

Gender and Racial/Ethnic Disparities in Mental Health, Substance Use Disorders, and Behavioral Health Treatment Utilization in US Parolees and Probationers

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Dissertation submitted in partial fulfillment of  
the requirements for the degree of Doctor  
of Philosophy in the Department of  
Nursing in the Graduate School  
of Duke University

2020

ABSTRACT

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## **Abstract**

Behavioral health (BH) refers to emotional well-being and actions that affect wellness, and includes mental health (MH) and substance use (SU) disorders. Although estimates vary, it is generally agreed that about 50% of all individuals held in jails and prisons suffer from a BH disorder. Justice-involved (JI) adults under supervision in the community (i.e. parolees, individuals exiting prison, and probationers, individuals that may be exiting jail, or under correctional supervision in the community for a specified amount of time instead of incarceration) often have untreated BH needs, particularly co-occurring MH and SU disorders. Untreated BH disorders are a barrier to community reintegration, and contribute to risk taking behaviors, SU relapse, and recidivism post-release. However, rehabilitative reentry efforts typically focus on SU treatment alone, resulting in unmet MH treatment needs. Research also indicates differential rates of BH disorders among justice-involved adults by self-reported gender and race/ethnicity, but national estimates are limited. Likewise, the post-release BH care experiences for these individuals are poorly delineated.

The overall purpose of this dissertation was to develop a deeper understanding of the BH needs and community-based BH treatment utilization in justice-involved adults. Chapter one provides an overview of the research problem, background, and significance; identifies gaps in knowledge related to this dissertation study as identified

by the literature; and provides a summary of the conceptual and theoretical frameworks that guided the aims of this dissertation. Chapter two provides the results of a systematic review of the extant literature on the unmet BH needs and barriers and facilitators to community-based BH treatment utilization among justice-involved adults. Chapters three and four present the results of a secondary analysis of data from the 2016 National Survey on Drug Use and Health (NSDUH). Chapter five summarizes and synthesizes dissertation results, and provides recommendations for future research and implications for nursing practice.

Chapter three details the results of a cross-sectional, descriptive, and correlational study to describe and compare the past-year prevalence of depression, serious psychological distress, and/or SU disorders among JI adults compared to a group of adults not on parole or probation at any point during the past year, adjusting for individual characteristics informed by the social determinants of health (SDOH) framework. Chapter four describes the employment of a modified version of the Meleis' Transitions Theory to highlight the increased vulnerability of JI adults with these BH needs during community reentry. This dissertation treated community reentry as a situational transition and the pattern of transition as multiple and simultaneous in JI adults, as they often face multiple challenges related to community reentry and integration. Specifically, this chapter focused on the describing the impact of self-reported gender, race/ethnicity, and their intersectionality (factors that influence the

pattern of transition) on past-year BH needs and BH treatment utilization among JI adults with BH needs. Chapter four also details the individual-level and community/societal-level barriers to BH treatment utilization among JI adults with BH needs.

Results from our systematic review of the literature support high rates of BH needs and psychosocial stressors among justice-involved adults. Sociodemographic and geographical location were critical influences on disparities in BH needs and BH treatment utilization, and justice-involvement was a significant facilitator of BH treatment utilization among justice-involved adults. Further, although rates of health insurance have increased among justice-involved adults, rates of BH treatment utilization have not significantly improved and considerable unmet need for BH treatment persists. Dissertation study results (chapters three and four) revealed that almost half (46%) of the justice-involve group were affected by a BH disorder, and self-reported gender, race/ethnicity, and their intersectionality, significantly impact the probability of being affected by a past-year BH need and BH treatment utilization. Justice-involvement was a significant predictor of being affected by a BH need, with higher prevalence rates among the JI group. Age (18-49 years), an annual income less than \$20 thousand, not married, and reporting fair/poor health were SDOH that were found to significantly increase the risk factors for BH needs in the JI group in this dissertation study.

