggested by psychiatrists of the era. Following the Civil War, these requests were often ignored, as the state and country at large dedicated attention to post-war efforts (Lael et al. 2007:34). Fortunately, in 1869, The St. Louis County Insane Asylum, later the City Sanitarium opened and provided some relief for SH1 (Lael et al. 2007:48). However, it too would later suffer from overcrowding.

There was an endless battle between the state and those responsible for maintaining the institutions. Superintendents often understood the implications of issues concerning overcapacity including the increasing patient to warden ratios. This disparity led to accidental disregard to patient care and a newfound devotion for basic maintenance of chronic cases. Due to chronic overcrowding and inadequate funds, Missouri's state hospital's care regime did not translate into its original aspirations. Mental institutions continued to be fraught with fundamental complications of overcrowding and lack of governmental funds that drastically interfered with its mission.

In the latter half of the 1860s and the 1870s, ideals of moral therapy were still present at Fulton though not always expressed. Treatments were often employed as a method of sedation since patient numbers had well exceeded employees. Furthermore, the lack of employees contributed to what began as accidental neglect to the commitment to moral therapy. The dwindling availability of attendants for patients, especially patients who required extra attention, caused a growing reliance on some form of physical restraint of the patients (Lael et al. 2007:49). The common restraining apparatuses of the time included the strait-waist or straitjacket to constrict the arms, leather wristlets to bridle the hands to a chair or bedside, the lock seat which forced patients to remain in a seated position, and the crib bedstead designed much like a baby's crib with a top cover to lock the patients within (Lael et al. 2007). The straitjacket, crib bedstead, and the leather wristlets were commonly used at St. Louis City Sanitarium (Evenson et. al 1994:1028). The superintendent at Fulton reported that the female patients were bounded at a much higher rate than the men's wards. He suggested the disparate numbers were due to female attendant's inability to properly restrain and manage unruly behavior on the female wards (Lael et al. 2007:50).

Other treatments were also employed during the late 19th-century. Harkening back to Dr. Rush's heroic medicine, the superintendent during this time, Charles Hughes, believed in a habitual treatment of laxatives and elixirs to purge and rebalance the system as well as causing intentional pain through threading the skin to permit drainage. Ice baths were thought to remedy excessive mania (Lael et al. 2007:50). In addition to these treatments, it was still believed that moral treatments such as walking through nature or engaging in recreational activities were imperative for a cure. Unfortunately, after

crowding became the norm, traditional ideals of moral therapy were seldom ever realized in institutions after overcrowding became the norm. There simply were not enough employees to tend to each patient, much less accompany them on a leisurely stroll outside. The reality remained in the struggle for the lack of state-allocated funding for asylums across Missouri.

In the early years of Fulton, along with a strong belief in the curative nature of the outdoors, commitment to labor was also seen as therapeutic. All patients who were physically and mentally capable participated in some form of work that contributed to the larger operation of the asylum. Men often toiled in the various factories on-site as well as tending to the institution's large-scale gardens. Women patients usually labored in the laundry mats that was responsible for the entirety of the asylum's linens, worked in sewing rooms, and performed bookkeeping duties (Evenson et al 1994:1028). The administration strongly believed that working provided patients with a sense of accomplishment that contributed to their overall mental health (Lael et al. 2007:84). Not only did patient labor supposedly contribute to an overall increased mood, but it also subsidized the overall cost to run the asylum. By employing wage-free patient labor, Missouri asylums could produce food, clothing, and furniture without having to employ individuals from the broader community. State-supported asylums were largely self-sufficient entities and often had no choice to be, as underfunding was a constant struggle.

In addition to moral and manual labor therapy, a few formulated pharmaceutical treatments were dosed to patients although anti-psychotic drugs were developed later in the mid-20th-century. At the St. Louis City Insane Asylum natural remedies were employed such as teas, tinctures, and vegetable pills. These items were advertised as a

cure for nervous symptoms particularly in women. Other treatments included nitrite of amyl to calm epileptic patients during attacks, and quinine to counter anemia. Various mixtures of phosphorous were administered to patients who presented as melancholic and lethargic for mental stimulation. Cod-liver oil, iron, and phosphorous were frequently and liberally administered for countless ailments. The combination of morphine and extract from a hemlock plant (conium) worked as a sedative and was given to most patients in the evening. Clearly, a focus on sedation and docility was engaged to manage patient behavior. While a focus on spending time in the clean air of nature as well as hygiene maintenance remained, unnatural medical interventions prevailed. These treatments were delivered in the form of drugs and worked to render patients calm and immobile as patient numbers exceeded what employees could manage (Evenson et al 1994:1027-1028).

1.6 Missouri State Hospitals in the 20th-Century

Moral therapy and required patient labor lasted throughout the 19th-century in Missouri's asylum system but approaches to mental healthcare underwent a major transition in the early 20th century. Faith in the curative properties of moral therapy had faded as initial rates of cured patients originally reported by asylum superintendents fell. Compounding this decrease, the majority of those who entered institution remained uncured and were rarely discharged. After the discovery of germ theory in the latter half of the 19th-century, the understanding that undetectable microorganisms transmitted disease spurred a new commitment to public health (Gamwell and Tomes 1995:119). The mental hygiene movement, or social hygiene movement, took hold in 1909 and was the first major effort to circulate public health information around the nation. As fear of

disease increased, government officials began to advertise public health measures across the nation in order to reduce the spread of disease (March and Oppenheimer 2014). A new approach to mental healthcare was included in these initiatives. Despite that many disapproved of the traditional asylum's "care and custody model", state hospitals continued to grow in population size (Lael et al. 2007:90). Although small-scale clinics that provided preventive and outpatient assistance to the mentally ill became available and largely successful, they were not universally affordable. Disenfranchised individuals did not have access to small-scale clinics which contributed to the disproportionately high number of the impoverished and mentally ill falling into care of the state. State hospitals provided "custodial care for a poor, chronically ill population" (Gamwell and Tomes 1995:122). After decades of operation, Missouri state hospitals remained unsuccessful at treating the large quantity of individuals that entered so many patients were left with no other option as their illnesses were left untreated in their advancing age. Chronic cases became the norm and state-supported hospitals became facilities to manage the aging impoverished and destitute.

As the field of psychiatric medicine became more popular and specialized, traditional cure suggestions were reanalyzed and replaced. In addition to the moral hygiene movement, early 20th-century medical advancements debunked the idea of a cure-all treatment for all and that individual evaluations had to be considered for the optimal chance of individual recovery. Following World War I, the transition from manual labor and environment as cure to individualized, occupational therapy was realized and proved to be quite successful (Lael et al. 2007:84). Unfortunately, the low number of medical staff to patients that was the norm in state hospitals did not allow for

consistent individualized treatment. The war caused an increase in demand for treating the mentally ill, but most of the institutions that opened were private and for those who could afford the services offered. The increase in new institutions broadened the field of psychiatry while simultaneously drawing in psychiatric physicians to better paying, private practices.

Meanwhile, state hospitals minimally warehoused the chronically ill and incurable on the low state-provided operational budgets. “Ward life was characterized by monotony and anonymity and complaints of patient abuse were common” (Gamwell and Tomes 1995:171). With the rampancy of overcrowding across asylums, state hospitals were unable to match the progressive mental healthcare reforms and often relied on antiquated measures or simply neglect. In 1901, the superintendent at SH1 reported that the state of the hospital’s medical equipment was lacking and too outdated to perform basic annual health procedures or surgeries. It was not until later that decade that equipment was replaced with the erection of a building solely dedicated to procedures (Lael et al. 2007:93). Working apparatuses made it possible for the formerly antiquated state hospitals to engage in a few of the rapid advances occurring psychiatric practice. Psychiatry had branched into studying mental disease post-mortem and Missouri participated. No longer did it suffice to observe the disease in the living but autopsies were performed in order to investigate if mental pathologies could be detected in the soft tissues of the institutionalized deceased (Lael et al. 2007:93). Considerable advances in psychiatric understanding of mental illness occurred during the beginning of the 20th century and led to a further manifestation of the medicalization of mental illness.

Scientific intervention through surgery and autopsy paved a new pathway for experimenting on the subjected and marginalized held within institutions.

Catching up to the broader fields of American medicine, psychiatry experienced major overhauls through the first two decades of the 20th-century. In the 1920's the original *American Journal of Insanity* was rebranded into today's colloquial title *The American Journal of Psychiatry*, which highlights the shift in societal perception of mental disease. As the field became more formulated, respect for the profession did not increase. The field was not considered as rigorous as other medical sub-disciplines, especially since mental illness continued to rise and state-supported hospitals became overcrowded. State mental institutions were viewed as undesirable hospitals for doctors to carry out their careers as conditions and potential salaries were not comparable to private practice. Additionally, patient recoveries were often grim within state-funded hospitals and doctors increasingly treated the chronically ill (Grob 1994). If patients had received adequate care from employees, their chronic states would have likely improved. The abundance of severely ill patients may have decreased and issues of overcrowding would not have plagued institutions. The transformation of psychiatry contributed to a clear deviation from the original purpose of the curative asylum while undermining its original agenda to cure patients of mental illness.

Despite the ongoing specialization of the field of psychiatry and continuous defunding of state hospitals, institutions during America's Great Depression persevered and patient numbers continued to increase. The ongoing financial struggle of state-supported mental institutions culminated with a nationwide economic crisis that greatly contributed to further monetary neglect, which in turn, left chronic patients locked within

a degrading structural system. By 1940, institutions across the nation amounted to approximately half a million patients (Grob 1994). Census data reflected that approximately seventy percent of the inpatient population across all state institutions was over the age of forty (Grob 1994). The increase in chronic cases, coupled with no spouse or family member to care for the mentally ill, in addition to private mental healthcare services that were almost exclusive for the wealthy, the necessity for state hospitals to provide basic maintenance for these patients is obvious (Grob 1994:165-167).

Institutions had abandoned moral therapy almost entirely by the 1930's and 40's and rigorously focused on new procedures for cures. These strategies included surgery, chemical treatments, and electric shock therapy. These measures were not consistent or applied to all patients. Most patients were extremely neglected within the conditions of overcrowding. The 1930's and 1940's can be viewed as the culmination of years of federal fiscal oversight that contributed to state hospitals transforming into custodial care for the chronically ill and aging populations that had been in the institution for decades (Grob 1994:275). Despite new therapeutic advancements in psychiatry, curing the mentally ill seldom occurred. Novel treatments emerged during this era including a plethora of chemical cures that were developed by doctors and pharmaceutical companies. Insulin and Metrazol became ubiquitous within the institution. Initially, insulin was dosed to patients in order to produce convulsions or comas, depending on which doctor was administering the drug and his desired effect (Gamwell and Tomes 1995:171). At SH1, prolonged sleep brought about by the comas was seen as therapeutic, in which the patient may wake with a recovered mind (Lael et al. 2007:95). Convulsions were desired to jostle the brain into recovery. Insulin proved to be much more variable in

its effects than Hungarian-created Metrazol, which proved to induce more convulsions and less comas than insulin.

In the late 1930's, chemically induced shock was replaced with electroconvulsive therapy (ECT), or electric shock therapy. Leucotomies, more colloquially known as lobotomies, also prevailed (Lael et al. 2007:95). Each one of these therapies agitated the brain in ways that created both short-term and long-term, irreversible effects to the patients. For example, electric shock therapy sent electric voltages that shocked a patient's body and brain, while lobotomies were physical intrusions that probed the frontal lobe of the brain, resulting in post-surgical brain damage. It was believed that these therapies worked, likely because the patients were no longer to operate normally after the considerable alteration to their brain function. ECT made patients less difficult to manage through its immobility inducing effects. One female patient recalled the ECT plan at SH1:

Patients were generally on treatment twice a week—two days for the women...promptly at 7:30 treatment patients were rounded up...crying and resisting they were herded into the gymnasium and seated around the edge of the room...In order to save time, one or more patients were called behind the screen to sit down and take off their shoes while the patient who had just preceded them was still on the table going through the convulsions that shake the body after the Electric Shock has knocked them unconscious. One attendant stands at the head of the table to put the rubber heel in their mouth so they won't chew their tongue during the convulsive stage. On either side of the table stand three other attendants to hold them down... (Lael et al. 2007:142-143).

These treatment plans were administered on a regimented schedule almost indiscriminately to patients of both sexes from 1930-1960. The shift in societal perception towards mental illness following the World War II along with increasing

medical advancements in psychiatry, led to the emergence of more experimental drugs for the mentally ill.

The relative isolation of Missouri state hospitals changed through large-scale accessible communication. Established national and local medias were growing and they transformed transmission of communication rates significantly. Ultimately, this impacted the way that the public perceived mental illness. New drugs were emerging and hope for cures gained traction. Among the pharmaceutical list was chlorpromazine, or Thorazine, which revolutionized traditional treatments. “Chemical restraints” replaced antiquated physical restraints (Lael et al. 2007:154). Thorazine remedied the issue of having to adequately care for patients, as it rendered them docile and submissive. Along with new pharmaceuticals, lobotomies continued in the 1950s and into the 1960s.

The addition of chemical drugs to treat mental illness allowed for the release of many patients across the nation as these therapies were increasingly affective at managing perceived unruly behavior. State mental hospitals, however, continued to suffer from overcrowding and many patients became anonymous, chronic cases that remained untreated. In 1950, the Council of State Governments reported that the number of institutionalized individuals had increased 12.6 times from 1880 to 1940, compared to the general population that had only expanded by 2.6 (Lael et al. 2007:150). Although structural expansion was lobbied for, the Missouri government seldom contributed funds to state hospital efforts and asylums across the state exceeded patient capacity. Drugs to make patients limp and manageable became the norm and quiet patients were often left in rocking chairs lined up in long hallways to counter the overcrowded conditions (Lael et al. 2007:103). Insufficient seating and bedding was not uncommon and patients

frequently roamed the institution's wards without a place to rest (Grob 1994). Structural issues were rampant and employee numbers were insufficient to care for the large the patient population.

Despite considerable psychiatric advances from 1847 through the 1950's, lack of funding and overcrowding permeated the state hospital system. Individuals were socially abandoned by families and society and hidden in the fabric of institutions. Although societal attitudes shifted from criminalizing the socially "deviant" and mentally ill, the new attitudes that emerged maintained old motifs of expelling society of those that could not conform. The individuals in this research sample were never discharged from the institutions where their chronic cases led them to become wards of the state and eventually donated as bodies to Dr. Robert J. Terry's gross anatomy class at Washington University in Missouri.

CHAPTER 2

MADNESS AND HYSTERIA IN WOMEN

2.1 The Emergence of Madness and Hysteria in Women

This chapter focuses on the power of language in constructing particular perceptions, identities, and realities. Unconscious adherence to societally created norms and regulations inevitably leads to the reproduction of cultural beliefs that work to solidify the value of the normative and delegitimize all who deviate from this standard. The reproduction of social norms contributes to the creation of societal “truths” which often operate to cause the treatment of certain populations to go unquestioned. Language can operate in the form of symbolic violence (Bourdieu 1972). Language creates a distribution of power, and “...any socially recognized formulation contains with it an intrinsic power to reinforce dispositions symbolically” (1972:21). Linguistic analysis is imperative to draw attention to the power imbedded in language that contributes to the production and normalization of societal perceptions.

I analyze the rhetoric employed in 19th and 20th-century medical and colloquial social spheres to demonstrate its contribution to the construction of women as emotionally weak, unstable, and hysterical. These diagnoses ultimately had a profound influence on the way women were treated across all sectors of society; as well as contributing to the increased admittance of women into insane asylums (Showalter 1980).

Linguistic analysis is conducted on firsthand accounts of language present in medical and public literature of the time period.

First, the emergence of the term “hysteria” is considered to discuss how it came to be a popular female diagnosis. A historical background on women’s traditional roles and the repercussions for deviation are then described. Additionally, symptoms, diagnoses, and treatments are provided to contextualize how women, specifically, came to be more prone to institutionalization than men. The final two sections include language analysis of medical journals, popular culture literature such as novels and magazines, as well as newspaper advertisements in order to reconstruct the discourse prevalent before and during the time of the institutionalization of the women across this study.

The notion of “hysteria”, or an uncontrolled outburst of emotion, has been used as a qualifier for women since the time of Hippocrates and can be traced as far back as 2000 BC (Chudoff 1982:545) In the 19th-century, a diagnosis of “hysteria” encompassed a breadth of symptoms including the supposed uncontrollable and fragile emotional states of women and an “overuse of the female mind” (Tasca et al. 2012). Other symptoms included emotional inconsistency, multiple personalities with difficulty differentiating between fantasy and reality, seduction and deviance towards males, incessant speech, and a lack of attention span. In reality, symptoms ranging from nervousness to melancholia to general deviance and unfemininity were categorized as “hysteria” (Showalter 1980; Ussher 2011). Women were never omitted from classifications of weakness or insanity. Each life stage was accompanied with a particular mental affliction. Puberty and menstruation could be associated with nymphomania and over-sexuality (Rosenberg 1973). Pregnancy and childbirth were often affiliated with female weakness and a lack of

emotional control. Menopause and widowhood had implications for psychosis (Showalter 1980). Departing away from cultural and societal gender norms was not the only cause for labeling women as insane, hysterical, or weak. Women's health was determined by her femininity and femininity became synonymous with weakness and hysteria (Digby 1989).

Although the diagnosis of "hysteria" was never entirely exclusive to women, it became known as a female disease, particularly in the 19th-century, and was used to describe the perceived radical behavior of white women (Tasca et al. 2012). Within 19th-century medical dialogue, it was not uncommon for literature to discuss the inferiority or problematic reproductive aspects of women, particularly the effects of the uterus on the brain (Tasca et al. 2012:114). Initially, "hysteria" blamed convulsions of the uterus for what were deemed unexpected manic outbursts (Showalter 1987). A clear association with the inherent "mentally weak" biological makeup of females became the dominant rhetoric and contributed to women as particularly more susceptible to institutionalization than men. The perception of hysteria demonstrates how women were often perceived as incurable throughout their life course (Showalter 1980:171).

As the 19th-century progressed and certain echelons of women gained more access to education and societal participation outside of the home, female divergence from the norm was amplified. Traditional duties for women included loyalty to her husband, domestic work, and motherhood. When these conventional values were not upheld, it was not uncommon for women to be labeled as unruly or "hysterical" (Showalter 1980; Kromm 1994; Ussher 2011). Unmarried or widowed women were especially stigmatized. It was uncommon in the 19th-century for a woman to remain unmarried which contributed

to single or widowed women profiled as mad. Thus, it was not surprising that marriage was believed to be a cure for insanity (Rosenberg 1973:135). Colloquial ideas concerning women's roles and rights provide insight into societal beliefs towards the necessity of a male figure to have been present in a woman's life for strength and emotional stability. The application of medical terminology to describe particular symptoms led to the scientific medicalization of those behaviors and their associated diseases (Theriot 1993:17).

