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Mental Health Difficulties and Service Use of Incarcerated Women: The Influence of Violence Perpetration and Victimization

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A dissertation submitted in partial fulfillment of the requirements for the degree of Doctor of Philosophy at Virginia Commonwealth University.

by

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Abstract

MENTAL HEALTH DIFFICULTIES AND SERVICE USE OF INCARCERATED WOMEN: THE INFLUENCE OF VIOLENCE PERPETRATION AND VICTIMIZATION

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A dissertation submitted in partial fulfillment of the requirements for the degree of Doctor of Philosophy at Virginia Commonwealth University.

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The present study aimed to expand the knowledge base regarding incarcerated women's experiences with violence and their mental health with the goal of identifying avenues for more tailored, compassionate responses to their mental health difficulties in both macro and direct practice contexts. To achieve this aim, a secondary data analysis was performed using data from the Survey of Inmates in State Correctional Facilities (SISCF) completed by the Bureau of Justice Statistics (BJS) in 2004. Six research questions pertaining to women's experiences with violence and their mental health difficulties and service utilization guided the inquiry, which involved univariate, bivariate, and multivariate statistical analyses, including latent class analysis, performed to identify patterns in mental health difficulties among incarcerated women, and multiple logistic regression procedures. The latent class analysis resulted in selection of a 4-class solution which grouped women in the sample into four subgroups according to the latent variable of mental health difficulties. The four subgroups included the serious mental illness

group (8.7%), the mood and drug use disorders group (30.3%), the substance use only group (11.7%), and the resilient group (49.4%). Women were less likely to be in the resilient mental health group and more likely to engage with a range of mental health services if they had perpetrated violence or experienced various forms of victimization, including sexual victimization in either childhood or adulthood, or physical victimization in either childhood or adulthood. Social workers should develop and implement clinical mental health treatment in correctional centers tailored to the mental health needs of subgroups identified through latent class analysis, including treatment for co-occurring substance use and mental health disorders. Clinical mental health treatment should also target those needs related to trauma stemming from victimization and perpetration of violence. Additionally, social workers should advocate for policies and programs to prevent and remediate drug-related crime and divert women with serious mental illness away from the criminal justice system.

Keywords: incarcerated women, mental health, victimization, violent perpetration

Chapter One: Introduction

Purpose of the Study

Since 1980, the rate of female incarceration in the United States has increased by a staggering 716%, contributing significantly to the current state of mass incarceration (Glaze & Kaeble, 2014). In response to this dramatic growth of female involvement in the criminal justice system, social workers and feminist criminologists have issued repeated appeals for increased attention to the complex needs of justice-involved women, emphasizing the distinction between the incarcerated female population and its male counterpart (Chesney-Lind, 2006; Fedock, Fries, & Kubiak, 2013; White, 2012; Willison & O'Brien, 2017). However, because much of the traditional criminological literature has focused exclusively on male involvement in the criminal justice system (Van Gundy, 2014), gaps persist in the knowledge base regarding justice-involved women. Specifically, additional information is needed to better understand women's experiences with violence and their subsequent mental health service needs during incarceration. While prior research has extensively documented incarcerated women's experiences as victims of violence (e.g. Aday, Dye, & Kaiser, 2014; Cook, Smith, Tusher, & Raiford, 2005, Grella, Longiver, & Warda, 2013; McDaniels-Wilson & Belknap, 2008), less attention has been devoted to women's experiences as perpetrators of violence. It will be argued here that the development and implementation of tailored rehabilitative services for incarcerated women will necessitate a nuanced understanding of women's experiences with violence, as both victims and perpetrators, and how those experiences interface with mental health difficulties. Indeed, research has

consistently posited experiences with violence as traumatic and indicated that violence wields a negative impact on the mental well-being of those who experience it (Anda et al., 2006; Edwards, Holden, Felitti, & Anda, 2003; Iverson et al., 2013; Lu, Mueser, Rosenberg, & Jankowski, 2008). The present study examined the relationship between women's experiences with violence, their mental health difficulties, and their use of mental health services during incarceration with the hope of promoting more tailored and compassionate responses to the rehabilitative needs of incarcerated women through both policy and direct social work practice.

The following chapter introduces the context for the present study, providing background information on violence within the United States, known characteristics of female offenders, and programming in correctional settings. The key concepts of victimization, violent perpetration, mental health and self-directed violence are defined and research relevant to incarcerated women is highlighted. Finally, the chapter will discuss the significance of the study for social work in terms of its relationship to social justice issues, as well as the historical commitment of the social work profession to justice-involved populations, and current social work practice.

Statement of the Context

Violence in the United States

Violence is a tragic reality of the human condition, with brutality and bloodshed commonplace throughout human history. As societies have shifted throughout time, so too have communal beliefs and practices around defining and managing violence. For example, family violence was not recognized as a pertinent social phenomenon until the early twentieth century (Weiner, Zahn, & Sagi, 1990). Some scholars deem violence a defining characteristic of the American experience insofar as violence has long represented a viable avenue for securing and protecting highly valued personal freedoms (Brown, 1990); for example, forceful colonization of

native peoples established the foundation for the eventual emergence of the United States as a sovereign nation, the independence of which was achieved through the violence of the Revolutionary War. Within the current context of the U.S., Americans continue to invoke violence through exercising the constitutional right to bear arms and implementing so-called stand-your-ground laws in numerous states, to cite a few examples. Thus, violence continues to permeate daily life, at least in the form of media exposure if not through direct, personal experience.

Violence can present in myriad forms across the individual, interpersonal, and systemic levels. Violent crime typically involves interpersonal violence that violates established legal statutes. The United States Federal Bureau of Investigation (FBI) manages the Uniform Crime Reporting (UCR) Program, which produces standardized crime rate statistics by compiling data from across local, state, and federal jurisdictions. The UCR Program defines violent crimes as "those offenses which involve force or threat of force," and the most recent data show that approximately 375 violent crimes occur for every 100,000 inhabitants in the U.S. each year (UCR Program, 2017, p. 1). The most recent report from the Bureau of Justice Statistics (BJS) indicates that over 2,500,000 people become victims of violent crime annually, with women experiencing victimization at slightly higher rates than men (Truman & Morgan, 2016). The U.S. criminal justice system functions, in part, to promote public safety by mitigating violent crime.

Known Characteristics of Female Offenders

There are approximately 1,250,000 women under correctional supervision in the United States, meaning they are currently incarcerated in jails or prisons, on probation, or on parole (Kaeble & Glaze, 2016). Women awaiting trial or serving short sentences, generally less than one year, are usually incarcerated in jails, which are typically operated by local law enforcement

or governmental entities. On the other hand, prisons are correctional facilities operated at the state and federal levels which house women who have been convicted of crimes and are serving longer sentences. With approximately 111,500 women serving time in state or federal correctional institutions, women comprise more than 7% of the total prison population in the U.S. (Carson & Anderson, 2016). In what has been designated the era of mass incarceration in the U.S. (Alexander, 2012), female prisoners in the U.S. account for a startling 30% of incarcerated women worldwide (Walmsley, 2015). Within the U.S., most incarcerated women are serving time for nonviolent crimes, with approximately 28% convicted of property offenses and 25% convicted of drug-related offenses (Carson & Anderson, 2016). Approximately 36% of incarcerated women have been convicted of violent offenses (Carson & Anderson, 2016).

Incarcerated women are typically of low socioeconomic status, underemployed, undereducated, and disproportionately from minority groups (Van Gundy, 2014; Willison & O'Brien, 2017). The median income for incarcerated women prior to incarceration is $13,890, approximately 58% of the median income for non-incarcerated women (Rabuy & Kopf, 2015). Women with repeat incarcerations typically experience economic instability in such forms as unemployment and receipt of government assistance (Herbst et al., 2016). Incarceration itself compounds economic hardship for many women as prisoners must contend with the low wages associated with institutional employment while also trying to afford expensive phone calls and commissary items (Harner, Wyant, & Da Silva, 2017). In response to extreme poverty and other life challenges, incarcerated women also demonstrate low educational attainment; only 42% of women in state correctional facilities have earned a high school diploma and a meager 3% have earned a college degree (Harlow, 2003). Notably, women of color are incarcerated at disproportionate rates. Approximately 50% of incarcerated women are White, while 21% are

Black, and 17% are Hispanic; however, the rate of imprisonment for Black women is approximately twice that of White women (Carson & Anderson, 2016). Overall, poverty and marginalization seem to characterize the lives of incarcerated women, thus comprising the context in which their criminal offending takes place (Willison & O'Brien, 2017).

Female Violent Offending

Of the 35.8% of incarcerated women convicted of violent offenses, 37.2% are convicted of murder or manslaughter, 23.2% are convicted of assault, 22.4% are convicted of robbery, and 6.2% are convicted of sexual assault (Carson & Anderson, 2016). Female violent offending most often takes place within a domestic setting, with the exception of robberies, which more often occur in public settings such as public streets or businesses (Kruttschnitt, Gartner, & Hussemann, 2008; Willison, 2016). Women are more likely to perpetrate violence against someone known to them; however, the type of offense perpetrated seems to depend somewhat on the type of relationship that exists between the female perpetrator and her victim (Greenfeld & Snell, 2000). For example, women most often perpetrate homicide against a male intimate partner, whereas assault is most often perpetrated against a female acquaintance (Greenfeld & Snell, 2000; Kruttschnitt et al., 2008; Willison, 2016). Women employ weapons with relative infrequency during the commission of violent offenses (Greenfeld & Snell, 2000), but when weapons are used, it is typically in a defensive manner (Willison, 2016). Women are more likely to perpetrate crime, especially violent crime, in the context of a relationship with a male co-offender (Alarid, Marquat, Velmer, Cullen, & Cuvelier, 1996; Koons-Wit & Schram, 2003; Steffensmeier & Allan, 1996; Willison, 2016). In terms of their longitudinal involvement in violent offending, women are less likely than their male counterparts to repeat their violent offenses and are more likely to desist from further violence altogether (Steffensmeier & Allan, 1996).

Correctional Rehabilitation and Treatment Services

Philosophical and political approaches to the management of crime have shifted over time. The latter half of the twentieth century witnessed an era of "tough on crime" policies that, most scholars agree, contributed significantly to creating the current state of mass incarceration (Alexander, 2012; Mackenzie, 2001). However, the pendulum of correctional philosophy has slowly started to swing away from punitive approaches and back toward what was originally termed the "rehabilitative ideal" (Allen, 1959, p. 226). More recently, many policy makers and correctional professionals have adopted a "smart on crime" stance in an attempt to reduce the overwhelmingly large prison population and reverse the devastating effect mass incarceration has had on poor and minority communities (Allard, 2009; Fairfax, 2012; Robinson, 2008). The private prison industry represents a notable exception to this return to rehabilitation as numerous scholars have identified the problematic nature of a capitalist prison system which creates an increasing demand for prisoners (Davis, 2003; O'Brien & Ortega, 2015). Despite persistent tensions within the realms of correctional philosophy and policy, most correctional institutions offer some amount of rehabilitative programming or treatment to prisoners during their incarceration, a reasonably prudent measure since most incarcerated persons will return to the community at some point.

The availability of programming and treatment services varies across correctional institutions, but most institutions typically offer an array of medical, mental health, educational, and vocational services. A recent national survey of prison health care services across 45 states found that most correctional institutions offer outpatient, inpatient, and emergency medical care as well as dental and optometric care (Chari, Simon, DeFrances, & Maruschak, 2016). Sixty percent of female institutions also offer gynecological services either on-site or off-site (Chari et

al., 2016). The same study found that inpatient and outpatient mental health care is also available at 98% of state correctional facilities (Chari et al., 2016). Available mental health services range from cursory mental health screenings and suicide risk assessments to traditional outpatient therapy or intensive inpatient stabilization (Chari et al., 2016; Manderscheid, Gravesande, & Goldstrom, 2004). Psychotherapy is provided in both individual and group treatment modalities to address a range of mental health concerns, including symptom management, skill development, and substance abuse treatment (Bewley & Morgan, 2011; Boothby & Clements, 2000; Morgan, Winterowd, & Ferrell, 1999). Interestingly, Morgan, Rozycki, and Wilson (2004) found that incarcerated people indicated an overwhelming preference for individual interventions over group interventions. Mental health services may also address specific criminogenic needs—that is, characteristics related to offending behavior—in an effort to reduce recidivism; for example, 36% of correctional facilities offer sex offender treatment (Stephan, 2008). Educational programming represents another readily available form of services, with 85% of facilities offering some sort of educational programing (Stephan, 2008). Educational programs range from literacy support to secondary education programs to college courses. Most prisons have access to vocational activities, with four out of five correctional facilities offering employment programs for inmates (Stephan, 2008). Ninety percent of female correctional facilities also offer parenting programs, including parenting classes or programming that involves visitation with minor children (Hoffmann, Byrd, & Kightlinger, 2010). Only one study was found that reported rates of mental health service utilization among incarcerated women; in a study of 40 incarcerated women with a history of childhood victimization, 22.5% of women reported participating in a correctional mental health program and 45% reported participating in a correctional substance abuse program (Peltan & Cellucci, 2017).

While research attests to the wide range of programming ostensibly available in correctional facilities, the literature also cites challenges around the accessibility and quality of correctional programming and treatment. Personal accounts from incarcerated women suggest that many correctional programs are available only to a small portion of the institutional population, with lengthy waiting lists or stringent eligibility criteria barring access for many prisoners (Casey, 2017; George, 2010; Kerman, 2011; Levi & Waldman, 2011). Empirical research has investigated the accessibility of medical and mental health care, with one study finding that 20% of state inmates with a chronic medical condition had not received medical care since becoming incarcerated (Wilper et al., 2009). The same study found that, of those state inmates who were prescribed medication for a medical condition at the time of their arrest, 24% did not receive their medication once incarcerated (Wilper et al., 2009). Participants in another study cited limited time with mental health professionals as particularly problematic, with two thirds of respondents reporting that they received inadequate information about their prescribed psychotropic medication as a result (Bressington, Gray, Lathlean, & Mills, 2008). Another study found that 21% of people incarcerated in one state prison system reported dissatisfaction with the mental health care they received (Way, Sawyer, Kahkejian, Moffitt, & Lilly, 2007). Such dissatisfaction may stem from the fact that some correctional services are not comparable to services available to non-incarcerated persons in terms of quality (Kerman, 2011, Levi & Waldman, 2011). Additionally, the quality of services may also vary across institutions, with at least one study suggesting that programs available in female institutions are of lower quality than those provided to male prisoners (Rose & Rose, 2014). Kilty (2012) offers a scathing criticism of mental health care in female correctional facilities, charging that an overreliance on psychotropic medication functions as a form of social control over incarcerated women. On the other hand,

Bentley and Casey (2017) found that incarcerated women experience numerous therapeutic effects of psychotropic medication and strong personal agency around use of medication during incarceration.

Another issue to consider is the extent to which correctional programming satisfactorily addresses the needs of incarcerated women specifically. Feminist criminologists have questioned whether typical correctional programming—designed for male offenders in terms of what needs are emphasized and what intervention modalities are used—is relevant for addressing the unique needs of the female correctional population (Van Gundy, 2014). The Risk-Need-Responsivity Model (RNR), which has been implemented in correctional facilities worldwide, serves as a notable example of correctional rehabilitation programming derived from traditional criminological theories of male offending (Andrews & Bonta, 2010). RNR is a model that identifies criminogenic risk factors, including antisocial personality patterns and pro-criminal attitudes, to be targeted through rehabilitative programming so as to reduce recidivism. In focusing on criminogenic risk factors, however, RNR neglects so-called non-criminogenic needs, such as poverty and trauma, that contribute substantially to female offending (Smith, Cullen, & Latessa, 2009). The ascendance of RNR, coupled with increasing rates of female incarceration, has spurred numerous scholars to advocate for increased gender-responsivity in correctional programming (Hannah-Moffat, 2009). For example, findings from several studies suggest female offenders require specialized support around issues of trauma, substance abuse treatment, parenting, and employment (Fedock, Fries, & Kubiak, 2013; Nicholls et al., 2015; White, 2012). Almost three quarters of female correctional jurisdictions report that some portion of their policies and programming are "gender-responsive," though the extent to which such programming is evidence-based varies significantly, according to King & Foley (2014).

Presumably, effective gender-responsive programming must be founded upon the knowledge base regarding the experiences of justice-involved women, including their experiences with violence.

Introduction of Key Concepts

Victimization and Trauma

In the present study, women's experiences with violence are considered both in terms of their experiences with violent victimization and violent perpetration. Within the psychology and criminology literature, victimization is a specific form of trauma that involves an individual or group having violence perpetrated against them. The violence experienced may assume a range of forms, including physical or sexual assault, stalking or harassment. Importantly, the harm incurred may be physical, psychological, or both. Individuals who have experienced multiple instances of victimization may be said to have experienced revictimization, and those who have experienced multiple types of victimization may be said to have experienced poly-victimization (Finkelhor, Turner, Hamby, & Ormrod, 2011).

Trauma refers to both an event that is experienced as traumatic and "a response to violence or some other overwhelmingly negative experience" (Covington, 2008, p. 379). According to Bloom and Covington (2009), traumatic experiences can result in "sensitized nervous system changes in the brain," which contribute to the prolonged experience of a "painful emotional state" (p. 165). Indeed, trauma-informed practitioners view trauma as, "a defining and organizing experience that forms the core of an individual's identity," (Harris & Fallot, 2001, p. 11). If symptoms of trauma persist, the victim may meet the criteria for Post-Traumatic Stress Disorder (PTSD), a mental health disorder characterized by intrusive symptoms, such as flashbacks or nightmares, heightened nervous system arousal, and "avoidance of stimuli

associated with the traumatic event" (American Psychiatric Association, 2013, p, 271). Individuals exposed to recurrent, extensive trauma such as chronic child abuse or intimate partner violence, may be said to have "complex trauma" (Pearlman & Courtois, 2005, p. 449), which in turn may result in the presentation of complex PTSD, a specific form of PTSD often characterized by instability in interpersonal relationships and difficulties around identity development (van der Kolk, Roth, Pelcovitz, Sunday, & Spinazzola, 2005).

The literature overwhelmingly indicates that incarcerated women experience trauma at disproportionate rates, such that "trauma is a defining feature of these women's lives" (Cook et al., 2005, p. 120). At least two studies have indicated that rates of trauma exposure among incarcerated women near 100% (Cook et al., 2005; Grella et al., 2013). Rates of victimization, specifically, among incarcerated women are also staggering, with the rate of lifetime physical victimization—that is, victimization via some form of physical assault at some point during the lifespan—estimated between 25% to 30% (Cook et al., 2005; Grella et al., 2013). Estimated rates of lifetime sexual victimization among incarcerated women range from 42% to a shocking 72% (Aday et al., 2014; McDaniels-Wilson & Belknap, 2008). Incarcerated women are also more likely than non-incarcerated women to experience certain forms of victimization, including sexual abuse during childhood and intimate partner violence during adulthood (Severson, Postmus, & Berry, 2005). Overall, incarcerated women are twice as likely to experience victimization than non-incarcerated women, perhaps in part because incarcerated women are less likely to have protective factors that buffer against the risk of victimization, such as high parental involvement and trusting, supportive relationships (Grella et al., 2013).

Because women of color experience incarceration at disproportionate rates (Carson & Anderson, 2016), it is important to acknowledge experiences of victimization related to racial

identity. Sanchez-Hucles (1999) argues, "racism should be viewed as a form of emotional abusiveness and psychological trauma for ethnic minorities," indicating that the experience of racial discrimination meets the definition of violent victimization described above (p. 71). Due to the pervasive nature of racism in the United States, women of color might develop complex trauma in response to their daily experiences as people of color in the United States. Importantly, the experience of victimization may be compounded for women of color who experience discrimination or violence across the multiple, intersecting identities of their race and gender (Crenshaw, 1989, 1991). Interestingly, despite the glaring racial disparities in the criminal justice system, no studies were found which identified race as a potential predictor of trauma or mental health service utilization among incarcerated women.

Perpetration of Violence

Considerable debate surrounds scholarly attempts to define violence, perhaps because perceptions of what constitutes violence differ across time and culture. Stanko (2006) observes that definitions of violence are "tightly woven around social identities, social meanings, and social context," indicating that the same act might be considered both violent and not violent depending upon the scenario in which it occurs (p. 545). Indeed, some definitions of violence distinguish between "legitimate" and "illegitimate" uses of force (Triplett, Payne, Collins, & Tapp, 2016). For example, soldiers would not be classified as perpetrators of violence so long as their use of force takes place within socially acceptable contexts such as military combat. However, the World Health Organization (WHO, 2002) foregoes contextual caveats with a more comprehensive definition of violence as:

> the intentional use of physical force or power, threatened or actual, against oneself, another person, or against a group or community, that either results in or has the high likelihood of resulting in injury, death, psychological harm, maldevelopment or deprivation (p. 5).

The WHO definition of violence encompasses three broad categories of violence: self-directed violence, interpersonal violence, and collective violence (WHO, 2002). For the purposes of the present study, the phrase "perpetration of violence" will refer specifically to those forms of interpersonal violence that meet legal criteria for violent crime, discussed in further detail below. Importantly, while violent perpetration does entail an intentional use of force, it does not necessarily require that the perpetrator plan her actions ahead of time or even intend her actions to cause harm; although premeditation and intentionality are considered in terms of criminal liability, perpetration of violence is generally conceptualized vis-à-vis its impact on another person or group (Weiner et al., 1990). For example, a woman who has inflicted physical harm upon another person would be considered to have perpetrated violence, even if her intention was not to cause harm, but to defend herself.

Because the legal system in the United States does account for premeditation and intention to some extent, legal categorizations of violent acts provide a useful mechanism for operationalizing violent perpetration. In the present study, violent perpetration is defined as a criminal conviction for the following violent acts: homicide, assault, sexual assault, robbery, and other violent crimes. Homicide refers to the killing of another person and includes the crimes of murder and manslaughter. Assault refers to an attempt to inflict bodily harm upon another person. Crimes associated with assault range from simple assault, which involves provoking fear of harm, to aggravated assault, which involves the infliction of severe bodily injury and is sometimes accompanied by the use of a deadly weapon (UCR Program, 2017). Sexual assault refers to "any type of sexual contact or behavior that occurs without the explicit consent of the recipient," and includes the crimes of rape, molestation, and forcible sodomy (United States Department of Justice, 2017, p. 1). The FBI Uniform Crime Reporting (UCR) Program defines

robbery as, “the taking or attempting to take anything of value from the care, custody, or control of a person or persons by force or threat of force or violence and/or by putting the victim in fear” (UCR Program, 2017, p. 1). See Appendix A for a complete list of the crimes included in the categories of homicide, assault, sexual assault, robbery, and other violent crimes.

Mental Health

Numerous organizations and researchers have advanced definitions of mental health in an effort to identify its essential components. For example, the Centers for Disease Control and Prevention (CDC, 2017) have suggested mental health is comprised of well-being across three domains: emotional well-being, psychological well-being and social well-being. Emotional well-being involves happiness and life satisfaction whereas psychological well-being pertains to one’s sense of purpose and self-acceptance (Ryff & Keyes, 1995). Social well-being includes social acceptance and meaningful, satisfying relationships (Keyes, 1998). Similarly, the World Health Organization (2016) highlights emotional, psychological, and social elements of mental health as well, defining mental health as “a state of well-being in which the individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to his or her community” (p. 1).

Importantly for the present study, incarceration represents a significant impediment to many recognized aspects of mental health. Because women rarely aspire to criminal justice involvement, those who become incarcerated may find life satisfaction or meaningful social contributions elusive. Indeed, incarceration functions as a mental health handicap for many women (Harner & Riley, 2013). Considering the challenges involved in achieving optimal mental health during incarceration, researchers have struggled to contextualize the definition of mental health within the carceral environment. As a result, many studies attend to the concept of

mental health by focusing on women's experiences with mental health challenges or difficulties. Often, mental health challenges are operationalized as the formal assignment of a mental disorder diagnosis based on the criteria set forth in the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-5, American Psychiatric Association, 2013) or the *International Statistical Classification of Diseases and Related Health Problems* (World Health Organization, 1992). Other indicators of mental health challenges include experiencing symptoms associated with a mental health disorder, routine use of prescribed psychotropic medications, utilization of mental health services, or self-directed violence.

The literature consistently shows that incarcerated women experience mental health difficulties at disproportionate rates. Official rates from Bureau of Justice Statistics (BJS) indicate that an alarming 73% of incarcerated women have some sort of diagnosed mental health disorder, ranging from adjustment disorders and sleep disorders to mood disorders and psychotic disorders (James & Glaze, 2006). Other researchers have estimated rates of serious mental illness, such as mood disorders and psychotic disorders, at 50% (DeHart et al., 2014). Considering the high rates of victimization and trauma among this population, it is not surprising that rates of trauma-related disorders are also especially high among incarcerated women, with one study estimating a rate of 58% (Bentley & Casey, 2017). Many women also have co-occurring substance abuse issues, with 60% of women reporting diagnoses of substance use disorders (Mumola & Karberg, 2006). Indeed, several studies have highlighted the elevated prevalence of co-morbid mental health difficulties among justice-involved women specifically (Salina, Lesondak, Razzano, & Parenit, 2011; Salina, Lesondak, Razzano, & Wielbaecher, 2007; Teplin, Abram, & McClelland, 1996).

The concept of self-directed violence, which includes suicide and non-fatal self-injurious behavior, is also important to highlight when discussing mental health, as it often occurs in conjunction with other mental health difficulties (Crosby, Ortega, & Melanson, 2011). Incarcerated women experience an extremely heightened risk of self-directed violence. While approximately 4% of the general population in the United States has engaged in non-fatal self-injurious behavior (Kerr, Muehlenkamp, & Turner, 2010), estimated rates among incarcerated women range from 42% to 50% (Borrill et al., 2003; Roe-Sepowitz, 2007). Incarcerated women are twice as likely as non-incarcerated women to die by suicide (Dye, 2011), with suicide representing the second leading cause of death among all prisoners in the United States (Mumola, 2005). Incarceration may exacerbate the risk for self-directed violence among already vulnerable populations, such as women with serious mental illness (Way, Miraglia, Sawyer, Beer, & Eddy, 2005).

Significance of the Study

The present study aimed to contribute to the growing knowledge base around incarcerated women's experiences with violence with the hope of promoting tailored, compassionate mental health care for justice-involved women. The relevance of the study for social work pertains especially to the interface of the social work profession with the correctional field. The social work profession boasts a long history of advocacy and service for justice-involved populations, and social workers currently provide many of the mental health services available to incarcerated women (Goldstrom, Henderson, Male & Manderschied, 1998; Maschi & Killian, 2011).

Relevance to the Social Work Profession

In the Progressive Era, social workers emerged as important players in the corrections field as advocates of rehabilitation and human rights. The National Conference of Charities and Corrections, which would eventually become the National Association of Social Workers (Zenderland, 1998), included among its charges both prison reform and care for so-called "delinquent children" (Hart, 1893). Social workers were largely responsible for the creation of separate correctional facilities for youth, with the aim of ensuring their protection and humane treatment (Maschi & Killian, 2011; Roberts & Brownell, 1999; Rosenthal, 1987). Social workers have maintained their commitment to justice-involved populations, and forensic social work now represents a vibrant field within the profession with a dedicated national organization, conference, and peer-reviewed journal (National Organization of Forensic Social Work [NOFSW], 2017). Defined as "the application of social work to questions and issues relating to law and legal systems," forensic social work encompasses a wide range of activities across multiple settings of the criminal justice system, including courts, correctional facilities, and community programs (NOFSW, 2017). Forensic social workers are actively engaged in both macro-level criminal justice reforms as well as clinical practice with justice-involved populations. The present research study aligned with the historic and present involvement of social workers in forensic contexts.