Justice health is integral to public health, and efforts to address the national BH crisis must include and prioritize justice-involved individuals. Study results contribute to the limited literature on the impact of gender, race/ethnicity, and their intersectionality on BH and BH treatment utilization in justice-involved adults. Further, inability to access BH treatment utilization due to cost remains a persistent barrier to community-based BH treatment utilization among justice-involved adults. Dissertation findings provide further evidence of the disproportionately higher prevalence of BH needs among justice-involved adults compared to the non-justice-involved adults. It provides the first examination of co-occurring MH and SUDs in justice-involved adults in a nationally representative sample, and contributes to overcoming the paucity of literature differentiating substance misuse and dependency, which have significant implications for community-based BH treatment service planning and provision. Findings can inform a public health approach to identifying and treating BH disorders that is population-based, aid in the development of effective BH transitional and post-release reentry efforts, and contribute to improved BH equity and community integration in justice-involved adults.

## **Dedication**

This dissertation is dedicated to R.R.C., R.L.C., J.C.W., M.M.W., T.R.C., M.S.C., J.C.C., F.P.C., and to all of those dedicated to advancing restorative justice and health equity.

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# **1. Introduction**

Behavioral health (BH) refers to mental and emotional well-being and/or actions that affect wellness, and includes mental health (MH) disorders and substance use (SU) disorders (Substance Abuse and Mental Health Services Administration [SAMHSA], 2017). The United States (US) incarcerated population, individuals held in jails and prisons, is disproportionately burdened by MH and SU disorders. Although estimates vary, it is generally agreed that about 50% of all individuals held in jails and prisons suffer from a MH or SU disorder, compared to 18 % and 9 % in the US general population, respectively (Brinkley-Rubenstein, 2013; Bronson & Berofsky, 2017; Glaze & Herberman, 2013; Mc-Cane-Katz, 2017; Prins, 2014). Further, the US incarcerated population is disproportionately burdened with co-occurring MH and SU disorders compared to the US general population, and incarcerated individuals suffering from a MH disorder are more likely to have a SU disorder (James & Glaze, 2006; Nowotny, Belknap, Lynch, & DeHart, 2014; Peters, Wexler, & Lurigio, 2015).

## **1.1 Problem Statement**

Depression and SU disorders are the most prevalent co-occurring disorders in the US correctional population; rates differ by gender, race, and/or ethnicity, and extend to individuals on parole and probation (Nyamathi et al., 2011; Yu, Sung, Mellow, & Shlosberg, 2014; Zhang, Roberts, & Lansing, 2013). Individuals suffering from co-

occurring MH and SU disorders are more difficult to manage while incarcerated, remain incarcerated longer than individuals without co-occurring MH and SU disorders, and are more likely to be victimized while incarcerated (Baillargeon, Binswanger, Penn, Williams, & Murry, 2009; Houser & Belenko, 2015). Parolees, individuals exiting prison, and probationers, individuals that may be exiting jail, or are under community supervision for a specified amount of time instead of incarceration, face challenges related to BH and obtaining needed BH treatment during their transition back in to the communities.

Rates of depression in individuals on parole or probation range from 9-54%, and depression/depressive symptoms are the most commonly reported co-occurring MH disorder in US parolees and probationers with SU disorders (Johnson et al., 2013; Malcome et al., 2019; Owens, Rogers, & Whitesell, 2011). Despite this, only a limited number of studies to date have estimated a prevalence of depression in a nationally representative sample of US adults on parole and probationer (Boone, 1995; Ditton, 1999; Feucht & Gfroerer, 2011; Winkelman et al., 2016; Yu & Song, 2015; Yu, Sung, Mellow, & Shlosberg, 2014). Further, there has been no examination of the prevalence of depression by gender, race, and/or ethnicity; there is heterogeneity in the screening and measurement of depression across studies; and there are differences in the treatment of the parolee and probationer samples. Non-Hispanic (NH) Blacks/African Americans and Hispanics/Latinxs jointly form 31% of the US general community, but approximately

60% of the US correctional population (Kilgore, 2015), and incarceration rates for US females, primarily due to non-violent drug offenses, has surpassed that of US males (Minton, Ginder, Brumbaugh, Smiley-McDonald, & Rohloff, 2015). A study conducted by the US Department of Justice was the only study to have estimated a prevalence of depression as it related to gender, race, and ethnicity; however, it focused solely on probationers, and depression was determined by assessing for a previous MH diagnosis and/or participation in community-based MH treatment (Ditton, 1999). Application of the US Department of Justice's measurement of depression potentially underestimates the rates of depression in US racial and ethnic minorities as they are less likely to have had access and/or to have received community-based MH treatment services (Hudson, Eaton, Banks, Sewell, & Neighbors, 2016a; Wells, Klap, Koike, & Sherbourne, 2001). In addition to depression, psychological distress (PD), a nonspecific indicator of a MH problem and a state of emotional suffering, is an additional barrier to community integration for individuals on parole and probation (Golder, Engstrom, Hall, Higgins, & Logan, 2015; Turney, Lee, & Comfort, 2013). Depression and PD contribute to increased parole and probation violations, risk taking behaviors, SU relapse, and reduced compliance in SU treatment programs (Binswanger et al. 2011; Phillips & Lindsay, 2009; Woodhouse et al., 2016). Approximately 70% of US ex-offenders recidivate within three years (Appelbaum, 2011), and about 400,000 new incarcerations annually, are a result of parole and probation violations (Wodahl, Boman, & Garland, 2015). Adults on parole