Nineteenth-century ideologies operated to restrain women's sexualities and circumvent their public aspirations (Kromm 1994:531) In order to evade granting women equal rights within a patriarchal society, women were constructed as unreasonable, aggressive, and sexually corrupt (Kromm 1994; Showalter 1980; Digby 1989). The rapid association between madness and the female mind and body fabricated the notion that females required medical intervention. Historical analyses demonstrate that physicians were not the only powerful contributors in the institutionalization and medicalization of women. Family members and friends also contributed to female hospitalization as both reported symptoms of madness in their female relatives and suggested the need for admittance into an asylum (Theriot 1993:17). Admittance into an institution required minimal to no documentation which likely reflects the increased desire to rid society of nonconforming individuals. Additionally, inappropriate referrals were not uncommon. For instance, in SLCS's 1884 hospital annual report, at least ten percent of the patient population was listed as "not insane". The superintended followed that unfortunately, "authorities, in some cases, are at a loss as to what else to do with an idiot, epileptic, a drunkard, an aged person, or one in some state of delirium" (Evenson et al. 1994:1026)

Female patients of middle and working classes seldom had a choice in their admittance. Reflecting on female patient's testimonies, they often believed that they were emotionally unsound and biologically weak which demonstrates the efficacy of language in normalizing certain perceptions. The scientific and colloquial rhetoric convinced some females that their minds and bodies were inherently deformed (Rosenberg 1973). Women were embodying the pathologies that doctors and communities attached to them (Theriot 1993:20). The disparate rates of female institutionalization reflect a patriarchal society in which most women held subordinate roles and had little control over their own bodies or medical treatment.

Female resistance is not adequately highlighted in the literature concerning female madness and hysteria. This is likely because the majority of institutionalized women were a part of the lower social spheres. Literature of the late 19th and 20th-centuries most often depicted women as mad and submissive to a patriarchal society. This does not in any way indicate that all women were docile and complacent. Disparate literature on female resistance reflects a lack of access to having their voices heard. What writing does exist is not representative of all female experience as those with the privilege of voicing their experiences were those usually in the upper echelons. For instance, the short semi-autobiographical story *The Yellow Wallpaper* (1892) by Charlotte Perkins Gilman, portrays a woman who is forced to rest and not engage in mentally stimulating activities. Her experiences of exclusion from societal participation or meaningful work drives her to a state of madness. She tries to resist through documenting her experience in a hidden journal but after extended isolation, she eventually spirals into hallucinations and refuses to leave her locked room, as the rest of the world transforms into a terrifying place for her

(1892). Although unarguably a paramount feminist work that displays female resistance to patriarchal control over women's bodies, Gilman was never fastened to the confines of an institution. She suffered from what she described as psychotic episodes throughout her life, specifically during post-partum depression, but she was a prominent female sociologist and author who had the resources to circulate her voice.

Language was paramount in the development of psychiatry and to the construction of female "weakness", therefore a language analysis focused on women is integral for an investigation into the effects of mental institutionalization on women. This chapter will now explore literature particular to the 19th and 20th-centuries. First, an analysis of primary source medical literature provides direct will be provided to illustrate how male doctors viewed, diagnosed, treated, and perpetuated particular beliefs about female illness within the medical community. Second, an analysis of time-period novels, magazines, and newspaper advertisements will be conducted to demonstrate how they reflect popular perceptions of women within society.

2.2 Language Analysis: Institutionalized Women in the Hands of Medical Personnel

In a chapter in the *American Journal of Insanity* titled "On Impulsive Insanity", Dr. Edward Daniell discusses female madness in relation to the impulsive violence it was thought to cause. In describing a woman who was supposedly prone to spontaneous and violent attacks against her family and then legally tried for "impulsive insanity", he writes,

the brain in this case...was only symptomatically disturbed, some abnormal condition of a remote organ may have been the inducing cause—say the uterus, the brain becoming the subject of irritation through sympathy with its disordered function (Daniell 1846:26).

His description implies that the woman was hysterical. Immediately after describing what may have contributed to her violent compulsion, he describes one of his current patients:

We all know in practice the protean character of hysteria when mental manifestations are implicated in its effects. I have a patient at this moment who detained me two hours, and sent, moreover, for the clergyman of the parish, to witness her dying moments, although she as walking about the room, and talking incessantly all the time. It was in vain to reason with her... (Daniell 1846:26)

This firsthand account of a supposedly hysterical patient highlights Dr. Daniell's interpretation of the female patient as unreasonable and prone to a melancholic reasoning of her existence. Consistent is her erratic behavior as displayed by incessant chatter. The doctor's reflection on her behavior manifests the notion that females were particularly incapable of reason, highly emotional and incessantly spoke. In the prior paragraph, Dr. Daniell attempts to explain the violent compulsion of the previous woman and ultimately attributes her erratic behavior to an affliction of her uterus. A clear association between attacks of hysteria and the female reproductive system is characterized in Dr. Daniell's recount. This excerpt is not an isolated example and reveals the prevailing medical ideology that women were inherently weak and prone to hysteria (Digby 1989; Rosenberg 1973; Showalter 1987)

Particular to the reproductive aspects described in medical journals was menstruation. Menstruation, if disturbed, was viewed as the cause of a myriad of mental ailments. Even if left undisturbed, a normal menstruation cycle could leave an "unstable brain" at risk. Nineteenth and 20th-century Dr. Thomas Clouston explains the medical consequences of a disrupted menstrual cycle:

The regular normal performance of the reproductive functions is of the highest importance to the mental soundness of the female. Disturbed

menstruation is a constant danger to the mental stability of some women; nay, the occurrence of normal menstruation is attended with some risk in many unstable brains. The actual outbreak of mental disease, or its worst paroxysms, is coincident with the menstrual period in a very large number of women indeed. (Digby 1989:198).

The definition of a “normal performance” is indeterminable and can only be measured against the patriarchal societal standards and definitions of the period. It is unclear which women were not prone to such a lapse of mental soundness, but with the high rates of female institutionalization, it seems that few women were excluded from the “dangers” accompanied with an irregular performance of their reproductive parts. This belief in the corruption of anatomy inherent to the female body was pervasive in the medical community. In a standard textbook on psychological medicine of 1874, a medical professor, Dr. Laycock, describes:

Women in whom the generative organs are developed or in action are those most liable to hysterical disease. Indeed, the general fact is so universally acknowledged, and so constantly corroborated by daily experience, that anything in the nature of proof is unnecessary. (Digby 1989:202).

Dr. Laycock reinforces the idea that women were undeniably prone to hysteria and that “proof is unnecessary”.

The medical community insisted that women’s reproductive areas were the site of her madness and developed intricate anatomical representations of the same types of descriptions that the aforementioned Dr. Laycock and Dr. Daniell wrote about in medical journals. In *Outlines of Lectures on the Neurological System of Anthropology*, Dr. Joseph Buchanan anatomically portrays a woman’s body (Buchanan 1854: 358). Much like phrenological diagrams of the human head, accompanying the portrayal includes labels for each body part that correspond to a particular aspect of her personality. For instance,

The manner in which female madness was diagnosed and interpreted by the medical community shines light on how those in control of women's health examined and treated their bodies. The prevailing ideology that female reproductive organs were the cause of insanity demonstrates that women were viewed as inherently pathological due to their anatomical makeup. Although medical discussion percolated into general society, medical literature only extended so far, and usually remained among the most literate. It is vital, then, to turn to accounts of how popular culture and the media chose to present women in order to provide insight into how females were socially constructed and perceived as weak or insane.

2.3 Female Madness and Weakness in the Media

Representations of female madness was commonplace across 19th and 20th-century popular literature and worked to inform the public of the supposed behaviors recognized in mad women. The way in which the media and popular culture presented conceptions of madness in women highlights how colloquial and accessible these ideas were. As in contemporary times, magazines, newspaper articles, and advertisements were extremely powerful in constructing particular perceptions of the female body and personality. Depictions of female madness and women committed to asylums became a source for entertainment.

For example, in 1851, the iconic novelist Charles Dickens described a Christmas Dance party at London's St. Luke's Hospital for the Insane:

The experience of this asylum did not differ, I found, from that of similar establishments, in proving that insanity is more prevalent among women than among men. Of the eighteen thousand seven hundred and fifty-nine

inmates St. Luke's Hospital has received in the century of its existence, eleven thousand one hundred and sixty-two have been women...Female servants are, as is well known, more frequently afflicted with lunacy than any other class of persons (Showalter 1980: 157).

Dickens continues with a description of one of the female patients at the dance, recalling that she was "scolding some imaginary person [and] sewing a purposeless seam" while "...there was the vacantly-laughing girl, requiring now and then a warning finger to admonish her; there was the quiet young woman, almost well, and soon going out" (Showalter 1980:157). Here Dickens states that it is proven that women suffer from insanity more than men based on the population statistics within the asylum. Dickens reinforces the notion of the hysterical woman disjointed from her own mind as she "scolds an imaginary person" or as another patient "vacantly laughs".

Female madness and insanity were also presented outside of the institution. In the classic 19th-century novel *Jane Eyre*, Jane refers to herself as having lost the ability for proper reason as insanity enveloped her during an impassioned conversation with her master, Mr. Rochester:

I will hold to the principles received by me when I was sane, and not mad—as I am now. Laws and principles are not for the times when there is no temptation...They have a worth—so I have always believed; and if I cannot believe it now, it is because I am insane—quite insane: with my veins running fire, and my heart beating faster than I can count its throbs. (Brontë 1847: 720).

In the face a strong-willed patriarchal figure like Mr. Rochester, Jane becomes so overwhelmed that she believes she has gone insane. Brontë's choice to include representations of female madness and patriarchal control as seen in this excerpt, demonstrates the accessibility to themes of female insanity. Women were depicted as

weak and easily unnerved with little or no control over their behavior. These excerpts are not isolated examples, and provide insight into the popular rhetoric contained within 19th-century literature.

Novels and magazines were mostly exclusive to literate circles. Newspapers extended into a more reachable part of society as they were heavily circulated, employed basic language, and included pictures that contextualized the message. Most importantly, newspapers included advertisements and within these announcements it was common to encounter remedies for “female weakness”. In some ways, newspaper articles are the best representation of the type of information that informed society.

Women also contributed to reifying female weakness. Lydia E. Pinkham of Massachusetts was one of the most successful female business owners of the 19th century. She formulated many tinctures and pills aimed to “cure ailments peculiar to women”. An 1882 advertisement that ran in the *Salt Lake Weekly Herald* in regard to her product reads:

Lydia E. Pinkham’s Vegetable Compound “is a positive cure for all those painful complaints and weaknesses so common to our best female population. It will cure entirely the worst form of female complaints, all ovarian troubles, Inflammation and Ulceration, Falling and Displacements, and the consequent Spinal Weakness, and is particularly adapted to the Change of Life... It will at all times and under all circumstances act in harmony with the laws that govern the female system. (*Lydia Estes Pinkham*, 2017).

Almost forty years later, Pinkham’s remedies were still being advertised:



These Hysterical Women

CRYING . . . sobbing . . . laughing! She has no control of herself . . . the slightest thing drives her to distraction. Tired all the time . . . overwrought . . . nerves strung to the breaking point. Constant headache, backache, and dizzy spells are robbing this woman of youth, beauty and health.

If she would only give Lydia E. Pinkham's Vegetable Compound a chance to

help her. How well and happy she might be.

The tablet form is so easy to take. Send fifty cents to the Lydia E. Pinkham Medicine Company, 1172 Cleveland St., Lynn Massachusetts for a bottle which sells regularly for \$1.50. Let us prove that this medicine can do for you what it has done for other suffering women.

Try Lydia E. Pinkham's Vegetable Compound Tablet Form

Figure 2.2 Image from Harvard University Library Open Collections Program. 1932 advertisement.

These hysterical women: “crying...sobbing...laughing! She has no control of herself...the slightest thing drives her to distraction. Tired all the time...overwrought...nerves strung to the breaking point...If she would only give Lydia E. Pinkham’s Vegetable Compound a chance to help her. How well and happy she might be. (*Lydia Estes Pinkham, 2017*).

These advertisements were just two of many “cure” announcements that dominated newspapers throughout the 19th and 20th-centuries. Accessible promotions such as these provide insight into how common it was to believe in female weakness and the necessity for a cure.

In another early 19th-century advertisement that ran in a popular Seattle, Washington newspaper, women were invited to write Dr. Pierce and confide in him

concerning their sickness.



**WEAK
WOMEN**

Are made strong by the use of Dr. Pierce's Favorite Prescription. It regulates the periods, dries weakening drains, heals inflammation and ulceration and cures female weakness.

Sick women are invited to consult Doctor Pierce, by letter, *free*. All womanly confidence held in sacred secrecy and guarded by strict professional privacy. Write without fear and without fee to Dr. R. V. Pierce, Buffalo, N. Y.

"I had been a great sufferer from female weakness," writes Mrs. M. B. Wallace, of Muenster, Cooke Co., Texas. "I tried four doctors and none did me any good. I suffered six years, but at last I found relief. I followed your advice, and took eight bottles of 'Favorite Prescription,' and four of the 'Golden Medical Discovery.' I now feel like a *new woman*. I have gained eighteen pounds."

Doctor Pierce's Pleasant Pellets cure biliousness and sick head ache. They do not create the pill habit.

Figure 2.3 Image from Library of Congress archives. In Seattle, Washington's *Ranche and Range* on July 11, 1901.

Dr. Pierce's Pleasant Pellets "regulates the periods, dries weakening drains, heals inflammation and ulceration and cures female weakness". Women's reproductive health were continuously linked to "weakness" that required medical treatment. Advertisements for female weakness could be seen in popular national and local newspapers and provide understanding into how women were viewed and treated in the past.

The aim of this analysis was to highlight the often unobvious ways in which language has the power to create and reify societal perceptions. It is clear from the evidence presented above how women and their respective biology was associated with weakness and hysteria. This belief not only permeated medical literature, but was also prevalent in popular culture mediums such as literary works, newspapers, and advertisements. The analysis of direct medical literature as well as popular culture representations of women provide unequivocal insight into how women were viewed and treated by doctors and broader society. Referring to primary source documents is fundamental in reconstructing the social atmospheres that subjected the women in this study to particular diagnosis and treatment. The presentation of the female body as irrefutably diseased was a form of symbolic violence that operated to perpetuate female inferiority and ignore her desire for educational and political rights. Furthermore, medicalizing the female body as inherently weak had massive repercussions for women's health including an increased vulnerability to mental institutionalization and drug therapy experimentation. Without prevailing medical and societal discussion of female weakness, it is possible that the women in this research would not have become vulnerable to institutionalization. Reviewing pertinent literature of the era in which they lived provides direct insight into how deviation was interpreted and handled within a patriarchal society.

CHAPTER 3

THEORETICAL APPROACHES

3.1 Introduction: Structural Violence and the Biocultural Model

Violence often acts and manifests in ways that are not always immediately visible; it is omnipresent and its familiarity renders it invisible (Scheper-Hughes 2002). Furthermore, violence committed cannot always be attributed to a single actor. Indirect, or structural violence, is deeply imbedded within the historical, political, economical, and social fabrics of society and is expressed as an imbalance of control and opportunity (Galtung 1969). More specifically, structural violence can be defined as “a broad rubric that includes a host of offensives against human dignity: extreme and relative poverty, social inequalities ranging from racism to gender inequality, and the more spectacular forms of violence that are uncontestedly human rights abuses...” (Farmer 2003:8). The ease in which women were diagnosed as insane and admitted into asylums demonstrates inherent social inequalities that women experienced in the 19th and 20th-centuries in American society. Furthermore, the trauma detected on the bones of those institutionalized reflects a violence that became manifested in ways visible after death.

In order to effectively address how the individuals in this sample came to be wards of the state and eventually willed to a medical school for dissection, a critical theoretical approach must be undertaken. Doing so cultivates an understanding of how the social, political, and biological interact to make certain individuals more susceptible

to structural violence and the embodiment of disease than others. The biocultural model, which views “humans as biological, social, and cultural beings”, provides an inclusive framework to understand how biological elements interact with both environmental and sociocultural factors to affect susceptibility to stress and disease (McElroy 1990:244). In this research, historical analyses and primary source documents highlight the socio-culture climates that made women most vulnerable to a diagnosis of some form of madness, while a micro-study of the skeletons of 53 women who were institutionalized captures tangible, biological indicators of stress that contextualize the historical-cultural literature.

Engaging history provides insight into how past cultural processes become imbedded within contemporary societal understanding and structural norms. Historical analysis is imperative for any attempt at reconstructing the sociocultural landscape that made the institutionalization of women so commonplace and acceptable. Historical and cultural analysis is an integral aspect of this research as it would be hollow without developing a more nuanced understanding of the time period in which these individuals existed and what cultural norms they were subjected to. Studying skeletal remains offers unparalleled awareness into how components of past environments can biologically manifest in the skeletons of those examined. The late George Armelagos (2003:34) once wrote that an interdisciplinary approach of combined bioarchaeology and anthropology may not have the capacity to remedy all of the ills that people face but “...it can provide insights that are essential for understanding our relationship to the environment, how we interacted with it throughout history, and how we are interacting with it now”. A contextualized understanding of the often implicit violence inflicted upon past vulnerable

populations—from social processes to biological manifestations—is vital for understanding how structural forces operate to oppress contemporary marginalized populations.

This chapter explores the current theoretical perspectives of the biocultural model, structural violence in life and death, embodiment, and discipline within society and institutions.

3.2 The Biocultural Model

An integrated approach is at the heart of anthropological endeavors which seek to explore the multifaceted and complex relationships between biological and socio-cultural humans and their environments. A multiplex approach contributes to the holistic nature of anthropology and provides a unique perspective on understanding and interpreting human health and susceptibility to disease (Khongsdier 2007). The biocultural model views people as “biological, social, and cultural beings” (Goodman et al. 1984; 1988; McElroy 1990:244). The recognition of the interrelatedness of these core aspects allows for a more nuanced understanding of how health is not only influenced by our biological constitution, but drastically affected by the social and cultural environments in which we exist. The biocultural approach was first introduced by Ann McElroy (1990) to understand processes of human health and adaptation. The model is now incorporated across a variety of disciplines that seek to further understand the intricate relationship between health and the environment. In paleopathological research, the biocultural model is useful in interpreting the impact of stress and disease in not only living populations, but populations of the past through skeletal indicators of stress and disease.