Relevance to Macro Social Work Practice

Mass incarceration—the significant increase in the number of incarcerated people in the United States over the last half century—has come to represent an abhorrent example of social injustice, and social workers have responded with policy reform and advocacy efforts. For example, several state chapters of the National Association of Social Workers (NASW) have

lobbied for legislative measures to improve the conditions of correctional facilities and provide additional employment supports for people reentering the community (Malai, 2015). Other social workers have engaged in community advocacy and political activism through involvement with the Black Lives Matter movement, for example (Copeland, 2016). Additionally, the Smart Decarceration Initiative (SDI) emerged as one of the Grand Challenges for Social Work (Pettus-Davis & Epperson, 2015). Through SDI, several goals for macro social work practice have been identified vis-à-vis criminal justice reform, including significant reductions in the number of incarcerated people and remediation of social disparities within the criminal justice system (Pettus-Davis, Epperson, & Grier, 2017). Realization of these goals will require the development of tailored services for various segments of the justice-involved population to ensure people have the supports and services necessary for achieving successful community reintegration. The present study highlights the unique needs of incarcerated women by examining the relationship between their experiences with violence and mental health. The findings thus provide direction for future policy initiatives targeting the population of justice-involved women, as seen in the discussion.

Relevance to Clinical Social Work Practice

Social workers also engage with the criminal justice system on the micro level, providing case management and clinical services to currently and formerly incarcerated people. More than 15% of correctional mental health professionals identify as social workers, affirming that social workers play a central role in the provision of mental health treatment in correctional settings (Bewley & Morgan, 2011). Within jails and prisons, social workers conduct clinical assessments of risk and need, respond to mental health crises, and provide therapeutic interventions in individual and group treatment modalities (Sheehan, 2012). The present research has relevance

for these social workers engaged in forensic clinical practice insofar as it examines the specific mental health difficulties associated with victimization and violent offending. The results provide meaningful feedback about rates of mental health service utilization among incarcerated women. The research findings around the relationship between victimization and violent perpetration also highlight possible directions for the development of clinical interventions to more specifically target the unique rehabilitation needs of women as they navigate the dual roles of victim and perpetrator. Finally, the present research furthers the social justice aim of social work through promoting more compassionate responses to incarcerated women, most of whom have experienced considerable marginalization.

Chapter Two: Literature Review

Purpose of the Literature Review

This study aimed to increase understanding of how women's experiences with violence affect their mental health difficulties and their use of mental health services during incarceration with the hope of promoting more effective and compassionate responses to the rehabilitative needs of incarcerated women. Prior research has explored the issues of victimization, perpetration, and mental health among justice-involved women. The following literature review highlights pertinent previous research vis-à-vis the intersections of these concepts. Of course, a literature review provides important context for any research project, not only about extent empirical work, but also the theoretical perspectives shaping the inquiry. As such, this chapter begins with an overview of the three theoretical perspectives that provided the foundation for the present study: feminist criminology, pathways theory, and trauma theory. Throughout the review of the literature, remaining gaps in the knowledge base were noted. In this way, the literature review functioned to direct the present study toward those questions which had yet to be examined regarding incarcerated women's experiences with violence and their mental health.

Theoretical Orientation

Feminist Criminology

Rooted in second wave feminisms and radical criminology, feminist criminology emerged during the 1980's as a counterpoint to assumptions within the criminology field about female involvement in the criminal justice system (Daly & Chesney-Lind, 1988). Whereas

traditional criminology essentially ignored women, characterizing their offending as a variant of male offending, feminist criminology has advocated for explicit attention to gender when theorizing criminal behavior and experiences within the criminal justice system (Van Gundy, 2014). Feminist criminologists recognize the qualitative differences between male and female criminal justice involvement as meaningful, asserting the need for policies and programs which attend to gender differences. Van Gundy (2014) argues that the failure of mainstream criminology to account for gendered variables in understanding female crime represents a form of social injustice insofar as it perpetuates female invisibility within the criminal justice system, thus contributing to the patriarchal oppression of women generally. Without a substantial knowledge base from which to design and implement gender-responsive programs, the unique needs of justice-involved women remain unaddressed; because their needs remain unaddressed, they continue to face certain difficulties at disproportionate rates. For example, the criminal justice system reinforces structural barriers to educational and financial resources in ways that uniquely impact women (Harner, Wyant, & Da Silva, 2017; White, 2012). Indeed, feminist criminologists echo the tenets of intersectionality theory (Crenshaw, 1989, 1991) in their recognition of the "multiple marginality" which women experience as a result of compounded risk factors such as gender, race, poverty, and victimization (Chesney-Lind & Pasko, 2004). The criminal justice system contributes to these forms of gendered oppression in part because of the dearth of empirical research regarding justice-involved women. Without an understanding of justice-involved women's needs, separate from those of justice-involved men, the criminal justice system cannot hope to create programs and policies to promote female rehabilitation and empowerment rather than contributing to their marginalization (Willison & O'Brien, 2017).

Feminist criminology attempts to give voice to justice-involved women and make visible their struggles. Acknowledging the dominance of male perspectives—that is, scholarship conducted by men and about men—within traditional criminology, feminist criminologists embrace feminist epistemologies and research methodologies (Daly & Chesney-Lind, 1988). Feminist criminology served as the foundational theoretical orientation for the present study, which will focus exclusively on the experiences of women in the criminal justice system. The aims of the study also aligned with those of feminist criminology insofar as the study endeavored to build knowledge about women's experiences such that their needs might be better met through tailored, responsive correctional programming. Through inclusion of sociodemographic variables in the analyses, the present study attended to potential sources of marginalization, such as race and educational attainment, thus employing an intersectional lens.

Pathways Theory

While multiple perspectives on female crime exist, most feminist criminologists posit victimization experiences as central to understanding female offending, suggesting that victimization may trigger involvement in criminal activity among some women (Daly, 1992; DeHart, 2008; Gilfus, 1992; Kruttschnitt, 2013; Salisbury & Van Voorhis, 2009). The pathways theory of female offending contends that women experience certain childhood and adult stressors at higher rates and in more extreme forms than their male counterparts because of structural gender inequalities (Salisbury & Van Voorhis, 2009). These gendered stressors—victimization, mental health difficulties, poverty—guide some women toward survival mechanisms that result in criminal justice involvement. Specifically, pathways theorists argue that experiences of abuse and violence serve as triggers for criminal activity among women insofar as they create barriers to women's ability to survive in law-abiding ways (Daly, 1992; Gilfus, 1992). For example, in a

qualitative study with 60 incarcerated women, DeHart (2008) found that women were "pushed away from pathways of legitimacy such as school and work" as a result of their experiences with victimization and their ongoing relationships with abusers (p. 1377). Specifically, DeHart highlights the experiences of women whose victimization resulted in physical or emotional injuries which precluded their ability to maintain employment or enrollment in school. Other women engaged in illicit substance use in an effort to manage the psychological symptoms of trauma following victimization (DeHart, 2008). Although some risk factors for criminal involvement are considered gender neutral, such as criminal thinking and antisocial peer networks, pathways theorists recognize victimization and relationship dysfunction as risks that disproportionately predispose women to engagement in crime (Salisbury & Van Voorhis, 2009).

Kathleen Daly (1992, 1994) formalized the concept of gendered pathways to crime with her seminal qualitative study of female offenders in New Haven, Connecticut. Based on the life histories of forty women involved in felony crimes, Daly identified five common pathways to female crime. First, she described "harmed-and-harming women," who experienced abuse or neglect in childhood and demonstrated maladaptive coping strategies, such as violent behavior or substance use in response to these early victimization experiences. Second, Daly identified "street women" whose escape from abusive home environments resulted in their involvement in sex work and related public order offenses. Third, "drug-connected women" were those who become involved in drug use and dealing via intimate or familial relationships. Fourth, Daly noted "battered women" whose criminal involvement stems from experiences of intimate partner violence. Finally, Daly recognized a small category of "other women" whose offending related to economic circumstance or greed and who did not have histories of victimization. This

groundbreaking study acknowledged the roles of victimization and relationships in female pathways to crime.

Subsequent qualitative and quantitative research has confirmed the relationship between victimization experiences and female offending that Daly identified (i.e. Gilfus, 1992; Salisbury & Van Voorhis, 2009), several of which will be discussed in further detail below. Pathways theory provided a guiding theoretical framework for the present study insofar as it emphasizes the connectedness between women's various experiences with violence and attempts to explain the relationship between victimization and criminal offending. The present study built upon the work of pathways theorists by examining further the relationship between victimization and perpetration of violence, while also attending to mental health as a relevant construct.

Trauma Theory

Trauma theory encompasses an array of cross-disciplinary perspectives to understanding and addressing experiences of trauma across diverse populations. As defined in chapter one, the term "trauma" refers to both negative life events as well as the individual or collective response to such life events (Covington, 2008). As such, trauma theory offers propositions regarding the process through which events are experienced as traumatic, as well as approaches for addressing the presentation of trauma symptoms. In conceptualizing the experience of trauma, trauma theorists incorporate aspects of numerous other theoretical frameworks, including psychoanalytic theory, attachment theory, and cognitive behavioral theory (Ringel & Brandell, 2012). The prominence of these various other perspectives within trauma theory has fluctuated throughout the history of the trauma field, which first emerged during the late nineteenth century in response to the treatment of so-called "hysteria" in women (Ringel & Brandell, 2012). Treatment of combat veterans from the First and Second World Wars increased awareness of traumatic stress

among practitioners and the public. During the 1970's, second wave feminists directed public attention toward trauma within women's lives that resulted from pervasive gender violence (Herman, 1992). Since that time, trauma theorists and researchers have continued to develop the knowledge base regarding the neurological impact of trauma as well as its influence on human behavior.

The cognitive model of trauma (Ehlers & Clark, 2000) offers a relevant framework for examining the relationship between experiences with violence and mental health. According to the cognitive model, maladaptive responses to trauma occur when the individual appraises the traumatic event and her subsequent trauma symptoms as negative and incongruous with her personal narrative such that the past experience comes to represent a current threat. Differences in beliefs and cognitions thus account for differential responses to trauma via differential appraisals of the traumatic event. These responses can range from highly adaptive—such as integration of the trauma into one's personal narrative—to maladaptive—such as avoidance of places or things related to the trauma (Elhers & Clark, 2000). For some, the sense of current threat produces a state of constant hyperarousal during which the individual experiences difficulty regulating stress and assessing the appropriateness of various behavioral responses to stimuli. Because of these difficulties, the person in the state of hyperarousal may be more likely to respond to future threats with violence. Researchers have used the cognitive model of trauma to account for possible connections between past victimization and perpetration of violence, as well as occurrences of self-directed violence following perpetration of violence (Welfare & Hollin, 2012).

As a guiding theoretical framework, trauma theory offers several advantages for the present study. Trauma theory offers a framework for considering a wide range of victimization

experiences in a collective way, according to their common impact on well-being and functioning (Gilfus, 1999). Additionally, trauma theorists endeavor to "validate the psychological injury" that results from acts of violence in addition to any physical harm incurred (Gilfus, 1999, p. 1241). By emphasizing the multifaceted impact of violence, trauma theorists attempt to ensure perpetrators of violence be held fully accountable for the harms they cause, both psychological and physical. With this emphasis on accountability for perpetrators, trauma theory complements pathways theory while also addressing a primary criticism of pathways theory; while both theories highlight the significant impact of victimization on the lives of justice-involved women, trauma theory does not minimize the harm which female perpetrators of violence inflict, whereas pathways theorists might seem eager to excuse it by portraying perpetration as a seemingly unavoidable consequence of earlier victimization. Trauma theory offers a more holistic view of the trauma survivor, aligning well with the biopsychosocial-spiritual framework of social work insofar as trauma theorists encourage practitioners to attend to all dimensions of the individual rather than focusing exclusively on trauma (Harner & Riley, 2013). Trauma theory also emphasizes resilience, thus seeming to position individual agency more centrally than pathways theorists (Harner & Riley, 2013).

Victimization and Mental Health-Related Constructs

Research has repeatedly revealed the relationship between experiences of trauma and subsequent mental health difficulties, so much so that the term "trauma" has come to mean not only to the traumatic event itself, but the subsequent psychological and physical response of the person, as described above. The literature indicates a strong relationship between victimization, specifically, and mental health difficulties, including the onset of mental health disorders, substance abuse, and self-directed violence.

Victimization and Mental Health Difficulties

Multiple studies of women in the community show that adverse childhood experiences, such as physical abuse, sexual abuse, emotional abuse, and neglect, predict the development of mental health disorders later in life, including anxiety disorders (Anda et al., 2006), substance use disorders (Iverson et al., 2013), and PTSD (Lu et al., 2008). One study found that as the number of types of abuse experienced increased, mental health decreased, indicating a dose-response relationship between childhood victimization and mental health among a community sample of adult men and women (Edwards, Holden, Felitti, & Anda, 2003). Using a large, nationally representative sample of adult men and women, Iverson and colleagues (2013) found that victimization experienced in adulthood also predicted the development of mood disorders, anxiety disorders, substance use disorders and PTSD. Additionally, research shows that victimization associated with racism, such as racist microaggressions and discrimination, can also result in a range of mental health difficulties, including depression (Carr, Szymanski, Taha, West, & Kaslow, 2014) and anxiety (Watson, Robinson, Dispenza, & Nazari, 2012).

Studies conducted with samples of incarcerated women in particular also show relationships between experiences of victimization and mental health difficulties. Kennedy, Tripodi, and Pettus-Davis (2013) conducted a survey of 159 incarcerated women in state correctional facilities to examine the relationship between childhood victimization and psychosis in adulthood, finding that experiences of childhood physical or sexual abuse predicted the current symptoms of psychosis. In a similar study of 125 incarcerated women in state correctional facilities, Tripodi and Pettus-Davis (2013) found that women with histories of childhood victimization were 3.2 times more likely to develop substance use disorders later in life and 3.9 times more likely to experience psychiatric hospitalization for a mental or emotional problem

during adulthood compared to women without histories of childhood victimization. Aday, Dye, and Kaiser (2014) analyzed data from the 2004 Survey of Inmates in State Correctional Facilities (SISCF)—the dataset used in the present study—to examine the relationship between sexual victimization and mental health diagnoses among 2,885 female inmates. Their research identified an association between sexual victimization and mood disorders, anxiety disorders, PTSD, and personality disorders, as well as an association between sexual victimization and use of prescribed psychotropic medications. In a study of both incarcerated and non-incarcerated women, Grella, Lovinger, & Warda (2013) found that women with histories of physical or sexual victimization were five times more likely to develop PTSD than women who experienced other forms of trauma, such as accidents or illness.

Research suggests the dose-response relationship between victimization and mental health difficulties identified in community samples also occurs among incarcerated women. For example, Kennedy and colleagues (2013) found that women who experienced both physical and sexual abuse in childhood were more likely to experience psychosis than those who experienced only one form of childhood victimization. In a survey of 810 women incarcerated in an urban jail, Scott and colleagues (2016) found that symptoms of mental health disorders increased in prevalence as the number of victimization experiences increased (Scott, Lurigio, Dennis, & Funk, 2016). Importantly, because incarcerated women are more likely than their non-incarcerated counterparts to experience victimization (Grella et al., 2014; Severson, Postmus, & Berry, 2005), incarcerated women are necessarily more likely to experience the negative mental health outcomes associated with victimization. Indeed, Asberg and Renk (2013) found that incarcerated women were more likely than non-incarcerated women to both experience more severe childhood victimization and report symptoms of depression.

Given the association between experiences of victimization and mental health difficulties, as well as the established association between mental health difficulties and self-directed violence (Beautrais et al., 1996; Bertolote & Fleischlmann, 2002; Bostwick & Pankratz, 2000; Stevens et al., 2013; Tarrier & Gregg, 2004), a relationship between victimization and self-directed violence among incarcerated women might be expected. One study conducted with 120 incarcerated women found that women who had attempted suicide during incarceration were 7.69 times more likely to have experienced childhood victimization than women in a control group (Marzano, Hawton, Rivlin, & Fazel, 2011). Another study using a random sample of 125 incarcerated women examined the extent to which childhood victimization predicted non-fatal self-injurious behavior, determining that childhood physical abuse, sexual abuse, and neglect were each significant predictors of self-directed violence (Tripodi, Onifade, & Pettus-Davis, 2014). Analyzing data from the SISCF, Aday, Dye, and Kaiser (2014) found that sexual victimization was significantly associated with both suicidal ideation and attempted suicide.

To summarize, the literature has extensively documented the relationship between victimization experiences and mental health difficulties among incarcerated women. Childhood physical and sexual victimization predict the development of psychosis and substance use disorders, as well as psychiatric hospitalization in adulthood (Kennedy et al., 2013; Tripodi & Pettus-Davis, 2013). Sexual victimization across the life course is associated with a range of mental health disorders (Aday et al., 2014), and as incarcerated women experience more types of victimization or more frequent victimization, they experience more mental health difficulties (Kennedy et al., 2013; Scott et al., 2016). However, researchers have yet to examine the relationship between physical victimization, specifically, and certain mental health difficulties. Nor have efforts been undertaken to understand how victimization relates to specific categories

of mental health difficulties, such mood disorders or substance use disorders specifically. Examination of such factors could add considerable richness to the knowledge base regarding the impact of victimization.

Victimization and Mental Health Service Utilization

Mental health service utilization refers to contact with a mental health professional for the purposes of obtaining emotional or psychological support, including psychotropic medication. Researchers have faced challenges measuring mental health service utilization following victimization as people often choose not to disclose victimization experiences (Littleton, 2010; Sabina & Ho, 2014). Additionally, people who experience victimization may obtain mental health support from sources other than a mental health professional, such as their primary care provider (Tjaden & Thoennes, 2000). However, several studies have consistently found that approximately one third of survivors of assault do seek mental health treatment following their victimization (Campbell, Wasco, Ahrens, Sefl, & Barnes, 2001; Hassija & Turchik, 2016; Ullman, 2007). Overall, evidence suggests that people who have experienced victimization are more likely to seek out mental health services compared to those who have not (Golding, Stein, Siegel, Burnam, & Sorenson, 1988; New & Berliner, 2000). Survivors of victimization most often use individual treatment modalities such as individual counseling or individual contact with a rape crisis center (New & Berliner, 2000; Ullman, 2007) However, the source of mental health treatment may relate to the life circumstances of the survivor; for example, one study of 300 women experiencing housing instability in San Francisco found that victimization was associated with an increased likelihood of visiting an emergency department for mental health-related reasons (Tsai, Weiser, Dilworth, Shumway, Riley, 2015).

Several studies have investigated what factors influence the likelihood of a survivor to engage with mental health services following victimization. Although researchers agree that women are more likely to use mental health services than men following victimization, other demographic variables such as race, age, or marital status do not reliably predict service utilization (e.g. Gavrilovic, Schutzwohl, Fazel, & Priebe, 2017; Golding et al., 1988; New & Berliner, 2000; Walsh, Banyard, Moynihan, Ward, & Cohn, 2010; Zinzow, Grubaugh, Frueh, & Magruder, 2008). At least two studies indicate that survivors are more likely to use mental health services if they experience symptoms of post-traumatic stress (Amstadter, McCauley, Ruggiero, Resnick, & Kilpatrick, 2008; Gren-Landell, Aho, Carlsson, Jones, & Svedin, 2013). The characteristics and circumstances of an assault also seem relevant, as survivors of sexual assault are more likely to use mental health services than survivors of physical assault (New & Berliner, 2000). Additionally, Ullman & Filipas (2001) found that women were more likely to disclose victimization to both authorities and mental health professionals when the perpetrator was unknown compared to when the perpetrator was known. The researchers speculate that this pattern relates to oppressive cultural norms around what acts constitute "legitimate" assault (Ullman & Filipas, 2001); women who experience assault in the context of an intimate partnership, for example, may hesitate to seek support out of fear that they will be blamed or not believed (Kantor, Knefel, & Lueger-Schuster, 2017; Walsh et al., 2010). These fears represent one of many possible barriers to mental health service utilization for those who have experienced victimization.

With the hope of increasing service accessibility, several studies have sought to identify obstacles to mental health service utilization for victims of violence. Schreiber, Renneberg, and Maercker (2009) developed an integrative model of traumatization and seeking psychosocial

care in which they highlight numerous variables relevant to whether a person seeks services following victimization, including the presence of informal social supports, relationship with the perpetrator, and structural barriers. Limited awareness of mental health services represents one potential structural barrier to mental health service utilization; in a qualitative study of female survivors of IPV, participants reported feeling "alone in seeking help" because of the difficulty experienced when attempting to identify appropriate services (Larsen, Krohn, Püschel, & Seifert, 2014, p. 366). A systematic literature review emphasized the prominence of "concerns related to stigma, shame and rejection" as a barrier for many survivors (Kantor et al., 2017, p. 60). While feelings of shame may stem from the influence of oppressive patriarchal norms, as described above, these feelings may also relate to cultural beliefs. For example, one study of Asian immigrant women who experienced victimization in the context of IPV found that cultural beliefs about gender roles and emotional expression inhibited women from seeking formal support (Lee & Hadeed, 2009).

For those survivors who overcome the numerous barriers to mental health service utilization, participation in mental health treatment seems to yield generally positive results. Numerous studies have found relationships between engagement in various mental health services, including outpatient therapy, and decreased PTSD and depression symptomatology (e.g. Diehle, Schmitt, Daams, Boer, & Lindauer, 2014; Iverson, King, Cunningham, & Resick, 2015; Macdonald, Pukay-Martin, Wagner, Fredman, & Monson, 2016; Resick, Williams, Suvak, Monson, & Gradus, 2012). Furthermore, research has identified the phenomenon of posttraumatic growth, noting the positive changes in overall functioning that can occur following an adverse event (Linley & Joseph, 2004; Tedeschi & Calhoun, 2004). Research suggests mental

health service utilization promotes posttraumatic growth, thus improving mental well-being among survivors of victimization (Grubaugh & Resick, 2007).

Despite the tremendous research efforts dedicated to examining mental health service utilization following victimization, surprisingly little research has investigated the relationship between these variables among incarcerated women, a population that experiences victimization at disproportionate rates (Grella et al., 2013). One study was found which explored substance abuse treatment utilization among 40 incarcerated women with histories of childhood sexual abuse (Peltan & Cellucci, 2017). Interestingly, Peltan and Cellucci (2017) found results contrary to results from previous studies with non-incarcerated people; whereas current trauma symptomatology increased the likelihood that a non-incarcerated person would engage in mental health services (Amstadter et al., 2008; Gren-Landell et al., 2013), incarcerated women with current trauma symptomatology were less likely to engage in substance abuse services. Peltan and Cellucci (2017) speculate that current correctional services may be insufficient for addressing incarcerated women's co-occurring needs around trauma, mental health, and substance use, acknowledging also that substance use may represent a primary coping skill for many women. No studies were found which focused on adult victimization or physical victimization, or illuminated the relationship between victimization and use of mental health services other than substance abuse treatment among incarcerated women.

Victimization and Perpetration of Violence

As noted above, pathways theorists identify women's victimization experiences as a significant trigger for subsequent criminal justice involvement. Research providing empirical support for pathways theory has demonstrated the relationship between victimization and a range of criminal activity, including violent offending. Numerous studies have shown that women who

experience childhood abuse and neglect are more likely to engage in violent offending than those who did not (Coohey, 2004; Maxfield & Widom, 1996; Pollock, Mullings, & Crouch, 2006; Simpson, Yahner, & Dugan, 2008; Weizmann-Henlius et al., 2004; Willison, 2011). As discussed above, pathways theorists posit most female crime as the result of "survival mechanisms" employed in response to victimization experiences (Chesney-Lind & Morash, 2013, p. 292). Interestingly, no studies were found which identified victimization during adulthood as a significant predictor of violent offending, although several researchers have examined this relationship. Whereas victimization during childhood may produce a formative impact on the life pathway of the victim, adult victimization may not disrupt previously established life trajectories.

While the relationship between childhood victimization and violent offending is well established, the literature offers less definitive answers about how victimization might influence specific characteristics of violent offending. At least two studies have found that women with histories of childhood victimization are likely to demonstrate an earlier onset in criminal offending than women without victimization histories (DeHart, Lynch, Belknap Dass-Brailsford, & Green, 2014; Simpson et al., 2008). However, it seems very few studies have attempted to describe what types of childhood victimization correlate to what types of violent offending. Results from a study of male and female juvenile offenders indicated that those who experience physical abuse in childhood may be slightly more likely to commit violent offenses compared to those who experienced other forms of abuse (Maxfield and Widom, 1996). Additionally, Coohey (2004) found that mothers who experienced severe physical abuse as children were more likely than those who did not to abuse their own children. Additional research is needed to further explicate the relationship between specific types of victimization and types of violent

perpetration. Such information would augment the knowledge base vis-à-vis gendered pathways to violent female offending.

Perpetration of Violence and Mental Health-Related Constructs

Perpetration of Violence and Mental Health Difficulties

While it is well-established that the experience of victimization can result in mental health difficulties, several studies have demonstrated the potentially traumatizing effects of violent perpetration as well, indicating the need for a fuller examination of the impact of violent offending on the mental health of perpetrators. Since Harry and Resnick (1986) published case studies of three male perpetrators of homicide reporting offense-related PTSD, four additional studies have investigated the relationship between violent offending and the development of trauma symptomatology. Pollock (1999) measured symptoms of post-traumatic stress among 80 adult male perpetrators of homicide incarcerated in Northern Ireland, finding that 52% of the sample met the diagnostic criteria for PTSD. Of that 52%, the majority reported no history of trauma apart from their participation in the violent crime for which they were incarcerated. Another study in the U.K. of 37 adult violent offenders—five of whom were female—found that 33% of participants met the diagnostic criteria for PTSD (Gray et al., 2003). Additionally, this study found a strong relationship between trauma symptomatology and scores on the Beck Depression Inventory (Gray et al., 2003). A third study conducted in the U.K. surveyed 19 adult perpetrators of homicide with diagnosed mental illness, including three women; the results indicated that 58% of the sample met the diagnostic criteria for PTSD (Papanastassiou, Waldron, Boyle, & Chesterman, 2004). Crisford, Dare, and Evangeli (2008) conducted a fourth study in the U.K. of 45 adult violent offenders, including two women, reporting a 40% prevalence rate of PTSD within their sample.

Researchers have attempted to explain the development of offense-related PTSD by examining the emotions and cognitions of perpetrators. Several studies have identified an association between guilt and shame and PTSD among violent offenders (Crisford et al., 2008; Papanastassiou et al., 2004) as well as non-offenders in community samples (Pugh, Taylor, & Berry, 2016; Robinaugh & McNally, 2010). Interestingly, research of non-offenders has also indicated a relationship between shame and both depression (Dinis, Carvalho, Gouveia, & Estanqueiro, 2015; Robinaugh & McNally, 2010) and paranoia (Johnson et al., 2014); however, no studies were found which investigated this relationship among incarcerated people. Another avenue of research has explored the role of identity and personal narrative in the development of offense-related PTSD (O'Connor, 2000; Presser, 2004; Youngs & Canter, 2012). Adshead, Ferrito, and Bose (2015) present findings which suggest that those perpetrators who perceive themselves as lacking agency may be more likely to perceive their offense as traumatic. Considering the significant number of incarcerated women who have experienced victimization (Cook et al., 2005; Grella et al., 2013), issues of agency may prove particularly relevant vis-à-vis their emotional and psychological responses to offending. However, an apparent gap in the literature exists regarding the mental health challenges incarcerated women experience in response to violent perpetration.