and probation suffering from co-occurring MH and SU disorders particularly challenge the US Criminal Justice system's (CJS) rehabilitative and reentry efforts, and they experience disproportionately high rates of recidivism (Baillargeon et al., 2009b; Belenko, Hiller, & Hamilton, 2013). However, rehabilitative reentry efforts typically focus on SU treatment alone resulting in unmet MH treatment needs (Balyakina et al., 2014).

Although most public health concerns related to the correctional population are aimed at improving health care access and outcomes for chronic physical illnesses, infectious diseases, and substance use, this focus also needs to include MH. Contemporary, empirically based knowledge of the prevalence of depression and PD in parolees and probationers, grounded by a uniform and clinically validated measure based on the DSM-V, is scant and lacks understanding of disparities by gender, race, and ethnicity. BH treatment for co-occurring MH and SU disorders entails dual integrative treatment for both MH and SU disorders (SAMHSA, 2017). *Healthy People 2020* objectives related to MH include increasing the number of individuals receiving treatment for co-occurring MH and SU disorders, and increased screening and treatment of depression (U.S. Department of Health and Human Services, Office of Disease Prevention and Health Promotion [HHS ODPHP], 2018). Clinical and policy interventions to improve community integration in adults on parole and probation

require a comprehensive knowledge on their co-occurring BH needs to be effective (Patel, Boutwell, Brockmann, & Rich, 2014).

Accordingly, the development of dual integrative rehabilitative and transitional reentry efforts for adults on parole and probation, that are sensitive to gender, racial, and ethnic disparities is supported (Abdullah & Brown, 2011; Acevedo et al., 2018). This knowledge is integral to the development of effective transitional and post-release reentry efforts to affect successful and sustained community re-integration for this population. Results from this study inform a public health approach in identifying and treating BH disorders that is population-based (i.e. individuals on parole and probation) and advances BH treatment equity in a frequently medically underserved and often marginalized population.

## **1.2 Background**

### **1.2.1 BH and Co-occurring MH Disorders and SUDs**

BH disorders are often chronic in nature, and include MH and SU disorders, serious PD, suicide, and unhealthy stress and sub-syndromal symptoms of MH disorders (SAMHSA, 2017). SU disorders, also known as drug use disorders, are characterized as a condition of one or more substances (alcohol and drugs, both illicit and legal) that result in clinical and functional impairment, and contribute to poor health outcomes, disability, and an inability to meet daily responsibilities (SAMHSA, 2017). Although chronic in nature, BH disorders can be appropriately treated with a

variety of treatments ranging from self-help to medical and psychosocial treatments (SAMHSA, 2017). BH also refers to the integrative treatment of MH and SU disorders, and encompasses the promotion of emotional health, prevention, treatments and services for MH disorders and SU disorders, and recovery support. BH treatment seeks equity and parity of treatment by examining and prioritizing screening, diagnosis, and treatment for co-occurring disorders (SAMHSA, 2017).

MH disorders, SU, and incarceration are highly correlated (Peters, Wexler, & Lurigio, 2015). The World Health Organization WHO lists depression as the leading cause of disability among Americans aged 15-44 and estimates that its prevalence in the US incarcerated population is six times that of the general population (Epperson, Canada, Thompson, & Lurigio, 2014). While the association of psychosis and antisocial pathology with criminal behavior has received more attention, untreated depression has been reported to exacerbate psychotic symptoms and lead to “criminalization” (Draine & Solomon, 2000). Incarceration is significantly associated with mood disorders such as depression and can in and of itself result in depression (Schnittker, 2013). In addition, depression was found to be more debilitating than both SUDs and impulse controls disorders (Schnittker, 2013). Substance misuse is a depression correlate, and depression has been closely associated with drug and alcohol addiction (Holliday et al., 2016). While more US correctional facilities have attempted to increase screening for MH and co-occurring SUDs, 40% did not report using a standardized tool, and treatment

emphasized alcohol and drug use (Cropsey, Wexler, Melnick, Taxman, & Young, 2007). Further, critical to a comprehensive understanding of the BH needs of the numerous groups represented within the parolee and probationer populations is the knowledge of how BH treatment is accessed and utilized across these different groups represented post-release.