At its simplest, the biocultural approach recognizes the interactions between environment, biological components, and socio-cultural aspects. The model has many interpretations and applications depending on the health issue studied and the socio-cultural and environmental factors present in a population. For the purposes of skeletal stress and disease inquiry, the following model (Figure 3.1) is a useful approach for a bioarchaeological interpretation (Martin et al. 2013).

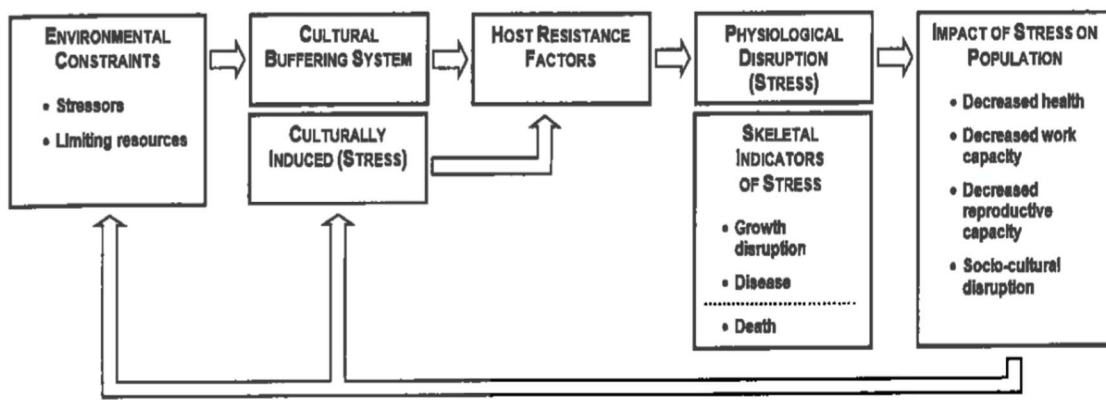


Figure 3.1 Biocultural model of stress from Martin et al. 2013 in *Bioarchaeology: An Integrated Approach to Working with Human Remains* (11).

Foremost, environmental constraints can create stress and contribute to a limited supply of resources. For example, low socioeconomic status can cause individuals to be forced into areas that contain polluted, unsanitary conditions. Food supply may contain only marginal nutritional value and there may be a shortage of its presence. Culture can either hinder or expound upon environmental constraints. Culture can buffer poor environmental conditions through culturally-specific practices or induce additional stress. For example, the cultural climates in which the women in this research existed were biased towards men. Within this climate, psychiatric studies were advancing and the desire to treat supposed madness was intense. Women experienced additional cultural stress as they were

most vulnerable to a diagnosis of madness and possible institutionalization. Cultural stress may have been further exasperated by the underprivileged backgrounds in which these women came.

The center of this biocultural model considers host resistance, which refers to an individual's biological protection against stressors that can translate into disease or jeopardized health. Resistance varies by individual. The penultimate box represents the translation of these former stressors into physiological disruptions that occur during life and leave skeletal indicators of their presence such as expressions of nutritional disease, growth disruptions, trauma, and disease. Ultimately, the culmination of each of these components can result in population stress such as reduced population health and disease resistance. These reductions can lead to decreased work and output capacity and even cultural disruption.

The biocultural approach provides a customizable model for understanding individual health and disease susceptibility as it is affected by biological, social, cultural, and environmental factors. Application of the model recognizes its downfalls as well as its practical use. Foremost, calculating replicable and precise definitions of the social, cultural, and biological components must be considered with recognition of the possibility to overstate particular variables within these components. Biological, social, cultural, and environmental aspects are all multidimensional, therefore direct causes of susceptibility to disease or disease manifestation cannot always be readily detected (Khongsdier 2007). Additionally, clear definitions of each of these variables are important in order to eliminate confusion or misunderstanding due to terminology. The biocultural model is a "heuristic tool to generate research questions...and approaches thereof to understand a complex

phenomenon” (Khongsdier 2007:42). Despite the model’s shortcomings, it can still offer an unprecedented framework for approaching the complex interactions between human health and the environments in which they exist.

3.3 Lived Experiences of Structural Violence

Drawing upon Paul Farmer’s work on structural violence, biological anthropologist Kenneth Nystrom restates the definition of the term as, “harm done to individuals or groups through the *normalization* of inequalities that are intimately, and *invisibly*, embedded in political-economic organization” (Nystrom 2014:1, emphasis mine). The *normalization* of females as inherently weak and hysterical within the medical and social spheres of 19th and 20th century society had severe repercussions for women’s health. Discussions surrounding women as vulnerable to mental disease contributed to their institutionalization rates exceeding that of men. Furthermore, the *normalization* of discourse and treatment coupled with women’s *invisibility* within the asylum, inflicted harm upon their minds and bodies. Their hospitalization rendered them invisible. Thus, they became lost in the super-structure of the state, which contributed to years of unquestioned hospitalization. Ultimately, the socio-political system that the women in this study were entrapped within willed their bodies to a medical school for dissection. They had no choice over their bodies during life, or over their ultimate resting place after death. Their skeletons reflect lived experiences of neglect and violence. The social and institutional structures made women, particularly poor women, extremely vulnerable to institutionalization and more broadly, violence inflicted by the state.

Violence can also be understood through analyzing the hospital’s conditions and treatment mechanisms. Although the ways in which those labeled as mentally ill were

treated drastically evolved over more than a century, treatment protocol did not necessarily change and become more humane. Imbedded in the curative cornerstones of mental institutions rested inherent human rights abuses (Evenson et al. 1994; Gamwell and Tomes 1995). These abuses included experimentation on a vulnerable population as well as structural violence through neglect and overcrowding. Hospital overpopulation contributed to both direct and indirect traumas that were visible in life and in death.

In a comparative study of treatment outcomes for patients in St. Louis City Sanitarium between 1886 and 1904 and those between 1978 and 1980 demonstrated significant differences that provide insight into fundamental issues the asylums faced early in their development (Evenson et al. 1994). During the historical period, mean lengths of institutionalization greatly exceeded hospital stays of the late 20th-century. For instance, the mean length of stay for treating schizophrenia in the 19th-century was 32 times that of a similar case for 20th-century patients (Evenson et al. 1994:1023). The differences in treatment times can be attributed to the rapid increase in the institutional population that deterred employees from distributing care to an excessive number of patients. SLCS had quickly transformed into largely a custodial-care facility for the chronically ill and aging who never improved and had no home otherwise. In 1883, the sanitarium's superintendent reported that 15% of patients were transferred to the "insane department" of the poorhouse and in 1887, this number had increased to 28% of patients (Evenson 1994:1023). Overcrowding issues were largely avoided. Patients were neglected and sent to facilities for the general poor where they likely received even less care and access to resources.

Historical accounts provide insight into institutional experiences. For example, in the same institution discussed above, one death certificate presents the patient's cause of death as: "fracture of right hip; suffered when deceased slipped and fell to floor on Ward C-2 at St. Louis State Hospital..."

FILED MAR 5 1949 THE DIVISION OF HEALTH OF MISSOURI
STANDARD CERTIFICATE OF DEATH 1003 State File No. [REDACTED]

16
3

WRITE PLAINLY—USING UNFADING BLACK INK—MAKE A PERMANENT RECORD

1. PLACE OF DEATH a. COUNTY <u>St. Louis</u> b. CITY (If outside corporate limits, write RURAL and give township) <u>St. Louis</u> c. LENGTH OF STAY (in this place) <u>17</u>		2. USUAL RESIDENCE (Where deceased lived, if institution: residence before admission) a. STATE <u>MO</u> b. COUNTY <u>St. Louis</u> c. CITY (If outside corporate limits, write RURAL and give township) <u>St. Louis</u>	
3. NAME OF DECEASED (Type as given) <u>[REDACTED]</u>		4. DATE OF DEATH (Month) (Day) (Year) <u>Jan 29 1949</u>	
5. SEX <u>Female</u>	6. COLOR OR RACE <u>White</u>	7. MARRIED, NEVER MARRIED, WIDOWED, DIVORCED (Specify)	8. DATE OF BIRTH (Month) (Day) (Year) <u>11-18-1874</u>
9a. USUAL OCCUPATION (Give kind of work done during major part of life, even if retired)	9b. KIND OF BUSINESS OR INDUSTRY	10. BIRTHPLACE (State for foreign country)	11. CITIZEN OF WHAT COUNTRY
12a. FATHER'S NAME	12b. MOTHER'S MAIDEN NAME	13. NAME OF HUSBAND OR WIFE	
14. WAS DECEASED EVER IN U.S. ARMED FORCES? (If yes, give date of service)	15. SOCIAL SECURITY NO. <u>[REDACTED]</u>	16. CAUSE OF DEATH (State only cause or causes for (a), (b), and (c))	
17. MEDICAL CERTIFICATION I. DISEASE OR CONDITION DIRECTLY LEADING TO DEATH: <u>Chronic Endocarditis; Aortic Stenosis</u> II. OTHER SIGNIFICANT CONDITIONS: <u>Fracture of Right Hip; Suffered when Deceased Slipped and fell to floor on Ward C-2 at St. Louis State Hosp.</u> III. MAJOR FINDINGS OF OPERATION: <u>on Jan. 17, 1949 Exact time [REDACTED]</u>			
18. DATE OF OPERATION	19. PLACE OF INJURY (e.g., in of home, in of factory, etc.)	20. CITY, TOWN, OR VILLAGE (COUNTY) (STATE)	21. TIME OF INJURY (Month) (Day) (Year)
22. I hereby certify that I attended the deceased from [REDACTED] to [REDACTED], and that death occurred at [REDACTED] from the causes and on the date stated above.	23. SIGNATURE (Name, degree or title) <u>[REDACTED]</u>	24. DATE SIGNED <u>2/7/49</u>	25. FUNERAL DIRECTOR'S SIGNATURE (Name, degree or title) <u>[REDACTED]</u>
26. BUBAL, CREMATION, REMOVAL (Specify)	27. DATE <u>FEB 28 1949</u>	28. NAME OF CEMETERY OR CREMATORY <u>Anatomical Boars</u>	29. LOCATION (City, town, or county) (State)
30. DATE REC'D BY LOCAL REG. <u>FEB 28 1949</u>	31. REGISTRAR'S SIGNATURE <u>J. B. Basater</u>	32. FUNERAL DIRECTOR'S ADDRESS <u>Rowland Mortuary Service 4104 Manchester Ave.</u>	

(Licensed Embalmers' Statement on Reverse Side)

Figure 3.2 Missouri Standard Certificate of Death

The 1940's and 1950's were periods of immense overcrowding across asylums nationwide. Fracturing a hip in a setting of care has implications for the type of environment that such a traumatic injury could occur. This particular patient's certificate of death did not record the amount of time she spent in the St. Louis City Sanitarium (previously known as St. Louis State Hospital) so it is impossible to quantify the time she spent institutionalized. Despite this, a fractured hip from falling on a ward that resulted in death provides insight into the conditions of the hospital. Several questions are raised

from this report: Did the patient receive immediate medical assistance? Why did the fracture result in death, especially in a curative setting? Where were the wardens or other employees to monitor and prevent this event? Although it is possible to overstate how this accident occurred and why it resulted in death, this study does not seek to provide definitive understandings of the experiences of these individuals, but rather, theoretically approach how the trauma present in this sample reflect signs of structural violence through a multidisciplinary approach.

A similar inquiry can be made for a patient at another hospital, State Hospital Number Three. This individual's certificate of death describes the cause of death as coronary disease (Figure 3.3).

Health & Welfare Public Service

FILED MAY 14 1957

STANDARD CERTIFICATE OF DEATH

Registration District No. 360 Primary Registration District No. [redacted]

1. PLACE OF DEATH State Hospital No. Three

2. USUAL RESIDENCE (Where deceased lived. If institution, Residence before)

a. COUNTY Vernon b. STATE Missouri c. COUNTY Jasper

3. CITY (If outside corporate limits, give TOWNSHIP only) Inside Limits Yes No d. CITY OR TOWN Joplin Inside Limits Yes No

4. FULL NAME OF (If NOT in hospital, give location) HOSPITAL OR NEVADA STATE HOSP. Length of stay in 18 INSTITUTION NO. THREE 40-0-23 e. STREET ADDRESS (If outside, give location) f. Reside on Form Yes No

5. NAME OF DECLARANT (Type or print) [redacted] 6. DATE OF DEATH Month 5 Day 6 Year 1957

7. SEX Female 8. COLOR OR RACE white 9. MARRIED NEVER MARRIED 10. DATE OF BIRTH 10-6-1889 11. AGE (In years last birthday) 67 12. IF UNDER 1 YEAR (In months, days, hours, min.) 4 20 15

13. USUAL OCCUPATION (Give kind of work done before most recent life, even if retired) 14. KIND OF BUSINESS OR INDUSTRY Missouri 15. BIRTHPLACE (City and state or country) U. S. A. 16. CITIZEN OF WHAT COUNTRY?

17. FATHER'S NAME [redacted] 18. MOTHER'S MAIDEN NAME [redacted]

19. WAS DECEASED EVER IN U. S. ARMED FORCES? (Yes, no, or unknown) 20. SOCIAL SECURITY NO. 21. INFORMANT admission papers, Address

22. CAUSE OF DEATH (Enter only one cause per line for (a), (b), and (c).)

PART I. DEATH WAS CAUSED BY: IMMEDIATE CAUSE (a) Arteriosclerotic Heart Disease

Conditions, if any, which gave rise to above cause (a): Atheromatous Sclerosis

PART II. OTHER SIGNIFICANT CONDITIONS CONTRIBUTING TO DEATH BUT NOT RELATED TO THE TERMINAL DISEASE CONDITION GIVEN IN PART I (a): Fracture Left Hip, 1-23-57. 4 20 15

23. ACCIDENT SUICIDE HOMICIDE 24. DESCRIBE HOW INJURY OCCURRED. (Enter nature of injury in Part I or Part II of item 18.) she slipped & fell on the ward, fracturing left hip.

25. TIME OF INJURY Hour 1-23-57

26. PLACE OF INJURY (e. g., in or about home, farm, factory, street, office, shop, etc.) 27. CITY, TOWN, OR LOCATION Nevada Vernon Missouri

28. INJURY OCCURRED WHILE AT NOT WHILE AT WORK 29. PLACE OF INJURY (e. g., in or about home, farm, factory, street, office, shop, etc.) HOSPITAL WELD

30. I attended the deceased from 4-25-55 to 5-6-57 and last saw her alive on 5-6-57

31. Date of death occurred as stated above, and to the best of my knowledge, from the cause stated above. 32. ADDRESS Nevada, MISSOURI. 33. SIGNATURE [redacted]

34. BIRTH, CREMATION, or BURIAL DATE 5-6-1957 35. NAME OF CEMETERY OR CREMATORY State Anatomical Board 36. LOCATION (City, town, or county) Joplin, MO

37. FUNERAL DIRECTOR 38. DATE REC'D. BY LOCAL REG. 5-6-1957 39. REGISTRAR'S SIGNATURE Anna E. Furry

40. ADDRESS 41. (Licensed Embalmer's Statement on Reverse Side)

Figure 3.3 Missouri Standard Certificate of Death

Like the previous patient mentioned, a contributing factor of death was a fracture of the left hip from falling on the ward. Short of five months after this accident, the patient died.

“The adverse outcomes associated with structural violence—death, injury, illness...come to have their ‘final common pathway’ in the material. Structural violence is embodied” (Farmer 2004:308).

3.4 “Death Experiences” of Structural Violence: Dissection

It has been suggested that structural violence is not isolated to lived experiences but can also extend and contribute to the “death experiences of social inequalities” (Nystrom 2014:2). Specifically, consideration is given to the manifestation of structural violence in the living as well as how the ultimate destiny of the dead and treatment of their bodies can reflect socio-cultural inequalities (Nystrom 2014:3). For example, bioarchaeological evidence of dissection demonstrate that structural violence and inequality can be embodied not only during life but also postmortem.

The bodies of the women in this study were left unclaimed by relatives and became property of the state. Avoiding burial at the expense of taxpayers, the bodies were willed to Washington University Medical School in Missouri where Dr. Robert J. Terry taught gross anatomy and eventually became the chair of the department (Hunt and Albanese 2005:406). (See Chapter 4: Materials and Methods for more detailed information concerning the history of the Robert J. Terry collection). The anatomical dissection of unclaimed bodies was not an uncommon practice and still occurs across developed and developing nations today (Nystrom 2014). Suggesting that dissection is inherently structurally violent is most obvious through the fact that poor and unclaimed individuals had little to no choice in the ultimate fate and destination of their remains. The absence of choice in a personal matter like death can reflect the inequality and marginalization they experienced during life.

I do not seek to undermine the heuristic purpose of gross anatomy dissection or the incomparable value in the collective sample of individuals from known backgrounds and causes of death like those housed in the Terry Collection. Albeit, it is important to remember that there are underlying reasons behind the presence of skeletal collections. Understanding the social history of anatomy and dissection provides insight into whose bodies most often became available for medical research and how this history informs contemporary operations of this practice. Jones and Whitaker (2012:247) describe how the dissection of unclaimed cadavers in the past has normalized the practice of conducting dissection on unclaimed rather than bequeathed bodies. Historically, the poor and marginalized could not afford hospital care or burial and thus the relatives of the poor went unclaimed and were ultimately dissected (Jones and Whitaker 2012). Dissection extended exploitation past life and into death. In the 20th century, the use of cadavers of the poor and marginalized was expanded to include the bodies of the mentally ill (Jones and Whitaker 2012:248). Dissecting the bodies of the poor and those whose mental states likely rendered them incapable of consent further problematizes the ethical dilemmas underlying whose bodies are vulnerable to exploitation in both life and death.

The aim of this section was to provide a more intimate description of the limitless boundaries of structural violence and the ways in which the women in this study were exploited. The recognition of the timeless and borderless reach of structural violence provides space for a critical interpretation of the often overlooked harm that is inflicted on marginalized and vulnerable populations.

3.5 Embodiment of Stress and Disease

The physical body is a biological culmination of embodied culture, society, and environmental elements that are often visible in skeletal remains (Martin et al. 2013). Embodiment is best understood in relation to how humans "...incorporate biologically—from conception to death—our social experiences and express this embodiment in population patterns of health, disease, and well-being" (Krieger 1999:296; Krieger 2005). In harmony with the biocultural model, the term 'embodiment' seeks to encompass how social, cultural, and environmental exposures can have direct impacts on our biological health.