The four studies that have examined the relationship between perpetration of violence and mental health disorders were all conducted several years ago in the United Kingdom, each with small, predominantly male samples (Crisford et al., 2008; Gray et al., 2003; Papanastassiou et al., 2004; Pollock, 1999). Thus, additional research is needed regarding the experiences of violent female offenders and offenders in the United States. The literature is also limited in its exploration of how violent offending may impact a perpetrator's mental health in ways other

than the development of trauma symptomatology, such as the development of mood disorders or other anxiety disorders. The present study aims to address several of these gaps by examining the relationship between violent offending and a range of mental health difficulties.

Perpetration of Violence and Mental Health Service Utilization

Because perpetration of violence seems to be related to mental health difficulties, one might expect to find a relationship between perpetration of violence and mental health service utilization as well. Indeed, in an analysis of data from the SISCF, Willison (2011) found that female inmates convicted of violent crimes were more likely than those convicted of nonviolent crimes to receive mental health treatment during incarceration. However, no other studies were found which investigated the relationship between violent offending and mental health service utilization during incarceration, indicating significant gaps in the knowledge base regarding the types of services used by the population of violent offenders. Additionally, research is needed to examine potential differences in mental health service utilization among various types of violent offenders.

Summary

The topics of victimization, perpetration of violence, and mental health have been examined to varying degrees among incarcerated women in the United States. While much is known about victimization and mental health difficulties among this population, significant gaps persist in the knowledge base regarding how these constructs intersect with perpetration of violence and mental health service utilization during incarceration. Additionally, much of the empirical literature lacks nuance in its exploration of these topics, failing to investigate multiple forms of victimization or various types of violent offending, for example. Perhaps the most striking gap in the knowledge base pertains to mental health service utilization during

incarceration. Although research has established the complex mental health needs of incarcerated women (i.e. James & Glaze, 2006) and reported the availability of services to meet these needs (i.e. Chari et al., 2016), few researchers have investigated the extent to which incarcerated women use available services or what variables might predict their service use. The present study aimed to address several of these identified gaps in the literature and contribute additional nuance to knowledge of incarcerated women's experiences.

Chapter Three: Methodology

The present study aimed to expand the knowledge base regarding incarcerated women's experiences with violence and their mental health with the goal of identifying avenues for more tailored, compassionate responses to their mental health difficulties during incarceration. The following chapter outlines the research questions, research design, and statistical analyses used in the present study.

Figure 1. Alignment Between Research Questions and Identified Areas of Focus

Research Questions

The literature review identified numerous gaps in the knowledge base of incarcerated women's experiences, especially in terms of the intersection of mental health, victimization, and violent perpetration. Six overarching research questions were identified to target these gaps.

Figure 3.1 illustrates which of the six questions addressed which of the three overarching topics. The research questions are delineated below.

Research question one: ***What patterns of mental health difficulties exist among incarcerated women?*** While prior research has provided exhaustive findings on the myriad mental health issues incarcerated women experience (e.g. Bentley & Casey, 2017; DeHart et al., 2014; James & Glaze, 2006) and highlighted the high prevalence of co-occurring disorders among this population (Salina et al., 2011; Salina, et al., 2007; Teplin et al., 1996), no studies were found that attempted to identify patterns in the occurrence of these mental health difficulties among incarcerated women.

Specific mental health diagnoses benefit from tailored treatment approaches, and the standards of evidence-based practice demand the use of empirically supported, targeted interventions. Indeed, prior research suggests incarcerated women with co-occurring mental health difficulties represent a particularly vulnerable population with treatment needs distinct from those of men or those of women with only one type of mental health difficulty (Johnson et al. 2015). By answering this research question, the present study attempted to provide more nuanced information about the co-occurrence of mental health difficulties among a sample of incarcerated women in order to support the development of more tailored treatment approaches.

Research question two: ***What is the relationship between victimization and mental health difficulties among incarcerated women?*** The present study utilized findings from research question one to answer this second research question. Although the relationship between victimization and mental health difficulties is well-established in the literature, the present study aimed to address the limitations of prior research by examining a fuller range of variables related to victimization, including both physical and sexual victimization during both

childhood and adulthood, and their relationship with specific groupings of co-occurring mental health difficulties. Examination of these variables was intended to inform the tailoring of available mental health services to account for both co-occurring mental health difficulties and trauma associated with specific forms of victimization.

Research question three: ***What is the relationship between victimization and mental health service utilization during incarceration?*** The present study endeavored to address a glaring dearth in the current knowledge base regarding women's use of mental health services during incarceration. In addition to producing descriptive statistics about rates of use for various types of mental health services, the present study examined the relationship between victimization experiences and mental health service utilization.

Research question four: ***What is the relationship between past victimization and past perpetration of violence among incarcerated women?*** Building upon the tenets of pathways theory, the present study investigated whether victimization experiences was related to perpetration of a violent offense generally or perpetration of specific types of violent offenses. Again, the present study aimed to address gaps in the knowledge base by examining a fuller range of variables related to victimization experiences, including both physical and sexual victimization during both childhood and adulthood.

Research question five: ***What is the relationship between perpetration of violence and mental health difficulties among incarcerated women?*** As was done for research question two, the present study utilized findings from research question one to answer this fifth research question, examining the likelihood with which variables pertaining to criminal offending predict the experience of specific constellations of mental health difficulties. As reported in the literature review, no research was found that examined the relationship between the variables of violent

offending and mental health difficulties specifically among women incarcerated in the United States; thus, the present study aimed to address another conspicuous gap in the literature regarding the experiences of female offenders.

Research question six: ***What is the relationship between perpetration of violence and mental health service utilization during incarceration?*** As stated under research question three, the present study aimed to provide much needed information regarding women's use of mental health services during incarceration. In addition to examining the relationship between victimization and mental health services utilization, the present study also explored how perpetration of violence is related to the use of specific mental health services.

Research Design

To answer the research questions, the present study analyzed data previously collected by researchers at the Bureau of Justice Statistics. Secondary data analysis has become an increasingly popular and viable methodology within the social sciences (MacInnes, 2017; Trzesniewski, Donnellan, & Lucas, 2011; Vartanian, 2011), and it represented an optimal research design for the present study for several pragmatic and methodological reasons. The chosen data set, which is described in detail below, has more participants than this researcher would have been able to engage through primary data collection. Additionally, the sample includes women incarcerated across the United States, offering more representativeness than the sample this researcher might have obtained locally. Additionally, the use of secondary data negates the potential risks involved in exposing additional human subjects to research involvement, an important consideration for this researcher since incarcerated people represent a vulnerable population (United States, 1978) and interviewing incarcerated women about

interpersonal violence may result in their retraumatization (Hlavka, Kruttschnitt, & Carbone-Lopez, 2007).

Data Set Description

The U.S. Department of Justice, Bureau of Justice Statistics (BJS), surveys a nationally representative sample of adult men and women incarcerated in state and federal prisons at periodic intervals. The most recent survey, concluded in 2004, solicited detailed information from prisoners about their personal, social, and criminological characteristics. Of relevance to the identified research questions were items in the original questionnaire pertaining to victimization history, offending behavior, mental health diagnoses, and use of mental health services during incarceration. Responses to the survey were compiled into two data sets, one for inmates in state correctional facilities, and the second for inmates in federal correctional facilities, both of which were published in 2004. Although the data were collected over ten years ago, the data sets continue to be widely used today since they offer the most recent, nationally representative sample of incarcerated people currently available.

The present study used the data set comprised of data from inmates in state correctional facilities, also known as the Survey of Inmates in State Correctional Facilities 2004 (SISCF), and excluded data collected from inmates in federal correctional facilities. This researcher chose to use only data from the SISCF for several reasons. First, the vast majority of prisoners are incarcerated in state correctional facilities; of the approximately 111,500 women incarcerated in the United States, only 12,000 are incarcerated in federal correctional facilities (Carson, 2016). Significant differences exist between inmates incarcerated in state correctional facilities and federal correctional facilities which might have confounded findings if the two data sets were combined. For example, 35.8% of women in state correctional facilities are incarcerated for

violent offenses, while only 4.1% of women in federal correctional facilities are (Carson, 2016). Since perpetration of violence represented a primary variable of interest for the present study, this discrepancy between populations was particularly noteworthy. Additionally, previous researchers have noted problems with missing data in the data set from federal correctional facilities (Willison, 2011).

The National Archive of Criminal Justice Data maintains the SISCF data set within the criminal justice archive of the Inter-university Consortium for Political and Social Research (ICPSR) at the University of Michigan in Ann Arbor. To obtain a copy of the SISCF data set for use in the present study, this researcher submitted an application via ICPSR which included a data security plan and a Data Use Agreement between Virginia Commonwealth University and the NACJD. Upon approval of the application, the data set was delivered electronically as a data file for the Statistical Package for the Social Sciences (SPSS). The present study was also reviewed by the Virginia Commonwealth University Institutional Review Board, which confirmed the study was not eligible for IRB approval since secondary data analysis does not involve human subjects.

Sampling Procedures

With the goal of obtaining nationally representative data of all inmates incarcerated in state correctional facilities in the United States, sampling was conducted in two stages. The first stage involved sampling correctional facilities from all facilities identified through the 2000 Census of State Correctional Facilities, and the second stage involved sampling of individuals incarcerated within the sampled facilities. Sampling procedures for female inmates and male inmates were completed separately but followed identical protocols; the present study was solely concerned with the sampling procedures for female inmates. Information about sampling

procedures was obtained from the original codebook and personal communication with Tracy Snell, BJS Statistician.

First stage sampling. The 2000 Census of State Correctional Facilities identified a total of 357 state prisons housing female inmates, all of which were included in the sampling frame. Questionnaires were distributed to facility administrators to ascertain the number of inmates housed at each facility. The seven female prisons with the largest numbers of inmates were included with certainty. The remaining 350 facilities were grouped into eight strata according to geographic regions as defined by the U.S. Census: California, West except California, Midwest, Florida, Texas, South except Florida and Texas, New York, Northeast except New York. Within each stratum, facilities were selected according to probability proportional to size, an approach which accounts for the relative size of the multiple strata from which elements are sampled. Through this process, an additional 58 facilities were selected, which resulted in a total sample of 65 female prisons. First stage sampling occurred during September 2002.

Second stage sampling. During the second stage of sampling, inmates at each of the 65 sampled facilities were selected to participate in the study. Researchers obtained a list of all inmates housed at the facility and assigned a number to each inmate on the list. Using a randomly selected starting point and a predetermined skip interval, a computer identified prisoners to interview. If facility personnel determined a selected inmate was emotionally or behaviorally unstable, the inmate was excluded. Through this sampling process, approximately one in every 24 female inmates was sampled for a total of 3,054 females. 2,930 women agreed to participate, resulting in a non-response rate of only 4.06%. Two cases were excluded from consideration for the present study because the participants were under the age of 18 at the time of data collection, and the present study is concerned the experiences of adults. Additional

information regarding the final sample for the present study is discussed below as it is related to issues of missing data.

Data Collection Procedures

Data collection was conducted between October 2003 and May 2004. Field representatives for the United States Census Bureau conducted face to face interviews with individual participants. Respondents were informed that their participation was voluntary, that their responses would remain confidential and used for statistical purposes only. Interviews were typically one hour in duration. Computer-assisted Personal Interviewing Systems were used to facilitate the interviews, thus follow up items were automatically prompted based on participant responses; likewise, items were automatically omitted from the interviews if deemed irrelevant according to established skip patterns. For example, if a participant responded "No" to the item "*Before your admission to prison, had anyone ever pressured or forced you to have any sexual contact against your will?*", the follow up question "*Did the sexual contact against your will occur once or more than once?*" was automatically omitted. The questionnaire included multiple types of questions, including multiple choice questions, open-ended questions, and close-ended questions with response options such as *Yes, No, Don't Know,* or *Refused.*

Measurement of Constructs

The present study used a small subset of variables from the SISCF data set to measure the constructs in the identified research questions, including sociodemographic characteristics, experiences with victimization, experiences with violent perpetration, mental health difficulties, and mental health service utilization during incarceration. The variables are described below, and Appendix B contains a comprehensive list of the variables used, including detailed descriptions and information on the corresponding variables in the original data set.

Sociodemographic Characteristics

To determine which sociodemographic characteristics were most relevant for inclusion, this author consulted previously published studies focused on incarcerated women that also used the SISCF data set (Aday et al., 2014; Kopak & Smith-Ruiz, 2014; Willison, 2016). Each of these three studies included the variables of age, race, education, and marital status, all of which were included in the present study as well. Kopak and Smith-Ruiz (2014) also included employment as a sociodemographic variable, indicating whether respondents were employed or unemployed immediately prior to their current incarceration. However, due to the design of the original SISCF questionnaire, some additional information about employment is unavailable. For example, no information was collected regarding the length of current employment or the industry of employment. Respondents indicated whether employment was part-time or full-time, but not the number of hours worked per week, which might have offered more informative insight into their employment situation. Because incarcerated women have often experienced employment instability (Spjeldnes, Jung, & Yamatani, 2014; Visher & Lattimore, 2007), employment may not offer the most useful indicator of socioeconomic status or lifestyle. Neither Aday and colleagues (2014) nor Willison (2016) included employment as a sociodemographic variable; rather, these studies included income as an indicator of socioeconomic status. As such, income was initially identified as a variable to be used in the present study. However, upon further examination of the data, it was found that approximately 18% of cases did not provide information about income. This amount of missingness was deemed unacceptable, and the income variable was excluded from the present study.

To capture the sociodemographic variables of age, race, education, and marital status, the present study used a combination of variables established in the original SISCF data set and

recoded variables. Information about age was ascertained with the question "*How old are you?*" The present study used the age variable from the original study. Information about marital status was collected via the question "*Are you now married, widowed, divorced, separated, or have you never been married?*," where separation did not include any separation resulting from incarceration of the respondent. Each of the possible five response options were coded separately. The present study used a dummy variable created from the original marital status variable; the dummy variable combined the categories of "divorced" and "separated." The final marital status variable used in the analysis had four possible values: (1) married, (2) widowed, (3) divorced or separated, and (4) never married.

Race. The original questionnaire collected information about race and ethnicity through two questions, including the question, "*Which of these categories describes your race? MARK ALL THAT APPLY. (1) White; (2) Black or African American; (3) American Indian or Alaska Native; (4) Asian; (5) Native Hawaiian or other Pacific Islander; (6) All other races*." In response to a second item, participants also indicated whether they were of Hispanic origin. For the present study, respondents who indicated membership in both the "White" category for race and the "Hispanic origin" category for ethnicity were coded as "Latina." Prior studies have reported extremely small numbers of participants who identify as various non-Black minorities included as response options for the race item, citing issues with low statistical power in regression models (e.g. Aday et al., 2014; Kopak & Smith-Ruiz, 2014; Willison, 2016). To remediate this issue, other researchers have combined the categories of "American Indian or Alaska Native," "Asian," "Native Hawaiian and other Pacific Islander," and "All other races" (Carson, 2016; Willison, 2016); the present study followed this example. Additionally, participants who indicated membership in multiple race categories were grouped into this same

collective category. The final variable for race used in the present study had four possible values: (1) White, (2) Black or African American, (3) Latina, or (4) Mixed Race or Another Race.

Education. The original questionnaire collected information about educational attainment with the question, "*Before your admission on _____, what was the highest grade of school that you ever attended?*" Response options ranged from "*Never attend or attended kindergarten only*" to "*Two or more years*" of graduate school, including every educational year in between. Respondents were also asked if they completed the final year attended. Responses were recoded into a dummy variable that grouped participants into the following categories: (1) did not complete high school; (2) completed high school; or (3) at least some higher education, including college or graduate school.

Experiences with Victimization

Experiences with victimization were examined through multiple variables that distinguish between sexual victimization and physical victimization as well as whether the victimization occurred during childhood or adulthood. The SISCF questionnaire included one item to measure experiences with sexual victimization, which asked "*Before your admission to prison on _____, had anyone ever pressured or forced you to have any sexual contact against your will, that is, touching of breasts or buttocks, or oral, anal, or vaginal sex?*" Participants who responded affirmatively to this item were considered to have experienced sexual victimization. If respondents indicated a history of sexual victimization, they were asked a follow up question, "*Did the sexual contact against your will occur once or more than once?*," the response to which initiated branching logic that would prompt either questions about a single event or multiple events. In either case, participants were subsequently asked "*Did the sexual contact against your will occur before or after you were 18 years old [or both]?*" Participants who indicated that any

incident of sexual assault occurred before they were 18 were considered to have experienced childhood sexual victimization, even if they also experienced sexual assault during adulthood. Conversely, participants who indicated that any incident of sexual assault occurred after they were 18 were considered to have experienced adulthood sexual victimization, even if they also experienced sexual assault during childhood. This information was recoded into two distinct dummy variables such that participants who experienced sexual victimization during both childhood and adulthood had positive values for both variables.

Physical victimization was determined through examination of responses to multiple items on the SISCF questionnaire. Participants were considered to have experienced physical victimization if they responded "Yes" to any of the following questionnaire items:

- "*Before you were admitted to prison on _____, had you ever been physically abused?*"
- "*Before you were admitted to prison on _____, had anyone ever pushed, grabbed, slapped, kicked, bit, or shoved you?*"
- "*Before you were admitted to prison on _____, had anyone ever hit you with a fist?*"
- "*Before you were admitted to prison on _____, had anyone ever beat you up?*"
- "*Before you were admitted to prison on _____, had anyone ever choked you?*"
- *"Before you were admitted to prison on _____, had anyone ever used a weapon, for example, a gun, knife, rock or other object, against you?*"

Subsequent questionnaire items about physical victimization followed the same pattern as those pertaining to sexual victimization, thus were interpreted and recoded in the same manner as described above. Participants who indicated that at least one incident of physical assault occurred before they were 18 were considered to have experienced childhood physical victimization, even if they also experienced physical assault during adulthood. Conversely, participants who

indicated that any incident of physical assault occurred after they were 18 were considered to have experienced adulthood physical victimization, even if they also experienced physical assault during childhood.

The proposal for the present study described the plan to include variables pertaining to perpetrator(s) of past sexual or physical victimization in analyses. Further examination of these variables showed high rates of missing data, making their inclusion problematic. Additionally, some issues were identified with the original items on the SISCF questionnaire; for example, siblings were not included as a response option for items pertaining to perpetrators of sexual victimization despite prior research indicating that incarcerated women have identified siblings as perpetrators of sexual victimization (McDaniels-Wilson & Belknap, 2008). For these reasons, variables pertaining to the identity of perpetrators of victimization were not included in the study.

Experiences with Violence Perpetration

Following the example of previous studies that used the SISCF data set, experiences with violence perpetration were measured through variables related to the most serious offense for which participants were incarcerated at the time of the survey (Kopak & Smith-Ruiz, 2014; Willison, 2016), as well as variables related to criminal history. The SISCF questionnaire included the item, "*For what offenses are you being held?*" as well as multiple questions about previous offenses for which the participant had been incarcerated. A numeric code was entered for each offense reported. For the present study, two new dichotomous variables were created. One variable was created by recoding offense codes from the original variables regarding past perpetrated offenses to indicate whether a participant had a history that included any violent offense or a history that included solely nonviolent offenses. The second variable indicated

whether a participant was currently incarcerated for a nonviolent or violent offense. Nonviolent offenses include property offenses, drug offenses and public order offenses which do not involve force or the threat of force. Conversely, violent offenses include any offenses involving use of force, such as homicide or assault. To provide additional nuance to the examination of violent offending, a second variable was created which categorized the violent offense into one of the following five categories: homicide, physical assault, sexual assault, robbery, or other violent crimes. Appendix A contains a comprehensive list of all offenses included in the original data set, delineating them according to these five categories.

Mental Health Difficulties

As discussed in the second chapter, mental health represents an ambiguous concept that has been operationalized in innumerable ways for the purposes of scientific inquiry. Many incarcerated women experience difficulties related to their mental health, and researchers have typically operationalized these difficulties according to either formal diagnoses or presenting symptomatology. Within the SISCF data set, responses to a series of questions about mental health diagnoses represented the most parsimonious means of measuring mental health difficulties. Because self-directed violence is typically related to mental health difficulties (Beautrais et al., 1996; Bertolote & Fleischlmann, 2002; Bostwick & Pankratz, 2000; CDC, 2017), a reported history self-directed violence was also considered a mental health difficulty for the purposes of the present study.

Mental health diagnoses. The original SISCF questionnaire contained a series of items that asked about six types of mental health disorders:

- Depressive disorder;
- Manic-depression, bipolar disorder, or mania;

- Schizophrenia or another psychotic disorder;
- Post-traumatic stress disorder;
- Another anxiety disorder, such as panic disorder;
- Personality disorder, such as antisocial personality disorder

Each item used the following verbiage: "*Have you ever been told by a mental health professional, such as a psychiatrist or psychologist, that you had [mental health disorder]?*" For the purposes of the present study, participants were considered to have a specific mental health disorder as a mental health difficulty if they responded "Yes" to the corresponding item pertaining to that mental health disorder.

The SISCF questionnaire did not include items regarding diagnoses related to substance use. Instead, the questionnaire included a series of items asking whether participants had experienced various symptoms of an alcohol use disorder or a drug use disorder, such as taking larger amounts of a substance than intended. The symptoms identified in each item align with ten of the eleven diagnostic criteria for these disorders as outlined in the DSM-5 (American Psychiatric Association [APA], 2013). The questionnaire did not include items related to the diagnostic criteria of experiencing cravings for alcohol or drugs. In total, the original questionnaire contained ten items pertaining to alcohol use and ten items pertaining to drug use. Although the diagnostic criteria in the DSM-5 identify the specific drug being used (e.g. opioids or stimulants), the drug use items in the questionnaire used the general term "drug" rather than referring to specific substances. Appendix C features a table outlining DSM-5 diagnostic criteria for substance use disorders and the corresponding items from the SISCF questionnaire.

For the present study, two new variables were created which indicated whether a participant met the diagnostic criteria for an alcohol use disorder and/or a drug use disorder. To

meet the diagnostic threshold for a substance use disorder, a person must demonstrate "a problematic pattern of [substance] use leading to clinically significant impairment or distress, as manifested by at least two [diagnostic criteria], occurring within a 12-month period" (APA, 2013, p. 490). Thus, for the alcohol use disorder variable, participants were coded "1" for "Yes" if they responded "Yes" to at least two of the ten questions pertaining to symptoms of alcohol use disorder. Likewise, for the drug use disorder variable, participants were coded "1" for "Yes" if they responded "Yes" to at least two of the ten questions pertaining to symptoms of a drug use disorder.

Self-directed violence. The original SISCF questionnaire contained only two items pertaining to self-directed violence, both of which addressed past suicidal behavior. The present study used responses to the question, "*Have you ever attempted suicide?*" to measure self-directed violence, with affirmative responses coded as a history of attempting suicide.

Mental Health Service Utilization

The construct of mental health service utilization was measured with responses to several questionnaire items regarding receipt of services during incarceration. Four variables were created to indicate whether participants had utilized mental health counseling, psychotropic medication, substance abuse treatment, or any of these mental health services during their current incarceration. Participants were considered to have received mental health counseling during their current incarceration if they responded "Yes" to the question, "*Have you received counseling or therapy since your admission to prison?*" This item followed a more general question about mental health service use which provided additional context: "*Because of a mental or emotional problem, have you EVER received counseling or therapy from a trained professional?*" Participants were considered to have utilized services related to psychotropic

medication during their current incarceration if they responded "Yes" to the question, "*Have you taken medication for a mental or emotional problem since your admission to prison?*" Several questionnaire items inquired about participation in various forms of substance abuse treatment; participants were considered to have utilized substance abuse treatment during their current incarceration if they responded "Yes" to any of the following questions:

- *"Since your admission to prison, have you attended an alcohol or drug program in which you live in a special facility or unit?"*
- *"Since your admission to prison, have you attended counseling with a trained professional for problems with alcohol and/or drugs?"*
- *"Since your admission to prison, have you attended an education or awareness program explaining problems with alcohol and/or drugs?"*

Information about mental health service utilization was also consolidated to create a new variable that indicated whether a participant used any of the services outlined above.

Data Analysis Procedures

Statistical analyses were conducted to answer the research questions. The data set was delivered in the form of a data file for Statistical Package for Social Sciences (SPSS). Data cleaning and preliminary descriptive analyses were conducted in SPSS 24. Data were transferred to the Mplus 7.1 software package to conduct the latent class analysis as SPSS 24 does not have the capability to perform this statistical procedure. Following completion of the latent class analysis, the data were transferred back to SPSS for the remaining analyses. This was done because Mplus 7.1 does not have the ability to calculate Variance Inflation Factors, which were used to assess multicollinearity among independent variables in logistic regression models.

Missing Data

Prior to creating dummy variables or conducting analyses, missing data among relevant variables was assessed. First, skip patterns in the SISCF questionnaire were examined to determine if missing values were the result of negative responses to earlier questions. For example, if a participant responded "No" to the question, "*Have you ever attempted suicide?*", they were not asked the follow-up question "*How many times have you attempted suicide?*" If a respondent was not asked a follow-up question, the variable associated with that question was not assigned a value, thus would appear to be missing from the data set (T. Snell, personal communication, September 6, 2017). Values assumed to be missing due to skip patterns were recoded as "No" for relevant variables. Descriptive frequencies were performed to determine the proportion of data missing from each variable; the amount of missingness ranged across variables from no cases missing data to approximately 8% of cases missing data once the income variable was excluded. A series of bivariate tests of association was performed to further assess the missing data (Dattalo, 2009), and it was determined data were missing not at random, meaning the probability of a case having a missing value was dependent on the variable that was missing data.

Several options exist for addressing missing data, including methods which impute missing values. However, many of these methods assume data are missing at random, which was not the case for the present study. Complete case analysis, also known as listwise deletion, offers a straightforward approach to addressing missing data by including in analyses only those cases with no missing values. Although the removal of cases with missing data can introduce bias, Graham (2009) argues the risk of bias is minimal when the amount of missing data is small, as was the case with this study. Loss of statistical power represents another concern that deters

researchers from using complete case analysis to resolve missing data; because the sample size for the present study remained sufficient for the statistical procedures conducted, concern regarding loss of statistical power was not great enough to compel the use of other missing data methods. Three hundred seventy-five cases with missing data—comprising approximately 13% of the original sample—were excluded from the analysis, resulting in a final sample of 2553 women.

Preliminary Descriptive Analyses

Preliminary descriptive analyses of all variables were conducted. Univariate analyses included frequencies or measures of central tendency and dispersion, as appropriate to the level of measurement of each variable. Because the constructs of mental health diagnoses, victimization and perpetration of violence have been investigated elsewhere using the SISCF data set (e.g. Aday et al., 2014; James & Glaze, 2006; Kopak & Smith-Ruiz, 2014; Willison, 2016), the descriptive efforts of the present study focused on the constructs of co-occurrence of mental health diagnoses and mental health service utilization during incarceration. Other descriptive statistics were conducted and included to inform and contextualize findings from more advanced analyses.

Bivariate Analysis

To address research question five in part, one bivariate test of association was conducted to examine the relationship between perpetration of violence and the specific mental health difficulty of PTSD, as this relationship has been previously established in predominantly male and European samples (Crisford et al., 2008; Gray et al., 2003; Papanastassiou et al., 2004; Pollock, 1999). One chi-square test of association was performed to examine the relationship between the variables of criminal history and diagnosis of PTSD.