### **1.2.2 Gender Specific BH Needs**

BH needs among adults on parole and probation often differ depending on biological sex and/or self-reported gender. Females on parole and probation often face additional unique and gender specific challenges related to community reentry than those commonly recognized for their male counterparts due to their gender and caregiving/parenting roles. Females on parole and probation often assume parenting responsibility, and it is a potential barrier to participation in post-release treatment programs, especially residential treatment facilities (Finlay et al. 2015). Female parolees and probationers suffer from more intense PD and 75% of all female offenders suffer from a MH disorder, with depression being the most prevalent (Golder et al., 2015; Reingle-Gonzalez & Connell, 2014). Further, it has been estimated that about half of all females held in jails and prisons suffer from co-occurring depression and SU disorders (Forstener-Espinosa & Regenstein, 2014).

Females on parole and probation are also disproportionately affected by a history of trauma, intimate partner violence, and sexual, emotional, and physical violence (Morash, Kashy, Cobbina, & Smith, 2017; Stanton, Kako, & Sawin, 2016). Visits to parole and probation offices that are frequently crowded with males on parole and probation can be a stressful event for justice-involved females with a history of trauma, contributing to undue stress and triggering PD (Golder et al., 2015). Currently, about 85% of criminal justice involved females are under community supervision, and from 1999 to 2013, the female correctional population has increased by 48%, compared to a 17% increase for males during the same period, primarily due to nonviolent drug offenses (Minton et al., 2015).

The effects of failed reintegration and unmet BH treatment needs adversely affect US public health, and has the potential to have lasting and generational consequences. Children of incarcerated parent/s have an increased risk of a MH and SU disorders, cardiovascular disease, and increased mortality, as well as justice involvement themselves, contributing to generational and cyclical justice involvement (Glaze & Maruschak, 2010; Wakefield & Wildeman, 2013).

Racial and/or ethnic disparities in sentencing for justice-involved females also exist, with NH Black/African American females incarcerated at more than two times the rates of NH White females, and Hispanic/Latinx females experiencing incarceration rates that are 1.2 times that of NH White females (Sawyer, 2018). Currently, one in 18 NH

Black/African American females will be incarcerated during her lifetime, compared to one in 45 Hispanic/Latinx females, and one in 111 NH White females (Hinton, Henderson, & Reed, 2018). Further, although NH Black/African American females comprise 13% of the female population in the U.S., they represent 44% of the incarcerated female population (Hinton et al., 2018). NH American Indian/Alaska Native females are also disproportionately overrepresented in the US CJS, with significant geographic disparities resulting in incarceration and new jail and prison admission rates that are comparable to, or surpass those of NH Black/African American, Hispanic/Latinx, and White females respectively (Hartney & Vuong, 2009). Accordingly, females on parole and probation constitute an extremely vulnerable group that is exposed to both sexism and/or racism. This study aids in gaining knowledge about the prevalence of BH disorders and the potentially unique BH treatment needs and barriers to BH treatment utilization among the most represented racial and/or ethnic groups that make up female parolees and probationers.

### **1.2.3 US Racial and Ethnic Minority BH Disparities**

#### **1.2.3.1 US Racial and Ethnic Minority Disparities in MH**

Nationally, US minorities are disproportionately burdened by persistent BH treatment disparities due to factors both within and outside of healthcare and the clinical setting (Budhwani, Hearld, & Chavez-Yenter, 2015; Carter et al., 2016; Fortuna, Alegria, & Gao, 2010; Guerrero, Marsh, Khachikian, Amaro, & Vega, 2013; Han & Redlich, 2018).