Structural entities have the capacity to inflict harm upon the body in ways that are noticeable in both life and death. Scheper-Hughes and Lock (1987:8) have proposed that each person has three types of "shaped bodies" that reflect the types of lived realities they experience: the individual body, the socially informed body, and the body informed by structural forces, or the "body politic". The body politic refers to structural entities that have the capacity to control and alter individual experiences. Political forces contribute to the "...regulation, surveillance, and control of bodies (individual and collective) in reproduction and sexuality, in work and leisure, in sickness and other forms of deviance and human difference" (1987:8). The institution for the insane was constructed in order to control social order and rid society of those who were seen as disrupting order and morale. Institutions were devised and constructed by the "dominant social group...to materially enforce the patriarchal construction of gender" (Spencer-Wood 2009:33). Studying not only skeletal indicators of stress, but also historical and political forces that

informed artifacts of illness, creates a more nuanced interpretation of the plurality of embodied disease.

The prolonged institutionalization that the women in this research endured had irreversible effects on both their physical and psychological well-beings. Nineteenth and 20th-century social attitudes towards women and mental health specifically, shaped how women were perceived and treated within local and national contexts. Such attitudes impacted the increased likelihood of institutionalization. Once in the confines of the hospital, years depleted by overcrowded and underfunded environments had profound conditioning effects on how these women came to embody illness and suffering. The body should be understood as not only “in relation to culture but rather the subject of culture” (Csordas 1990:5). The study of the remains of those institutionalized in what came to be settings of neglect provides insight into how culture acted upon, and was ultimately embodied, within the women of this study.

3.6 Deviance and Discipline: The Power of the State

The sixteenth century brought into being a powerful political structure that still operates today: the state. The state slowly transformed traditional forms of discipline and power and devised a systematic employment of control (Foucault 1975). A search for control and social order was particularly potent in the late 19th and early 20th-centuries (Wiebe 1967). Societal efforts such as hereditary control through the Eugenics Movement as well as the increased rates of mental institutionalization demonstrate the desire to dispose of deviant individuals that threatened social order. These efforts became normalized through the dictated power of the state. In this sense, power should not be

understood as that which “conceals”, “abstracts”, or “represses”, but rather, as “producing reality and rituals of truth” (Foucault 1975:194). When considered in these terms, the invisibility and normalized nature of power is better understood. Institutional forces produce, dictate, and reproduce acceptable social action and through individual production and reproduction of tolerable behaviors, normality is reified. When there exists a norm to be measured against, deviation is quickly highlighted and often punished. Those who do not conform to societal standards either by choice or biological inhibition, are then viewed as individuals who require remedy and transformation. Asylums for the insane were erected for psychiatric study as well as social control to cure bodies of their supposed dysfunction and transform them into operating citizens.

The scientific perpetuation of women as hysterical and weak constructed a platform for female institutionalization and observation. The asylum was meant to serve as a “therapeutic operator” in order to modify individuals (Foucault 1975:170). The broader social seclusion, the architecture, the discipline, and the examination were to function to cure the individuals held within the asylum’s confines. Foucault suggests that “docile bodies” emerge from the structural attempt to “subject, use, transform, and improve” individuals (Foucault 1975:136). Docile bodies transpire as bodies that do not oppose structural forces. Instead of transforming to meet societal expectations, they become invisible through their isolation and docility.

The operative functions of institutions were thought to serve as a cure for mental affliction. “The hospital is the home for those who live in it and their lives, liberties, and happiness are largely in the hands of the controlling authority, for order must reign” (Cowles 1896:371). Within the asylum, the manifestation of order through discipline

could be seen as its primary goal. This intention was achieved through an overshadowing authority who ensured conformity.

Conformity was produced through mandatory patient labor. The prided self-supported economies of most asylums were largely due to patient work. Their duties included labor that ranged from farmhands and mechanics to laundry and tailoring without compensation. “The conduct of these essential parts of a great institution should be inspired by a controlling medical spirit” (Cowles 1896:371). Required labor was seen as serving to the institution, to the mental health of the patients, and teaching discipline.

In addition to patient labor, the design of the asylum medical examination in particular embodies a form of discipline as it constructed an unprecedented type of control over patients (Foucault 1975). Just as many women lacked control over their arrival to the asylum, their treatment stripped them of agency in a similar manner. Foucault suggests that “...the science of mental disease, as it would develop in the asylum...It would not be dialogue” (Foucault 1965:250). Patients did not get to choose which treatments they participated in. Instead they were at the control of the authority of the asylum and often received mandatory, experimental treatments throughout the 19th and 20th-centuries like drug regimens and electric shock therapy.

The state ultimately failed many individuals subject to its overcrowding and neglectful environment. Transformation and cure were never achieved for the individuals in this study and they ultimately endured years of institutionalization and died within its confines.

The following chapter shifts away from theoretical approaches to address the methods deployed in this study. Paleopathological methods and a historical description of the skeletal collection utilized are described. The osteological paradox (Wood et al. 1992) and its consideration in this research are also discussed. Accompanying paleopathological analysis with a theoretical framework of the social allows for a meaningful interpretation of the underlying reasons causing skeletal expressions of biological stress.

CHAPTER 4

MATERIALS AND METHODS

4.1 Methods

Data was gathered over a three-week period in June, July, and December of 2016 in the Robert J. Terry Anatomical Collection located in the Anthropology Division of the Smithsonian Museum Support Center in Suitland, Maryland. Demographic data were obtained through certificates of death. Biological data were collected based on skeletal indicators of overall health, stress, disease, and trauma. IBM SPSS Statistics Version 24 was used to chart and graph various components of the sample. SAS University Edition was employed to run analyses to determine the statistical significance of trauma and stress observed.

4.2 The Robert J. Terry Anatomical Collection

The Robert J. Terry Anatomical Collection is one of most extensively studied collections in the world, and has been used in a myriad of research and publications ranging from developing methods for age at death estimations, to paleopathological identification and interpretation (Hunt and Albanese 2005). The predominant reason that the Terry Collection has historically and continues to be heavily studied is because it is a well-documented collection. Various identifying and anthropometric documents are available for the 1,728 individuals housed in the collection. The change in ownership during the 57 years (1910-1967) of its active curation contributes to the inconsistency in

the amount and type of document accompanied with each skeleton (Hunt and Albanese 2005; de la Cova 2012).

Despite such, the primary necessary document for this research was available for each individual: the certificate of death. Certificates of death contain the years of birth and death and a likely cause of death as well as contributing causes. Death certificates also list the individual's known home or institution. In bioarchaeology, demographic information is almost never available or is limited at best. Therefore, the presence of known identifying information is unparalleled in value in a biological anthropology examination of skeletal health. In order to fully realize the broader impacts and possibilities of the Terry Collection, background information concerning its formation is imperative. A historical description of the Terry Collection is integral in understanding the reasons behind its development and the demographic information of the individuals it houses.

Robert J. Terry began medical training at the College of Physicians and Surgeons in New York in 1893 where he was introduced to George S. Huntington, who later became one of his mentors. Huntington was strongly interested in saving skeletons from the medical school's dissected cadavers and throughout his career, he managed to collect over 3,800 skeletons (Hunt and Albanese 2005). After leaving New York, Terry studied under Sir William Turner in Edinburgh, Scotland. Turner, like Huntington had been collecting skeletons of identified and documented cadavers. After Terry returned to the United States, he took a position as demonstrator of anatomy and twice tried to create his own skeletal collection. The first was destroyed by a fire and the second attempt proved futile possibly due to a lack of organization. Little information is known about either of

these early collections. In 1910, after becoming the chair of the anatomy department at what is now part of the Washington University Medical School in St. Louis, he attempted a third collection. His third attempt proved successful and by this time, he had developed extensive protocols for collecting and documenting the skeletons (Hunt and Albanese 2005).

The majority of the individuals that comprise the Terry Collection are unclaimed individuals from low socioeconomic backgrounds who lived and died in St. Louis and across Missouri. Since the bodies were unclaimed, they became property of the state and were willed to the medical school for dissection where Terry macerated and curated their bodies for skeletal collection. After Robert J. Terry retired in 1941, he passed the collection on to another anatomy teacher in at Washington University, Mildred Trotter, who continued to curate and actively add to the collection until her retirement in 1967. Before Trotter retired, she requested that the collection be permanently curated at the National Museum of Natural History Anthropology Department in Washington, D.C. It was accepted and then later transferred to a satellite warehouse at the Smithsonian Museum Support Center where Dr. David Hunt currently curates the collection (Hunt and Albanese 2005).

4.3 Sampling: Demographic and Biological Data Collection

The primary reason that the Terry Collection was chosen for this study is that based upon information derived from certificates of death, approximately 30% of the Terry Collection comprises individuals who were institutionalized across almshouses, state hospitals, and other state-funded institutional structures (de la Cova 2016).

Individuals of known backgrounds and ages as well as institutionalization in hospitals for the mentally ill could be confidently selected for. Euro-American women whose death certificates indicated that they were institutionalized in one of Missouri's State Hospitals, the City Sanitarium, The Missouri State School, or The St. Louis Training for over a year were chosen for this research. Ultimately, 53 Euro-American women with known institutionalization in mental facilities were selected and macroscopically examined for evidence of skeletal trauma and pathology.

After determination of demographic data to ensure institutionalization status, each skeleton was extensively macroscopically examined for overall health, evidence of accidental and chronic trauma, nutritional deficiencies, and pathology. Presence, absence and severity for these components were considered, measured, and scored using known paleopathological methods that are included in each subsection below. Photographs were taken of pathologies and fractures observed in each individual.

4. 4 Statistical Methods

IBM SPSS Statistics Version 24 was used for devising graphs for this sample. Analyses were processed with SAS University Edition to determine statistical relationships between nominal data. A non-parametric test, the Fisher's exact test, is employed to determine if there is a specific relationship between two independent variables. This test is used when the Pearson's Chi-square test is desired but the expected values within each data cell is below five. As the data in this sample does not exceed five across each cell and is relatively small, the Fisher's Exact test is best suited. This test provides a direct p-value and not a test statistic (Pagano and Gauvreau 2000).

In statistics, the p-value result requires interpretation and dictates the statistical significance of the values tested. The p-value indicates if the null hypothesis is accepted or rejected. In the case of Fisher's exact tests, the null hypothesis states that there is no statistical difference between the two variables tested. The test is set at a 95% confidence interval with $\alpha=0.05$. A p-value greater than 0.05 indicates an insignificant relationship, whereas a p-value less than 0.05 usually signals to reject the null hypothesis, or that there is a significant relationship between the two variables tested.

The Fisher's exact test is employed to determine if there is a relationship between institution and fracture presence. The test is also employed to determine if there is a link between age and fracture. Finally, the test is used to determine if a relationship between time institutionalized and fracture presence exists.

The following sections consider the methods used to determine presence and significance of fractures, porotic hyperostosis (PH) and cribra orbitalia (CO), dental caries and abscesses, hyperostosis frontalis interna (HFI), and Schmorl's nodes and how they were applied in this study. Before these methods are described, the osteological paradox is discussed to inform the reader of the potential difficulties that are considered when conducting skeletal analyses.

4.5 The Osteological Paradox

Examining pathologies present on bones provides unprecedented insight into how past populations interacted with their environments. Analyzing skeletal remains of past populations with the desire to reconstruct aspects of their lived experience does not come without its challenges. The "osteological paradox" was first raised by Wood et al. (1992).

The authors urged biological anthropologists and bioarchaeologists to critically consider demographic nonstationarity, selective mortality, and hidden heterogeneity in risks when interpreting skeletal indicators of stress and disease. It is important to consider demographic nonstationarity, or that individuals in a sample were likely not geographically stagnant and possibly lived in other locations aside from where they died. Additionally, paleopathological studies must consider that mortality is selective, and that there are always individuals who are more likely to die than others in a population. Furthermore, variability in susceptibility to death, or hidden heterogeneity, must also be taken into consideration after selective mortality is accounted for (Wood et al. 1992). These factors influence the rate of illness observed and the individuals affected and can skew interpretation of stress and illness within a population

Even in careful analyses, disease interpretation and representation may be misinterpreted or even overlooked (Siek 2013). Individuals that show signs of disease and stress on their skeletons may demonstrate these indicators because they survived long enough for the illness to manifest skeletally. Those who did not survive long enough may not express these same marks. Therefore, certain stress indicators may actually suggest a stronger ability to survive when faced with illness. Furthermore, it must also be considered that skeletal samples do not represent the entirety of a population as they are simply a fraction of the whole and population generalizations should not be asserted. This example is just one paradoxical illustration of the multiple difficulties of deducing understandings from skeletal remains.

In addition to the aforementioned three considerations raised by Wood et al. (1992), other limitations to disease and stress interpretation in skeletal samples exists. Limitations

include small sample sizes, poorly preserved skeletal remains and biases present in the collection itself (DeWitte and Stojanowski 2015). Studying disease and stress in past populations becomes even more complex when considering that many illnesses do not affect the skeleton which further constrains accurate inferences into past population health. Although there are plenty of diseases that do not penetrate and leave artifacts of their existence past damaging soft tissue, there are many that do which provides ample reason for continued paleopathological endeavor (Ortner 2003). Inconsistencies concerning diagnostic methods may also complicate paleopathological pursuits (DeWitte and Stojanowski 2015). The recognition of the breadth of limitations in paleopathological study encourages a critical eye when analyzing and interpreting skeletal health from past individuals.

4.6 Paleopathology: Trauma and Fractures

Broadly, trauma refers to injuries inflicted upon living tissue caused by “a force or mechanism extrinsic to the body” (Lovell 1997:139). Anthropologists, specifically bioarchaeologists, are particularly valuable in contributing to our understanding of violence and trauma due to their training in skeletal analysis as well anthropology’s broader cross-cultural and historical approach (Walker 2001:573). Decades of paleopathological study have provided rubrics for understanding how to distinguish between the types of traumas and fractures. This type of research serves as a reference book for interpreting fractures during osteological research. Studies in paleopathology have shifted away from a strict focus on descriptive qualifications of fractures and pathologies to how social and cultural processes contribute to fracture occurrence (Lovell 1997). The aim of this research was to contextualize the trauma found across the 53-

individual sample within the social, cultural, and environmental climates in which these individuals existed. *Trauma Analysis in Paleopathology* by Nancy Lovell (1997) and *Identification of Pathological Conditions in Human Skeletal Remains* by Donald Ortner (2003) were employed to determine fracture presence and type.

There are two predominant types of trauma: direct and indirect. Direct trauma is used to describe a break that results from direct impact whereas indirect trauma is a fracture that occurs in a location other than the exact point of impact (Lovell 1997). Direct trauma produces four types of fractures: transverse, penetrating, comminuted, and crush and indirect trauma can cause oblique, spiral, greenstick caused by angular and greenstick caused by compression, impaction, and avulsion (Lovell 1997). The type of resulting fracture depends of the point of impact based on how trauma occurs. Trauma infliction can be accidental.

There are varying time periods for fracture healing but healing always begins precisely after the injury occurs (Lovell 1997). There are five stages of healing per Adams (1987), Apley and Solomon (1993), and Paton (1984). During the first stage, hematoma formation occurs in the first 24 hours after the fracture. This stage consists of torn blood vessels clotting and fractured ends of bones dying due to lack of blood supply. The second stage is cellular proliferation and lasts approximately three weeks. This phase consists of osteoblasts depositing osteoids in order to push away the clotting and initiate reformation. The third stage is callus formation and lasts about three to nine weeks post-fracture. During this period, osteoids mineralize and the bone begins to callus. The penultimate stage is consolidation where lamellar bone emerges from the callused bone to unite the fracture. This stage is bone-dependent and can last several weeks or month. The

final stage is remodeling which consists of a fairly gradual reformation and regrowth of the bone to a similar form as the original. This stage takes six to nine years (Lovell 1997:145). Healing of fractures can also be dependent on the previous health conditions of the individual as well as ongoing disorders.

The analysis of fractures in this study predominantly considered presence and absence, healed or unhealed, and healed antemortem or perimortem. Presence and state of healing of fractures can indicate vulnerable situations in which the patients were involved, neglect, and a lack of access to proper routine and emergency care.

Determining whether the fractures were healed or healing contributes to understanding if the fracture occurred antemortem—before death, or perimortem—at or around the time of death. If the fracture is well healed, which can take up to nine years based on the five stage healing chart, then the individual well survived the fracture. If the bone was never set, or improperly set, this is obvious in healed remains. On the contrary, if the bone does not demonstrate signs of active healing, the individual died around the time of the fracture incident.

4.7 Nutritional Deficiencies: Porotic hyperostosis and Cribra orbitalia

Two of many aspects that can be inferred from skeletal remains are diet and overall nutritional status (Meyer 2016). A lack of adequate nutrition is often visible in various manifestations across skeletal remains. Porotic hyperostosis (PH) and cribra orbitalia (CO) are thought to be osteological disruptions caused by iron and vitamin C deficiencies, and anemia. Porotic hyperostosis is clearly visible on the outer table of the cranium as expressed in fine or large foramina depending on the severity. Similarly, cribra orbitalia

are foramina found on the superior portion of the eye orbits (Macadam 1989; Meyer 2016). Both foramina are thought to be caused by marrow hyperplasia and present as lesions in the bone due expansion of the spongy cancellous bone between the outer and inner layers of the cranium, or the diploë (Ortner 2003; Meyer 2016). Ortner (2003) and Stuart-Macadam (1989) were employed to detect PH and CO.

Although recognition of PH and CO are considered to be signs of poor nutritional health, specifically a lack of proper iron, vitamin C, as well as anemia, there is contention concerning its true etiology that is important to highlight here. The presence of PH and CO are undoubtedly pathological in nature but several scholars have suggested that iron deficiency does not cause bone marrow hyperplasia and therefore the lesions that are typical in these two pathologies cannot be a result of iron deficiency (Walker et al. 2009). Other scholars have countered this argument, suggesting that iron deficiency can in fact, cause hypertrophic lesions. What should be deduced from the debate over the origins of these pathological lesions is that there are likely multiple pathways, dietary and otherwise, that contribute to the manifestation of PH and CO. Underlying diseases, oral disruptions, and infections are just a few of the potential contributors (Meyer 2016). Although skeletal remains provide a unique understanding into how disease and stress processes affect our osteological constitution, it is important to provide differential diagnoses and multiple etiologies for particular pathologies that are not yet fully understood from a skeletal perspective.