Multivariate Analyses

Multivariate analyses were undertaken to answer the six research questions. The multivariate statistical procedures included latent class analysis and logistic regression.

Latent class analysis. To identify patterns of mental health difficulties among incarcerated women in response to research question one, latent class analysis (LCA) was conducted. LCA is a statistical method that identifies subgroups of "individuals that exhibit similar patterns of individual characteristics" (Collins & Lanza, 2010, p. 8). These subgroups are referred to as "classes," and they are considered "latent" because the characteristic according to which class membership is determined is not observed as a variable in the data set prior to the LCA being conducted. In other words, LCA finds patterns in observed variables—termed "indicator variables"—in order to determine how an individual will be categorized according to a previously unobserved variable. As described in more detail below, the present study used LCA to examine how patterns in mental health diagnoses would classify women according to the variable of overall mental health difficulties. Whereas many statistical methods focus on variables as the unit of analysis, LCA and other "person-centered" approaches focus on the individual as the unit of analysis insofar as patterns are noted within individual cases rather than across variables (Bakk, Tekle, & Vermunt, 2013). LCA is appropriate to use when examining patterns in categorical variables, including variables that may be highly interrelated, such as mental health diagnoses (McCutcheon, 2002).

Model estimation. In LCA, patterns in indicator variables are examined, and multiple possible models are produced with varying numbers of identified subgroups—referred to as "classes." In the present study, eight variables designating diagnoses of mental health disorders (e.g. depression, anxiety, PTSD) served as the indicator variables for the LCA. The variable

designating a history of attempted suicide was included also. Because LCA uses nominal level indicators, no assumptions are made regarding linearity or normal distribution. However, LCA does operate under the assumption of local independence, meaning it is assumed that indicator variables are independent from one another within each class (Collins & Lanza, 2010). As in other forms of structural equation modeling, LCA can encounter problems with local maxima, meaning the algorithm produces parameter estimates that are most probable only within a restricted range rather than within the entire domain of a mathematical function. Performing LCA multiple times with different numbers of random starting values can ensure the algorithm converges on the global maximum solution, or the parameter estimates with the single largest log-likelihood (Asparouhov & Muthén, 2012). Each LCA model defines classes according to conditional response probabilities, or the estimated probability of a positive response to each indicator variable for cases within each latent class. LCA also produces a second parameter: class proportions, or the percentage of the sample that would be classified as belonging to each subgroup (Collins & Lanza, 2010). Consistent with the recommendation of Nylund, Muthén and Asparouhov (2012), the 1-class model was tested first; then, the number of classes was systematically increased and tested until the best fitting model was identified.

Model evaluation. LCA models are evaluated according to multiple factors, including statistical fit indices, as well as substantive criteria such as model interpretability and parsimony (Collins & Lanza, 2010; Muthén, 2003; Nylund-Gibson & Masyn, 2016). To assess relative model fit—that is, how well a model performs relative to other possible models—the Akaike information criterion (AIC; Akaike, 1974), the Bayesian information criterion (BIC; Schwartz, 1978), and the adjusted BIC (Sclove, 1987) were examined. These statistics compare models in terms of both model fit and parsimony, with smaller values representing a more optimal balance

of the two (Collins & Lanza, 2010). The Lo-Mendell-Rubin Adjusted Likelihood Ratio Test (LMRT; Lo, Mendell, & Rubin, 2001) and the Bootstrapped Likelihood-Ratio Test (BLRT; Arminger, Stein, & Wittenberg, 1999) were also used to compare each model to another model with one less class, with the associated p-values denoting whether the model with more ($p < 0.05$) or fewer classes ($p > 0.05$) was a better fit to the data (Nylund et al., 2012). Following the recommendation of Hipp and Bauer (2006), models with classes comprised of less than 5% of the sample were excluded from consideration. Class proportions and conditional response probabilities for each model also informed model evaluation; these factors were used to assess the substantive criteria of parsimony and theoretical meaningfulness of the findings.

Model interpretation. Once a model was selected based on the criteria described above, the class proportions and conditional response probabilities of the selected model were examined in detail. The classes were then assigned labels by the researcher which reflected the types of mental health difficulties with elevated conditional response probabilities in each respective class such that the labels provided a meaningful description of the co-occurring mental health difficulties represented within each subgroup. Each case was assigned to the subgroup of which it was most likely to be a member based on responses to indicator variables; after the data set was transferred back into SPSS, these subgroup assignments were recoded into a new dummy variable entitled, "Mental Health Subgroup."

Logistic regression. Logistic regression was used to answer research questions two through six. Logistic regression is a statistical method that analyzes the likelihood with which independent variables predict a categorical outcome variable. Binary logistic regression is appropriate when the outcome variable is dichotomous. Multinomial logistic regression is appropriate when the outcome variable has more than two categories. Variables were selected to

be included as independent variables in a model if they represented constructs in the research question being answered. For example, the model created to answer research question two—*what is the relationship between victimization and mental health difficulties?*—included variables representing the construct of victimization: childhood sexual victimization, adulthood sexual victimization, childhood physical victimization, and adulthood physical victimization.

Table 1. Chi-Square Tests of Association Between Independent and Dependent Variables (N=2553)

	Mental Health Subgroup	Any Mental Health Treatment	Mental Health Counseling	Psychotropic Medication	Substance Abuse Treatment	Violent or Nonviolent Offense	Violent Offense Type[a]
Race	88.75*	49.14*	26.20*	48.14*	5.54	13.59*	45.31*
Marital Status	14.36	2.73	.80	2.80	3.33	55.87*	80.57*
Education	14.98*	7.75*	6.06*	1.10	5.69	3.55	33.71*
Childhood Sexual Victimization	211.99*	133.03*	104.41*	111.96*	44.22*	28.64*	5.61
Adulthood Sexual Victimization	129.57*	60.31*	60.11*	53.58*	24.80*	.529	14.61*
Childhood Physical Victimization	181.36*	107.92*	70.30*	99.66*	25.89*	38.28*	1.30
Adulthood Physical Victimization	106.03*	43.60*	25.07*	25.45*	23.45*	.96	1.54
Criminal History	10.56*	20.26*	56.45*	39.51*	3.40	N/A	N/A
Violent Offense Type[a]	11.94	6.26	10.65*	10.45*	4.33	N/A	N/A

***p*<.1 [a] N=773

The sociodemographic variables of age, race, marital status, and education were also considered for inclusion in each model. To reduce the risk of type I error, variables were entered into a model only if they were found to have a statistically significant association with the dependent variable at the $p<.1$ level (Ranganathan, Pramesh, & Aggarwal, 2017). Table 1 shows the results of the preliminary chi-square tests of association between categorical independent variables and dependent variables. Point biserial correlations were used to assess the association between the continuous variable of age and the categorical dependent variables; age was significantly correlated with mental health subgroup ($r_{pb}=0.07$, $p<.05$) and type of violent offense ($r_{pb}=-.234$,

$p<.001$). Table 2 delineates the logistic regression models created for each research question, listing the variables included in each model. Variables were entered into the models using the forced entry method, the most widely used and accepted method of variable entry for logistic regression (Field, 2013; Osborne, 2015).

Table 2. Overview of Logistic Regression Models

Research Question	Logistic Regression Model	Type of Analysis	Independent Variables	Dependent Variable
2	1	Multinomial Logistic Regression	Age Race Education Childhood Sexual Victimization Adulthood Sexual Victimization Childhood Physical Victimization Adulthood Physical Victimization	Mental Health Subgroup
3	2	Binary Logistic Regression	Race Education Childhood Sexual Victimization Adulthood Sexual Victimization Childhood Physical Victimization Adulthood Physical Victimization	Any Mental Health Treatment
3	3	Binary Logistic Regression	Race Education Childhood Sexual Victimization Adulthood Sexual Victimization Childhood Physical Victimization Adulthood Physical Victimization	Mental Health Counseling
3	4	Binary Logistic Regression	Race Childhood Sexual Victimization Adulthood Sexual Victimization Childhood Physical Victimization Adulthood Physical Victimization	Psychotropic Medication
3	5	Binary Logistic Regression	Childhood Sexual Victimization Adulthood Sexual Victimization Childhood Physical Victimization Adulthood Physical Victimization	Substance Abuse Treatment
4	6	Binary Logistic Regression	Race Marital Status Childhood Sexual Victimization Childhood Physical Victimization	Nonviolent or Violent Offense

Table 2 (continued). Overview of Logistic Regression Models

Research Question	Logistic Regression Model	Type of Analysis	Independent Variables	Dependent Variable
4	7	Multinomial Logistic Regression	Age Race Marital Status Education Adulthood Sexual Victimization	Violent Offense Type
5	8	Multinomial Logistic Regression	Age Race Education Criminal History	Mental Health Subgroup
6	9	Binary Logistic Regression	Race Education Criminal History	Any Mental Health Treatment
6	10	Binary Logistic Regression	Race Education Criminal History	Mental Health Counseling
6	11	Binary Logistic Regression	Race Criminal History	Psychotropic Medication
6	12	Binary Logistic Regression	Criminal History	Substance Abuse Treatment
6	13	Binary Logistic Regression	Race Education Violent Offense Type	Mental Health Counseling
6	14	Binary Logistic Regression	Race Violent Offense Type	Psychotropic Medication

Model assumptions. Several assumptions must be met when performing logistic regression. The dependent variable must be discrete, as is the case with the dependent variables selected for the present study. Additionally, because logistic regression uses maximum-likelihood estimation, the sample size must be sufficiently large. Hosmer, Lemeshow, and Sturdivant (2013) recommend at least 20 cases per independent variable. The most independent variables included in any model was seven, indicating that the sample size of 2553 was more

than sufficient. Some logistic regression models used only those respondents who were convicted of specific violent crimes, resulting in a smaller sample size of 707; this sample size remained sufficiently large according to the aforementioned criterion (Hosmer, Lemeshow, & Sturdivant, 2013).

Logistic regression also assumes the absence of multicollinearity, meaning the independent variables are not linear functions of one another. Multicollinearity was assessed by examining the variance inflation factor (VIF) for each independent variable in each model. The VIF is the ratio of variance in a model with multiple predictors to variance in a model with one predictor, thus providing a useful indicator of problematic linear relationships between independent variables (Field, 2013). VIFs larger than 10 indicate unacceptable multicollinearity between independent variables (Bowerman & O'Connell, 1990; Myers, 1990).

Outliers and influential cases can also impact the performance of a logistic regression model. Observations with large residuals can be considered outliers, thus the standardized residuals were examined for each case for each model (Gujarati & Porter, 2008). Standardized residuals are expected to have a normal distribution, such that cases with a standardized residual close to or above the value of three can be considered problematic (Field, 2013). Influential cases were identified through examination of DFBetas, which indicate "the difference between a parameter estimated using all cases and estimated when one case is excluded" (Field, 2013, p. 308). Cases are considered influential if the DFBeta exceeds the absolute value of $\frac{2}{\sqrt{N}}$. For models using the entire sample (N=2553), the cutoff for DFBetas was 0.039; for models using a subset of the sample (N=773), the cutoff for DFBetas was 0.075. When outliers or influential cases were found in a particular logistic regression model, the model was rerun with those cases excluded and the outputs compared. If the removal of outliers and influential cases did not

substantially improve the model fit or result in a previously significant finding becoming no longer significant, the outliers and influential cases were retained, and the original model interpreted.

Model evaluation. Logistic regression models were evaluated using several statistics to determine how well the models fit the data. The Nagelkerke R^2 is a version of the coefficient of determination that indicates the proportion of variance explained, thus indicating how well the model fits the data; values closer to one denote a better fit between the present model and the perfect model (Nagelkerke, 1991). Dattalo (2013) also recommends use of the Hosmer and Lemeshow test for evaluating binary logistic regression models; *p*-values greater than 0.05 for the Hosmer-Lemeshow goodness-of-fit statistic indicate the model is an acceptable fit to the data. For multinomial logistic regression models, the Pearson and deviance statistics indicate how well the model fits the data by examining whether the values predicted by the model differ significantly from the observed values; *p*-values greater than 0.05 indicate the model is an acceptable fit to the data. Classification accuracy rates were also examined for binary logistic regression models. The proportional chance criterion was used to determine whether the models correctly classified at least 25% more cases than were correctly classified by chance (White, 2013).

Model interpretation. If the model demonstrated an acceptable fit to the data, the model output was interpreted to answer the research question posed. The odds ratio indicates the predicted change in odds of the dependent variable occurring for each unit increase in a continuous independent variable. Alternately, the odds ratio indicates the predicted difference in odds of the dependent variable occurring for members of one category of a categorical independent variable compared to the odds of the dependent variable occurring for members in

the reference category. In binomial logistic regression, when the odds ratio is greater than one, increasing values of the independent variable correspond to increasing odds of the dependent variable occurring (Field, 2013). In multinomial logistic regression, maximum likelihood estimation is used to analyze the probability of membership in groups. Confidence intervals for the odds ratio are also provided. The Wald statistic indicates the individual contribution of each predictor variable by determining whether the *b* coefficient of the predictor differs significantly from zero. The Wald statistic for each predictor was examined to determine if the predictor made a significant contribution to the outcome. The significance level was placed at 0.05. Since the present study involved multiple significance tests, a Bonferroni correction was considered for setting a more stringent significance level. However, this method has been criticized for its conservativism (Liquet & Riou, 2013; Perneger, 1998). Additionally, significance level corrections can increase the likelihood of type II error, so the significance level of 0.05 was deemed appropriate.

Ethical Considerations

The Institutional Review Board (IRB) at Virginia Commonwealth University was made aware of the proposed study. Since the study did not engage additional participants, it did not meet the definition of human subjects research, thus was not subject to a full IRB review. The original BJS study adhered to federal governmental and professional standards regarding ethical research practices (T. Snell, personal communication, September 6, 2017). Informed consent was obtained from participants, who granted permission for their data to be shared for research purposes. Identifying information was removed from the data set prior to its delivery to this researcher to ensure confidentiality of participants.

Conclusion

The purpose of the present study was to deepen the knowledge base regarding incarcerated women's experiences with violence and their mental health difficulties and service use during incarceration. This chapter has described the research design, methods, and analyses used to achieve this purpose. The following chapter will present the findings of this secondary data analysis.

Chapter Four: Results

This chapter presents the results of the study, beginning with demographic and descriptive characteristics of the sample. Following the presentation of findings from the preliminary descriptive analyses, results from bivariate and multivariate analyses are discussed according to each research question, all of which focus on incarcerated women's experiences with violence and their mental health difficulties and service use during incarceration.

Demographic and Descriptive Characteristics of the Sample

The final sample consisted of 2553 women incarcerated in state correctional facilities across the United States. The ages of women in the sample ranged from 18 to 74 (Mean=35.47; SD=9.260). As seen in Table 3, approximately 45% of the sample identified as non-Hispanic White, while the rest identified as women of color. Approximately 34% identified as Black or African American and 10.4% identified as Latina, operationalized for the present study as both "White" and "Hispanic." The remaining 10.8% of participants identified as another race, such as Asian or American Indian, or multiple races. In terms of educational attainment, 61.7% of the sample did not complete high school. A little less than 20% did complete high school, and 18.5% had attended at least some college. About half (44.3%) of the sample reported never having been married, while 32.7% were divorced or separated from their significant other. Eighteen percent were married, and 5.0% were widowed.

Descriptive frequencies were produced for all variables relevant to the research questions, beginning with mental health difficulties. As shown in Table 4, a majority (54.4%) of the sample

met the diagnostic criteria for a drug use disorder. The second most frequently endorsed mental health difficulty was depression at 37.8%. About one third of the sample met the diagnostic criteria for alcohol use disorder, and about the same amount reported a history of attempting suicide. Personality disorders and psychotic disorders were least frequently endorsed at 10.1% and 6.9% respectively. About one fifth of the sample reported no mental health difficulties.

Table 3. Participant Demographics (N=2553)

Response Category	N	%
Race		
White	1141	44.7
Black or African American	871	34.1
Latina	265	10.4
Multiple Races or Other	276	10.8
Education		
Did Not Complete High School	1576	61.7
Completed High School	505	19.8
Some Higher Education	472	18.5
Marital Status		
Married	459	18.0
Widowed	127	5.0
Divorced/Separated	835	32.7
Never Married	1132	44.3

In terms of mental health service utilization, approximately 50% of the sample reported having used at least one form of mental health treatment during their current incarceration, as can be seen in Table 5. This finding is especially noteworthy when compared against rates of mental health service use among non-incarcerated women, which is approximately 17.5% (U.S. Department of Health and Human Services, 2013). Almost one third of this sample reported

using psychotropic medications to manage a mental or emotional problem; comparatively, 14.9% of women in the community use psychotropic medications (U.S. Department of Health and Human Services, 2013). Approximately one quarter of participants had engaged in mental health counseling, and roughly the same proportion reported using substance abuse treatment.

Table 4. Reported Mental Health Difficulties (N=2553)

Response Category	N	%
Depression	965	37.8
Bipolar Disorder	632	24.8
Psychotic Disorder	175	6.9
PTSD	365	14.3
Anxiety Disorder	422	16.5
Personality Disorder	258	10.1
Alcohol Use Disorder	767	30.0
Drug Use Disorder	1389	54.4
Suicide Attempts	762	29.8
No Mental Health Difficulties	543	21.3

Table 5. Use of Mental Health Services (N=2553)

Response Category	N	%
Any Treatment	1262	49.4
Mental Health Counseling	648	25.4
Psychotropic Medication	784	30.7
Substance Abuse Treatment	629	24.6

Table 6 summarizes experiences with victimization among women in the sample. Forty-three percent of participants reported experiencing sexual victimization at some point in their lives. Almost one third reported at least one incident of sexual victimization before age 18, and a little more than one quarter reported at least one incident of sexual victimization in adulthood. An alarming 68.4% reported some history of physical victimization. A little over one third of the

sample reported experiencing physical victimization during childhood, and over half reported at least one incident of physical victimization during adulthood. Approximately 38% reported experiencing both sexual and physical victimization at some point in their lives.

Table 6. Experiences with Victimization (N=2553)

Response Category	N	%
Any Sexual Victimization	1096	42.9
Sexual Victimization in Childhood	751	29.4
Sexual Victimization in Adulthood	656	25.7
Sexual Victimization in *Both* Childhood and Adulthood	311	12.2
Any Physical Victimization	1746	68.4
Physical Victimization in Childhood	909	35.6
Physical Victimization in Adulthood	1300	50.9
Physical Victimization in *Both* Childhood and Adulthood	464	18.2
Both Sexual Victimization and Physical Victimization	965	37.8

Approximately one third of the sample reported experiences with violent perpetration. As seen in Table 7, 30.3% were currently incarcerated as the result of a conviction for a violent crime. A slightly larger proportion—36.8%—reported being arrested for at least one violent offense during their life, including the arrest associated with their current conviction. Of those 773 women currently incarcerated for a violent offense, the majority reported convictions for homicide or related offenses, as shown in Table 8. The least frequently reported violent offense was sexual assault, at only 5.3% of violent perpetrators.

Table 7. Experiences with Violent Perpetration (N=2553)

Response Category	N	%
Current Incarceration for Violence	773	30.3
Any Arrests for Violence (includes current)	939	36.8

Table 8. Current Violent Offenses (N=773)

Response Category	N	%
Homicide	320	41.4
Physical Assault	180	23.3
Sexual Assault	41	5.3
Robbery	166	21.5
Other Violent Offense	66	8.5

Research Question One: Patterns of Mental Health Difficulties

Research question one asked, *what patterns of mental health difficulties exist among incarcerated women?* To answer this research question, latent class analysis was performed using Mplus 7.1. Indicator variables included eight variables denoting diagnoses of various mental health disorders, including depression, bipolar disorder, psychotic disorders, post-traumatic stress disorder (PTSD), anxiety disorders, personality disorders, alcohol use disorder, and drug use disorder. History of attempting suicide was also included as an indicator variable.

Model Selection

Table 9 provides fit indices from the latent class models containing 1, 2, 3, 4, 5, and 6 classes. The 6-class solution was rejected because one class accounted for less than 5% of the sample (Hipp & Bauer, 2006). Of the remaining solutions, the log-likelihood, AIC, adjusted BIC, and BLRT (defined in chapter three) indicated the 5-class model was optimal. However, the BIC indicated the 4-class solution was a better fit, while the LMRT suggested the 3-class solution was optimal. Based on the conflicting fit indices, consideration of substantive criteria weighed heavily in the selection of the 4-class solution. Through an examination of the conditional response probabilities and class proportions for both the 5-class and 4-class solutions, it was ascertained that the 5-class solution divided into two classes what was one class in the 4-class solution; each of these three class were distinguished by elevated probabilities of mood disorders

and substance use disorders. The probabilities for these two classes in the 5-class solution did not appear to differ empirically or meaningfully. Based on this interpretation of the models, the 4-class solution was selected. Relative entropy for the 4-class solution is .712, meaning the 4-class model classifies cases with a moderate amount of certainty.

Table 9. Latent Classes Analysis Fit Indices (N=2553)

Classes	No. of Free Parameters	Log-likelihood	AIC	BIC	Adjusted BIC	Entropy	LMRT p-value	BLRT p-value
1	9	-11663.8	23345.7	23398.3	23369.7	N/A	N/A	N/A
2	19	-10298.9	20635.8	20746.8	20686.4	0.808	<0.0001	<0.0001
3	29	-10217.8	20493.5	20663.0	20570.9	0.718	<0.0001	<0.0001
4	**39**	**-10161.0**	**20399.9**	**20627.9**	**20504.0**	**0.712**	**0.167**	**<0.0001**
5	49	-10129.5	20357.1	20643.5	20487.8	0.711	0.003	<0.0001
6	59	-10106.9	20331.8	20676.7	20489.2	0.661	0.406	<0.0001

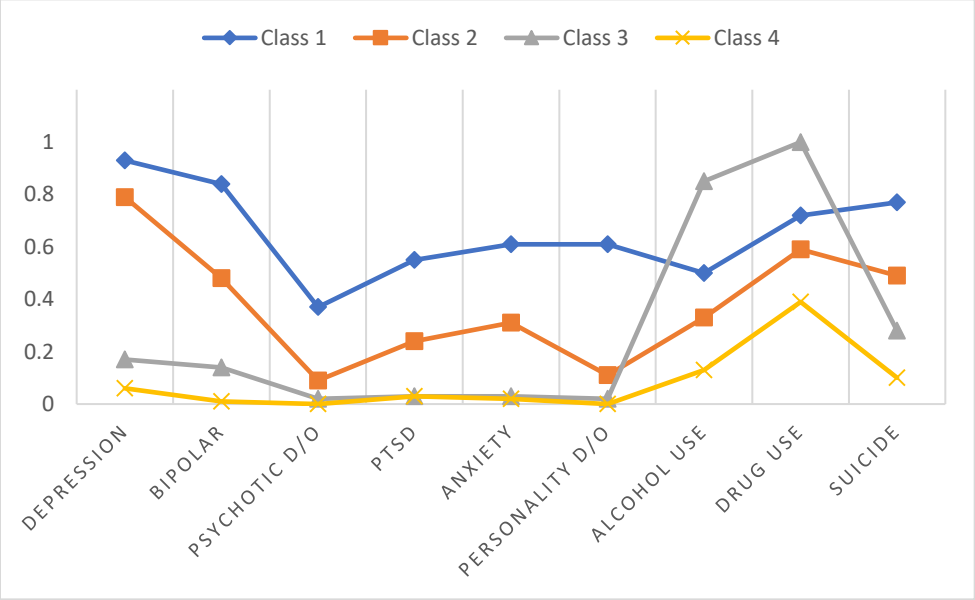
Table 10. Class Proportions and Conditional Response Probabilities (N=2553)

	Serious Mental Illness Subgroup	Mood and Drug Use D/O Subgroup	Substance Use Only Subgroup	Resilient Subgroup
Percentage	8.7	30.3	11.7	49.4
Depression	0.93	0.79	0.17	0.06
Bipolar Disorder	0.84	0.48	0.14	0.01
Psychotic Disorder	0.37	0.09	0.02	0.00
PTSD	0.55	0.24	0.03	0.03
Anxiety Disorder	0.61	0.31	0.03	0.02
Personality Disorder	0.61	0.11	0.02	0.00
Alcohol Use Disorder	0.50	0.33	0.85	0.13
Drug Use Disorder	0.72	0.59	1.00	0.39
Suicide Attempts	0.77	0.49	0.28	0.10

Model Interpretation

Table 10 details the 4-class solution, showing the proportion of the sample classified in each class, as well as the conditional response probabilities for each indicator variable across classes. The conditional response probabilities are also depicted graphically in Figure 2. The smallest class was class 1, which accounted for 8.7% of the sample. Women in this class endorsed almost every indicator of mental health difficulties with relatively high probabilities, ranging from 50% for alcohol use disorder to 93% for depression, thus this class was deemed the "Serious Mental Illness (SMI)" subgroup. Women in the SMI subgroup also endorsed a diagnosis of psychotic disorder with 39% probability, which was the highest probability for this diagnosis found across classes.

Figure 2. Conditional Response Probabilities (N=2553)



Class 2 accounted for a little less than one third of the sample and was distinguished by elevated probabilities of endorsing the diagnoses of depression (79%), bipolar disorder (48%), and drug use disorder (59%). Additionally, women in class 2 had about a 50% chance of reporting a past suicide attempt, a mental health-related difficulty that often occurs in conjunction with mood disorders (Crosby, Ortega, & Melanson, 2011). Class 2 was labeled as the "Mood and Drug Use

Disorders" subgroup. Class 3 comprised 11.7% of the sample and is characterized by elevated probabilities for endorsement of both alcohol use disorder and drug use disorder, thus the class was deemed the "Substance Use Only" subgroup. Finally, Class 4 represented a resilient class, accounting for almost half of the sample. This "Resilient" subgroup demonstrated low probabilities of endorsement for all indicators, with the exception of "drug use disorder" (39%).

Research Question Two: Victimization and Mental Health Difficulties

Research question two asked, *what is the relationship between victimization and mental health difficulties among incarcerated women?* This research question was addressed with the creation of a multinomial logistic regression model that featured mental health subgroup as the dependent variable. Women in the resilient subgroup were treated as the reference group to provide the relative odds of being in each of the other three mental health subgroups compared to the resilient subgroup. The model included four types of victimization experiences as independent variables: childhood sexual victimization, adulthood sexual victimization, childhood physical victimization, and adulthood physical victimization. Sociodemographic variables that had significant bivariate associations with the dependent variable of mental health subgroup were also included in the model (see Table 1).

As discussed in chapter three, prescreening for and evaluation of logistic regression models includes assessment of multicollinearity, outliers, and influential cases. Multicollinearity, in which one independent variable can predict another, was assessed via the Variance Inflation Factor (VIF) of each independent variable. As defined in chapter three, the VIF is the ratio of variance in a model with multiple predictors to variance in a model with one predictor (Field, 2013). For regression model one, VIFs ranged from 1.047 to 1.220, all well below the acceptable threshold of 10 (Bowerman & O'Connell, 1990). Because cases with large residuals can be

considered outliers, the standardized residual of each case was examined, and 47 outliers noted. Additionally, review of the DFBetas of each case for each independent variable revealed 84 influential cases, some of which overlapped with the previously identified outliers. Exclusion of the outliers and influential cases did not improve the performance of the model, nor did it change the significance of the parameter estimates for variables in the equation. Additionally, exclusion of the outliers and influential cases resulted in quasi-complete separation in the data, a situation which can bias the results of a logistic regression model (Field, 2013; Osborne, 2015). As such, the outliers and influential cases were retained, and the original model was further evaluated and interpreted.