Discrimination based on US minority stereotypes and/or racism can preclude MH screening and diagnosis (Frank, Wang, Nunez-Smith, Lee, & Comfort, 2014; Hudson, Kaphingst, Croston, Blanchard, & Goodman, 2016b; Meyer, Saw, Cho, & Fancher, 2015), contribute to clinician bias and misdiagnosis, and the inappropriate use of antipsychotic medications in these groups (Barnes & Bates, 2017; Coleman et al., 2016; Miranda, McGuire, Williams, & Wang, 2008; Schwartz & Blankenship, 2014; Stockdale, Lagomasino, Siddique, McGuire, & Miranda, 2008). Further, discrimination based on race, ethnicity, and nativity, whether perceived or not, is associated with poorer BH, maladaptive coping measures, and cultural mistrust of healthcare resulting in avoidance of healthcare seeking, increased healthcare costs, and reliance on informal cultural treatments and support measures (Gray, Mays, Wolf, & Jirsak, 2010; Hankerson et al., 2011; Weech-Maldonado, Hall, Bryant, Jenkins, & Elliott, 2012; Williams & Mohammed., 2009; Yip, Gee, & Takeuchi, 2008).

Unintentional discrimination and implicit bias in healthcare and the clinical setting may also result from decisions based upon statistical evidence that does not account for differences in disease presentation by race and/or ethnicity, or that are based on samples not representative of US minorities. Race, ethnicity, culture, and language influence MH symptoms and accordingly diagnosis (Spencer et al., 2010; Thornicroft et al., 2016). The discipline of global MH has demonstrated the importance of cultural and societal influences on MH, as well as the wide variance in and symptomatology that can

exist (Hwang & Hwang, 2016) among diverse populations. Although there has been an increase in research focused on depression in US racial and ethnic minorities, this matter has been historically understudied, and the emergence of non-traditional and cultural bound symptoms of MH disorders such as depression that may be more somatic in nature (e.g. hypertension, increased allostatic load) are still being examined (Borrell, Dallo, & Nguyen, 2010; Chyu & Upchurch, 2011; Jackson, Knight, & Rafferty, 2010; Rodriquez et al., 2018). Further, inequality, inequity, reduced social mobility, racism and/or sexism can significantly increase the risk for depression and PD in US racial and ethnic minorities, and factors influencing depression in Whites may not be as significant and/or comparable in these groups (Barnes, Keyes, & Bates, 2013; Keyes, 2009; Rieckmann, Moore, Croy, Novins, & Aarons, 2016; Sohail, Bailey, & Richie, 2014; Woo, Wang, & Tran, 2017). As such, continued research needs to be conducted to further describe the epidemiology of and the understanding of MH disorders in US racial and ethnic minorities in order to provide culturally competent care and advance MH equity (Hack, Larrison, & Gone, 2014; Spencer et al., 2010).

### **1.2.3.2 US Racial and Ethnic Disparities in SU**

NH Blacks/African Americans, Hispanics/Latinxs, and NH American Indians/Alaska Natives are at an increased risk for SUDs due to socio-environmental factors (Carson, Vesper, Chen, & Le Cook, 2014; Vaeth, Wang-Schweig, & Caetano,

2017). In recent history, there have been multiple drug epidemics (heroin, crack cocaine, methamphetamine, and opioids, etc.) in the U.S. that have disproportionately affected US racial/ethnic minorities and NH Whites of lower SES (Anderson, Scott, & Kavanaugh, 2015; Boggs, 2015; Linnemann & Wall, 2013; Provine, 2011). The historical approach to these drug epidemics was othering and criminalization, and was largely addressed by the US CJS (Cicero, Ellis, Surratt, & Kurtz, 2014). Within the last two decades, there has been an exponential growth in prescription drug and opioid use in the suburban population and Whites of higher SES, prompting a national crisis and public health response that has emphasized empathy, the medicalization of addiction, decriminalization, and treatment (Hansen & Netherland, 2016; Moran, 2018; Zimmerman, 2014).