Figure 4.1 Porotic hyperostosis on bilateral parietals, and occipital bones.
Photograph by Madeline M. Atwell.

4.8 Dental Caries and Abscesses

Teeth are the foremost bones to be preserved in the archaeological record. Due to this perseverance through time and environmental factors, teeth have proven to be of utmost importance in bioarchaeological study. Teeth contribute to reconstructing the lived experiences of past populations, particularly their diets and dental healthcare or lack thereof. In the absence of other bones to derive understanding of health, teeth provide unparalleled understanding into potential stress and diets of those extant in the past (Mayes 2016).

Teeth can inform us about childhood stress through the expression of linear enamel hypoplasias which disrupt enamel growth during development and leave lasting, distinct

lines of this disruption. Hypoplasias can then be measured to understand a general time frame of when stress and disruption affected the individual (Ortner 2003).

Tooth analysis is not isolated to understanding childhood experiences but can also provide insight into overall dental health throughout an individual's life through the presence and frequency of dental caries and abscesses. Dental caries, commonly known as cavities, are "active points of erosion caused by bacteria" and can extend to affect the root and result in infection and degradation, entire tooth decay, and subsequent loss of the teeth affected (Mayes 2016:752; Ortner 2003). Untreated caries that result in the bacteria degrading the most of the crown and root exposes the pulp chamber and creates an additional site for the manifestation of infection. Pollution of the pulp chamber almost always results in a dental abscess and destruction of the supporting mandibular bone (Ortner 2003).



Figure 4.2 Carious lesions, abscess (on left first incisor), and decay.
Photograph by Madeline M. Atwell.

In addition to abscesses, secondary effects include infection of the supporting tissue which eventually contributes to bone destruction and ultimately, bony sclerosis, or bone thickening. Chronic infection caused by caries can lead to an array of health issues including additional infections, bone deterioration and can be incredibly painful when left untreated (Ortner 2003:592). Dental abscesses are the result of prolonged untreated periodontal infection or trauma that contributes to tooth loss and subsequent bone remodeling (Ortner 2003). Edentulism, or the lack of teeth can also provide understanding into oral care.



Figure 4.3 Edentulous individual.
Photograph by Madeline M. Atwell.

If edentulism is present with significant bone remodeling or alveolar reabsorption, then the lack of teeth is indicative of either old age, or poor dental hygiene that resulted in

premature tooth loss. The presence of dental pathologies and edentulism was recorded for the 53 individuals in this study in order to highlight their overall dental health. More intricately understanding their oral well-being provides insight into the access they had to oral hygiene care and dentistry, as well as nutritional deficiencies and overall diet. Caries and abscesses are directly influenced by overall health, diet, culture, and access to food resources as well as routine dental hygiene resources and therefore offer a unique glimpse at capturing one aspect of their overall health.

4.9 Hyperostosis frontalis interna

Hyperostosis frontalis interna (HFI) is not nearly as documented or discussed like other skeletal abnormalities. Potential reasons for the lack of attention given to its presence is that many medical studies have deemed it innocuous and attribute it to hormonal effects on the frontal bone. Regardless, its etiology, osteogenesis, and demography are unknown so consideration of this condition is important as it may have larger significance than currently understood (Hershkovitz et al. 1999).

HFI is expressed as a thickening of the frontal bone of the skull and is thought to affect post-menopausal women although studies have found the condition present in pre-menopausal women as well as males, but at lower frequencies than older females (Bracanovic et al. 2016; Philips 1997). Contrary to past assertions, HFI is now considered to be an independent condition and not simply a symptom of a broader syndrome (Hershkovitz et al. 1999). Recent psychiatric and neurological studies have asserted that the presence of HFI has presented in the forms of depression as well as parkinsonism. Another study suggests that despite a lack of direct evidence between the correlation of

HFI and neurological disorders, HFI has been known to contribute to epilepsy, cognitive impairments, and headaches (Batun et al. 2015). With the advancement of computed tomography and other mechanisms in biomedicine, it is likely that continued research into HFI will contribute to a broader understanding of its etiology as well as its effects on the health of both living and past populations.

Much literature deems HFI as a nonspecific pathology. Medical research has also linked HFI within two other syndromes, Stewart-Morel syndrome and Morgagni syndrome (Phillips 1997). Stewart-Morel syndrome is usually attributed to pre-menopausal women and can also extend to men. Morgagni syndrome is usually associated with HFI in post-menopausal women. Insanity is the most significant symptom of both of these syndromes. In an archaeological investigation of the skeletons of mentally institutionalized individuals from a 19th-century New York almshouse, considerable HFI presence was detected across the sample (Phillips 1997). The interpretation of HFI across this sample was conducted in consideration of the effects of age and sex on the presence of HFI and the syndrome it is likely related to. This study highlights a bioarchaeological approach to understanding the complexity behind a frequently considered innocuous pathology. The presence of HFI across individuals in this sample may provide a starting point for understanding this biological non-specific pathology within a socio-cultural and environmental framework.



Figure 4.4 HFI visible on endocranial surface.
Photograph by Madeline M. Atwell.



Figure 4.5 HFI visible on endocranial surface of frontal bone of calvarium.
Photograph by Madeline M. Atwell.



Figure 4.6 HFI visible on endocranial surface of frontal bone of cranium.
Photograph by Madeline M. Atwell.

4.10 Chronic Trauma: Schmorl's Nodes

Schmorl's nodes are osteological lesions found on the vertebral body. Specifically, the nodes occur after prolapsed intervertebral disc material collapses into the vertebral body and can occur superior or inferior to the disk. (Faccia and Williams 2008; Ortner 2003). There is a slow process to Schmorl's nodes formation and emergence. The process begins with direct extrusion of nucleus pulposus material and then the fluid leaks into the break of the cartilaginous area and eventually erodes the vertebral body (Faccia and Williams 2008:30). The trabecular bone within the vertebral body then degenerates and a nodule develops in the absence of trabecular structure in the area that the fluid erodes. The vertebral body responds through the creation of an osseous barrier that prevents further degeneration. This completed osseous barrier is ultimately what is identified as a Schmorl's node (Faccia and Williams 2008).

Congenital spinal defects, traumatic events, and senescent processes are considered the three main contributors to the development of Schmorl's nodes (Faccia and Williams 2008). They are most often found in individuals who chronically strain or impose immense stress on the lower portion of their spine (Waldron 2009). The presence of Schmorl's nodes across individuals within this sample may not only reflect states of old age, but for younger individuals, can also reflect a particular lifestyle influenced by years within the confines of the institution. Presence or absence of Schmorl's nodes was recorded across individuals in the sample to document the presence and frequency of chronic trauma.



Figure 4.7 Schmorl's nodes on a thoracic vertebra.
Photograph by Madeline M. Atwell.

This chapter reviewed the materials and methods utilized in this study. The historical background of the Robert J. Terry Anatomical Collection was described in order to provide understanding into the development and demographic constitution of the collection. The background is also to contextualize the individuals housed within this

collection. Demographic and biological data sampling were described to explain how and why the sample specifically selected for Euro-American women housed across state-supported institutions for the mentally ill in Missouri. The osteological paradox (Wood et al. 1992) was described to preface how detection and interpretation of skeletal indicators of stress and trauma are approached in this study. Finally, methods to determine presence and significance of fractures, porotic hyperostosis (PH), cribra orbitalia (CO), dental caries and abscesses, hyperostosis frontalis interna (HFI), and Schmorl's nodes were described in the way they were utilized in this research.

CHAPTER 5

RESULTS AND DISCUSSION

5.1 Introduction

This chapter discusses results of the skeletal analysis of the 53 women examined in this study. General distributions are included to frame years of birth and death, the percentages of individuals housed in each institution, and the average number of years spent in each institution. Results for the presence of porotic hyperostosis (PH) and cribra orbitalia (CO), hyperostosis frontalis interna (HFI), Schmorl's nodes (SN), dental caries and abscesses, and fractures are also reported; the statistical results of each are considered. As a detailed analysis of each of the 53 individuals is outside the scope of this thesis, the discussion section is limited to three case studies to bring into focus themes of structural violence and embodiment.

5.2 Distribution of the Sample

Individuals examined in this study were institutionalized Euro-American women who were born between the years of 1851 and 1922; they died between 1935 and 1961. Figure 5.1 shows the distribution of birth and death years across the sample. The clustered years of death near 1960 likely reflect the dwindling number of individuals who were curated for the Robert J. Terry Anatomical Collection, as Mildred Trotter closed active curation in 1967 (Hunt and Albanese 2005). The youngest person is 38-years old and the eldest is 85 years of age. The mean age at death of the sample is 62.23 years.

Figure 5.2 displays the institutional distribution across the sample is concentrated in SH4 in Farmington, with 25 individuals (47.17%) institutionalized here. SH3 in Nevada held the next highest number of individuals, 11 (20.75%). SLCS housed ten women (18.87%) associated with this study. Three (5.66%) individuals lived in SH1, and MSS and SLTS held two individuals each (3.77%). This distribution likely reflects the counties the women originally lived prior to institutionalization as they were probably restricted to local hospitals within their closest geographical reach. The high numbers of individuals housed at SH3 and SH4 possibly reflect that they were two of the main state hospitals in Missouri. MSS and SLTS were training schools specifically for the feeble-minded and not generalized hospitals that treated mental disorders. The low number of individuals housed in these two institutions likely reflect this specificity.

Figure 5.3 displays average numbers of years hospitalized by institution. Unknown years of institutionalization exists for 11 individuals. Six time spans are unavailable for individuals that died in SLCS, one for SH3, two for MSS, one from SH4, and one from SLTS. The longest time spent institutionalized was 64 years in SLCS, with a 52-year span following in length at SH4. Of the known years of institutionalization, the least amount of time spent hospitalized was one year in SH1.

Distribution of Year of Birth and Year of Death (n=53)

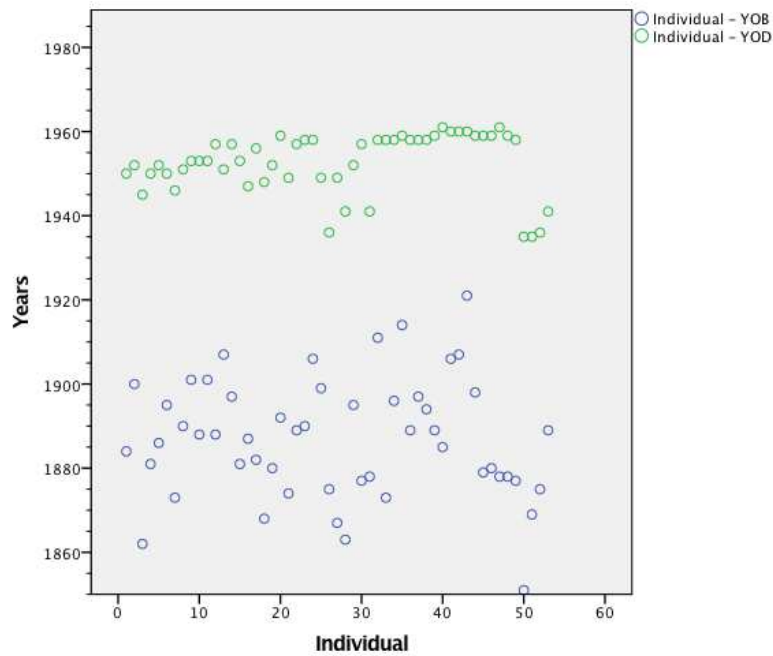
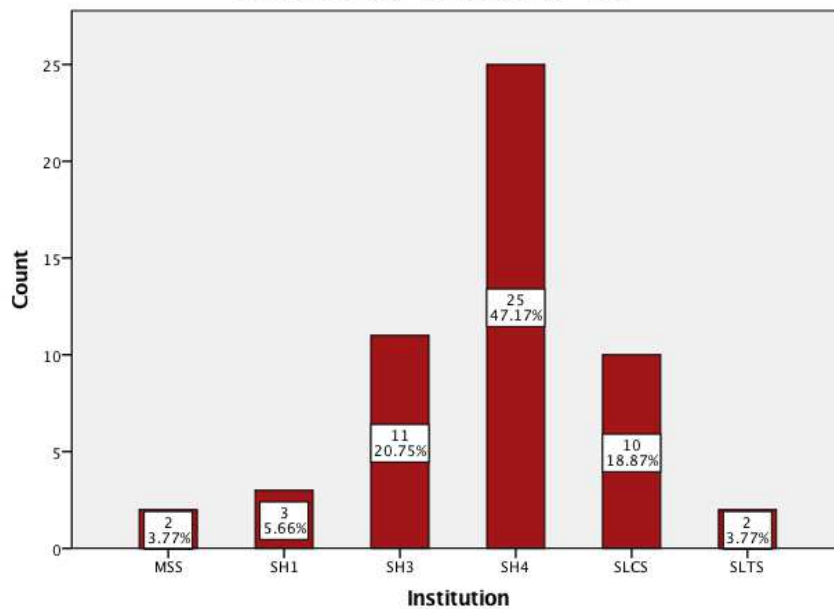


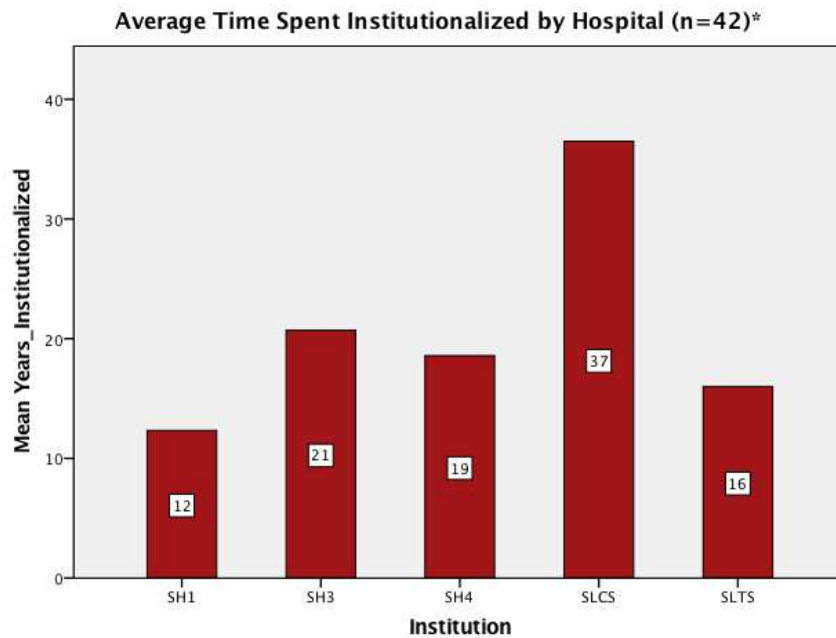
Figure 5.1 Distribution of birth and death years across the sample.

Distribution by Institution (n=53)



MSS= Missouri State School; SH1=State Hospital #1; SH3=State Hospital #3; SH4=State Hospital #4; SLCS=St. Louis City Sanitarium; SLTS=St. Louis Training School

Figure 5.2 Distribution of individuals by institution.



MSS= Missouri State School; SH1=State Hospital #1; SH3=State Hospital #3; SH4=State Hospital #4; SLCS=St. Louis City Sanitarium; SLTS= St. Louis Training School

*years unknown for (n=11)

Figure 5.3 Average time spent within each institution.

5.3 Pathology: Presence and Absence

Considering that PH and CO result from similar deficiencies, they are clustered together to determine their presence across the sample. Figure 5.4 displays that the presence and absence of PH and CO are very similar across individuals in this study. Approximately 26 (49.06%) individuals had no signs of PH or CO while 27 (50.94%) demonstrated the pathologies.

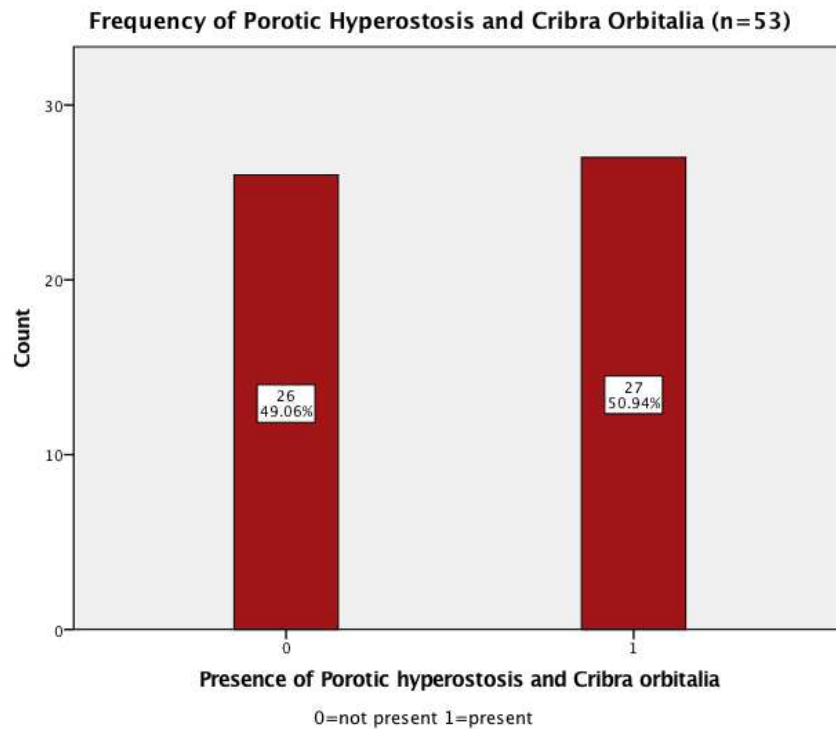


Figure 5.4 Presence and absence of PH and CO.

The individuals in this sample did not express a high frequency of HFI (Figure 5.5). Seven (13.21%) displayed signs of HFI while 46 (86.79%) individuals did not.

Schmorl's nodes is considered to understand the percentage of individuals affected by chronic trauma (Figure 5.6). A total of 37 (69.81%) patients presented SNs on one or more vertebra; 16 (30.19%) did not. Thus, the majority of the sample had SNs, suggesting that they experienced chronic trauma. As many of these individuals were older, they would have been more vulnerable to developing SNs due to a reduction in bone density (Faccia and Williams 2008).