To evaluate this multinomial logistic regression model, the Pearson and deviance statistics were considered as was Nagelkerke's pseudo R^2. The Pearson and deviance statistics, which examine whether values predicted by the model differ from observed values, both indicated the model was an acceptable fit to the data (X^2 =4615.49, df=4650, p=.638; X^2 =3762.76, df=4650, p=1.00). According to Nagelkerke's pseudo R^2, the independent variables explained 19.2% of the variance in the dependent variable of mental health subgroup.

The parameter estimates for regression model one are shown in three tables, each one featuring one of the subgroups compared against the resilient reference group. In Table 11, the SMI group is compared against the resilient group. Based on the odd ratios of statistically significant independent variables, White women, women who did not complete high school, and women who had experienced victimization were more likely to be in the SMI group rather than the resilient group. Compared to White women, Black women, Latina women, and women of other races were less likely to be in the SMI group (OR=.51, p<.001; OR=.29, p<.001; OR=.47, p=.003). Women who did not complete high school were more likely than women with higher

education experience to be in the SMI group (OR=1.36, *p*=.019). Finally, women were more likely to be in the SMI group if they had experienced sexual victimization in childhood (OR=3.59, *p*<.001), sexual victimization in adulthood (OR=2.00, *p*<.001), physical victimization in childhood (OR=3.30, *p*<.001), or physical victimization in adulthood (OR=2.49, *p*<.001), compared to women who had not experienced these forms of violence.

Table 11. Regression Model 1a: SMI Subgroup vs. Resilient subgroup (N=2553)

Independent Variable	B (S.E.)	OR [95% CI]	*p*-value	Wald
Intercept	-3.03 (.44)	N/A	<.001	48.66
Age	-.01 (.01)	.99 [.97, 1.01]	.240	1.38
Race (White)				
Black	-.67 (.19)	.51 [.36, .74]	<.001	12.89
Latina	-1.2 (.33)	.29 [.15, .56]	<.001	13.96
Mixed Race/Other	-.76 (.26)	.47 [.28, .78]	.003	8.53
Education (Some Higher Education)				
Did Not Complete High School	.53 (.23)	1.69 [1.09, 2.63]	.019	5.46
Completed High School	.31 (.27)	1.36 [.80, 2.32]	.261	1.27
Childhood Sexual Victimization	1.28 (.17)	3.59 [2.56, 5.04]	<.001	54.42
Adulthood Sexual Victimization	.70 (.17)	2.00 [1.42, 2.82]	<.001	15.82
Childhood Physical Victimization	1.19 (.17)	3.30 [2.35, 4.63]	<.001	47.30
Adulthood Physical Victimization	.91 (.17)	2.49 [1.78, 3.48]	<.001	28.20

Note. Nagelkerke pseudo-R^2 = .192

Table 12 shows the parameter estimates for membership in the mood and drug use disorder subgroup versus the resilient group; race and victimization experiences were significantly associated with membership in this subgroup. Compared to White women, Black women, Latina women, and women of other races were less likely to be in the mood and drug use disorder subgroup (OR=.60, *p*<.001; OR=.43, *p*<.001; OR=.66, *p*=.011). Women were more likely to be in the mood and drug use disorder subgroup if they had experienced sexual victimization in childhood (OR=1.64, *p*<.001), sexual victimization in adulthood (OR=1.95,

p<.001), physical victimization in childhood (OR=2.16, *p*<.001), or physical victimization in adulthood (OR=1.75, *p*<.001), compared to women who had not experienced these forms of violence.

Table 12. Regression Model 1b: Mood and Drug Use Disorder Subgroup vs. Resilient Subgroup (N=2553)

Independent Variable	B (S.E.)	OR [95% CI]	*p*-value	Wald
Intercept	-.73 (.25)	N/A	.004	8.41
Age	-.01 (.01)	.99 [.98, 1.00]	.091	2.85
Race (White)				
Black	-.51 (.11)	.60 [.48, .75]	<.001	21.00
Latina	-.85 (.18)	.43 [.30, .61]	<.001	22.52
Mixed Race/Other	-.41 (.16)	.66 [.48, .91]	.011	6.43
Education (Some Higher Education)				
Did Not Complete High School	.06 (.13)	1.06 [.82, 1.36]	.659	.20
Completed High School	.03 (.15)	1.03 [.76, 1.40]	.833	.04
Childhood Sexual Victimization	.50 (.12)	1.64 [1.31, 2.06]	<.001	18.22
Adulthood Sexual Victimization	.67 (.12)	1.95 [1.55, 2.45]	<.001	32.52
Childhood Physical Victimization	.77 (.11)	2.16 [1.74, 2.68]	<.001	48.84
Adulthood Physical Victimization	.55 (.10)	1.74 [1.42, 2.12]	<.001	29.74

Note. Nagelkerke pseudo-R^2 = .192

Table 13 compares membership in the substance use only subgroup against membership in the resilient subgroup. Race, education, and victimization experiences were significantly associated with membership in the substance use subgroup. Compared to White women, Black women were less likely to be in the substance use group (OR=.69, *p*=.017). Interestingly, the odds ratios for other race categories were not significant in this portion of the model. Women who did not complete high school were more likely than women with higher education experience to be in the substance use group compared to women with higher education experience (OR=1.80, *p*=.003). Women were more likely to be in the serious mental illness and substance abuse group if they had experienced sexual victimization in childhood (OR=1.37,

p=.045), sexual victimization in adulthood (OR=1.66, *p*=.001), physical victimization in childhood (OR=2.05, *p*<.001), or physical victimization in adulthood (OR=1.93, *p*<.001), compared to women who had not experienced these forms of violence.

Table 13 Regression Model 1c: Substance Use Subgroup vs. Resilient Subgroup (N=2553)

Independent Variable	B (S.E.)	OR [95% CI]	*p*-value	Wald
Intercept	-2.37 (.36)	N/A	<.001	43.20
Age	.00 (.01)	1.00 [.98, 1.01]	.737	.11
Race (White)				
Black	-.37 (.16)	.69 [.51, .94]	.017	5.71
Latina	-.28 (.22)	.76 [.50, 1.16]	.202	1.63
Mixed Race/Other	-.33 (.22)	.72 [.46, 1.12]	.141	2.17
Education (Some Higher Education)				
Did Not Complete High School	.59 (.20)	1.80 [1.22, 2.65]	.003	8.92
Completed High School	.44 (.23)	1.55 [.98, 2.43]	.059	3.57
Childhood Sexual Victimization	.32 (.16)	1.37 [1.01, 1.87]	.045	4.02
Adulthood Sexual Victimization	.51 (.16)	1.66 [1.22, 2.26]	.001	10.42
Childhood Physical Victimization	.72 (.15)	2.05 [1.53, 2.73]	<.001	23.33
Adulthood Physical Victimization	.66 (.14)	1.93 [1.47, 2.53]	<.001	22.54

Note. Nagelkerke pseudo-R^2 = .192

Research Question Three: Victimization and Mental Health Service Utilization

Research question three asked, *what is the relationship between victimization and mental health service utilization among incarcerated women?* To answer this research question, a series of four binary logistic regression models were created. Each model had a dependent variable indicating whether a participant had used a category of mental health services. The dependent variables for the four models were: any mental health treatment, mental health counseling, psychotropic medications, and substance abuse treatment. Each model included four types of victimization experiences as independent variables: childhood sexual victimization, adulthood sexual victimization, childhood physical victimization, and adulthood physical victimization.

Sociodemographic variables that had significant bivariate associations with the dependent variables were also included in the models (see Table 1).

Any Treatment as Dependent Variable

Regression model two examined how victimization experiences and sociodemographic characteristics were related to whether a participant had used any form of mental health services during their current incarceration. Specifically, the independent variables included childhood sexual victimization, adulthood sexual victimization, childhood physical victimization, adulthood physical victimization, race, and education. Multicollinearity was assessed via the Variance Inflation Factor (VIF) of each independent variable; VIFs ranged from 1.024 to 1.239, all well below the acceptable threshold of 10 (Bowerman & O'Connell, 1990). The standardized residual of each case and the DFBetas of each case for each independent variable were examined, and no problematic outliers or influential cases were noted. The Hosmer and Lemeshow test indicated the model was an acceptable fit to the data (X^2 =2.21, df=8, p=.974). Based on Nagelkerke's pseudo R^2, the independent variables in the model explained 12.5% of the variance in the dependent variable of using any mental health treatment. The model correctly classified 63.1% of cases, which was more than 25% above the classification accuracy rate obtained by chance, thus indicating the model is sufficiently accurate (White, 2013).

Parameter estimates for variables in the equation showed prior victimization significantly increased the likelihood of women using mental health treatment during incarceration, as seen in Table 14. Based on the odds ratios of statistically significant independent variables, women were somewhat more likely to have engaged with mental health services if they had experienced sexual victimization in childhood (OR=1.92, p<.001), sexual victimization in adulthood (OR=1.42, p=.001), physical victimization in childhood (OR=1.84, p<.001), or physical

victimization in adulthood (OR=1.42, *p*<.001), compared to women who had not experienced these forms of violence. Race and education were also significantly related with mental health service utilization. Compared to White women, Black and Latina women were somewhat less likely to have used mental health treatment (OR=.74, p<.001; OR=.56, p<.001). Finally, women who had completed high school were less likely to have used mental health treatment compared to women with higher education experience (OR=.76, p=.041).

Table 14. Regression Model 2: Any Treatment as Dependent Variable (N=2553)

Independent Variable	B (S.E.)	OR [95% CI]	*p*-value	Wald
Constant	-.37 (.12)	.69 [N/A]	.002	9.87
Race (White)				
Black	-.31 (.10)	.74 [.61, .89]	.001	10.16
Latina	-.59 (.15)	.56 [.42, .74]	<.001	15.73
Mixed Race/Other	-.15 (.14)	.86 [.65, 1.14]	.285	1.14
Education (Some Higher Education)				
Did Not Complete High School	-.14 (.11)	.87 [.70, 1.08]	.205	1.61
Completed High School	-.28 (.14)	.76 [.58, .99]	.041	4.19
Childhood Sexual Victimization	.65 (.10)	1.92 [1.58, 2.34]	<.001	42.30
Adulthood Sexual Victimization	.35 (.10)	1.42 [1.16, 1.73]	.001	11.94
Childhood Physical Victimization	.62 (.09)	1.85 [1.54, 2.23]	<.001	43.51
Adulthood Physical Victimization	.35 (.09)	1.42 [1.20, 1.69]	<.001	16.35

Note. Nagelkerke pseudo-R^2 = .125

Mental Health Counseling as Dependent Variable

Regression model three examined how victimization experiences and sociodemographic characteristics were related to whether a participant had engaged in mental health counseling during their current incarceration. Specifically, the independent variables included childhood sexual victimization, adulthood sexual victimization, childhood physical victimization, adulthood physical victimization, race, and education. Multicollinearity was assessed via the Variance Inflation Factor (VIF) of each independent variable; VIFs fell below the acceptable

threshold of 10 (Bowerman & O'Connell, 1990), ranging from 1.024 to 1.239. The DFBetas of each case for each independent variable were examined, and no problematic outliers or influential cases were noted. Examination of the standardized residuals revealed six outliers, but removal of these cases did not improve the model nor change the significance of parameter estimates; thus, the model including outliers was further evaluated and interpreted. The Hosmer and Lemeshow test indicated the model was not an acceptable fit to the data (X^2=15.62, df=8, p=.048). The model correctly classified 74.0% of cases, which was less than 25% above the classification accuracy rate obtained by chance, thus indicating the model was not sufficiently accurate (White, 2013). Additionally, the Nagelkerke's pseudo R^2 indicated the independent variables in the model explained 9.7% of the variance in the dependent variable. Because the model performed poorly according to the established evaluation criteria, the parameter estimates were not interpreted. Parameter estimates can be found in Table 31 in Appendix D.

Psychotropic Medication as Dependent Variable

Regression model four examined how victimization experiences and sociodemographic characteristics were related to whether a participant had used psychotropic medication during their current incarceration. Specifically, the independent variables included childhood sexual victimization, adulthood sexual victimization, childhood physical victimization, adulthood physical victimization, and race. Multicollinearity was assessed via the Variance Inflation Factor (VIF) of each independent variable; VIFs ranged from 1.042 to 1.239, all well below the acceptable threshold of 10 (Bowerman & O'Connell, 1990). The standardized residual of each case and the DFBetas of each case for each independent variable were examined, and no problematic outliers or influential cases were noted. The Hosmer and Lemeshow test indicated the model was an acceptable fit to the data (X^2=10.497, df=8, p=.232). Additionally, the

Nagelkerke's pseudo R^2 indicated the independent variables in the model explained 11.0% of the variance in the dependent variable of psychotropic medication use. However, the model correctly classified 69.8% of cases, which was less than 25% above the classification accuracy rate obtained by chance, thus indicating the model was not sufficiently accurate (White, 2013). As such, the parameter estimates of the model should be interpreted with caution.

Table 15. Regression Model 4: Psychotropic Medication as Dependent Variable (N=2553)

Independent Variable	B (S.E.)	OR [95% CI]	*p*-value	Wald
Constant	-1.29 (.10)	.28 [N/A]	<.001	178.58
Race (White)				
Black	-.32 (.10)	.73 [.59, .89]	.002	9.43
Latina	-.80 (.18)	.45 [.32, .64]	<.001	20.84
Mixed Race/Other	-.17 (.15)	.85 [.64, 1.13]	.262	1.26
Childhood Sexual Victimization	.57 (.10)	1.77 [1.44, 2.16]	<.001	30.86
Adulthood Sexual Victimization	.36 (.10)	1.43 [1.17, 1.75]	.001	11.87
Childhood Physical Victimization	.62 (.10)	1.87 [1.54, 2.26]	<.001	40.93
Adulthood Physical Victimization	.26 (.10)	1.29 [1.07, 1.55]	.007	7.31

Note. Nagelkerke pseudo-R^2 = .110

Regression model four showed results similar to those from regression model three, which examined the relationship between victimization and use of any treatment; parameter estimates for variables in the equation showed prior victimization significantly increased the likelihood of women using psychotropic medication during incarceration, as seen in Table 4.13. Based on the odds ratios of statistically significant independent variables, women were somewhat more likely to have used psychotropic medication if they had experienced sexual victimization in childhood (OR=1.77, p<.001), sexual victimization in adulthood (OR=1.43, p=.001), physical victimization in childhood (OR=1.87, p<.001), or physical victimization in adulthood (OR=1.29, p=.007), compared to women who had not experienced these forms of violence. As with the findings for use of any mental health services, Black and Latina women

were somewhat less likely than White women to have used psychotropic medication specifically (OR=.73, p=.002; OR=.45, p<.001).

Substance Abuse Treatment as Dependent Variable

Regression model five examined how victimization experiences were related to whether a participant had used substance abuse treatment services during their current incarceration. Specifically, the independent variables included childhood sexual victimization, adulthood sexual victimization, childhood physical victimization, and adulthood physical victimization. Because there were no significant bivariate associations found between substance abuse treatment use and any sociodemographic variables, no sociodemographic variables were included in the model (see Table 1).

Multicollinearity was assessed via the Variance Inflation Factor (VIF) of each independent variable; VIFs ranged from 1.140 to 1.230, all well below the acceptable threshold of 10 (Bowerman & O'Connell, 1990). The standardized residual of each case and the DFBetas of each case for each independent variable were examined, and no problematic outliers or influential cases were noted. The Hosmer and Lemeshow test indicated the model was an acceptable fit to the data (X^2 =.914, df=5, p=.969). However, the Nagelkerke's pseudo R^2 indicated the independent variables in the model explained only 4.2% of the variance in the dependent variable of substance abuse treatment use. Additionally, the model correctly classified 75.4% of cases, which was less than 25% above the classification accuracy rate obtained by chance, thus indicating the model was not sufficiently accurate (White, 2013). As such, the parameter estimates of the model should be interpreted with caution.

As was found in regression models three and four, parameter estimates for variables in regression model five showed prior victimization significantly increased the likelihood of

women engaging in substance abuse treatment during incarceration. As seen in Table 16, women were more likely to have used substance abuse treatment services if they had experienced sexual victimization in childhood (OR=1.52, $p<.001$), sexual victimization in adulthood (OR=1.29, $p=.020$), physical victimization in childhood (OR=1.35, $p=.004$), or physical victimization in adulthood (OR=1.41, $p=.001$), compared to women who had not experienced these forms of violence.

Table 16. Regression Model 5: Substance Abuse Treatment as Dependent Variable (N=2553)

Independent Variable	B (S.E.)	OR [95% CI]	*p*-value	Wald
Constant	-1.62 (.08)	.20 [N/A]	<.001	382.16
Childhood Sexual Victimization	.42 (.11)	1.52 [1.23, 1.90]	<.001	15.20
Adulthood Sexual Victimization	.25 (.11)	1.29 [1.04, 1.60]	.020	5.43
Childhood Physical Victimization	.30 (.10)	1.35 [1.10, 1.65]	.004	8.34
Adulthood Physical Victimization	.34 (.10)	1.41 [1.16, 1.70]	.001	11.96

Note. Nagelkerke pseudo-R^2 = .042

Research Question Four: Victimization and Perpetration of Violence

Research question four asked, *what is the relationship between past victimization and past perpetration of violence among incarcerated women?* To answer this research question, logistic regression models were created to compare nonviolent offenders to violent offenders and compare types of violent offenders.

Nonviolent or Violent Offense as Dependent Variable

In the first model, current offense type served as the dependent variable such that women incarcerated for a violent offense were compared to women incarcerated for a nonviolent offense. The model included two types of victimization experiences as independent variables: childhood sexual victimization and childhood physical victimization. Preliminary bivariate tests of association did not find a significant relationship between victimization experiences in

adulthood and offense type (see Table 1). The sociodemographic variables of race and marital status were also included in the model.

Multicollinearity was assessed via the Variance Inflation Factor (VIF) of each independent variable; VIFs ranged from 1.056 to 1.187, all well below the acceptable threshold of 10 (Bowerman & O'Connell, 1990). The standardized residual of each case and the DFBetas of each case for each independent variable were examined, and no problematic outliers or influential cases were noted. The Hosmer and Lemeshow test indicated the model was an acceptable fit to the data (X^2 =8.703, df=8, p=.368). However, the Nagelkerke's pseudo R^2 indicated the independent variables in the model explained only 6.3% of the variance in the dependent variable of offense type. Additionally, the model correctly classified only 70.0% of cases, which was less than 25% above the classification accuracy rate obtained by chance, thus indicating the model was not sufficiently accurate (White, 2013). As such, the parameter estimates of the model should be interpreted with caution.

Table 17. Regression Model 6: Offense Type as Dependent Variable (N=2553)

Independent Variable	B (S.E.)	OR [95% CI]	*p*-value	Wald
Constant	-1.13 (.11)	.32 [N/A]	<.001	115.50
Race (White)				
Black	.26 (.11)	1.29 [1.05, 1.59]	.015	5.89
Latina	-.19 (.16)	.83 [.61, 1.14]	.251	1.32
Mixed Race/Other	.25 (.15)	1.28 [.96, 1.71]	.087	2.93
Marital Status (Never Married)				
Married	-.39 (.13)	.68 [.52, .88]	.003	8.90
Widowed	1.04 (.20)	2.84 [1.93, 4.16]	<.001	28.44
Divorced/Separated	-.27 (.11)	.76 [.62, .94]	.011	6.43
Childhood Sexual Victimization	.35 (.10)	1.42 [1.16, 1.74]	.001	11.84
Childhood Physical Victimization	.46 (.10)	1.58 [1.30, 1.92]	<.001	21.80

Notes. Nonviolent offense is reference category; Nagelkerke pseudo-R^2 = .063

Parameter estimates for variables in the equation showed childhood victimization significantly increased the likelihood of women having perpetrated violence, as seen in Table 17. Based on the odds ratios of statistically significant independent variables, women were somewhat more likely to be incarcerated for a violent offense if they had experienced sexual victimization in childhood (OR=1.42, p=.001) or physical victimization in childhood (OR=1.58, p<.001), compared to women who had not experienced these forms of violence. Race and marital status were also significantly related with offense type. Compared to White women, Black women were somewhat more likely to be incarcerated for a violent offense (OR=1.29, p=.015). Interestingly, women who were widowed were more likely to be incarcerated for a violent offense compared to women who were never married (OR=2.84, p<.001). On the other hand, women who were either married or divorced/separated were somewhat less likely to be incarcerated for a violent offense compared to women who were never married (OR=.67, p=.003; OR=.76, p=.011).

Violent Offense Category as Dependent Variable

The second logistic regression model created to address research question four investigated the relationship between victimization experiences and specific types of violent offenses. This model used data from participants currently incarcerated for homicide, physical assault, sexual assault, or robbery (N=707). An additional 66 women in the sample were incarcerated for "other violent crimes," a category which includes a wide array of offenses such as kidnapping, blackmail, and assisting a suicide. The characteristics of these "other violent crimes" were deemed too diverse to offer a meaningful comparison group, thus these 66 cases were excluded from the analysis. Violent offense type served as the dependent variable, thus multinomial logistic regression was selected as the appropriate statistical procedure. Preliminary

bivariate tests of association found a significant relationship between sexual victimization in adulthood and violent offense type; no other victimization experiences were associated with violent offense type at the $p<.10$ level (see Table 3.1). Significant associations were found between violent offense type and all four sociodemographic variables; thus the variables of age, race, marital status, and education were also included in the model.

Multicollinearity was assessed via the Variance Inflation Factor (VIF) of each independent variable; VIFs ranged from 1.029 to 1.240, all well below the acceptable threshold of 10 (Bowerman & O'Connell, 1990). Examination of the standardized residual of each case revealed 19 outliers. Additionally, review of the DFBetas of each case for each independent variable revealed 54 influential cases. Exclusion of the outliers and influential cases resulted in only seven cases remaining in the category of "sexual assault" for the dependent variable; this relatively small number of cases in one category of the dependent variables then resulted in unexpected singularities in the Hessian matrix. To address this issue, the category of sexual assault was merged with the physical assault category. When the model was recreated with the updated dependent variable, quasi-complete separation occurred in the data. Furthermore, exclusion of outliers and influential cases coupled with the merging of dependent variable categories did not improve the performance of the model, nor did these actions change the significance of the parameter estimates for variables in the equation; thus, the outliers and influential cases were retained, and the original model was further evaluated and interpreted. The Pearson and deviance statistics both indicated the model was an acceptable fit to the data (X^2 =1507.24, df=1500, p=.443; X^2 =1160.09, df=1500, p=1.00). The model explained 19.9% of the variance in the dependent variable of violent offense type, according to Nagelkerke's pseudo R^2.

The parameter estimates for regression model seven are shown in three tables, each one showing the comparison between the homicide reference category and another category of violent offense. In Table 18, perpetrators of physical assault are compared against perpetrators of homicide. The sociodemographic variables of age, race, and education were significantly associated with perpetrating physical assault rather than homicide. As age increased, women were very slightly more likely to have perpetrated homicide rather than physical assault (OR=.96; $p<.001$). Compared to White women, Black women were more likely to have perpetrated physical assault versus homicide (OR=2.29, $p=.001$), as were Latina women (OR=2.08, $p=.048$) and women of other races or mixed race (OR=2.21, $p=.015$).

Table 18. Regression Model 7a: Physical Assault vs. Homicide (N=707)

Independent Variable	B (S.E.)	OR [95% CI]	*p*-value	Wald
Intercept	.04 (.51)	N/A	.931	.01
Age	-.04 (.01)	.96 [.94, .98]	<.001	12.92
Race (White)				
Black	.83 (.24)	2.29 [1.43, 3.67]	.001	11.95
Latina	.73 (.37)	2.08 [1.01, 4.31]	.048	3.90
Mixed Race/Other	.79 (.33)	2.21 [1.17, 4.18]	.015	5.91
Marital Status (Never Married)				
Married	.28 (.32)	1.33 [.71, 2.48]	.375	.79
Widowed	-.80 (.44)	.45 [.19, 1.07]	.069	3.30
Divorced/Separated	-.18 (.26)	.84 [.50, 1.40]	.493	.47
Education (Some Higher Education)				
Did Not Complete High School	.73 (.28)	2.07 [1.19, 3.60]	.010	6.63
Completed High School	.54 (.33)	1.72 [.91, 3.25]	.098	2.74
Adulthood Sexual Victimization	-.19 (.22)	.83 [.54, 1.29]	.407	.69

Note. Nagelkerke pseudo-R^2 = .199

Additionally, women who had not completed high school were more likely to than women with higher education experience to have perpetrated physical assault rather than homicide (OR=2.07,

p=.010). Notably for the research question, sexual victimization in adulthood was not significantly associated with violent offense category.

Table 19. Regression Model 7b: Sexual Assault vs. Homicide (N=707)

Independent Variable	B (S.E.)	OR [95% CI]	*p*-value	Wald
Intercept	-2.33 (1.03)	N/A	.024	5.07
Age	-.04 (.02)	.96 [.92, .99]	.025	5.04
Race (White)				
Black	-.29 (.45)	.75 [.32, 1.80]	.522	.41
Latina	-1.27 (1.06)	.28 [.04, 2.23]	.230	1.44
Mixed Race/Other	.42 (.47)	1.52 [.60, 3.82]	.379	.77
Marital Status (Never Married)				
Married	.62 (.65)	1.87 [.53, 6.61]	.334	.94
Widowed	.61 (.65)	1.84 [.51, 6.61]	.352	.87
Divorced/Separated	1.14 (.46)	3.11 [1.27, 7.64]	.013	6.13
Education (Some Higher Education)				
Did Not Complete High School	1.91 (.76)	6.77 [1.54, 29.82]	.012	6.38
Completed High School	2.02 (.78)	7.57 [1.64, 34.89]	.009	6.73
Adulthood Sexual Victimization	-.50 (.36)	.61 [.30, 1.23]	.166	1.92

Note. Nagelkerke pseudo-R^2 = .199

Table 19 shows the parameter estimates regarding the likelihood of having perpetrated sexual assault versus homicide. The sociodemographic variables of age, education, and marital status were significantly associated with perpetrating sexual assault versus to homicide. As was the case with physical assault, women were very slightly less likely to have perpetrated sexual assault versus homicide as age increased (OR=.96, *p*=.025). Interestingly, women who were divorced or separated were more likely to have perpetrated sexual assault versus homicide when compared to women who were never married (OR=3.11, *p*=.013). Both women who had not completed high school and those who had completed high school were much more likely to than women with higher education experience to have perpetrated sexual assault versus homicide

(OR=6.77, *p*=.012; OR=7.57, *p*=.009). Once again, sexual victimization in adulthood was not significantly associated with violent offense category.

As shown in Table 20, only age and marital status were significantly associated with perpetrating robbery versus homicide. As age increased, women were very slightly less likely to have perpetrated robbery versus homicide (OR=.95, *p*<.001). Women who were widowed were less likely to have perpetrated robbery rather than homicide when compared to women who were never married (OR=.24, *p*=.012). Although sexual and physical victimization experienced in childhood seems to be significantly associated with perpetration of violence generally, victimization experiences did not significantly associate with specific categories of violent offenses among this sample of women incarcerated for violence crime.