Currently, there have been significant demographic shifts in the opioid epidemic, and while it still disproportionately affects NH Whites, its impact on US racial and ethnic minorities has increased exponentially (Seth, Scholl, Rudd, & Bacon, 2018). Efforts to address the misuse of and addiction to prescribed opioids by healthcare has resulted in a shift to and the exponential use of heroin, fentanyl, and non-prescribed synthetic opioids. This has resulted in an increased demand and supply contributing to an expanded illicit opioid market, and a substantial increase in overdose rates for US minorities (Seth et al., 2018). Currently, deaths from drug overdoses in NH Blacks/African Americans are about the same rate as those in Whites in 2014 (Seth et al.,

2018). Many of the overdoses in Blacks/African Americans in 2016 were among individuals aged 55-64, possibly eluding to a relapse and a return to heroin use (that is increasingly contaminated with fentanyl) that began during the heroin epidemic of the 1970s that disproportionately affected US racial/ethnic minorities (Cicero et al., 2014; Seth et al., 2018).

Compared to other US racial and/or ethnic groups, NH American Indians and Alaskan Natives are particularly vulnerable to MH disorders (Rieckmann et al., 2016; SAMHSA, 2017), suffering from some of the highest rate of suicide and disproportionately burdened by co-occurring MH and SU disorders (McCane-Katz, 2017; Rieckmann et al., 2016; SAMHSA, 2017). NH American Indians/Alaskan Natives have an 8.8% rate of co-occurring BH diagnoses compared to the rate of a 3.8% rate in NH Blacks/African Americans, and a 3.3% rate in Hispanics/Latinxs (SAMHSA, 2017). Currently, major drivers of mortality in Hispanics/Latinxs aged 25-43 are overdoses and suicide, while alcohol-related deaths are a leading cause of death in NH Blacks/African Americans in the same age cohort (Zang, Zheng, Yang, & Land, 2018). In NH Whites aged 25-43, and across groups within the baby boomers (individuals born 1946-1964), overdoses are the leading cause of death, followed by alcohol-related diseases in NH Whites aged 25-43 (Zang, et al., 2018).

Although the current opioid epidemic is primarily portrayed as an issue for NH Whites, rural NH Whites have been experiencing the effects of the opioid epidemic

before the current national crisis began. Further, the continued growth and use of synthetic opioids, heroin, and fentanyl have grown exponentially in rural communities and opioid overdose deaths are 45% higher in rural areas (Seigel, 2018; Warshaw, 2017). In rural areas, SU rates are higher in US racial/ethnic minorities, and in 2014, NH American Indians/Alaska Natives had the highest rates of binge drinking (23%), followed by Blacks/African Americans and Hispanics/Latinxs (16% for both). Further, rates of opioid-related deaths in rural areas have increased among NH Whites, NH Blacks/African Americans, and Hispanics/Latinxs, and this rate is highest among NH American Indians/Alaska Natives (Seigel, 2018).

This study generates knowledge to contribute to the development of effective BH treatment interventions that benefit from the current substance addiction approach that emphasizes treatment and a public health response, resulting in improved inclusivity and advanced BH equity.

#### **1.2.3.4 US Minorities at Increased Risk for Justice Involvement**

The overrepresentation of US racial and/or ethnic minority individuals suffering from co-occurring MH and/or SU disorders in the US CJS is multifactorial, but it has been largely attributed to the lack of access to community-based treatment for MH and SU disorders, racism, racial and ethnic BH treatment disparities, racial and/or ethnic sentencing disparities, and the criminalization and mandatory sentencing disparities for

SU that disproportionately affects disadvantaged US racial and ethnic minorities (Gross & Hicks, 2015; Lee, Matejkowski, & Han, 2017; Marks & Turner, 2014; Mauer & McCalmont, 2015; Nellis, 2016).

Although national estimates are limited, NH American Indians and Alaskan Natives experience victimization at twice the rates of the US national average, with rates surpassing or second to those of NH Blacks/African Americans in certain instances (Truman & Rand, 2010). Further, NH American Indians and Alaskan Natives are often also exposed to extreme poverty, geographical isolation, and other social determinants of health (SDOH) that contribute to an increased risk of criminal justice involvement and a BH disorder (Greenfield & Venner, 2012; Radin, Banta-Green, Thomas, Kutz, & Donovan, 2012). As such, the same SDOH that contribute to poor BH and disparities in access to BH treatment in underserved health populations also contribute to increase risk and vulnerability for justice-involvement. Health disparities evidenced among US racial/ethnic minorities in the general community extend to their counterparts in the US correctional population (Binswanger, Redmond, Steiner, & Hicks, 2012; Lorvick, Comfort, Kral, & Lambdin, 2018; Nkansah-Amankra, Agbanu, & Miller, 2013).