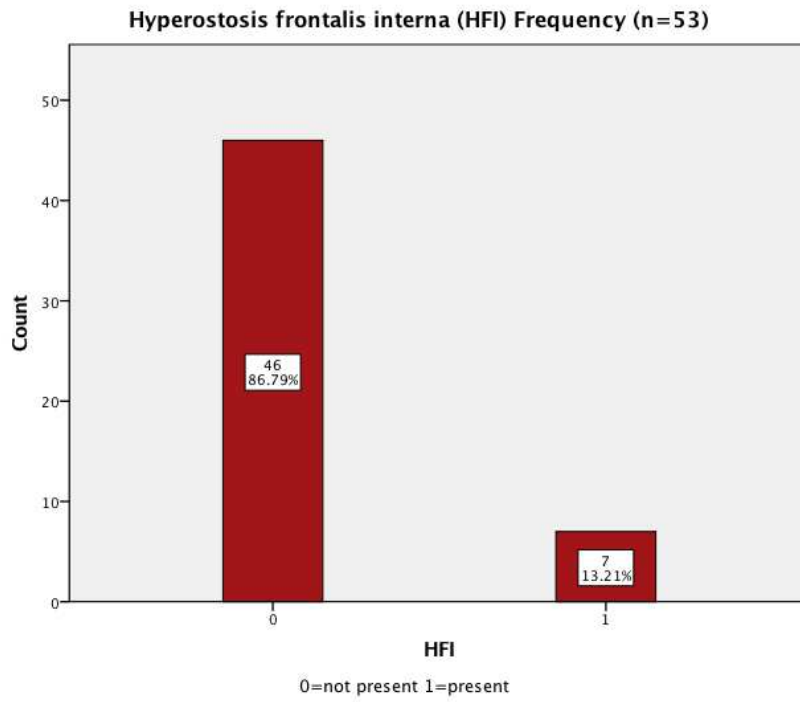


Figure 5.5 Presence and absence of HFI.

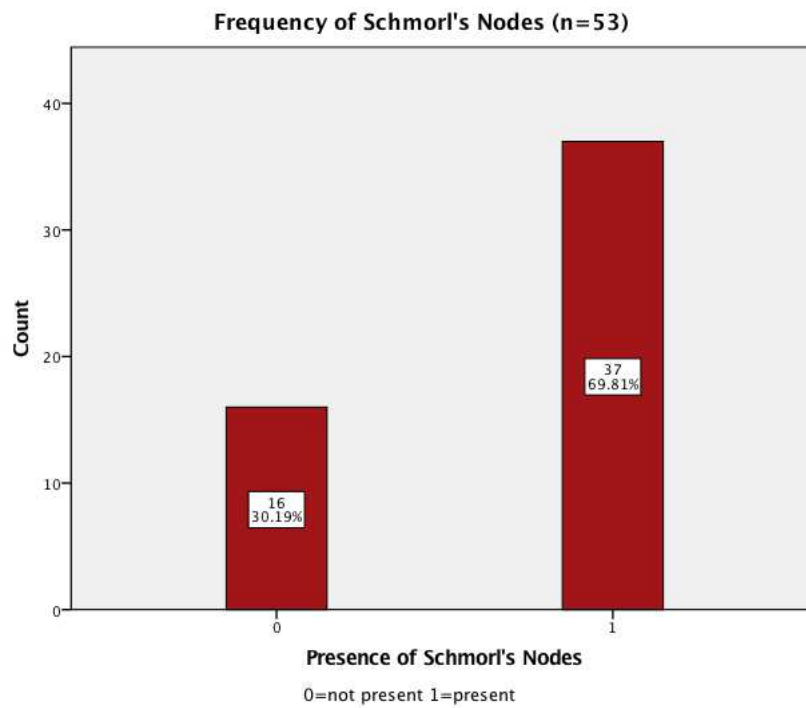


Figure 5.6 Presence and absence of SNs.

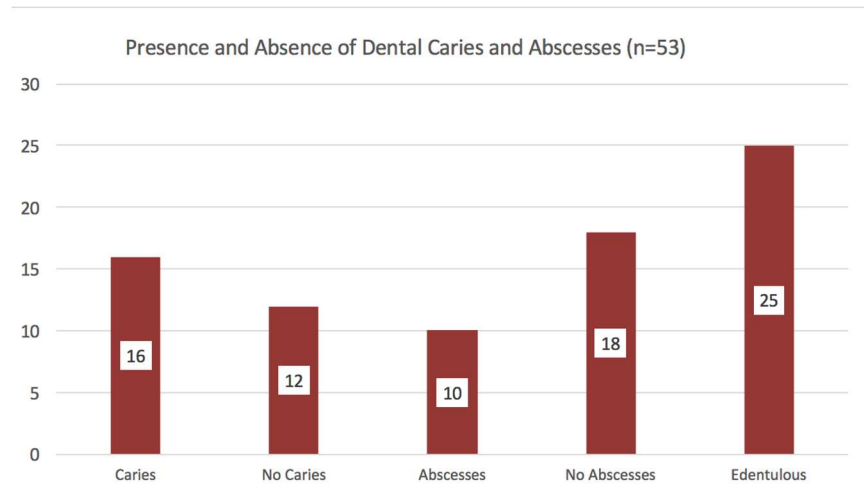


Figure 5.7 Presence and absence of dental caries, abscesses or edentulism.

Sixteen (30.19%) individuals had one or more dental caries while 12 (22.64%) did not (Figure 5.7). Ten (18.87%) patients had one or more dental abscesses and 18 (33.96%) did not. A large majority of the individuals (47.17%) were edentulous.

5.4 Fractures

Figure 5.7 displays the presence and absence of fractures within the sample. Of the individuals studied, 18 (33.96%) have at least one or more fractures while 35 (66.04%) show no bone trauma. There are 7.55% of individuals with fractures between the ages of 50-60, 15.1% between 60 and 70, 3.78% spanning between 70 and 80 and finally, 7.55% between the ages of 80 and 90. Two individuals had healed nasal fractures; seven suffered from one or more broken ribs for a total of 14. Four persons have fractured humeri, with one individual displaying bilateral humeral fractures (see: Case study one later in this chapter). This person also has one ulna fracture. Three individuals have broken radii. There are nine separate femur fractures, no fractures of the tibia, and one broken fibula.

Differentiating between antemortem and perimortem is imperative for a study concerning structural violence during institutionalization. Fractures that occurred perimortem, or around the time of death, certainly happened while institutionalized. Antemortem fractures may have occurred prior or during the patient's institutionalization. Based on the stage of bone healing, occurrence times can be approximated (Lovell 1997; Schindeler et al. 2008). All cranial, humeral, ulnar, and rib fracture were antemortem due to bone union and remodeling (Lovell 1997, 2008; Schindeler et al. 2008). Of the 18 patients with fractures, half of these individuals suffered from broken hips towards the end of their hospitalization. Seven of these hip fractures were perimortem; three of the patients died within a year of experiencing hip trauma. The statistical significance of these fractures is considered in the following section.

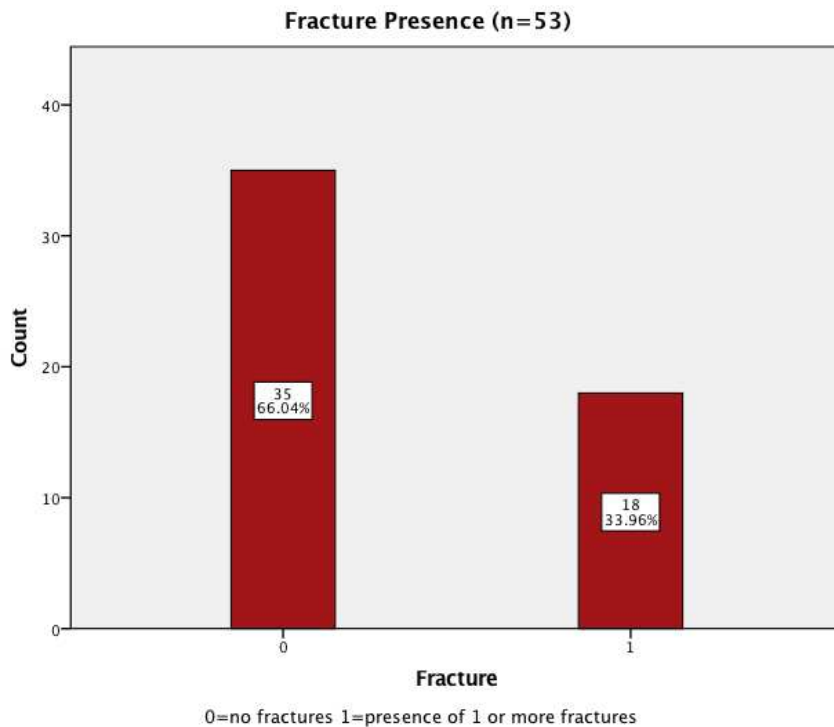


Figure 5.8 Presence and absence of fractures.

5.5 Statistical Significance

A Fisher's Exact test was performed to determine if there was a significant relationship between fracture occurrence and institution. Results indicated ($p=0.4657$) that there was no statistically significant difference between each institution and their rate of fractures (Table 5.2). However, these findings may have been affected by the small sample size.

Table 5.1 Fracture absence and presence by institution.

Institution	Fracture		
	No	Yes	Total
Frequency Percent			
MSS	2 3.77%	0 0.00%	2 3.77%
SH1	2 3.77%	1 1.89%	3 5.66%
SH3	8 15.09%	3 5.66%	11 20.75%
SH4	13 24.53%	12 22.64%	25 47.17%
SLCS	8 15.09%	2 3.77%	10 18.87%
SLTS	2 3.77%	0 0.00%	2 3.77%
Total	35 66.04%	18 33.96%	53 100.00%

Table 5.2 Fisher's Exact Test for institution by fracture.

Fisher's Exact Test	
Table Probability (P)	0.0018
Pr \leq P	0.4657

A Fisher's Exact Test was also run to determine if a relationship existed between age and fractures. The results were insignificant with a p-value of 0.0677.

Finally, the test was employed to confirm if a relationship was present between the number of years institutionalized and fracture. Since 11 individuals had unknown years of institutionalization, the effective sample size for these results is 42 instead of the full sample of 53. Three individuals with fractures are also missing from this analysis as their years of hospitalization are unknown. Thus, the sample size tested was 15 individuals with fractures and 27 without. Results, reported in Table 5.3, indicated a relationship existed between number of years institutionalized and fracture present ($p=0.0109$). These findings suggest that the number of years that an individual spent in the institution is correlated to fracture presence. The following discussion will discuss the relationship between these variables in more depth and consider them within the theory of structural violence.

Table 5.3 Fisher's Exact Test for years institutionalized and fracture presence.

Fisher's Exact Test	
Table Probability (P)	<.0001
Pr <= P	0.0109

5.6 Discussion: Pathologies

Approximately 50.94% persons examined in this study demonstrated pathological lesions indicative of PH or CO; 49.06% did not. The presence of PH and CO can suggest the existence of disease or nutritional deficiency, but do not provide insight into any one particular illness (Ortner 2003:82). For instance, PH and CO are considered to be osteological disruptions caused by deficiencies of iron, or vitamin C, or both. Anemia is also associated with these pathologies. In order to devise a specific analysis of the etiology of the expression of PH and CO in this sample, further microscopic investigation would be needed.

Although specific etiology cannot be determined without further investigation, the presence of these pathologies is a starting point for understanding broader implications of institutionalization. The existence of these pathologies provides insight into the likely nutritional inadequacy that just over half of the individuals in this study skeletally

expressed. One of the patient's death certificates reported death from pneumonia and inanition, or exhaustion from a lack of appropriate nutrition or starvation. Inanition may have been isolated to her individual experience, but the presence of PH and CO likely indicate a broader trend of nutritional deficiency.

There could be several culprits to explain the pattern of nutritional deficiencies including institutionally provided meals with insufficient nutrients. For example, in September of 1950, the Illinois Society for Mental Hygiene's committee urged for improvement in the quality of state hospital meals. They cited a lack of necessary dieticians available to advise hospital staff on appropriate nutritional quality and quantity. The committee also recommended providing adequate equipment for food preparation, as it was not infrequent for kitchen apparatuses to break and never be replaced. Their suggestions strongly pointed to the need for a diverse food selection in place of the "no-choice" meal system that likely contributed to high wastes, as many patients avoided eating the redundant offerings (Chicago Tribune 1950). This example was not isolated to state hospitals in Illinois, but was a common theme across institutions nationwide.

At SH1, it was required that attendants frequently check in on patients during dining times to ensure their food was not shared or left uneaten (Lael et al. 2007:99). As the number of patients vastly exceeded employees, it is likely that strict oversight was not maintained. It was also not uncommon for meals to deviate well away from the stated menu list. For instance, in one Connecticut state hospital, an attendant noted, "One morning in August 1944, when the patient's breakfast menu called for Maltex and soft-cooked eggs, the patients got merely Maltex [wheat cereal]. That night instead of a menu-listed ration of 'macaroni, tomatoes and cheese' their supper consisted of nothing but

lima bean soup” (Maisel 1946:110). Monotony and inadequate nutritional quality in meals served was unfortunately commonplace across state hospitals.

The individuals in this 53-person sample do not express a particularly high frequency of HFI presence. Due to the relatively small sample size of this study, the significance of HFI may not be fully expressed but the results are still worthy of consideration, and can be interpreted in many ways. For one, HFI usually affects post-menopausal women more frequently than those who are pre-menopausal or male. As most of the individuals in this research are post-menopausal (mean age=62.23), this understanding does not apply for the majority of the sample. Furthermore, HFI expression is often deemed innocuous although its etiology is not yet fully understood (Hershkovitz et al. 1999). Other scholars suggest it is associated with increased rates of depression and psychoses (Batun et al. 2015; Phillips 1997).

Although the significance of HFI is debated, the association between the pathology, depression, and psychoses are important. Its presence in 13.21% of the sample suggests that future studies into the impacts of institutionalization on skeletal health should be considered. As more research is conducted on HFI in living individuals and the link between HFI, “insanity” (Phillips 1997), and depression become more understood, skeletal populations of the past may be able to provide further insight into the etiology of HFI. Furthermore, the insight gained from clinical research into HFI and mental disorders may shed light on the lived experiences of past, as well as future, populations.

Schmorl’s nodes slowly emerge from consistent stress to the vertebral column. Specifically, nodules in the vertebral body occur as a response to trabecular bone

degeneration from frequent overwhelming pressure (Faccia and Williams 2008:30). Individuals who impose chronic strain on their lower backs usually demonstrate SNs (Waldron 2009). Therefore, the presence of SNs indicates signs of chronic stress to the vertebral spine due to congenital spinal defects, traumatic events, senescent processes or a combination of these variables.

The results indicate that 69.81% of the individuals studied display signs of one or more SNs; 30.19% did not. There are two possible reasons for this high frequency. For one, persons that comprise this sample are generally older and were undergoing processes of senescence processes that resulted in gradual weakening of bones. Therefore, chronic trauma is more likely to be present on their skeleton. However, four individuals with SNs were below the age of 50, suggesting that the impact of SNs was not isolated to the aging members in this sample.

Secondly, as described in the first chapter of this thesis, patients were often required to engage in labor for successful operation and maintenance of the institution. Women were expected to engage in bookkeeping, sewing (to repair linens and clothes), and operate the laundry facilities responsible for the entirety of the institution's linens. These were no small tasks as the production occurred on a large-scale. Laundry duties were manual labor that involved hand-scrubbing linens, rinsing, and drying them (Lael et al. 2007:130). Bookkeeping and sewing required the women to sit for long shifts. It is also important to consider the inactivity of individuals who did not engage in manual labor. After hospitals became overcrowded, there was less assigning of duties and more drug-induced sedation which caused inactivity and more sitting. Each of these tasks can put considerable strain on the lower back when engaged in chronically and for lengthy

spans of time. Therefore, the high rate of Schmorl's nodes presence may reflect mandatory patient labor in addition to increased sedation.

Dental caries and abscesses can provide insight into oral and overall health. Nearly half of the individuals in this sample were edentulous, rendering tooth decay unobservable among this group. Among the sample containing teeth, 30% of individuals had one or more dental caries; 19% of individuals had abscesses. Of the 16 patients with dental caries, ten had decay that led to one or more abscesses.

These results suggest that access to dental healthcare within the institutional settings was either not available to patients or not advanced enough to provide preventative or reparative treatment. Basic oral hygiene practices had become available in the last decade of the 19th-century. By the 20th-century, dental care routines were well known, and toothbrushes and paste were inexpensive and accessible. It cannot be ascertained why the women who were non-edentulous in this research reflect overall poor dental health within a setting of care. It can be hypothesized that their low socioeconomic status throughout life influenced their inaccessibility to adequate oral hygiene. It is also possible that the institutions did not provide toothbrushes, enforce this hygiene practice, or offer routine dental treatment.

Tooth decay and disease is not isolated to oral health, and can affect an individual's overall well-being as dental caries can quickly progress into sites of infection (Ortner 2003). Additionally, dental decay is significantly painful. The disregard of the oral health of the women in this research suggests an overall pattern of neglect within the hospitals. If a practice as simple as oral healthcare was omitted from concern, what can

be inferred about the institutional caregiver's attention to other health issues affecting these patients?

5.7 Fractures: Antiquated Equipment, Overcrowding, and Abuse

Fractures are particularly important to the questions guiding this research, especially in regard to understanding structural violence. Skeletal remains containing fractures provide insight into the environments and encounters individuals endured during life. The presence of broken bones on 18 patients in this study reflect contexts that increased their risk of stress, disease, and trauma. Modern forensic interpretation often includes multiple alternative hypotheses to trauma presence and cause of death; paleopathological analysis operates in the same manner (Harrod et al. 2012:99). Although uncovering the cause of broken bones and their relationship to violence is not without considerable challenges, this section discusses several hypotheses for interpreting the fractures observed in this research.

The statistical results suggest that there is a relationship between fracture presence and the number of years spent institutionalized. The mean amount of time spent institutionalized by individuals with fractures is 17.33 years; the lengthiest stay at 43 years within SH4, and the least amount of time at two years also in SH4. These results suggest that patients became more vulnerable to incidents of trauma the longer they were confined within the institution. It could be that the patients became more susceptible to fractures as they aged. It is also possible that the prolonged exposure to overcrowding and neglect increasingly placed these patients in situations of harm. As Dr. G Wilse Robinson Jr. once wrote in a 1954 evaluation, "...the only thing wrong with the Missouri

State Hospital system is a lack of sufficient funds to provide satisfactory humane and modern treatment” (Robinson 1954:783).