Table 20. Regression Model 7c: Robbery vs. Homicide (N=707)

Independent Variable	B (S.E.)	OR [95% CI]	*p*-value	Wald
Intercept	.70 (.52)	N/A	.178	1.82
Age	-.05 (.01)	.95 [.93, .97]	<.001	19.24
Race (White)				
Black	.36 (.24)	1.43 [.89, 2.29]	.143	2.15
Latina	.41 (.38)	1.51 [.72, 3.19]	.276	1.19
Mixed Race/Other	.52 (.33)	1.69 [.88, 3.24]	.117	2.46
Marital Status (Never Married)				
Married	.25 (.32)	1.29 [.69, 2.41]	.431	.62
Widowed	-1.43 (.57)	.24 [.08, .73]	.012	6.34
Divorced/Separated	-.23 (.27)	.80 [.47, 1.35]	.399	.71
Education (Some Higher Education)				
Did Not Complete High School	.28 (.27)	1.32 [.79, 2.22]	.294	1.10
Completed High School	-.07 (.32)	.93 [.50, 1.76]	.827	.05
Adulthood Sexual Victimization	.31 (.25)	1.36 [.84, 2.21]	.211	1.56

Note. Nagelkerke pseudo-R^2 = .199

Research Question Five: Perpetration of Violence and Mental Health Difficulties

Research question five asked, *what is the relationship between perpetration of violence and mental health difficulties among incarcerated women?* Prior research has established an association between perpetration of homicide and PTSD (Crisford et al., 2008; Gray et al., 2003; Papanastassiou et al., 2004; Pollock, 1999). To assess whether this same relationship was present in data from the present sample, a chi-square test of association was performed. Criminal history was significantly associated with a diagnosis of PTSD (X^2 =5.364, df=1, p=.021), such that a greater proportion of violent offenders reported a PTSD diagnosis than did nonviolent offenders.

To further examine the relationship between perpetration of violence and mental health difficulties, a multinomial logistic regression model was created with mental health subgroup as the dependent variable. Women in the resilient subgroup were treated as the reference group to provide the relative odds of being in each of the other three mental health subgroups compared to the resilient subgroup. Criminal history was included as an independent variable as were the sociodemographic variables of age, race and education; all independent variables were found to have a significant bivariate association with the dependent variable in a preliminary test of association (see Table 1).

Multicollinearity was assessed via the Variance Inflation Factor (VIF) of each independent variable; VIFs ranged from 1.005 to 1.045, all well below the acceptable threshold of 10 (Bowerman & O'Connell, 1990). Examination of the standardized residual of each case revealed 26 outliers. Additionally, 47 influential cases were identified through review of the DFBetas of each case for each independent variable. Exclusion of the outliers and influential cases did not improve the performance of the model, though one additional parameter estimate was found to be significant that was not significant in the model including all cases. However,

exclusion of the outliers and influential cases also resulted in quasi-complete separation in the data. As such, the outliers and influential cases were retained, and the original model was further evaluated and interpreted. The Pearson and deviance statistics both indicated the model was an acceptable fit to the data (X^2 =1890.91, df=1980, p=.923; X^2 =1763.02, df=1980, p=1.00). However, the Nagelkerke's pseudo R^2 indicated the independent variables in the model explained only 5.8% of the variance in the dependent variable of mental health subgroup.

Table 21. Regression Model 8a: SMI Group vs. Resilient Group (N=2553)

Independent Variable	B (S.E.)	OR [95% CI]	*p*-value	Wald
Intercept	-1.09 (.37)	N/A	.004	8.47
Age	-.02 (.01)	.98 [.97, 1.00]	.017	5.68
Race (White)				
Black	-1.10 (.18)	.33 [.24, .47]	<.001	38.32
Latina	-1.48 (.32)	.23 [.12, .43]	<.001	21.58
Mixed Race/Other	-.57 (.25)	.56 [.35, .91]	.020	5.42
Education (Some Higher Education)				
Did Not Complete High School	.59 (.22)	1.81 [1.19, 2.76]	.006	7.62
Completed High School	.14 (.26)	1.15 [.69, 1.91]	.597	.28
History of Violent Perpetration	.46 (.15)	1.59 [1.18, 2.14]	.002	9.38

Note. Nagelkerke pseudo-R^2 = .058; SMI=serious mental illness

The parameter estimates from regression model eight are shown in three tables. In Table 21, the serious mental illness (SMI) is compared against the resilient group. Similar to the findings from regression model one, White women, women who did not complete high school, and women with histories of violent perpetration were more likely to be in the SMI group rather than the resilient group. Compared to White women, Black women, Latina women, and women of other races were less likely to be in the SMI group (OR=.33, p<.001; OR=.23, p<.001; OR=.56, p=.020). Women who did not complete high school were more likely than women with higher education experience to be in the SMI (OR=1.81, p=.006). Additionally, women with

histories of violent perpetration were more likely than women with histories of nonviolent perpetration to be in the SMI group (OR=1.59, *p*=.002). Unlike regression model one, this model identified age as significantly associated with mental health group membership such that women were slightly less likely to be in the SMI group as age increased (OR=.98, *p*=.017).

Table 22 shows the parameter estimates for membership in the mood and drug use disorder group versus the resilient group. Age, race, and violent perpetration—some of the same independent variables that were significantly associated with membership in the SMI and substance abuse group—were significantly associated with membership in the mood and drug use disorder group. As age increased, women were very slightly less likely to be in the mood and drug use disorder group (OR=.99, *p*=.008). Black women, Latina women, and women of other races were less likely than White women to be in the mood and drug use disorder group (OR=.47, *p*<.001; OR=.37, *p*<.001; OR=.72, *p*=.037). Additionally, women with histories of violent perpetration were more likely than women with histories of nonviolent perpetration to be in the mood and drug use disorder group (OR=1.31, *p*=.006).

Table 22. Regression Model 8b: Depression and Drug Use Group vs. Resilient Group (N=2553)

Independent Variable	B (S.E.)	OR [95% CI]	*p*-value	Wald
Intercept	.25 (.23)	N/A	.282	1.158
Age	-.01 (.01)	.99 [.98, 1.00]	.008	7.02
Race (White)				
Black	-.75 (.11)	.47 [.38, .59]	<.001	48.48
Latina	-1.00 (.17)	.37 [.26, .52]	<.001	33.40
Mixed Race/Other	-.34 (.16)	.72 [.53, .98]	.037	4.37
Education (Some Higher Education)				
Did Not Complete High School	.09 (.12)	1.09 [.86, 1.39]	.486	.49
Completed High School	-.06 (.15)	.94 [.70, 1.26]	.670	.18
History of Violent Perpetration	.27 (.10)	1.31 [1.08, 1.58]	.005	7.82

Note. Nagelkerke pseudo-R^2 = .058

Table 23 compares membership in the substance use only group against membership in the resilient group. Race and education are the variables that have significant associations with group membership. Compared to White women, Black women were less likely to be in the substance use group (OR=.57, $p<.001$). Interestingly, the odds ratios for other race categories were not significant in this portion of the model. Women who did not complete high school were more likely than women with higher education experience to be in the substance use group (OR=1.82, $p=.002$). Violent perpetration was not significantly associated with membership in the substance use group.

Table 23. Regression Model 8c: Substance Use Group vs. Resilient Group (N=2553)

Independent Variable	B (S.E.)	OR [95% CI]	*p*-value	Wald
Intercept	-1.42 (.33)	N/A	<.001	18.30
Age	-.01 (.01)	.99 [.98, 1.01]	.385	.76
Race (White)				
Black	-.56 (.15)	.57 [.42, .77]	<.001	13.85
Latina	-.40 (.21)	.67 [.44, 1.01]	.056	3.66
Mixed Race/Other	-.25 (.22)	.78 [.51, 1.20]	.252	1.31
Education (Some Higher Education)				
Did Not Complete High School	.60 (.19)	1.82 [1.24, 2.67]	.002	9.52
Completed High School	.35 (.23)	1.42 [.91, 2.22]	.122	2.39
History of Violent Perpetration	.08 (.14)	1.09 [.83, 1.42]	.542	.37

Note. Nagelkerke pseudo-R^2 = .058

Research Question Six: Violent Perpetration and Mental Health Service Utilization

Research question six asked, *what is the relationship between violent perpetration and subsequent mental health service utilization among incarcerated women?* To address this research question, six binary logistic regression models were created. Like the four models created to address research question three, each model had a dependent variable indicating whether a participant had used a category of mental health treatment services. Four models

included criminal history as an independent variable and used data from the entire sample (N=2553). Two models used data from the subsample of women convicted of violent offenses (N=707) and included violent offense category as an independent variable. Sociodemographic variables that had significant bivariate associations with the dependent variables were also included in the models (see Table 1).

Models Using Entire Sample to Examine Criminal History

Any treatment as dependent variable. Regression model nine examined how perpetration of violence and sociodemographic characteristics were related to whether a participant had used any form of mental health services during their current incarceration. Specifically, the independent variables included criminal history, race, and education. Multicollinearity was assessed via the Variance Inflation Factor (VIF) of each independent variable; VIFs ranged from 1.005 to 1.021, all well below the acceptable threshold of 10 (Bowerman & O'Connell, 1990). The standardized residual of each case and the DFBetas of each case for each independent variable were examined, and no problematic outliers or influential cases were noted. The Hosmer and Lemeshow test indicated the model was an acceptable fit to the data (X^2 =5.82, df=7, p=.561). However, based on Nagelkerke's pseudo R^2, the independent variables in the model explained only 4.1% of the variance in the dependent variable of using any mental health treatment. Additionally, the model correctly classified only 57.2% of cases, which was less than 25% above the classification accuracy rate obtained by chance, thus indicating the model was not sufficiently accurate (White, 2013). As such, the model should be interpreted with extreme caution.

Model nine showed the independent variables of race, education, and criminal history were significantly associated with mental health service utilization during incarceration, as seen

in Table 24. Women with histories of violent perpetration were somewhat more likely to have used mental health treatment than women with histories of only nonviolent perpetration (OR=1.50, $p<.001$). Consistent with findings from regression model three, this model indicated Black women and Latina women were somewhat less likely to have used mental health treatment compared to White women (OR=.58, $p<.001$; OR=.48, $p<.001$). Also consistent with findings from regression model three, this model indicated that women who had completed high school were somewhat less likely to have used mental health treatment compared to women with higher education experience (OR=.73, p=.018).

Table 24. Regression Model 9: Any Treatment as Dependent Variable (N=2553)

Independent Variable	B (S.E.)	OR [95% CI]	*p*-value	Wald
Constant	.19 (.10)	1.21 [N/A]	.062	3.49
Race (White)				
Black	-.55 (.09)	.58 [.48, .69]	<.001	35.44
Latina	-.74 (.14)	.48 [.36, .63]	<.001	26.92
Mixed Race/Other	-.12 (.14)	.89 [.68, 1.16]	.395	.72
Education (Some Higher Education)				
Did Not Complete High School	-.05 (.11)	.96 [.77, 1.18]	.676	.18
Completed High School	-.31 (.13)	.73 [.57, .95]	.018	5.59
History of Violent Perpetration	.40 (.01)	1.50 [1.27, 1.77]	<.001	23.11

Note. Nagelkerke pseudo-R^2 = .041

Mental health counseling as dependent variable. Regression model 10 examined how perpetration of violence and sociodemographic characteristics were related to whether a participant had used mental health counseling, specifically, during their current incarceration. The independent variables included criminal history, race, and education. Multicollinearity was assessed via the Variance Inflation Factor (VIF) of each independent variable; VIFs ranged from 1.005 to 1.021, all well below the acceptable threshold of 10 (Bowerman & O'Connell, 1990). The standardized residual of each case and the DFBetas of each case for each independent

variable were examined, and no problematic outliers or influential cases were noted. The Hosmer and Lemeshow test indicated the model was an acceptable fit to the data (X^2=6.36, df=8, p=.607). However, the model must be interpreted with caution as the independent variables in the model explained only 5.0% of the variance in the dependent variable, based on Nagelkerke's pseudo R^2. Additionally, the model correctly classified only 74.6% of cases, which was less than 25% above the classification accuracy rate obtained by chance, thus indicating the model was not sufficiently accurate (White, 2013).

Table 25. Regression Model 10: Mental Health Counseling as Dependent Variable (N=2553)

Independent Variable	B (S.E.)	OR [95% CI]	*p*-value	Wald
Constant	-1.03 (.12)	.36 [N/A]	<.001	79.75
Race (White)				
Black	-.40 (.12)	.67 [.54, .82]	<.001	14.21
Latina	-.72 (.18)	.49 [.34, .70]	<.001	15.41
Mixed Race/Other	.01 (.15)	1.01 [.76, 1.36]	.928	.01
Education (Some Higher Education)				
Did Not Complete High School	-.13 (.12)	.88 [.69, 1.12]	.266	1.24
Completed High School	-.32 (.15)	.73 [.54, .97]	.031	4.63
History of Violent Perpetration	-1.03 (.12)	2.03 [1.69, 2.45]	<.001	57.36

Note. Nagelkerke pseudo-R^2 = .050

Parameter estimates for variables in this regression equation mirror those of regression models three and nine insofar as they show race, education, and criminal history to be significantly associated with the dependent variable. As seen in Table 25, women with histories of violent perpetration were more likely to have used mental health counseling than women with histories of only nonviolent perpetration (OR=2.03, p<.001). Consistent with findings from regression model nine, this model indicated Black women and Latina women were somewhat less likely to have used mental health counseling compared to White women (OR=.67, p<.001; OR=.49, p<.001). Also consistent with findings from regression model three, regression model

ten indicated that women who had completed high school were somewhat less likely to have engaged in mental health counseling compared to women with higher education experience (OR=.73, p=.031).

Psychotropic medication as dependent variable. Regression model 11 examined how perpetration of violence and race were related to whether a participant had used psychotropic medication during their current incarceration. Multicollinearity was assessed via the Variance Inflation Factor (VIF) of the two independent variables, which was an acceptable 1.004. The standardized residual of each case and the DFBetas of each case for both independent variables were examined, and no problematic outliers or influential cases were noted. The Hosmer and Lemeshow test indicated the model was an acceptable fit to the data (X^2 =1.66, df=5, p=.894). However, the model must be interpreted with caution as the independent variables in the model explained only 5.0% of the variance in the dependent variable of using psychotropic medication, based on Nagelkerke's pseudo R^2. Additionally, the model correctly classified only 69.3% of cases, which was less than 25% above the classification accuracy rate obtained by chance, thus indicating the model was not sufficiently accurate (White, 2013).

Table 26. Regression Model 11: Psychotropic Medication as Dependent Variable (N=2553)

Independent Variable	B (S.E.)	OR [95% CI]	*p*-value	Wald
Constant	-.76 (.07)	.47 [N/A]	<.001	118.16
Race (White)				
Black	-.56 (.10)	.57 [.47, .70]	<.001	30.98
Latina	-.92 (.17)	.40 [.29, .56]	<.001	28.85
Mixed Race/Other	-.12 (.14)	.89 [.68, 1.18]	.42	.65
History of Violent Perpetration	.58 (.09)	1.78 [1.50, 2.12]	<.001	42.02

Note. Nagelkerke pseudo-R^2 = .050

Parameter estimates for variables in the equation showed significant associations between the outcome variable of psychotropic medication used and both race and criminal history. As

seen in Table 26, women with histories of violent perpetration were more likely to have used psychotropic medication than women with histories of only nonviolent perpetration (OR=1.78, $p<.001$). Consistent with findings from regression models four and nine, this model indicated Black women and Latina women were somewhat less likely to have used psychotropic medication compared to White women (OR=.57, $p<.001$; OR=.40, $p<.001$).

Substance abuse treatment as dependent variable. Regression model 12 examined how perpetration of violence was related to whether a woman has used substance abuse treatment services during her current incarceration; criminal history was the independent variable in the model, and substance abuse treatment was the dependent variable. Because there was only one independent variable, multicollinearity was not assessed. The standardized residual of each case and the DFBetas of each case were examined, and no problematic outliers or influential cases were noted. The Hosmer and Lemeshow test cannot be calculated in models with one independent variable, so it was not considered in the evaluation of the model. Based on Nagelkerke's pseudo R^2, the independent variables in the model explained only 0.2% of the variance in the dependent variable of using substance abuse treatment. Additionally, the parameter estimates for the variable in the equation indicated criminal history was not significantly associated with use of substance abuse treatment.

Models Using Subsample of Violent Offenders to Examine Violent Offense Types

Among the subsample of women incarcerated for violent offenses, violent offense category was significantly associated with use of mental health counseling and psychotropic medication during incarceration (see Table 1). As such, two additional binary logistic regression models were created to examine the effect of violent offense category, one model with mental health counseling as the dependent variable and one model with psychotropic medication as the

dependent variable. Both models used data from the subsample of 707 women currently incarcerated for violent offenses and included as independent variables those sociodemographic variables shown to have significant bivariate associations with the respective dependent variables.

Mental health counseling as dependent variable. Regression model 13 examined how violent offense category and the sociodemographic characteristics of race and education were related to whether a participant had used mental health counseling during their current incarceration. Multicollinearity was assessed via the Variance Inflation Factor (VIF) of each independent variable; VIFs ranged from 1.021 to 1.038, which was acceptable. No outliers were noted in the examination of the standardized residual of each case. However, review of the DFBetas of each case for each independent variable revealed three influential cases. Exclusion of these three cases from the model neither improved the model nor changed the significance of parameter estimates for variables in the model. As such, the original model with the influential cases retained was further evaluated and interpreted. The Hosmer and Lemeshow test indicated the model was an acceptable fit to the data (X^2 =7.97, df=8, p=.437). However, the model must be interpreted with caution as the independent variables in the model explained only 3.9% of the variance in the dependent variable of using mental health counseling, based on Nagelkerke's pseudo R^2. Additionally, the model correctly classified only 64.2% of cases, which was less than 25% above the classification accuracy rate obtained by chance, thus indicating the model was not sufficiently accurate (White, 2013).

As seen in Table 27, race and violent offense category were significantly associated with use of mental health counseling during incarceration. Consistent with findings from regression models, three and 10, Black women were less likely to have used mental health counseling

services compared to White women (OR=.64, *p*=.017), as was also the case for Latina women (OR=.47, *p*=.026). In terms of violent offense category, perpetrators of homicide were more likely to use mental health counseling compared to women who were convicted for robbery (OR=1.67, *p*=.015).

Table 27. Regression Model 13: Mental Health Counseling as Dependent Variable (N=707)

Independent Variable	B (S.E.)	OR [95% CI]	*p*-value	Wald
Constant	-.54 (.25)	.58 [N/A]	.031	4.67
Race (White)				
Black	-.44 (.18)	.64 [.45, .92]	.017	5.75
Latina	-.75 (.34)	.47 [.25, .92]	.026	4.95
Mixed Race/Other	-.12 (.26)	.90 [.54, 1.48]	.668	.18
Education (Some Higher Education)				
Did Not Complete High School	-.13 (.21)	.88 [.58, 1.32]	.537	.38
Completed High School	-.43 (.25)	.65 [.40, 1.06]	.083	3.00
Violent Offense Category (Robbery)				
Homicide	.51 (.21)	1.67 [1.10, 2.53]	.015	5.90
Physical Assault	.37 (.24)	1.45 [.91, 2.30]	.117	2.46
Sexual Assault	.45 (.37)	1.57 [.76, 3.25]	.224	1.48

Note. Nagelkerke pseudo-R^2 = .039

Psychotropic medication as dependent variable. Regression model 14 examined how violent offense category and race were related to whether a participant had used psychotropic medication during their current incarceration. Multicollinearity was assessed via the Variance Inflation Factor (VIF) of for the two independent variables, which were acceptable at 1.008. No outliers were noted in the examination of the standardized residual of each case. However, review of the DFBetas of each case for each independent variable revealed three influential cases. Exclusion of these three cases from the model neither improved the model nor changed the significance of parameter estimates for variables in the model. As such, the original model with the influential cases retained was further evaluated and interpreted. The Hosmer and Lemeshow

test indicated the model was an acceptable fit to the data (X^2 =9.65, df=7, p=.209). However, the independent variables in the model explained only 4.9% of the variance in the dependent variable of using mental health counseling, based on Nagelkerke's pseudo R^2. Additionally, the model correctly classified only 58.7% of cases, which was less than 25% above the classification accuracy rate obtained by chance, thus indicating the model was not sufficiently accurate (White, 2013). Based on finding from these evaluative criteria, the parameter estimates from the model must be interpreted with caution.

Parameter estimates for variables in the equation showed significant associations between the outcome variable of psychotropic medication used and both race and violent offense category, as seen in Table 28. Consistent with findings from regression models four and 11, this model indicated Black women and Latina women were somewhat less likely to have used psychotropic medication compared to White women (OR=.60, p=.004; OR=.38, p=.003). Regarding violent offense category, perpetrators of homicide and physical assault were more likely to use psychotropic medication compared to women who were convicted for robbery (OR=1.60, p=.022; OR=1.65, p=.030).

Table 28. Regression Model 14: Psychotropic Medication as Dependent Variable (N=707)

Independent Variable	B (S.E.)	OR [95% CI]	*p*-value	Wald
Constant	-.51 (.20)	.60 [N/A]	.009	6.77
Race (White)				
Black	-.52 (.18)	.60 [.42, .85]	.004	8.44
Latina	-.97 (.33)	.38 [.20, .73]	.003	8.54
Mixed Race/Other	.14 (.25)	1.15 [.71, 1.87]	.572	.32
Violent Offense Category (Robbery)				
Homicide	.47 (.24)	1.60 [1.07, 2.40]	.022	5.28
Physical Assault	.50 (.23)	1.65 [1.05, 2.58]	.030	4.73
Sexual Assault	.57 (.36)	1.77 [.87, 3.58]	.114	2.50

Note. Nagelkerke pseudo-R^2 = .049

Summary

This chapter presented the results from the univariate, bivariate, and multivariate analyses conducted in the present study. Following the discussion of sample characteristics, results were presented according to research question. The latent class analysis, performed to identify patterns in mental health difficulties among incarcerated women, resulted in selection of a 4-class solution; each class represented a subgroup of women with varying mental health difficulties. The four groups included the serious mental illness and substance use group, the mood and drug use disorders group, the substance use only group, and the resilient group. Multiple logistic regression models examined the likelihood with which sociodemographic variables and women's experiences with violence predicted both membership in these mental health subgroups and use of mental health services during incarceration. Women were less likely to be in the resilient mental health group and more likely to engage with a range of mental health services if they had experienced various forms of victimization or perpetrated violence. Additionally, bivariate statistical analysis showed a significant association between perpetration of violence and a diagnosis of PTSD. The sociodemographic variables of race and education seemed particularly important for understanding women's mental health needs. Interestingly, women of color were more likely to be in the resilient mental health group and less likely to use mental health services during incarceration. Compared to women with higher education experience, women who did not complete high school were less likely to be in the resilient group but were also less likely to use mental health services. These findings will be considered further in the following chapter.

Chapter Five: Discussion

Study Summary

The present study aimed to expand the knowledge base regarding incarcerated women's experiences with violence and their mental health with the goal of identifying macro and micro avenues for more tailored, compassionate responses to their mental health difficulties during incarceration. To achieve this aim, a secondary data analysis was performed using data from the Survey of Inmates in State Correctional Facilities (SISCF) completed by the Bureau of Justice Statistics (BJS) in 2004. Six research questions pertaining to women's experiences with violence and their mental health difficulties and service utilization guided the inquiry, which involved various univariate, bivariate, and multivariate statistical analyses, including latent class analysis and multiple logistic regression procedures. This final chapter discusses the study findings vis-à-vis the extant literature on justice-involved women. Study limitations are also reviewed. The chapter ends with a discussion of the study implications for social work practice and recommendations for future research.

Interpretation of Significant Findings

The study yielded many statistically significant findings. Tables 29 and 30 delineate the statistically significant findings from the logistic regression analyses according to independent variable, providing an overview of how sociodemographic variables and experiences with violence influence the mental health difficulties and service use of this sample of incarcerated women. The results are discussed in detail below.

Table 29. Significant Findings from Regression Models According to Demographic Variables

Significant Finding According to Independent Variable	Logistic Regression Model
Age	
As age increased, women were less likely…	
…to be in the serious mental illness group versus the resilient group	8
…to be in the mood and drug use disorder group versus the resilient group	8
…to have perpetrated physical assault versus homicide	7
…to have perpetrated sexual assault versus homicide	7
…to have perpetrated robbery versus homicide	7
Race	
Compared to White women, Black women were…	
…less likely to be in the serious mental illness group versus the resilient group	1, 8
…less likely to be in the mood and drug use disorder group versus the resilient group	1, 8
…less likely to have used any mental health treatment	2, 9
…less likely to have used mental health counseling	10, 13
…less likely to have used psychotropic medication	4, 11, 14
…more likely to have perpetrated a violent offense	6
…more likely to have perpetrated physical assault versus homicide	7
Compared to White women, Latina women were…	
…less likely to be in the serious mental illness group versus the resilient group	1, 8
…less likely to be in the mood and drug use disorder group versus the resilient group	1, 8
…less likely to have used any mental health treatment	2, 9
…less likely to have used mental health counseling	10, 13
…less likely to have used psychotropic medication	4, 11, 14
…more likely to have perpetrated physical assault versus homicide	7
Compared to White women, women of mixed race or other races were…	
…less likely to be in the serious mental illness group versus the resilient group	1, 8
…less likely to be in the mood and drug use disorder group versus the resilient group	1, 8
…more likely to have perpetrated physical assault versus homicide	7
Marital Status	
Compared to women who had never married, married women were…	
…less likely to have perpetrated a violent offense	6
Compared to women who had never married, widowed women were…	
…more likely to have perpetrated a violent offense	6
…less likely to have perpetrated robbery versus homicide	7
Compared to women who had never married, divorced/separated women were…	
…less likely to have perpetrated a violent offense	6
…more likely to have perpetrated sexual assault versus homicide	7
Education	
Compared to women with higher education, women who had not completed high school were…	
…more likely to be in the serious mental illness group versus the resilient group	1, 8
…more likely to be in the mood and drug use disorder group versus the resilient group	8
…more likely to have perpetrated physical assault versus homicide	7
…more likely to have perpetrated sexual assault versus homicide	7
Compared to women with higher education experience, women who had completed only high school were…	
… less likely to have used any mental health treatment	2, 9
… less likely to have used mental health counseling	10
…more likely to have perpetrated sexual assault versus homicide	7

Mental Health Difficulties Among Incarcerated Women

The literature review for the present investigation revealed countless studies attesting to the high prevalence of mental health difficulties among incarcerated women (Bentley & Casey, 2017; DeHart et al., 2014; James & Glaze, 2006). Indeed, several studies have noted elevated rates of co-occurring mental health difficulties among this population (Salina et al., 2011; Salina et al., 2007; Teplin et al., 1996). However, no studies were found which identified patterns in these seemingly common and co-occurring mental health difficulties. Thus, the present study contributed to the knowledge base by using latent class analysis to distinguish four subgroups of women according to mental health difficulties.

Importantly, the analysis identified a small subgroup of women with elevated probabilities of every mental health difficulty considered. Comprising almost 9% of the sample, this group of women would be most likely to experience a range of mental health symptomology and require substantial support around managing these difficulties while incarcerated. This finding seems to reflect the now well-documented phenomenon of correctional facilities becoming "new asylums" for people with serious mental illnesses following the so-called deinstitutionalization movement (Barnao & Ward, 2015; Barrenger & Draine, 2013; Kondrat, Rowe, & Sosinski, 2013).