#### **1.2.4 BH Group Disparities in the US CJS**

US racial and ethnic minorities are disproportionately represented in the US CJS, with NH Blacks/African Americans and Hispanics/Latinxs being the largest two groups

represented (Graff, 2015; Gross & Hicks, 2015; Mahaffey, Stevens-Watkins, & Knighton, 2016; Nellis, 2016). Incarceration rates for Hispanics/Latinxs have increased by 43% since 1990, and the incarceration rate for NH American Indians/Alaskan Natives is 38% higher than the national average (Greenfield & Venner, 2012; Spear, Crevecoeur-Macphail, Denering, Dickerson, & Brecht, 2013). While in 2001 it was estimated that 1 in 6 NH African Americans/Blacks males would be incarcerated sometime during their lifetime, fifteen years later it is now estimated that that number is now 1 in 3 (Hinton et al., 2018). Disparities in incarceration rates for NH African American/Black males and Hispanics/Latinxs also exist in parole and probation revocations (Hartney & Vuong, 2009).

The overrepresentation of NH American Indians/Alaskan Natives in the US federal criminal justice system results in significant sentencing disparities and lengthier sentences compared to individuals under state criminal justice systems. However, increased demographic shifts of NH American Indians/Alaskan Natives from federal reservations to urban areas have contributed to an increased risk and/or contact with state criminal justice systems (Urban Indian Health Commission, 2015). Despite this NH American Indians and Alaska Natives continue to be largely absent from US Criminal Justice literature and research (Martín, 2014). Results from this study add to the knowledge about the BH needs of this particularly vulnerable and marginalized group.

While the overall impact of mass incarceration on US racial/ethnic minorities has not been fully determined, research has suggested that it erodes social ties, distorts social norms, damages social networks, and undermines social citizenship (Wildeman & Western, 2010; Saperstein, Penner, & Kizer, 2014). A history of incarceration results in a 40% decrease in earning power, further contributing to the economic impoverishment and increased risk of criminalization in US racial/ethnic minority communities (Wildeman & Western, 2010). Due to the disproportionate impact the US CJS has had on US racial and/or ethnic minorities, and the fact that justice involvement and incarceration in and out of itself can result in poor BH outcomes, this study can further knowledge on racial and ethnic disparities in the incidence and prevalence of depression, PD, and SU disorders. Study results can inform a population-based health approach to treating BH needs in US parolees and probationers that can aid in improved equity in access and BH treatment, as well as contribute to the growing knowledge about the influence of culture on BH in the different US racial and/or ethnic minority groups that are collectively predicted to be the majority by 2050 (SAMHSA, 2017).

### ***1.3 Significance***

#### **1.3.1 Impact of BH on the US Correctional Population**

The sustained high numbers of incarcerated US offenders have had an adverse effect on the US criminal justice healthcare system. Incarcerated populations are disproportionately burdened by chronic physical conditions, infectious disease,

substance misuse, and/or MH disorders (Belenko, 2006), and 42% of state prisoners and 49% of local jail inmates suffer from co-occurring MH and SUD (Torrey, Kennard, Eslinger, Lamb, & Pavle, 2010). US correctional facilities are increasingly relied upon to treat the physical, mental, and substance misuse/dependence needs of this population. The US CJS has widely been recognized for its increased efforts to improve the treatment of MH and SU disorders. Currently, the US CJS is recognized as the largest MH facility treatment in the nation, and is a substantial referrer to MH services (Johnson, Friedmann, Green, Harrington, & Taxman, 2011; Matejkowski et al., 2014). Numerous efforts have been made to improve reentry and post-release interventions; however, greater attention to the need for dual integrative treatment of co-occurring MH and SU disorders is warranted in order to effect sustained reductions in this population. Further, reentry efforts targeting BH in justice-involved individuals must take into account the multiple barriers encountered in not only accessing healthcare, but to healthcare needs and utilization, among the different groups represented. Recent enactment of legislation such as the Helping Families in Mental Health Crisis Act and the Mental Health Parity and Addiction Equity Act will greatly expand healthcare insurance benefits for MH and SU disorders nationally, contributing to increased community capacity for dual integrative treatment, and increased and strengthened linkages between the US CJS and the general community.