Antiquated equipment and buildings coupled with overcrowding posed serious threats for the patients housed across Missouri’s institutions. For example, in 1918 SH4 was reported to have outdated and potentially dangerous equipment. *The Farmington Times* wrote:

A full membership of the State Tax Commission...visited State Hospital No. 4 Tuesday on an official tour of inspection The Commission made a thorough inspection of the different buildings, and found that after a period of eighteen years...that a certain state of decay has set in on some parts of the buildings...As no repairs have ever been made, such a condition was to be expected. The Commission also verified...in regard to the over-crowded condition of many of the ward buildings, and recommended the erection of four new buildings at the earliest possible time...however...it was by no means certain as to just how soon such needed improvements...could be made. They also found the machinery in the power house to be in bad condition...They therefore recommended a full equipment of up-to-date new machinery... (*The Farmington Times*, 1918).

In addition to patients having exceeded capacity, the equipment on SH4’s grounds were not up to the most recent standards. Although suggestions were made to provide funding for these issues to be remedied, the population at SH4 continued to increase and it is unclear in this report, how quickly additional buildings were to be added. SH4 was not an isolated example.

In 1903, *The St. Louis Republic* reported on the conditions found within SLCS. The section was titled “St. Louis Insane Asylum is Subject of Sharp Remarks...Sixteen Hundred Patients Herded in Unhealthy Fashion”. Members of the General Assembly

conducted annual reviews across the nineteen state institutions and were particularly concerned over the conditions found within the St. Louis Insane Asylum. The report reads:

Here, a building intended for the accommodation of 250 patients, we found crowded in 675 human beings bereft of reason... The long corridors between the sleeping rooms are used by the patients during the day, but they are so crowded that the air in them is of necessity foul. Every inch of available space in the sleeping-rooms is filled with beds, yet many sleep on the floor as a result of the overcrowded condition. A temporary wooden building has been erected, and in this we found ninety-two patients, equally as badly crowded. (*The St. Louis Republic*, 1903).

The General Assembly discovered nearly three times the amount of individuals that SLCS was constructed to house. Overcrowded conditions produce an array of problems associated with sanitation, disease, stress, and the lack of access to resources. This excerpt reveals that the air quality was questionable and many patients went without a proper bed. The setting described by this committee provides direct insight into the conditions within SLCS. It is clear that this institution became one of patient maintenance rather than treatment for recovery.

Patient abuse was frequently uncovered across state hospitals. In July 1944, SH3 was investigated concerning a recent death of a male patient. His autopsy revealed that “he had been beaten severely a short time before his death” (Maisel 1946:105). The attendant responsible for this murder was sentenced to five years in a state penitentiary. Despite uncountable charges pressed against state hospital attendants across the nation, it was not uncommon for attendants to be expelled from one hospital and hired at another. It appears that little attention was given to the backgrounds of these undertrained and underpaid hospital employees which often led to avoidable patient abuse.

Not all institutional abuse included direct or explicit violence. One magazine writes, "...far more frequent than beatings are endless cruelties involved in the use of restraints" (Maisel 1946:107). The use of physical restraints was supposed to be isolated to the most uncontrollable cases, executed by a doctor's orders, and reported. This protocol was seldom followed. In 1944, a state hospital in Pennsylvania revealed, "sheet restraints are used considerably but never reported; the usual practice for the first half of hydrotherapy (female) is to put patients tautly in restraints with hands above heads, often causing immobility of arms when restraints are removed..." (Maisel 1946:108).

The statistical relationship between fracture presence and time institutionalized could be explained by an increased exposure to outdated equipment, overcrowding, neglect, and abuse. These factors presented patients with potentially hazardous obstacles or environments including poor sanitation, increased exposure to disease and stress, and an impediment to appropriate resources and professional care. Each of these variables are considered structurally violent as they exposed these patients to environments that decreased their quality of life and increased their risk of injury and death (Farmer 2004).

5.8 Disease and Illness: Pneumonia, Tuberculosis, and Syphilis

One of the pitfalls of studying skeletal remains to gain insight into the health of past populations is that not all diseases affect the skeleton and not all individuals live long enough for disease to manifest skeletally. This can lead to an inaccurate or biased interpretation of the sample (Wood et al. 1992). Although this study focused on revealing the biological impact of institutionalization through skeletal analysis, attention was also devoted to the invaluable information present within archival documents and death

certificates. Combining a cultural, historical, and skeletal approach provides a more complex understanding of the lived experiences of these patients.

In an analysis of the patient's death certificates, there were nine cases of terminal pneumonia, five instances of fatal tuberculosis, and three cases of syphilis. Pneumonia is an infection of the lungs that can affect anyone. Children, the elderly, and those experiencing chronic infection are particularly susceptible to the illness. Both viral and bacterial pneumonia are treated with antibiotics (Steel et al. 2013). Of the pneumonia related deaths, one was listed as hypostatic pneumonia which is thought to be the result of fluid collection in the lungs due to immobility (Traver 1974). Pneumonia can be treated with antibiotics. These nine cases, particularly the instance of hypostatic pneumonia suggest that the hospitals did not have access to the proper medication to treat pneumonic cases. Furthermore, pneumonia is a progressive illness. If caught early and treated appropriately, the patient can recover. The fatality caused by these cases, coupled with the knowledge of overcrowding and neglect that was pervasive across these hospitals, indicate that the infection was not detected early enough for treatment to have effect, or was simply never treated.

Syphilis is a sexually transmitted infection (CDC, 2016). It is treated with penicillin or a combination of other antibiotics. When left untreated, it can progress through three stages, of which the final stage concludes in death. Within this sample, the presence of syphilis was reported for a patient from SLTS, and two patients from SH4. The patient housed at SLTS was reported to have latent syphilis with a positive blood test report in 1932, but was negative at the time of her death in 1960. The negative results indicate that she either received treatment or the disease had advanced to the tertiary

stage. The death certificates of the patients from SH4 both indicate “psychosis with syphilitic meningo-encephalitis”. Syphilitic meningitis results from untreated syphilitic infection and can cause a severe lack of mental clarity and seizures (Merritt and Moore 1935). As one patient died in 1947 and the other in 1952, and medical treatments concerning this disease were well-known even ten years prior; it is dubious that these patients endured unnecessary, prolonged suffering from this infection (Merritt and Moore 1935).

Tuberculosis (TB) was reported on five of the patient’s death certificates. TB is an infectious bacterial illness that most often targets the lungs, but can affect other areas of the body. It can be treated with anti-tubercular drugs or prevented with a vaccine (CDC, 2016). Although the vaccine was not widely used until after World War II, it was available earlier in the 20th-century. Antibiotics were also available to treat those infected with TB during this period. Each of the five individuals whose death resulted from TB, died in the late 1950’s, almost a decade after the widespread use of the vaccine and anti-tubercular drug treatment. These patient’s deaths raise questions concerning the treatment provided across these institutions, specifically SH4 and SLCS, where these patients lived.

Four of these patients were housed at SH4 where a building designed solely for the treatment of TB had been constructed in 1915. The year that this hospital was constructed, *The Farmington Times* wrote:

The Board of Managers of State Hospital No. 4...passed a resolution naming the new Tubercular Building, which was recently erected for the retention of patients afflicted with tuberculosis... (*The Farmington Times*, 1915).

These patients were either admitted with TB or fell terminally ill during their institutionalization. Either scenario is questionable as anti-tubercular treatment existed at the time and should have been available to treat patients at the hospital. Furthermore, SH4 was equipped with a hospital facility specifically for the treatment of TB.

The presence of pneumonia, TB, and syphilis across 16 patients in this research indicates an absence of adequate care within Missouri's institutions. Historical documents describing overcrowding, poor sanitation, and outdated equipment suggest that these treatable conditions were likely overlooked. If they were noticed, the illnesses had progressed too far or the hospital lacked adequate treatment during an era where proper medicine was widely available. Despite these individuals living in a curative setting, they ultimately died of preventable and treatable illnesses. At these patients were wards of the state, they had little influence over their own health. Their death is to be attributed to the indirect abuse and neglect of the state.

5.9 Case Study One

Individual one was born in 1901 and died at age 52, after thirteen years, nine months and fifteen days institutionalized in State Hospital Number Four (SH4) in Farmington. Her skeleton displayed injury recidivism that included multiple healed and healing fractures. Two of the patient's left ribs were broken in three separate locations (Figures 5.9; 5.10). Furthermore, the right proximal portion of her femur at the femoral neck was fractured and improperly healed (Figures 5.11; 5.12; 5.13). The patient's left humerus was broken at the humeral head (Figures 5.14; 5.15), as well as the right humerus at the

distal end (Figure 5.16). Finally, her right ulna displayed a fracture at the proximal end (Figure 5.17).



Figure 5.9 Three healing fractures on two left ribs.
Photograph by Madeline M. Atwell.



Figure 5.10 Calloused fracture.
Photograph by Madeline M. Atwell.



Figure 5.11 Femoral neck fracture.
Photo by Madeline M. Atwell



Figure 5.12 Anterior view of femoral fracture.
Photo by Madeline M. Atwell



Figure 5.13 Posterior view of femoral fracture.
Photo by Madeline M. Atwell



Figure 5.14 Anterior view of fracture at head of left humerus.
Photo by Madeline M. Atwell



Figure 5.15 Posterior view of fracture at head of left humerus.
Photo by Madeline M. Atwell



Figure 5.16 Anterior view of fracture at distal end of left humerus.
Photo by Madeline M. Atwell



Figure 5.17 Lateral view of fracture on proximal end of right ulna.
Photo by Madeline M. Atwell

As indicated by the six distinct long and flat bone fractures present on the individual's skeleton and their states of healing, it is clear that this individual suffered from a traumatic, or several traumatic, events that they survived. The rib fractures show signs of active healing as there are calloused formations around the site of injury. The left humerus and right femur fractures indicate improper setting, as the bones did not heal or unite properly. Her certificate of death does not provide further insight into the time or cause of these fractures. She ultimately died due to "acute hemorrhagic nephritis" which is a sudden inflammation of the kidney that usually follows scarlet fever. Other significant conditions include "psychosis with epilepsy" (Figure 5.18).

THE DIVISION OF HEALTH OF MISSOURI
STANDARD CERTIFICATE OF DEATH

No. 300
10-48

FILED JUL 13 1953

BIRTH NO. 124 REG. DIST. NO. 316 PRIMARY REG. DIST. NO. [REDACTED]

1. PLACE OF DEATH
a. COUNTY **St. Francois**
b. CITY (If outside corporate limits, write RURAL and give township) **Farmington Rural St. Francois**
c. LENGTH OF STAY (If not in hospital or institution, give street address or location) **1317 1/2 S. 1st St. DeSoto**
d. FULL NAME OF HOSPITAL OR INSTITUTION **Missouri State Hospital No. 4**
e. STREET ADDRESS (If rural, give location) **DeSoto**

2. USUAL RESIDENCE (Where deceased lived. If institution: residence before admission).
a. STATE **Missouri** b. COUNTY **Jefferson**
c. CITY (If outside corporate limits, write RURAL and give township) **DeSoto**

3. NAME OF DECEASED
a. (First) [REDACTED] b. (Middle) [REDACTED] c. (Last) [REDACTED]

4. DATE OF DEATH
(Month) (Day) (Year)
June 20, 1953

5. SEX **Female** 6. COLOR OR RACE **White** 7. MARRIED, NEVER MARRIED, WIDOWED, DIVORCED (Specify) **Widowed** 8. DATE OF BIRTH **March 12, 1901** 9. AGE (In years, months, days) **52 3 8**

10a. USUAL OCCUPATION (Give kind of work done during most of working life, even if retired) **None - House work at home.** 10b. KIND OF BUSINESS OR INDUSTRY **at home.** 11. BIRTHPLACE (City and State or Foreign Country) **St. Louis, Missouri** 12. CITIZEN OF WHAT COUNTRY? **U.S.A.**

13a. FATHER'S NAME [REDACTED] 13b. MOTHER'S MAIDEN NAME [REDACTED] 14. NAME OF HUSBAND OR WIFE [REDACTED]

15. WAS DECEASED EVER IN U.S. ARMED FORCES? (Yes, no, or unknown) (If yes, give war or dates of service) **No** 16. SOCIAL SECURITY NO. **Unknown** 17. INFORMANT'S SIGNATURE OR NAME **Records, State Hospital No. 4, Farmington Mo.** ADDRESS [REDACTED]

18. CAUSE OF DEATH
Enter only one cause per line for (a), (b), and (c)
1. DISEASE OR CONDITION DIRECTLY LEADING TO DEATH* (a) **Acute hemorrhagic nephritis - - - - - 1 mo. illd.**
ANTECEDENT CAUSES
Morbid conditions, if any, giving rise to the above cause (a) stating the underlying cause last.
DUE TO (b) **Unknown.**
DUE TO (c) _____
2. OTHER SIGNIFICANT CONDITIONS **Psychosis with epilepsy.**
Conditions contributing to the death but not related to the disease or condition causing death.

19a. DATE OF OPERATION _____ 19b. MAJOR FINDINGS OF OPERATION **590x** 20. AUTOPSY? YES NO

21a. ACCIDENT, SUICIDE, HOMICIDE (Specify) _____ 21b. PLACE OF INJURY (e.g., to or about home, farm, factory, street, office bldg., etc.) _____ 21c. (CITY, TOWN, OR TOWNSHIP) (COUNTY) (STATE) _____

21d. TIME OF INJURY (Month) (Day) (Year) (Hour) (Minute) _____ 21e. INJURY OCCURRED WHILE AT WORK NOT WHILE AT WORK 21f. HOW DID INJURY OCCUR? _____

22. I hereby certify that I attended the deceased from **May 9, 1953**, to **June 20, 1953** that I last saw the deceased alive on **June 20, 1953**, and that death occurred at **6:40 P.M.**, from the causes and on the date stated above.

23a. SIGNATURE (Degree of title) **[Signature]** 23b. ADDRESS **State Hospital No. 4, Farmington, Mo.** 23c. DATE SIGNED **6-21-53**

24a. BYRICAL CREMATION REMOVAL (Specify) **Removal** 24b. DATE **6-25-53** 24c. NAME OF CEMETERY OR CREMATORY **Anat. Dept. Washington Univ., St. Louis, Missouri** 24d. LOCATION (City, town, or county) (State) _____

DATE RECD BY LOCAL REG. **JUNE 21, 1953** REGISTRAR'S SIGNATURE **[Signature]** 25. FUNERAL DIRECTOR'S SIGNATURE **Cozean Funeral Home, Farmington, Mo.** ADDRESS _____

(Licensed Embalmer's Statement on Reverse Side)

WRITE PLAINLY—USING UNFADING BLACK INK—MAKE A PERMANENT RECORD

Figure 5.18 Missouri Standard Certificate of Death for Patient One.

Each of these fractures is healed with the exception of the ribs, so it cannot be certain that they occurred while institutionalized. Full fracture healing takes between six and nine years so it is possible that these bones were broken and healed while this patient was institutionalized (Lovell 1997). The calloused bone growth around the fracture area on the ribs indicate that these fractures did occur during hospitalization. Although it is not within the scope of this research to discover exactly what this patient experienced before her almost fourteen years of institutionalization (hospitalized from age 38 to 52), it can be deduced that trauma occurring at such a high frequency has considerable implications

about the events she may have been exposed to, as well as the lack of ongoing and urgent medical attention that she clearly required.

The humeral and ulnar fractures suggest a likelihood that her radius was dislocated. The improper healing of the humeral head indicates that she had significant shortening of her arm which very well could have impeded movement during life. At the very least, these injuries were uncomfortable for her years after the injury occurred. The presence of healing broken ribs suggest that this patient fell during institutionalization, or incurred an instance of interpersonal violence (Harrod et al. 2012; Lovell 1997)

5.10 Case Study Two

Patient two lived at SH4 for 29 years, 17 days, “fell on ward of [the] mental hospital” and fractured her right hip. She ultimately died of a “coronary occlusion”, or heart attack, two months later at the age of 80. Not reported on the certificate of death was a perimortem compression fracture of the head of the right radius.

Concurrent hip and radial fractures are frequently associated with the aging population (Fernandez and Jupiter 1996). The presence of right femoral and radial fractures likely indicates that instead of using her hand to catch herself, she fell directly on her hip. During the fall, she possibly extended her right arm and fell on it in such a way that it caused a compression fracture of her radius. Previously studied fracture patterns associated with broken hips and both distal and proximal radial fractures in older women suggest this scenario is very likely (de la Cova 2012; Fernandez and Jupiter 1996; Lovell 1997). As her death certificate does not report this information, fracture analysis is useful in reconstructing a possible scenario.



Figure 5.19 Right femur fracture at neck.
Photo by Madeline M. Atwell.



Figure 5.20 Proximal right radius compression fracture.
Photo by Madeline M. Atwell

The presence of these concurrent fractures raises questions about the environment of the institution. In this case, these broken bones represent indirect violence caused by neglect. Falling on the hospital ward is a preventable accident that suggests attendants

were not always available to ensure patient safety. This particular patient was made vulnerable by living in an overcrowded institution where the population of patients exceeded employees available. (Robinson 1954; Baur 1957; Evenson et al. 1994). Neglect of patients was the accidental norm that stemmed from structural inadequacies. In this patient's case, it resulted in a traumatic accident that caused her pain, suffering, and life-altering injuries.