Another notable finding from the present study is the identification of a large subgroup of women contending with mood and drug use disorders specifically. Prior research has shown high rates of co-morbidity between mood disorders and substance use across both community and correctional settings (Kessler, Chiu, Demler, & Walters, 2005; Salina et al., 2011; Salina et al., 2007). With 30% of participants falling into the mood and drug use disorders subgroup, the present study confirms the relevance of this specific combination of co-occurring mental health

difficulties for incarcerated women. Additionally, almost 12% of women in this sample were most likely to struggle with alcohol use disorder and drug use disorder exclusively, an interesting finding considering the fact that one quarter of incarcerated women are serving time for drug-related offenses (Carson & Anderson, 2016).

Perhaps those most remarkable finding from the latent class analysis was the identification of a resilient class comprising almost half the sample. Whereas several studies have identified the prevalence of mental health difficulties among incarcerated women at much more than 50% (e.g. Bentley & Casey, 2017; James & Glaze, 2006; Staton, Leukefeld, & Webster, 2003), findings from the present study align with the more conservative estimates seen elsewhere (Hutton et al., 2001; Jordan, Schlenger, Fairbank, & Caddell, 1996; Prins, 2014).

The Influence of Experiences with Violence

In addition to investigating patterns in mental health difficulties, the present study examined incarcerated women's experiences with violence. While several research questions focused on the intersection of experiences with violence and mental health difficulties, the study also attempted to add to the knowledge base supporting feminist pathways theory by considering how victimization is associated with perpetration of violence.

Table 30. Significant Findings from Regression Models According to Violence Variables

Significant Finding According to Independent Variable	Logistic Regression Model
Childhood Sexual Victimization	
Compared to women who had not experienced childhood sexual victimization, women who had experienced this form of victimization were…	
…more likely to be in the serious mental illness group versus the resilient group	1
…more likely to be in the mood and drug use disorder group versus the resilient group	1
…more likely to be in the substance use only group versus the resilient group	1
…more likely to have used any mental health treatment	2
…more likely to have used psychotropic medication	4
…more likely to have used substance abuse treatment	5
…more likely to have perpetrated a violent offense	6

Table 30 continued. Significant Findings from Regression Models…

Significant Finding According to Independent Variable	Logistic Regression Model
Adulthood Sexual Victimization	
Compared to women who had not experienced adulthood sexual victimization, women who had experienced this form of victimization were…	
…more likely to be in the serious mental illness group versus the resilient group	1
…more likely to be in the mood and drug use disorder group versus the resilient group	1
…more likely to be in the substance use only group versus the resilient group	1
…more likely to have used any mental health treatment	2
…more likely to have used psychotropic medication	4
…more likely to have used substance abuse treatment	5
Childhood Physical Victimization	
Compared to women who had not experienced childhood physical victimization, women who had experienced this form of victimization were…	
…more likely to be in the serious mental illness group versus the resilient group	1
…more likely to be in the mood and drug use disorder group versus the resilient group	1
…more likely to be in the substance use only group versus the resilient group	1
…more likely to have used any mental health treatment	2
…more likely to have used psychotropic medication	4
…more likely to have used substance abuse treatment	5
…more likely to have perpetrated a violent offense	6
Adulthood Physical Victimization	
Compared to women who had not experienced adulthood physical victimization, women who had experienced this form of victimization were…	
…more likely to be in the serious mental illness group versus the resilient group	1
…more likely to be in the mood and drug use disorder group versus the resilient group	1
…more likely to be in the substance use only group versus the resilient group	1
…more likely to have used any mental health treatment	2
…more likely to have used psychotropic medication	4
…more likely to have used substance abuse treatment	5
History of Violent Perpetration	
Compared to women with histories of only nonviolent perpetration, women with histories of violent perpetration were…	
…more likely to be in the serious mental illness group versus the resilient group	8
…more likely to be in the mood and drug use disorder group versus the resilient group	8
…more likely to have used any mental health treatment	9
…more likely to have used mental health counseling	10
…more likely to have used psychotropic medication	11
Violent Offense Type	
Compared to women who had perpetrated robbery, women who perpetrated homicide were…	
…more likely to have used any mental health treatment	13
…more likely to have used psychotropic medication	14
Compared to women who had perpetrated robbery, women who had perpetrated physical assault were…	
…more likely to have used psychotropic medication	14

Victimization and perpetration of violence. Pathways theorists posit women's experiences with victimization as potential triggers for involvement in the criminal justice

system (Daly, 1992; DeHart, 2008; Gilfus, 1992). Findings from the present study suggest women who have experienced either sexual victimization or physical victimization in childhood are more likely to be incarcerated for a violent offense than a nonviolent offense. These findings provide empirical support for the existence of a group of "harmed-and-harming women," whom Daly (1994) first identified; according to Daly, these women experienced abuse or neglect in childhood and developed maladaptive coping strategies involving violence as a result. Indeed, this finding from the present study aligns with findings from numerous other inquiries that have confirmed the association between childhood victimization and violent perpetration (Coohey, 2004; Maxfield & Widom, 1996; Pollock, Mullings, & Crouch, 2006; Simpson, Yahner, & Dugan, 2008; Weizmann-Henlius et al., 2004; Willison, 2011).

While findings vis-à-vis childhood victimization lend support for pathways theory, other findings from the present study challenge some aspects of the theory. Daly (1994) also noted a group of "battered women" whose criminal involvement stemmed from experiences of intimate partner violence. However, the present study did not find significant associations between forms of victimization in adulthood and perpetration of violence, nor have any other studies established this relationship. Perhaps theorizing about criminal justice involvement related specifically to violent perpetration falls outside the purview of pathways theory. Indeed, pathways theorists have established their intention of explaining female criminal justice involvement generally, and the majority of justice-involved women have not perpetrated violence. It seems that other theories may be better suited to explaining women's perpetration of violence.

Considering the significant findings from this and other studies regarding the association between childhood victimization and perpetration of violence, adequate theoretical explanations of female perpetration of violence must account for the apparent influence of these childhood

experiences. Drawing upon tenets of the developmental life course perspective, it seems plausible that victimization during childhood may produce a formative impact on the life pathway of the victim, whereas adult victimization may not disrupt previously established life trajectories. Social learning theory could also provide a possible explanation; if children are exposed to violence through victimization, they then learn to perpetrate violence themselves (Bandura, 1973). This theoretical explanation seems to align with findings from Gilgun (2008) who suggests that violent offenders understand violence as a useful problem-solving mechanism. The notable shortcoming of these theoretical explanations is, of course, their failure to account for gender, which feminist criminologists deem essential when theorizing female criminal behavior (Van Gundy, 2014).

Attribution theory has been used to explain gender differences in lethal violence—both homicide and suicide—and may offer a theoretical foundation upon which to build an understanding of the relationship between childhood victimization and perpetration of violence among women (Unnithan, Huff-Corzine, Corzine, & Whitt, 1994). According to attribution theory, individuals attribute life events to either internal or external causes (Heider, 1958); for example, a workplace achievement might be considered the result of either hard work and innate ability (internal attribution) or luck and circumstance (external attribution). Gendered patterns in attribution style have been identified; while men tend to ascribe positive events to internal causes and negative events to external causes, women typically do the opposite (Deaux, 1976). Batton (2004) suggests that these gendered patterns of attribution style explain gender differences in violence perpetration insofar as violence is directed toward those considered responsible for negative events; as such, men are more likely to perpetrate violence against others due to their attribution of negative events to external factors, and women are more likely to engage in self-

directed violence because of their attribution of negative events to internal factors. Attribution theory seems a satisfactory explanation of gender differences in the perpetration of violence. Perhaps the theory might be expanded to account for the influence of childhood victimization on female perpetration. It seems possible that the experience of victimization in childhood might disrupt the attribution style of girls and young women. Rather than assuming the attribution style supposedly typical of the female gender, female survivors of childhood victimization might rightfully attribute blame for their victimization on their assailant, thus adopting an attribution style more typical of men. Future negative events would then be attributed to external factors and violence directed outward. Indeed, research has shown that women sometimes demonstrate aggression after experiencing victimization (Abei et al., 2015; Putallaz, Kupersmidt, Coie, McKnight, & Grimes, 2004); DeHart (2008) identified this relationship among a sample of incarcerated women specifically. Although this application of attribution theory seems a promising avenue for understanding the influence of childhood victimization upon future violent perpetration, this explanation does not account for the substantial literature asserting that female survivors of childhood victimization are at an increased risk for further victimization in adulthood (Classen et al., 2005; Lalor & McElvaney, 2010; Messman-Moore & Long, 2003).

In addition to confirming the association between childhood victimization and violent perpetration, the present study also considered how victimization experiences might relate to perpetration of specific forms of violence. Interestingly, only sexual victimization in adulthood was significantly associated with violent offense type in preliminary bivariate analyses, an association that did not persist when examined in the context of regression models that also included sociodemographic variables. Whereas childhood victimization seems important for theorizing about violent perpetration generally, victimization does not seem to influence the

severity of perpetrated violence. However, because severity of perpetrated violence may vary over time, a longitudinal study would be more appropriate for investigating this specific phenomenon.

Experiences with violence and mental health difficulties. Findings from the present study offer a substantial contribution to the literature regarding the relationship between victimization and mental health, as well as perpetration of violence and mental health. The present study showed an association between four specific types of victimization—childhood sexual abuse, childhood physical abuse, adulthood sexual abuse, and childhood sexual abuse—and the experience of mental health difficulties. These findings corroborate previous research that has established—among incarcerated women specifically—significant associations between childhood victimization and psychosis (Kennedy et al., 2013), and substance use (Tripodi & Pettus-Davis, 2013). Aday, Dye, & Kaiser (2014) also found that sexual victimization generally was associated with a range of specific mental health diagnoses. The present study adds to this knowledge by showing that all distinct types of victimization potentially put women at higher risk for specific co-occurring mental health difficulties; not only are women with histories of these forms of violence more likely to have specific disorders, but they are more likely to experience specific constellations of difficulties, such as co-occurring mood and drug use disorders, or multiple serious mental illnesses. Trauma theory suggests that victimization can result in difficulty regulating and responding to stress; such difficulties then manifest as a range of mental health symptomatology (Ehlers & Clark, 2000; Welfare & Hollin, 2012). In confirming the influence of victimization experiences on mental health difficulties, the present research also contributes to the expansive literature regarding psychosocial and environmental factors related to mental health difficulties.

The present study also found a significant association between perpetration of violence and mental health difficulties. Specifically, this study identified a relationship between having perpetrated violence and having been assigned a diagnosis of post-traumatic stress disorder among an entirely female sample in the United States; prior research identifying this relationship was limited to predominantly male samples in the United Kingdom (Crisford et al., 2008; Gray et al., 2003; Papanastassiou et al., 2004; Pollock, 1999). The present study also established that violent female offenders were more likely to experience a range of other mental health difficulties compared to nonviolent offenders. Without longitudinal data or additional information about the timing of diagnosis with mental health issues, it is not possible to know whether violent perpetration preceded mental health difficulties or vice versa. Sound theoretical explanations of the relationship between these two constructs requires additional information about the time order of events. However, if perpetration of violence did precede mental health difficulties for some of these women, it seems possible their own perpetration of violence was experienced as traumatic, and their response to that trauma involved the development of mental health difficulties. Such a narrative would seem particularly applicable for women who perpetrated against intimate partners or children, which is the case for approximately 45% of violent female offenders (Willison, 2016).

Experiences with violence and mental health service use. Findings from the present study support findings from research in the general population that has shown people who have experienced victimization to be more likely to seek out mental health services compared to those who have not (Golding et al., 1988; New & Berliner, 2000). The finding that incarcerated women who have experienced victimization are more likely to engage in mental health treatment becomes increasingly meaningful when considered within the context of the integrative model of

traumatization and seeking psychosocial care (Schreiber, Renneberg, & Maercker, 2009). Within this model, feedback from social supports is theorized as an important prompt for help seeking. Although incarceration typically separates women from their usual sources of social support, it is possible that social connections made in prison provide feedback that similarly promotes engagement with services. Additionally, structural barriers that create obstacles to service use in the community, such as limited insurance coverage or transportation, are presumably resolved in the correctional environment, where basic medical and mental health care are ostensibly available to all prisoners requiring it. That said, research has identified barriers to mental health services use in correctional environments specifically (Bentley & Casey, 2017), which may replace those structural barriers women encountered in the community. The fact that women who have experienced victimization are more likely to use care despite these numerous potential barriers may speak to the significant distress past victimization causes them during their incarceration, especially since their usual methods of coping may no longer be available.

The present study also found that women convicted of violent crimes were more likely than those convicted of nonviolent crimes to receive mental health treatment during incarceration, confirming similar findings from another study that used the same dataset (Willison, 2011). Additionally, type of violent offense was significantly associated with use of mental health counseling and psychotropic medication, with women convicted of the offenses of homicide and physical assault being more likely to use these forms of treatment compared to women convicted of robbery. Given the association found between victimization and perpetration of violence, it is difficult to know with certainty whether perpetration is truly related to use of services or simply a confounding variable in the relationship between victimization and service use. However, it does contribute evidence to the argument that perpetration of violence

may contribute to mental health difficulties that require formal mental health treatment. The findings regarding type of violent offenses become increasingly meaningful when aspects of those offenses are considered further; whereas robbery is most frequently perpetrated against strangers in public locations, women are much more likely to perpetrate homicide and physical assault against people well known to them in their own homes (Willison, 2016). Perhaps the latter experiences are more likely to be experienced as traumatic, thus more likely to prompt use of mental health services during incarceration.

The Role of Sociodemographic Characteristics

The present study examined the sociodemographic variables of race, education, marital status, and age; of these four variables, race and education seemed most important for understanding mental health difficulties and service use among incarcerated women.

Race. Minority racial status seemed to be a protective factor against mental health difficulties, as women of color were generally less likely than White women to be members of the three mental health difficulty subgroups. Additionally, Black and Latina women were less likely to have used various mental health services during their incarceration, perhaps because they experienced less need for such services. Epidemiological studies have consistently noted a "paradox" in the form of lower prevalence of mental health disorders among Black Americans (Chernoff, 2002; Kessler et al., 2005). These differences may be attributable to the resilience of Black people, which has been strengthened through daily confrontations with racial discrimination (Barnes & Bates, 2017; Keyes, 2009). However, more recent literature shows an overwhelming amount of evidence that women of color—regardless of demonstrated need—face disparities in their access to mental health treatment (Alegría et al., 2008; Fiscella, Franks, Doescher, & Saver, 2002; Guerrero, Marsh, Khachikian, Amaro, & Vega, 2013; Wang et al.,

2005; Wells, Klap, Koike, Sherbourne, 2001). Despite lower rates of mental health difficulties among some women of color, their mental health needs seem to be unmet in many cases. Unique cultural barriers to treatment, such as stigmatization of mental illness and cultural differences in perception of wellness, compound structural inequalities that already complicate access to healthcare for so many women of color (Briggs, Briggs, Miller, & Paulson, 2011; Jones, Hopston, Warner, Hardiman, & James, 2015; Snowden & Yamada, 2005). Furthermore, research suggests racial disparities in access to mental health treatment are particularly pronounced for women with co-occurring disorders (Hatzenbuehler, Keyes, Narrow, Grant, & Hasin, 2008; Nam, Matejkowski, & Lee, 2017; Wells et al., 2001). Importantly, culture-related barriers seem likely to persist within the carceral environment even as other structural barriers recede. The present study offered less definitive findings regarding women of other races or mixed race, perhaps because this combined category did not allow for statistical perception of nuance within the experiences of women of different racial backgrounds.

Education. Education represents another sociodemographic factor important to incarcerated women's mental health difficulties and service use. The findings showed that women who did not complete high school were more likely than women with higher education experience to be members of the serious mental illness and substance use subgroup as well as the substance use only subgroup. Indeed, prior research seems to indicate that educational attainment protects against mental health difficulties among members of the general population (Breslau, Lane, Sampson, & Kessler, 2008; Erickson et al., 2016). On the other hand, higher educational attainment seems to be significantly associated with use of mental health services, both in the present study and in the literature (McDonald et al., 2017; Steele, Dewa, Lin, & Lee, 2007). Some scholars have questioned whether the association between educational attainment and

mental health-related variables are truly due to the benefits of education, positing that educational attainment may actually represent a proxy for other more relevant socioeconomic variables, such as income or housing stability (Thomson, Guhn, Richardson, & Shoveller, 2017).

Study Limitations

As with any study, the above findings must be considered vis-à-vis the limitations of the research methodology. The major limitations of the present study stem from the use of secondary data analysis. The use of preexisting data for this study resulted in limitations related to cross-sectional data, operationalization of variables, and external validity, all of which are discussed in detail below.

Limitations of Secondary Data Analysis

As a research design, secondary data analysis has some significant limitations. First, this study used data for purposes other than those intended by those who collected it. According to BJS, the purpose in undertaking the SISCF is to describe characteristics of incarcerated people in the United States. This purpose has been borne out in subsequent BJS publications detailing numbers of prison and jail inmates (Carson & Anderson, 2016), prevalence of mental health difficulties (James & Glaze, 2006), prevalence of substance abuse (Mumola & Karberg, 2006), prevalence of medical conditions (Maruschak, 2008), and numbers of inmates with minor children (Glaze & Maruschak, 2008). Because the aims of the present study differ substantially from those of the original researchers, certain aspects of the data which were not problematic for the original researchers posed challenges for the present study. For example, data about self-directed violence was limited to two variables about suicide; while this amount of data may have been sufficient for purposes the original researchers, it limited the ability of the present study to

more fully explore the nuances of self-directed a violence, a phenomenon which is quite relevant to mental health and a noted issue among incarcerated women specifically.

Additionally, the present study focused exclusively on women, using a relatively small subset of the original dataset. However, the SISCF questionnaire was designed for use with all prisoners, thus likely cannot be considered gender-responsive. Indeed, Flavin (2004) notes that questionnaires developed for criminological research are routinely designed to gather information about male participants, thus potentially neglect issues relevant to women.

Another limitation of secondary data analysis is that the researcher must trust that sampling, data collection, and data entry followed the protocols described. However, if data collection followed the skip patterns prescribed in the original questionnaire, it is unclear why some variables in the dataset had a higher proportion of unexplained missingness. Without more intimate knowledge of the methodological process, this researcher cannot speculate as to potential methodological explanations for data missingness. To summarize, secondary data analysis binds one researcher to the methodological decisions of another, sometimes with frustrating consequences.

Cross-Sectional Data

A major limitation of the present study is the cross-sectional nature of the data. Of course, time order is necessary to establish causal relationships between variables. While longitudinal data is best suited to collecting time ordered data, time order can be established in cross-sectional studies through collection of retrospective data. For example, the present study determined whether incidents of victimization occurred in childhood or adulthood. Additionally, all incidents of victimization occurred prior to incarceration, as did the offenses for which women were incarcerated. Thus, use of services during the present incarceration necessarily

occurred after these specific experiences with violence. However, retrospective data is sometimes inaccurate because present mood and the passage of time can influence memory (Bachman, Schutt, & Plass, 2017).

Even if the variables pertaining to victimization, violent perpetration, and service use can be considered accurate and somewhat time ordered, a major limitation of the present study is the lack of time ordered data about mental health difficulties. As described in chapter three, variables pertaining to mental health difficulties were collected via responses to questionnaire items asking, "*Have you ever been told by a mental health professional, such as a psychiatrist or psychologist, that you had [mental health disorder]?*" Certainly, a past diagnosis does not necessarily indicate present symptomatology. Thus, findings from the latent class analysis, which identified subgroups of women according to patterns of mental health difficulties, should perhaps be considered as a representation of mental health difficulties experienced over the course of these women's lives rather than a representation of difficulties they are presently experiencing. Additionally, research questions two and five investigated the relationships between mental health difficulties and experiences with violence. Because time of diagnosis of mental health difficulties was not known, time order of mental health difficulties and experiences with violence cannot be established. Does the experience of serious mental illness precede perpetration of violence or vice versa? Such questions must be left to future research.

Operationalization of Variables

As with all secondary data analysis, the constructs of interest to the present study were operationalized using variables available in the existing data set. Unfortunately, available variables did not always offer the optimal means of operationalizing a specific construct. The first example to consider is the operationalization of alcohol use disorder and drug use disorder.

As detailed in chapter three, these dummy variables were computed by counting the number of diagnostic criteria endorsed by a participant; those participants at or above the diagnostic threshold of two criteria were coded as having the disorder. However, no variables in the existing data set measured whether a participant experienced "clinically significant impairment or distress" associated with the endorsed substance-related behaviors or symptoms, which is also part of the diagnostic criteria in the DSM-5 (APA, 2013, p. 490); without assessing impairment or distress, a diagnosis for a substance use disorder cannot be definitively assigned. This limitation regarding the variables of alcohol use disorder and drug use disorder are particularly important to consider vis-à-vis the results of the latent class analysis. It is possible that members of the substance use only subgroup met the diagnostic criteria for these disorders because of behaviors associated with drug-related crime rather than their own substance use.

Several important limitations must also be mentioned regarding the measurement of violent perpetration in the present study. First, the perpetrated offense was measured according to the most severe offense for which the participant received a criminal conviction. However, the receipt of a criminal conviction does not necessarily indicate that the participant concedes guilt. Indeed, the last few decades have seen hundreds of convicted offenders exonerated due to the submission of additional evidence or the exposure of prosecutorial misconduct (Medwed, 2006; The Innocence Project, 2016). Thus, conviction for violent perpetration may not be an accurate indicator of actual violent perpetration in all cases. Additionally, the crime for which an individual is convicted may not correspond to the exact actions of the individual during commission of the crime. For example, someone who engaged in behavior that meets the legal definition of homicide may be convicted of a less severe charge, such as manslaughter, through a

plea bargain. In fact, the vast majority of felony cases resolve with the acceptance of a plea bargain (Rosenmerkel, Durose, & Farole, 2006).

This study followed the example of other researchers in combining racial categories with low membership to create one category of women who identified as either mixed race or races other than White, Black, or Latina. However, membership in this category had fewer significant associations with other variables than membership in Black or Latina categories; it seems the race-related experiences of women from these various racial backgrounds may be too disparate to be combined in a meaningful way.

External Validity

The original SISCF was designed to yield a data set that would be representative of all prisoners in state correctional centers in the United States. However, methods used in the present study significantly limit the external validity of findings. The original data set used sampling weights to achieve representativeness. Unfortunately, Mplus 7.1 does not have the capability to conduct mixture modeling with sampling weights. Because four of the six research questions were dependent upon the latent class analysis conducted in Mplus 7.1, the unweighted sample was utilized for all statistical analyses in the present study. Use of the unweighted sample means the findings from the present study cannot be generalized to the wider population of women incarcerated in state correctional facilities in the United States. The complete case analysis approach to missing data also limits generalizability; the parameter estimates of inferential statistics can only be considered representative of the final sample, not those cases deleted due to missing data. Additionally, the data were collected in 2003, thus may no longer be representative of the women currently incarcerated in state correctional facilities. Finally, the analyses did not account for the clustering of respondents within correctional institutions across which there is

likely some variability in the mental health services available. It is possible that variability in prison resources and implementation of mental health services may account for the poor performance of some regression models that featured use of various mental health services as the dependent variable. Despite these limits to external validity, the large sample size does bolster the potential value of the study findings, which stand to make a meaningful contribution to the social work and criminal justice literatures.

Implications for Social Work Practice

The present study offers implications across the multiple points at which the social work profession interfaces with the criminal justice system. Whether at the macro or clinical level, these implications have potential for promoting tailored, compassionate mental health care for justice-involved women both in the community and in correctional environments.

Implications for Community-Based Interventions

Findings from the present study provide empirical support for alternatives to incarceration and community reintegration programs that could help address the problem of mass incarceration, one of the Grand Challenges for social work (Pettus-Davis & Epperson, 2015). The study identified drug use as a prominent mental health difficulty among this sample of incarcerated women; even women within the resilient subgroup were shown to have a 39% chance of meeting the diagnostic criteria for drug use disorder. Given the seemingly overwhelming need for services related to substance use, social workers should develop, promote, and implement policies and programs to prevent and remediate drug-related crime. Decriminalization of drugs through legal reform represents one approach, as it has resulted in promising increases in engagement with substance abuse treatment in some cases (Kristof, 2017; Vashishtha, Mittal, Werb, 2017). Such polices might help to divert female perpetrators of drug-

related offenses away from the criminal justice system and into the mental health system. Of course, these changes would require substantial investment in the mental health system to ensure that adequate resources exist to meet the needs of the population. Somewhat less drastic measures might include the establishment and standardization of drug courts across legal jurisdictions, as drug courts have shown some modest success at reducing incarceration and criminal recidivism (Gallagher, 2014).

In addition to identifying substance use as a significant problem for this sample of incarcerated women, the present study also showed that approximately 9% of the sample was highly likely to struggle with multiple serious mental illnesses, thus these women represent a subgroup with substantial needs around their mental health. Considering the apparent barriers to mental health treatment for incarcerated people (Bentley & Casey, 2017; Wilper et al., 2009), as well as the potentially deleterious effects of incarceration upon mental health (Harner & Riley, 2013), alternatives to incarceration seem to represent a more compassionate option for women with serious mental illness, perhaps excepting those who represent a serious threat to society. Mental health courts, which divert people with serious mental illness into treatment programs rather than incarceration, represent one potential option. Like drug courts, mental health courts have been successful at reducing incarceration and criminal recidivism (Lim & Day, 2014; Lowder, Desmarais, & Baucom, 2016).

This study also identified associations between victimization and violent perpetration as well as between victimization and mental health difficulties. Obviously, there remains a dire need for policies and programs that can effectively eradicate the victimization of women and thus potentially prevent the negative outcomes associated with victimization. Mobilizing communities around bystander intervention represents a possible approach to addressing

gendered violence (Murphy, 2017; Rentschler, 2017). Because survivors of victimization are at an increased risk for revictimization in the future, social workers should also endeavor to reduce stigma around victimization and increase access to services for survivors. Another strategy to reduce the prevalence of victimization is to target the primary perpetrators of violence against women—that is, men—through widespread educational prevention programs, perhaps incorporating such programs in public education curricula. Addressing violence against women will require a larger cultural shift toward increased respect for women and zero tolerance for aggression and violence against them. Recent social movements, such as Time's Up and #MeToo, serve as promising harbingers of such a cultural change.

Implications for Correctional Mental Health Services

Findings from the present study have implications for the practice of social work within the context of correctional mental health service provision as well. Increased resources for mental health services constitutes one important implication for clinical social work practice. With just over half of this sample of incarcerated women likely to have some mental health difficulty, a tremendous need for mental health services clearly exists among female prisoners in state correctional facilities. While realization of the implications for macro social work practice discussed above might lessen the burden for mental health services within correctional centers, it seems likely that women with mental health difficulties and/or histories of victimization will continue to interface with the criminal justice system. As such, the criminal justice system must be prepared to meet these needs. Considering that other studies have noted problematic limitations to accessing mental health services while incarcerated (e.g. Bentley & Casey, 2017; Bressington et al., 2008; Casey, 2017; Way et al., 2007; Wilper et al., 2009), correctional facilities should substantially increase the number of qualified mental health professionals on

staff as well as funding for mental health programming. In addition to increasing the number of qualified mental health professionals, the proportion of racially diverse providers should also be increased to be more reflective of the incarcerated population; increasing diversity among providers represents one strategy for decreasing disparities in mental health service utilization among people of color such as those disparities noted in the present study (McGuire & Miranda, 2008). Bolstering the availability of basic mental health services may help ensure that all incarcerated women have access to the support they need to address their mental health difficulties.

In addition to increasing the availability of formal mental health resources, correctional facilities might also leverage the strengths of their inmate population to meet the needs of those women who are struggling. The present study identified a resilient group of women comprising almost half of the sample; these women might represent a valuable resource for addressing the mental health difficulties of their peers. Program models for peer-led services range from structured emotional support and psychoeducational groups to mentorship to crisis intervention (Bagnall et al., 2015; Devilly, Sorbello, Eccleston, & Ward, 2005). Several studies have noted the positive outcomes associated with peer-led services in correctional environments, finding that such programs can promote prosocial attitudes (Collica, 2010), reduce symptomatology (Najavits et al., 2014; Woodall, South, Dixey, de Viggiani, & Penson, 2015), and prevent self-directed violence (Halls & Gabor, 2004; Griffiths & Bailey, 2015). Another noteworthy strength of peer-led interventions is their potential for addressing disparities in mental health service use among women of color (Corrigan, Pickett, Batia, & Michaels, 2014; Corrigan, Torres, Lara, Sheehan, & Larson, 2017; Weng & Spaulding-Givens, 2017).

Quality of mental health services pertains to more than notions of quantity and availability; these services must also be responsive to the specific, unique mental health needs of incarcerated women. The present study identified four subgroups of incarcerated women according to mental health difficulties, highlighting specific patterns of co-occurring difficulties that might be targeted through tailored treatment approaches. For example, approximately 30% of the sample had an elevated chance of experiencing co-occurring mood and drug use disorders; as such, correctional mental health services should include interventions specific to this combination of mental health difficulties such as dialectical behavior therapy and therapeutic communities (National Institute on Drug Abuse, 2010). Because this subgroup comprised almost one third of the sample, these interventions need to be widely available to correctional populations, not limited to those women pending release.

As discussed with regard to implications for macro social work, the seemingly high prevalence of substance use disorders also presents implications for clinical social work. Because a large proportion of incarcerated women in this sample seem to struggle with substance use, substance abuse treatment services should be made more widely available within correctional environments. These services should be evidence-based with demonstrated effectiveness for justice-involved women specifically; cognitive behavioral therapy represents one programming option that meets these criteria (Pelissier, Motivans, & Rounds-Bryant, 2005). Additionally, substance abuse treatment services need to be tailored to account for co-occurring disorders, since findings from the present study suggest at least 39% of women are likely to experience other mental health difficulties in conjunction with either alcohol use disorder or drug use disorder. Interventions should address both mental health difficulties and substance use issues in a coordinated, complementary fashion (Minkoff, 2001). Integrated Treatment for Dual Diagnosis

represents one programming option for addressing the needs of this subgroup (Mueser, Noordsy, Drake, & Fox, 2003).

In addition to accounting for high rates of substance use, mental health interventions for incarcerated women must also address victimization. This study showed that women are more likely to experience serious mental illnesses if they have experienced various forms of victimization. As such, mental health services must address the psychosocial causes of mental health difficulties in addition to biological causes. Psychotropic medication, which seems to be more widely available in correctional contexts than other mental health interventions (Bentley & Casey, 2017; Bressington et al., 2008), may help manage symptomatology, but will likely prove insufficient for resolving those mental health difficulties related to experiences of victimization. The *Seeking Safety* curriculum is an evidenced-based model that has been shown to be effective for addressing co-occurring trauma-related symptomatology and substance use among incarcerated women (Zlotnick, Johnson, & Najavits, 2009; Zlotnick, Najavits, Rohsenow, & Johnson, 2003). Use of trauma-informed approaches is especially important since research has shown that traditional mental health services can result in the revictimization of survivors (Mejía, Zea, Romero, & Saldívar, 2015). Importantly, individual treatment modalities may be preferable in cases of women with histories of extensive victimization (Roth & Fonagy, 2005), further emphasizing the need for additional mental health resources to increase availability of individual care. As with other suggested clinical interventions, this programming should be made available to all incarcerated women for whom the treatment is relevant, not relegated to those with upcoming release dates.

The present study found an association between perpetration of violence and mental health difficulties. Although the theoretical explanations for this association remain murky, it

seems clear that correctional mental health services need to include some interventions targeted at violent female offenders. Existing options include the Risk-Need-Responsivity Model, designed to address criminogenic needs generally, and sex offender treatment programs, such as the Good Lives Model. No specific programs or interventions were found that target the mental health or criminogenic needs of violent female offenders specifically. Although violent female offenders represent a relatively small proportion of the justice-involved population, social work values demand that the needs of this group are attended to with competence and compassion. Social workers should consider developing an intervention that would target the unique needs of this group, especially considering the significant overlap between the experiences of victimization and perpetration. To promote desistence from violence, mental health interventions should promote healing around experiences of childhood sexual and physical victimization, as this study identified an association between these specific forms of victimization and violent perpetration. Trauma-based treatment that promotes a sense of control—admittedly difficult to achieve in a correctional setting—seems well-suited to the needs of adult survivors of childhood abuse (Harper, Stalker, Palmer, & Gadbois, 2008).

Many of the specific suggestions delineated above are already available in various correctional centers for women (Chari et al., 2016; Manderscheid et al., 2004). As such, the most important clinical implication of the present study pertains not to what specific interventions should be offered, but how existing interventions might be more strategically implemented with the incarcerated female population. The findings provide guidance for the calibration of mental health resources within correctional facilities. For example, the present study showed that approximately half of this sample demonstrated difficulties related to substance use, thus correctional facilities should become equipped to provide substance abuse treatment services to

approximately half of their female inmate populations. Likewise, correctional centers should be prepared to provide intensive wraparound mental health services to approximately 9% of their female inmates since the present study identified that proportion of women as highly likely to experience multiple serious mental illnesses. Upon intake to a correctional facility, incarcerated women should undergo a thorough mental health assessment that accounts for experiences with violence as well as mental health difficulties and referred to all relevant services immediately.

Recommendations for Future Research

Findings from the present study, as well as the limitations to these findings, suggest several avenues for future research regarding incarcerated women's mental health and their experiences with violence. Several questions remain regarding the relationship between perpetration of violence and mental health difficulties. Longitudinal or retrospective data should be collected to examine time order of these variables. Because this study identified associations between perpetration of violence and both membership in groups with mental health needs and use of mental health services, a qualitative inquiry into women's own understanding of how perpetration of violence has influenced their mental health might also contribute meaningful ideographic causal explanations of this phenomenon (Engel & Schutt, 2017). Since the present study indicated perpetrators of homicide were more likely to have used mental health services, perpetrators of homicide might represent a worthwhile target for a purposive sampling approach accompanying the qualitative inquiry suggested above.

Future research should expand upon the findings from the present study regarding victimization. Because both victimization experiences and perpetration of violence were associated with mental health difficulties and mental health services, both experiences with violence should be included in a single multivariate model to examine their relative contribution

to mental health-related variables; this would also clarify whether perpetration of violence maintains a significant association with mental health-related variables or simply confounds the relationship between victimization and mental health-related variables. While the present study confirmed the importance of multiple forms of victimization experience for understanding mental health difficulties and services use, future studies might explore how other combinations of specific forms of victimization associate with mental health; for example, are women who have experienced sexual victimization in both childhood and adulthood more likely to use mental health services compared to women who experienced sexual victimization in childhood only.

Based on findings from this and other studies, it seems pathways theory may be limited in its ability to describe the unique pathways violent female offenders follow into the criminal justice system. Efforts should be made to build and test theoretical explanations of violent female offending; attribution theory represents one possible option for understanding the role of gender in violent offending as well as the influence of childhood victimization. Utilizing a grounded theory approach for the aforementioned qualitive inquiry might offer a fruitful avenue for further theorizing about female violent offending.

Another recommendation for future research would be to more adequately investigate factors that contribute to use of specific types of mental health services; such research would need to account for variability in service availability across institutions to hopefully create regression models that perform better than those in the present study. Again, qualitative methods might offer an appropriate approach to discerning how women understand the importance of life events and sociodemographic factors in promoting their use of mental health services. Indeed, future research should explore a fuller range of sociodemographic variables, especially a wider range of racial categories, to build the knowledge base around the experiences of women of

color—especially women in those racial categories which were combined for the present study—and women in other marginalized groups within the criminal justice system.

Conclusion

For many incarcerated women, mental health is entangled with past experiences of violence. Compassionate, responsive mental health treatment for this population will thus require a range of approaches suited to addressing not only co-occurring mental health difficulties, but also resolving past trauma. As frequent service providers to justice-involved women, social workers are particularly well positioned to create change in criminal justice policy and mental health practice that would meaningfully improve the quality of care, and indeed, the quality of life for these women, many of whom have experienced considerable marginalization.

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Appendix A: Categorization of Violent Offenses

Homicide	Physical Assault	Sexual Assault	Robbery	Other Violent Crimes
Accessory to Murder	Aggravated Assault	Aggravated Rape	Aggravated Robbery	Abduction
Felony Murder	Aggravated Battery	Carnal Knowledge or Abuse	Aiding and Abetting Robbery	Aggravated Kidnapping
Murder	Armed Assault	Forcible Rape	Armed Robbery	Detaining a Female
Murder, Accessory After the Fact	Assault, Aggravated	Forcible Ravishment	Armed Burglary	Detaining Person
Willful Murder	Assault and Battery	Object Rape	Assault and Robbery	False Imprisonment
Assault and Battery by Force Likely to Produce Death	Assault and Battery with a Dangerous Weapon	Rape by Force	Carjacking	Felonious Restraint
Assault and Battery with Intent to Kill	Assault, First Degree	Rape of a Child, Force	Forcibly and Violently Demanding Money from Another	Holding Hostage
Assault with Intent to Kill	Assault on a Child	Rape, Other than Statutory	Forcible Robbery	Kidnapping
Malicious Striking and Wounding with Intent to Kill	Assault with a Dangerous Weapon	Sexual Intercourse without Consent	Heist, Armed	Simple Kidnapping
Murder, Attempted Shooting with Intent to Kill	Assault with a Deadly Weapon	Simple Rape	Mugging, Armed	Kidnapping/Abduction, Attempted
Conspiracy to Commit Murder	Assault with Intent to Commit a Felony	Assault and Battery with Intent to Commit Rape	Robbery by Force	Kidnapping/Abduction, Conspiracy
Murder, Conspiracy	Assault with Intent to Commit a Moral Offense	Assault with Intent to Commit Rape	Robbery with Violence	Blackmail
Homicide	Assault with Intent to Maim or Wound	Assault with Intent to Ravish	Robbery with Firearms	Coercion
Homicide - Willful Kill	Assault with a Motor Vehicle	Burglary with Intent to Commit Rape	Robbery with Dangerous and Deadly Weapon	Demanding Things by Threat
Unspecified Homicide	Assault, Unspecified	Rape, Attempted	Robbery, Unspecified	Extortion
Unspecified Homicide, Attempted/Conspiracy	Assault with Intent to do Great Bodily Harm	Rape, Conspiracy	Armed Assault with Intent to Rob	Intimidation
Manslaughter with Intent	Criminal Injury to Persons	Aggravated Sexual Abuse	Armed Robbery, Attempted	Menacing
Non-negligent Manslaughter	Domestic Violence	Fondling, Unspecified	Assault and Battery with Intent to Rob	Menacing with a Deadly Weapon
Manslaughter	Felonious Assault and Battery	Gross Sexual Attempt	Assault with Intent to Commit Robbery	Obtain Menace (Extortion)
Voluntary Manslaughter	Felonious Maiming	Gross Sexual Imposition by Force	Carjacking, Attempted	Oral Threat
Voluntary/Non-negligent Manslaughter, Attempted/Conspiracy	Firing a Weapon into a Dwellinghouse	Indecent Assault	Armed Robbery, Conspiracy	Racketeering
Causing Death by Operating Auto While Under Influence of Drugs or Alcohol	Maiming and Mutilation	Molestation, Unspecified	Carjacking, Conspiracy	Terroristic Threat
Manslaughter, Vehicular	Maiming and Wounding	Sex by Deception	Heist	Threat to Bomb
	Malicious Cutting and Wounding	Sexual Abuse	Heist, Unarmed	Threat to Burn
	Malicious Shooting and Wounding	Sexual Assaults, Except Rape, Statutory Rape, Lewd Act with Child, or Forcible Sodomy	Mugging	Threatening Communications
		Sexual Assault, Other, Unspecified	Mugging, Unarmed	Threatening to Commit Offense
		Sexual Misconduct	Purse Snatching, Forcible	Extortion, Attempted
			Simple Robbery	Extortion, Conspiracy
			Strongarm Robbery	Hit and Run with Bodily Injury
			Unarmed Robbery	

Homicide	Physical Assault	Sexual Assault	Robbery	Other Violent Crimes
Reckless Homicide, Vehicular	Malicious Shooting without Wounding	Indecent Liberties, Unspecified	Unarmed Robbery, Attempted	Leaving the Scene of an Accident with Bodily Injury
Vehicular Manslaughter	Mayhem	Sexual Assault, Carnal Knowledge of Female Child - No Force	Unarmed Robbery, Conspiracy	Hit and Run with Bodily Injury, Attempted
Manslaughter, Vehicular, Attempted	Point, Aim, and Discharge a Deadly Weapon	Rape, Statutory		Hit and Run with Bodily Injury, Conspiracy
Manslaughter, Vehicular, Conspiracy	Striking and Beating with a Weapon	Sex with close blood relative (incest - no force)		Child Abuse
Involuntary Manslaughter	Shooting and Wounding without killing	Statutory Rape		Cruelty to Juvenile
Manslaughter	Unlawful Wounding	Violation of a Child - No Force		Child Abuse, Attempted
Manslaughter, Non-Vehicular	Vehicular Assault	Statutory Rape, Attempted		Child Abuse, Conspiracy
Negligent Homicide	Wounding	Statutory Rape, Conspiracy		Abortion
Negligent Manslaughter	Aggravated Assault, Attempted	Fondling of a Child		Aiding a Suicide
Attempted Manslaughter	Aggravated Assault, Conspiracy	Indecent Behavior with a Juvenile		Assault, Except Aggravated, Child Abuse, or Simple
Manslaughter, Non-Vehicular, Attempted	Assault, Simple	Indecent or Immoral Practices with a Child		Child Endangerment
Manslaughter, Non-Vehicular, Conspiracy	Hazing	Indulging in Lewd and Indecent Practices with a Child		Criminal Endangerment
	Misdemeanor Assault	Lewd Act with Child		Criminal Transmission of HIV
	Simple Assault	Lewdness with a Child		Criminal Trespass (Against a Person)
	Striking and Beating	Liberties with a Child		Gang Related Violence
	Threat to do Bodily Harm	Molestation of a Child		Infamous Crime
	Simple Assault, Attempted	Taking Immodest and Immoral Liberties with a Child		Reckless Endangerment
	Simple Assault, Conspiracy	Lewd Act with a Child, Attempted		Tampering with a Commercial Product with Intent to Extort or Cause Injury
	Assault of a Corrections Officer	Lewd Act with a Child, Conspiracy		Trespassing (Against a Person)
	Assault on a Fireman	Attempted Sexual Assault, Conspiracy		
	Assault on a Public Safety Officer	Buggery, Force		
	Striking a Public Safety Officer	Deviate Sexual Intercourse by Force		
	Threatening a Public Safety Officer	Forcible Sodomy		
	Assault, Public Safety Officer, Attempted	Rape of a Male		
	Assault, Public Safety Officer, Conspiracy			

Homicide	Physical Assault	Sexual Assault	Robbery	Other Violent Crimes
		Assault with Intent to Commit Sodomy Attempted Sodomy – Forcible Conspiracy to Commit Sodomy - Forcible		

Appendix B: Variable Codebook

Variable Name	Description	SCICF Questionnaire Item(s)	Values
CRIM_HX	Whether participant has history of violent offending or solely nonviolent offending	*For what offenses are you being held?*, AND *For what offenses did you [previously] serve time?*	0=Nonviolent 1=Violent
CRIM_CAT	Categorization of most severe offense for which participant is currently incarcerated as either nonviolent or violent	*For what offenses are you being held?*	0=Nonviolent 1=Violent
CRIM_TYPE	Categorization of most severe violent offense for which participant is currently incarcerated	*For what offenses are you being held?*	1=Homicide 2=Physical assault 3=Sexual assault 4=Robbery 5=Other violent offense
MH_DX_DEP	Whether the participant has been diagnosed with a depressive disorder	*Have you ever been told by a mental health professional, such as a psychiatrist or psychologist, that you had a depressive disorder?*	0=No 1=Yes
MH_DX_BIP	Whether the participant has been diagnosed with bipolar disorder	*Have you ever been told by a mental health professional, such as a psychiatrist or psychologist, that you had manic-depression, bipolar disorder, or mania?*	0=No 1=Yes
MH_DX_PSY	Whether the participant has been diagnosed with a psychotic disorder	*Have you ever been told by a mental health professional, such as a psychiatrist or psychologist, that you had schizophrenia or another psychotic disorder?*	0=No 1=Yes

Variable Name	Description	SCICF Questionnaire Item(s)	Values
MH_DX_PTSD	Whether the participant has been diagnosed with PTSD	*Have you ever been told by a mental health professional, such as a psychiatrist or psychologist, that you had post-traumatic stress disorder?*	0=No 1=Yes
MH_DX_ANX	Whether the participant has been diagnosed with an anxiety disorder	*Have you ever been told by a mental health professional, such as a psychiatrist or psychologist, that you had another anxiety disorder such as panic disorder?*	0=No 1=Yes
MH_DX_PER	Whether the participant has been diagnosed with a personality disorder	*Have you ever been told by a mental health professional, such as a psychiatrist or psychologist, that you had a personality disorder such as antisocial or borderline personality disorder?*	0=No 1=Yes
MH_DX_ALC	Whether the participant has been diagnosed with an alcohol use disorder	See Appendix C	0=No 1=Yes
MH_DX_DRUG	Whether the participant has been diagnosed with a drug use disorder	See Appendix C	0=No 1=Yes
MH_SUICIDE	Whether the participant has ever attempted suicide	*Have you ever attempted suicide?*	0=No 1=Yes

Variable Name	Description	SCICF Questionnaire Item(s)	Values
TX_SUB	Whether the participant has used substance abuse treatment services during incarceration	*Since your admission to prison, have you attended an alcohol or drug program in which you live in a special facility or unit?*, OR *Since your admission to prison, have you attended counseling with a trained professional for problems with alcohol and/or drugs?*, OR *Since your admission to prison, have you attended an education or awareness program explaining problems with alcohol and/or drugs?*	0=No 1=Yes
TX_MH_COUN	Whether the participant has used mental health counseling services during incarceration	*Have you received counseling or therapy since your admission to prison?*	0=No 1=Yes
TX_MH_MED	Whether the participant has used psychotropic medication during incarceration	*Have you taken medication for a mental or emotional problem since your admission to prison?*	0=No 1=Yes
TX_ANY	Whether the participant has used any form of mental health services during incarceration	Recoded from other variables	0=No 1=Yes
VIC_SEX_CH	Whether the participant experienced sexual victimization during childhood	*Before your admission to prison on _____, had anyone ever pressured or forced you to have any sexual contact against your will, that is, touching of breast or buttocks, or oral, anal, or vaginal sex?*, AND *Did the sexual contact against your will occur before…you were 18 years old?*	0=No 1=Yes

Variable Name	Description	SCICF Questionnaire Item(s)	Values
VIC_SEX_AD	Whether the participant experienced sexual victimization during adulthood	*Before your admission to prison on _____, had anyone ever pressured or forced you to have any sexual contact against your will, that is, touching of breast or buttocks, or oral, anal, or vaginal sex?*, AND *Did the sexual contact against your will occur…after you were 18 years old?*	0=No 1=Yes
VIC_PHYS_CH	Whether the participant experienced physical victimization during childhood	*Before you were admitted to prison on _____, had you ever been physically abused?*, OR *Before you were admitted to prison on _____, had anyone ever pushed, grabbed, slapped, kicked, bit, or shoved you?*, OR *Before you were admitted to prison on _____, had anyone ever hit you with a fist?*, OR *Before you were admitted to prison on _____, had anyone ever beat you up?*, OR *Before you were admitted to prison on _____, had anyone every choked you?*, OR *Before you were admitted to prison on _____, had anyone every used a weapon, for example, a gun, knife, rock or other object, against you?*, AND *Did the physical abuse or injury occur…before you were 18 years old?*	0=No 1=Yes

Variable Name	Description	SCICF Questionnaire Item(s)	Values
VIC_PHYS_AD	Whether the participant experienced physical victimization during adulthood	*Before you were admitted to prison on _____, had you ever been physically abused?*, OR *Before you were admitted to prison on _____, had anyone ever pushed, grabbed, slapped, kicked, bit, or shoved you?*, OR *Before you were admitted to prison on _____, had anyone ever hit you with a fist?*, OR *Before you were admitted to prison on _____, had anyone ever beat you up?*, OR *Before you were admitted to prison on _____, had anyone every choked you?*, OR *Before you were admitted to prison on _____, had anyone every used a weapon, for example, a gun, knife, rock or other object, against you?*, AND *Did the physical abuse or injury occur…after you were 18 years old?*	0=No 1=Yes
AGE	Age of the participant	*How old are you?*	N/A
RACE	Race of the participant	*Which of these categories describes your race?*	1=White 2=Black 3=Latina 4=Mixed Race or Another Race

Variable Name	Description	SCICF Questionnaire Item(s)	Values
EDUCATION	Education level of the participant	*Before your admission on _____, what was the highest grade of school that you ever attended?*	1=Did not complete high school 2=Completed high school 3=Some higher education
MARITAL	Marital status of the participant	*Are you now married, widowed, divorced, separated, or have you never been married?*	1=Married 2=Widowed 3=Divorced or Separated 4=Never married

Appendix C: SISCF Questionnaire Items Pertaining to Substance Use Disorders

DSM Diagnostic Criterion	Corresponding SISCF Questionnaire Item Regarding Alcohol Use	Corresponding SISCF Questionnaire Item Regarding Drug Use
Alcohol is often taken in larger amounts or over a longer period than was intended	During the year before your admission to prison, did you often drink more or for longer periods of time than you meant to?	During the year before your admission to prison, did you often use a drug in larger amounts or for longer periods of time than you meant to?
More than once wanted to cut down or stop drinking, or tried to, but couldn't?	During the year before your admission to prison, did you more than once want to cut down on your drinking or try to cut down on your drinking but found you couldn't do it?	During the year before your admission to prison, did you more than once want to cut down on your drug use or try to cut down on your drug use but found you couldn't do it?
Spent a lot of time drinking? Or being sick or getting over the aftereffects?	During the year before your admission to prison, did you spend a lot of time drinking or getting over the bad after-effects of drinking?	During the year before your admission to prison, did you spend a lot of time getting drugs, using them, or getting over the bad after-effects?
Found that drinking—or being sick from drinking—often interfered with taking care of your home or family? Or caused job troubles? Or school problems?	During the year before your admission to prison, did your drinking or being sick from drinking keep you from doing work, going to school or caring for children?	During the year before your admission to prison, did using drugs or being sick from using drugs keep you from doing work, going to school or caring for children?
Continued to drink even though it was causing trouble with your family or friends?	During the year before your admission to prison, did you continue to drink even though it was causing problems with family, friends, or work?	During the year before your admission to prison, did you continue to use drugs even though it was causing problems with family, friends, or work?
Given up or cut back on activities that were important or interesting to you, or gave you pleasure, in order to drink?	During the year before your admission to prison, did you give up activities that you were interested in or were important to you in favor of drinking like work, school, hobbies, or associating with family and friends?	During the year before your admission to prison, did you give up activities that you were interested in or were important to you in favor of using drugs like work, school, hobbies, or associating with family and friends?

DSM Diagnostic Criterion	Corresponding SISCF Questionnaire Item Regarding Alcohol Use	Corresponding SISCF Questionnaire Item Regarding Drug Use
More than once gotten into situations while or after drinking that increased your chances of getting hurt (such as driving, swimming, using machinery, walking in a dangerous area, or having unsafe sex)?	During the year before your admission to prison, did you get into situations while drinking or after drinking that increased your chances of getting hurt like driving a car or other vehicle, swimming, using machinery, or walking in a dangerous area or around heavy traffic?	During the year before your admission to prison, did you get into situations while using drugs or just after using drugs that increased your chances of getting hurt like driving a car or other vehicle, swimming, using machinery, or walking in a dangerous area or around heavy traffic?
Continued to drink even though it was making you feel depressed or anxious or adding to another health problem? Or after having had a memory blackout?	During the year before your admission to prison, did you continue to drink even though it was causing emotional or psychological problems?	During the year before your admission to prison, did you continue to use drugs even though it was causing emotional or psychological problems?
Had to drink much more than you once did to get the effect you want? Or found that your usual number of drinks had much less effect than before?	During the year before your admission to prison, did your usual number of drinks have less effect on you than it once did or did you have to drink more to get the effect you wanted?	During the year before your admission to prison, did your usual amount of drugs have less effect on you than it once did or did you have to use more to get the effect you wanted?
Found that when the effects of alcohol were wearing off, you had withdrawal symptoms, such as trouble sleeping, shakiness, irritability, anxiety, depression, restlessness, nausea, or sweating? Or sensed things that were not there?	During the year before your admission to prison, did you find that you experienced some of the bad after-effects of drinking after cutting down on your drinking or stopping drinking, such as shaking, feeling nervous or anxious, sick to your stomach, restless, sweating, having trouble sleeping, fits or seizures, or seeing, feeling, or hearing things that weren't really there?	During the year before your admission to prison, did you find that you experienced some of the bad after-effects of using drugs after cutting down or stopping your drug use, such as shaking, feeling nervous or anxious, sick to your stomach, restless, sweating, having trouble sleeping, fits or seizures, or seeing, feeling, or hearing things that weren't really there?

Appendix D: Additional Regression Results

Table 31. Regression Model 3: Mental Health Counseling as Dependent Variable (N=2553)

Independent Variable	B (S.E.)	OR [95% CI]	*p*-value	Wald
Constant	-1.47 (.14)	.23 [N/A]	<.001	118.41
Race (White)				
Black	-.12 (.11)	.89 [.72, 1.11]	.296	1.09
Latina	-.54 (.19)	.58 [.40, .84]	.003	8.62
Mixed Race/Other	.01 (.15)	1.01 [.75, 1.36]	.969	.00
Education (Some Higher Education)				
Did Not Complete High School	-.24 (.12)	.79 [.62, 1.00]	.050	3.83
Completed High School	-.27 (.15)	.76 [.57, 1.03]	.075	3.16
Childhood Sexual Victimization	.62 (.11)	1.86 [1.51, 2.30]	<.001	33.72
Adulthood Sexual Victimization	.44 (.11)	1.55 [1.26, 1.92]	<.001	16.74
Childhood Physical Victimization	.50 (.10)	1.65 [1.35, 2.02]	<.001	23.49
Adulthood Physical Victimization	.26 (.10)	1.30 [1.07, 1.58]	.009	6.75

Note. Nagelkerke pseudo-R^2 = .097

Vita

Rachel Caitlin Casey was born on June 22, 1988 in Portland, Oregon. She graduated from Jesuit High School in Portland, Oregon in 2006. She received her Bachelor of Arts in Human Development from Boston College in 2010. She received her Master of Social Work from Virginia Commonwealth University in 2012 and subsequently worked as a mental health clinician with incarcerated women at Massachusetts Correctional Institute-Framingham.