Health, Welfare, Public Service

300 -57

FILED MAY 19 1959

Registration District No. 316 Primary Registration District No. [Redacted]

THE DIVISION OF HEALTH OF MISSOURI
STANDARD CERTIFICATE OF DEATH

1. PLACE OF DEATH a. COUNTY St. Francois		2. USUAL RESIDENCE (Where deceased lived. If institution: Residence before a. STATE Missouri b. COUNTY St. Louis)	
b. CITY (If outside corporate limits, give TOWNSHIP only) OR TOWN St. Francois Township		c. CITY OR TOWN Unknown	
c. FULL NAME OF (If NOT in hospital, give location) HOSPITAL OR INSTITUTION State Hospt. #4		d. STREET ADDRESS (If outside, give location) 4000 (St. Louis County)	
3. NAME OF DECEASED (Type or print) First Middle Last [Redacted]		4. DATE OF DEATH Month Day Year May 8, 1959	
5. SEX Female	6. COLOR OR RACE White	7. MARRIED <input type="checkbox"/> NEVER MARRIED <input checked="" type="checkbox"/> WIDOWED <input type="checkbox"/> DIVORCED <input type="checkbox"/>	8. DATE OF BIRTH July 25, 1878
10a. USUAL OCCUPATION (Give kind of work done during most of working life, even if retired) Unknown		11. BIRTHPLACE (City and state or country) St. Louis County, Mo.	
13a. FATHER'S NAME [Redacted]		14. NAME OF HUSBAND OR WIFE [Redacted]	
15. WAS DECEASED EVER IN U. S. ARMED FORCES? (Yes, no, unknown) (If yes, give war or dates of service) No		16. SOCIAL SECURITY NO. Unknown	
17. INFORMANT Records, State Hospital No. 4, Farmington, Mo.		Address	
18. CAUSE OF DEATH (Enter only one cause per line for (a), (b), and (c).) PART I. DEATH WAS CAUSED BY: IMMEDIATE CAUSE (a) Coronary Occlusion - - - - - instantaneous.			INTERVAL BETWEEN ONSET AND DEATH
DUE TO (b) Coronary Sclerosis - - - - - Unknown.			
DUE TO (c) 4201F			
PART II. OTHER SIGNIFICANT CONDITIONS CONTRIBUTING TO DEATH but not related to the terminal disease condition given in PART I (a) Psychosis with mental deficiency, and fractured rt. hip 3-17-59			19. WAS AUTOPSY PERFORMED? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>
20a. ACCIDENT <input checked="" type="checkbox"/> SUICIDE <input type="checkbox"/> HOMICIDE <input type="checkbox"/>		20b. DESCRIBE HOW INJURY OCCURRED. (Enter nature of injury in PART I or PART II of item 18.) Fell on ward of mental hospital.	
20c. TIME OF INJURY Hour 6:40 Month, Day, Year 3-17-59			
20d. INJURY OCCURRED WHILE AT WORK <input type="checkbox"/> NOT WHILE AT WORK <input checked="" type="checkbox"/>		20e. PLACE OF INJURY (e.g., in or about home, farm, factory, street, office bldg., etc.) Ward of mental hospital	
20f. CITY, TOWN, OR LOCATION St. Francois Twp.		COUNTY STATE St. Francois Mo.	
21. I attended the deceased from April 28, 1959 to May 8, 1959 and last known to be alive on May 8, 1959 Death occurred at 6:40 P. M. on the date stated above; and to the best of my knowledge, from the causes stated.			
22a. SIGNATURE (Degree or title) J. H. Brennan, M.D.		22b. ADDRESS State Hospital No. 4 Farmington, Missouri	
22c. DATE SIGNED 5-8-59			
23a. BURIAL, CREMATION, REMOVAL (Specify) Removal		23b. DATE 5-13-59	
23c. NAME OF CEMETERY OR CREMATORY Washington Univ. Anat. Dept.		23d. LOCATION (City, town, or county) (State) St. Louis, Missouri	
24. FUNERAL DIRECTOR Miller Funeral Home, Farmington, Mo.		25. DATE RECD. BY LOCAL REG. May 14, 1959	
26. REGISTRAR'S SIGNATURE Gather Rudloff			

USE ONLY BLACK INK OR RIBBON TYPEWRITE IF POSSIBLE

MEICAL CERTIFICATION

All diseases in Part I must be causally related.

(Licensed Embalmer's Statement for Reverse Side)

Figure 5.21 Missouri Standard Certificate of Death for Patient Two

5.11 Case Study Three

One patient living in SLCS died at age 69 due to pulmonary tuberculosis. The number of years she was institutionalized is unknown. Skeletal manifestations of tuberculosis were not observed. The antecedent cause of death is listed as “schizophrenic reaction” and “senility” is present under significant conditions.

The patient also displayed a healed and remodeled fracture on the shaft of her left humerus. Although the time she spent in the institution is not listed on her death certificate, the 1940 United States Census described her as housed within the St. Louis City Sanitarium (United States Census Bureau, 1940). She died at SLCS 18 years later, indicating she was institutionalized for at least 18 years. If the individual did experience this humeral fracture within the institution, proper care was not received to set the bone correctly, leaving the shaft of the bone considerably shorter than the other which likely impeded her motion during life in addition to significant pain (Figure 5.22).



Figure 5.22 Fracture on shaft of left humerus.
Photo by Madeline M. Atwell.

She ultimately died of pulmonary tuberculosis within a supposed curative setting. Although contraction rates of disease occur more often in densely populated areas such as an overcrowded institution, as mentioned in section 5.8, the access to resources to remedy tuberculosis were widely available in 1958.

THE DIVISION OF HEALTH OF MISSOURI
STANDARD CERTIFICATE OF DEATH

FILED JAN 14 1959
REG. DIST. NO. 318
PRIMARY REG. DIST. NO. 1

1. PLACE OF DEATH
a. COUNTY: [Redacted]
b. CITY OR TOWN: St. Louis, Mo.
c. LENGTH OF STAY (in this place): [Redacted]
d. FULL NAME OF HOSPITAL OR INSTITUTION: St. Louis State Hospital

2. USUAL RESIDENCE (Where deceased lived. If institution: residence before admission).
a. STATE: Mo.
b. COUNTY: [Redacted]
c. CITY OR TOWN: St. Louis
d. Is Residence within limits of a city or incorporated town? Yes No

3. NAME OF DECEASED
a. (First): [Redacted] b. (Middle): [Redacted] c. (Last): [Redacted]
4. DATE OF DEATH (Month) (Day) (Year): Dec. 25, 1958

5. SEX: Female
6. COLOR OR RACE: White
7. MARRIED, NEVER MARRIED, WIDOWED, DIVORCED (Specify): Widowed
8. DATE OF BIRTH: March 1, 1889
9. AGE (in years last birthday) (Month) (Day) (Hour) (Min.): 69

10a. USUAL OCCUPATION (Give kind of work done during most of working life, even if retired): FORMERLY: Domestic
10b. KIND OF BUSINESS OR INDUSTRY: [Redacted]
11. BIRTHPLACE (City and State or Foreign Country): Missouri
12. CITIZEN OF WHAT COUNTRY? USA

13a. FATHER'S NAME: [Redacted] 13b. MOTHER'S MAIDEN NAME: [Redacted] 14. NAME OF HUSBAND OR WIFE: [Redacted]

15. WAS DECEASED EVER IN U.S. ARMED FORCES? (Yes, no, or unknown) (If yes, give war or dates of service): [Redacted]
16. SOCIAL SECURITY NO.: [Redacted]
17. INFORMANT'S SIGNATURE OR NAME: Hospital Records 5400 Arsenal ADDRESS: 5400 Arsenal

18. CAUSE OF DEATH (Enter only one cause per line for (a), (b), and (c))
I. DISEASE OR CONDITION DIRECTLY LEADING TO DEATH* (a) Pulmonary Tuberculosis
*This does not mean the mode of dying, such as heart failure, asthma, etc. It means the disease, injury, or complication which caused death.
ANTECEDENT CAUSES
Morbid conditions, if any, giving rise to the above cause (a) stating the underlying cause last.
DUE TO (b) Schizophrenic reaction
DUE TO (c)
II. OTHER SIGNIFICANT CONDITIONS
Conditions contributing to the death but not related to the disease or condition causing death. Senility .002X
INTERNAL BETWEEN ONSET AND DEATH

19a. DATE OF OPERATION: [Redacted] 19b. MAJOR FINDINGS OF OPERATION: [Redacted] 20. AUTOPSY? YES NO

21a. ACCIDENT SUICIDE HOMICIDE (Specify): [Redacted] 21b. PLACE OF INJURY (e.g., in or about home, farm, factory, street, office, etc.): [Redacted] 21c. (CITY, TOWN, OR TOWNSHIP) (COUNTY) (STATE): [Redacted]

21d. TIME (Month) (Day) (Year) (Hour) (Minute) (Second) OF INJURY: [Redacted] 21e. INJURY OCCURRED WHILE AT WORK? NOT WHILE AT WORK 21f. HOW DID INJURY OCCUR: [Redacted]

22. I hereby certify that I attended the deceased from Feb. 16, 1958, to Dec. 25, 1958, that I last saw the deceased alive on Dec. 25, 1958, and that death occurred at 4:45 p.m., from the causes and on the date stated above.

23a. SIGNATURE: A.K. Busch, M.D. (Degree or title) 23b. ADDRESS: 5400 Arsenal St., St. Louis, Mo. 23c. DATE SIGNED: 12-27-58

24a. BURIAL, CREMATION, REMOVAL (Specify): [Redacted] 24b. DATE: 1-31-59 24c. NAME OF CEMETERY OR CREMATORY: Anatomical Board 24d. LOCATION (City, town, or county) (State): St. Louis, Mo.

DATE RECD BY LOCAL HEALTH DEPARTMENT: [Redacted] REGISTRAR'S SIGNATURE: [Redacted] 25. FUNERAL DIRECTOR'S SIGNATURE: [Redacted] ADDRESS: [Redacted]

1104-March 1958 (Licensed Embalmer's Statement on Reverse Side)

Figure 5.23 Missouri Standard Certificate of Death for Patient Three.

These three case studies provide insight into not uncommon perils of institutionalization including fractures and disease. Concurrent structural issues of overcrowding and understaffing are likely culprits for the presence of injury and illness. Overcrowding and outnumbered patient to staff ratios created hazardous environments including poor sanitation, neglect, and inadequate access to resources (de la Cova 2012;

Evenson et al. 1994; Robinson 1954). These resources encompass proper space, exercise, medicine, and preventative and reparative treatment. The inadequacy of these institutions is highlighted by the trauma and illness experienced by the women in this study. These hospitals exposed these women to environments that increased their risk of injury and illness and provided little to subpar treatment after trauma occurred. Ultimately, these institutions failed a vulnerable population in the state's care.

This chapter presented the graphical and statistical results from the skeletal analysis of 53 institutionalized Euro-American women. Distributions of the sample are considered to chronologically frame the sample and the distributions across each institution. The presence and absence of PH and CO, HFI, SNs, dental caries and abscesses, and fractures is discussed to understand their relationship to the institutionalized women in this study. Results for PH and CO indicate that over half of the individuals in this sample express the pathology on their skeletons. Dental caries and abscesses. HFI is present in 13.21% and not in 86.79% of the patients but may provide a starting point for future analysis into the relationship between HFI and mental institutionalization. 69.81% of individuals expressed signs of chronic trauma in the form of SNs. This result suggests that the majority of the sample experienced chronic and immense strain to their vertebral column. Statistical analyses are then reported to recognize if relationships exist between institution location and fracture, and years institutionalized and fracture. The former does not provide a p-value of significance, but the latter suggests there is a relationship between the number of years institutionalized and fracture presence. This relationship could indicate that the more time spent hospitalized contributed to an increased likelihood of breaking one or more bone. Patients

may have become more vulnerable to incidents of trauma as they aged. Prolonged exposure to harmful settings including antiquated equipment and overcrowding could have also increased their risk for trauma. Disease and illness reported on the death certificates of this sample are discussed to broaden the understanding of conditions within the institutions and highlight the need for a multifaceted approach that combines skeletal analysis with archival and historical documentation. This chapter concludes with a discussion of three case studies to interconnect the relationship between fracture presence, disease, and structural violence.

CHAPTER 6

CONCLUSION AND CONTEMPORARY IMPLICATIONS

This study investigated the skeletal impact of mental institutionalization on a sample of 53 Euro-American women from the Robert J. Terry Anatomical Collection. Specifically, this thesis took a historical and biocultural perspective to contextualize skeletal indicators of stress within the social, cultural, and political spheres of the 19th and 20th-centuries. Doing so has allowed for a broader interpretation of institutionalized women's susceptibility to stress and illness.

Combining the historical, social, and the biological provides a nuanced analysis of the lived experiences of those who fell victim to structural violence within Missouri State Hospitals. This study stresses the impact of structural violence on particularly vulnerable populations; specifically, how this violence becomes translated into embodied stress and disease that is visible in both life and death. Historical literature and primary source documents indicate that the failure of these institutions stemmed from chronic bureaucratic neglect. Adequate fiscal investment in mental institutions was disregarded which led to decreasing employees in an era of increasing patient populations. Underfunding also contributed to the transition from curative treatment to chronic, custodial care. "Moral treatment did not fail but was not given a chance to work" (Evenson et al. 1994:1029). Missouri, and more broadly, the United State's mental institutions, collapsed due to systemic underfunding and corruption over the course of more than a century.

State-supported institutions became a place predominantly for the chronically ill where many patients were disregarded and considered incurable. The women in this study were discarded into zones of social abandonment where often their chronic and aging conditions rendered them invisible (Biehl 2005). They became wards of the state and lost rights to their own destinies in life and death. Ultimately, these individuals fell victim to a structurally corrupt system that failed those it sought to cure.

Aside from State Hospital Number Three in Nevada, MO, the other institutions researched in this study are still operating today including State Hospital Number One, now simply Fulton State Hospital. St. Louis City Sanitarium now functions as St. Louis Psychiatric Rehabilitation Hospital. State Hospital Number Four is currently Farmington Correctional Center (Missouri Department of Mental Health 2017). St. Louis Training School is presently active as St. Louis State School and Hospital. Along with Missouri State School, these institutions are two of nine diagnostic clinics devoted to the treatment and education of Missouri's mentally ill youth. Missouri's Department of Mental Health describes these institutions as having evolved from their original plans into "educational resource centers, providing valuable services for slow learners and low achievers...the results of the developments of the past ten years is a vital growing network of services for the mentally ill and the mentally retarded" (Missouri Department of Mental Health 2017).

Unfortunately, these institutions continue to be plagued with the same systemic issues experienced through nearly a century since their erection. For example, Fulton State Hospital, although still treating patients, is viewed as an abysmal place. In 2013, *The Missouri Times* ran an article titled *In-depth: Inside of the deteriorating Fulton State Hospital*. The hospital's Chief Operating Officer, Marty Martin-Forman, said that she

does not consider the institution an appropriate environment for patients seeking care and treatment. Problems reminiscent of those found nearly a century prior include insufficient state employee wages and insecure, fluctuating government budgets provided for the Department of Mental Health (*The Missouri Times 2013*). Currently housing patients that range from severely mentally disabled to individuals who plead “insane” and are awaiting a criminal trial, Fulton State Hospital has seen very few renovations. Martin-Forman describes the antiquated buildings as hindering patient and staff safety due to outdated equipment and structural issues. She also complains that many patient areas are not easily visible from nurse’s stations. She describes the fright that employees experience when walking down the abnormally long, narrow hallways, as patient attacks are not uncommon in these areas and response to assaults often take considerable time (*The Missouri Times 2013*). A maintenance employee for the hospital, Ron Lapp, notes that the hospital is known as the “most dangerous place to work in the state...and with our extremely low salaries, we have a lot of turnaround” (*The Missouri Times 2013*). Fulton State Hospital is fraught with the same issues of underfunding and insufficient staffing that women in this study endured nearly 70 years ago. Representative Jeanie Riddle describes the hospital’s situation as “...a human rights issue. Not just the human rights of these Missourians under the care of the state, but also the human rights of the employees working here who risk so much...” (*The Missouri Times 2013*).

Fluctuating, insufficient funds, overcrowding, and violence is not exclusive to Fulton State Hospital or even Missouri State Hospitals, but is found within many mental health facilities nation and worldwide. For example, one study found that nearly 46% of hospital employees working across 13 public psychiatric hospitals in Finland were

working in overcrowded wards. They concluded that overpopulated conditions likely increased anxiety and stress in a way that exasperated violent behavior and potentially increased the “risk of violence directed at staff” (Virtanen et al. 2011:149). This is by no means an isolated example. Patient violence towards staff is more documented than staff inflicted patient abuse, but reports on both can be found occurring in the United States and internationally (Woods and Ashley 2007).

Mental institutions operating today are not only potentially hazardous due to overcrowding and outdated equipment, but also often cannot support all individuals with mental healthcare needs. For instance, a report by the Treatment Advocacy Center in Arlington, Virginia concerning the shortage of public hospital beds for the mentally ill, suggests that 42 out of 50 states lack the number of sufficient beds by nearly half of what experts deem an appropriate number (Torrey et. al 2008:11). The repercussions of this shortage are severe. For one, it means that a large number of mentally ill individuals become homeless. According to a federal survey in 2005, there were nearly 500,000 single homeless individuals in the United States and multiple studies indicated that one-third of this number were severely mentally ill (Torrey et. al 2008:11).

Homelessness is not the only result of vast deinstitutionalization with only marginal, inadequate psychiatric treatment facilities remaining. Many of the mentally ill and homeless are arrested and incarcerated. Once imprisoned, proper treatment is rarely provided and facilities heavily rely on antipsychotic drugs that sedate the inmates (Torrey et. al 2008:13). Horrific stories of extreme neglect and abuse of mentally ill inmates by prison employees is not uncommon. In 2013, a schizophrenic inmate at the Dade Correctional Institution in Miami, was locked and abandoned in a scorching shower for

over two hours. The inmate “begged to be let out for more than an hour until he collapsed and died”, reported a prison nurse and inmates who witnessed the corrections officers force him into the shower and refuse to let him out despite his pleading (*National Public Radio* 2017). The officers were never charged with the crime as the evidence supposedly did not prove that the patient was neglected or put into harm’s way by their actions (*National Public Radio* 2017). Another byproduct of deinstitutionalization, incarceration is the contemporary response to dealing with America’s mentally ill. Eighteenth-century Dr. Philippe Pinel adamantly worked to relieve the mentally ill from their prison shackles and transfer them to curative institutions. In contrast, contemporary caring for the mentally ill has severely regressed through systemic defunding, overcrowding, and ultimately, deinstitutionalization. In 2016, an article in *The New Yorker* aptly writes, “by the nineties, prisons had become America’s dominant mental-health institutions (*The New Yorker* 2016).

Despite considerable efforts over centuries of reforms to provide the mentally ill with adequate, curative care, America has ultimately failed its mentally disabled population. Patient treatment has become a largely neglected and underfunded societal issue that disregards the humanitarian necessity to tend to mentally ill. Through a series of systemic actions, the regard and active treatment for the nation’s mentally disabled has greatly regressed since deinstitutionalization began in the 1950’s. The structural violence once found within state hospitals can now be seen manifesting in unprecedented, and potentially more extreme and harmful ways within the nation’s prisons and correctional facilities.

The analysis of patterns of structural violence that have operated in the past is invaluable in recognizing similar contemporary trends within society and institutional organizations. Critically analyzing these structural arrangements is vital in understanding and deconstructing deeply entrenched social inequalities and abuses that the vulnerable and marginalized continue to be exposed to today.

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