### **1.3.2 Financial Impact of Recidivism on the US CJS**

Recidivism has greatly contributed to the US Department of Justice's inability to effect sustained reductions in its correctional population. The US prison population has increased by more than 500% since the 1990s (Carson, Anderson, James, Mauer, & King, 2017; Glaze, L. E., & Herberman, 2013); in 1980 there were 319,598 individuals incarcerated nationally, and about 1.3 million on parole or probation (Mears & Cochran, 2012). Currently, approximately 2.1 million are incarcerated, and about 4.5 million are on parole or probation (Kaeble, Cowhig, & Statisticians, 2018). The mandatory and lengthy sentences that began in the 1980s as part of the "war on drugs" and "three strikes" laws, as well as the lack of community-based MH outpatient treatment facilities, have contributed to not only to expanding the incarcerated population, but to the overrepresentation of those with MH disorders (Prins, 2014).

US CJS costs are \$68 billion annually, and of this, an estimated \$15 billion is used to house offenders with MH disorders such as depression, bipolar disorders, and PTSD (James & Glaze, 2006). Nationally, the average cost to house one offender annually is \$30,000, versus \$1,250 and \$2,750 for probationers and parolees, respectively (The Pew Center, 2009). Individual state costs have increased more than 300%, and currently, correctional spending is the states' second largest expenditure after Medicaid (Stullich, Morgan, & Schak, 2016). The "tough on crime" approach was meant to deter crime, yet rates of recidivism remain high, and often due to substance use relapse (Greenberg,

Tesfazionn., & Robinson, 2012). More than 636,000 offenders are released from US prisons annually (Carson, 2015). High rates of co-occurring MH and SU disorders further complicate recidivism among this population, and it has been estimated that about 75% of all US offenders with a MH disorder met diagnostic criteria for a SU disorder (James & Glaze, 2006; Peters et al., 2015). Results from this study can inform reentry interventions that promote successful community reintegration and contribute to sustained reductions in the correctional population by lowering rates of recidivism, so that correctional spending and resources can once again be allocated to rehabilitative and treatment efforts versus housing.

### **1.3.3 US Parolees and Probationers Reentry Challenges and Access to Health Care Post-Release**

Individuals on parole and probation face numerous challenges post-release, such as securing housing, employment and healthcare coverage, the re-establishment of personal and family relationships, and approximately 44% are re-incarcerated within 12 months (Alper, Durose, & Markman, 2018). Re-integration, within the context of the US criminal justice system, has been defined as “support given to offenders during their reentry into society following imprisonment” (Griffiths, Dandurand, & Murdoch, 2007, p. 3), and the inability to access health care has been identified as a barrier to community re-integration (Fox et al., 2014). US parolee and probationer access to health care is a significant protective factor that aids in community integration, reduced SU, improved

physical and MH outcomes, and lower rates of recidivism (Bahr, Harris, Fisher, & Harker-Armstrong, 2010; Morenoff & Harding, 2014).

The passage of the Affordable Care Act in 2014 greatly expanded healthcare coverage for individuals on parole or probation in states that expanded Medicaid (Grohs, 2014). It is anticipated that these individuals will make up a large percentage of the Medicaid expansion population, and that healthcare coverage has the potential to address the most commonly cited barriers to healthcare post-release such as lack of coverage, financial barriers, overwhelmed and/or lack of safety-net community resources, and lack of coordination of care and continuity of services, due to improved access (Fox et al., 2014; Grohs, 2014; Marks & Turner, 2014; Patel et al., 2014). However, healthcare access alone will not substitute for the needed implementation of strong transitional and reentry services (Smith & Hattery, 2010) that employ standardized screening for BH disorders and address the individual and community/societal/health systems-related mechanisms that contribute to inequity in BH treatment utilization (Dunivan et al., 2014). BH treatment inequities are costly, and it has been estimated that the societal costs of substance misuse exceeds \$510 billion annually, yet BH treatment services only made up seven percent of health funding in 2014 (National Conference of State Legislatures [NCSL], 2018). Further, Medicaid, Medicare, and other public funding sources paid for about 60% of MH treatment costs and 70% of substance misuse treatment costs, totaling \$110 billion and \$22 billion, respectively (NCSL, 2018). These

BH costs, in addition to the individual, family, and societal costs warrant increased support for eliminating BH treatment disparities. An examination of the needs and barriers to healthcare treatment utilization is integral to the planning and design of effective transitional and reentry services for this population that promote successful community reintegration.

### ***1.4 Theoretical Framework***

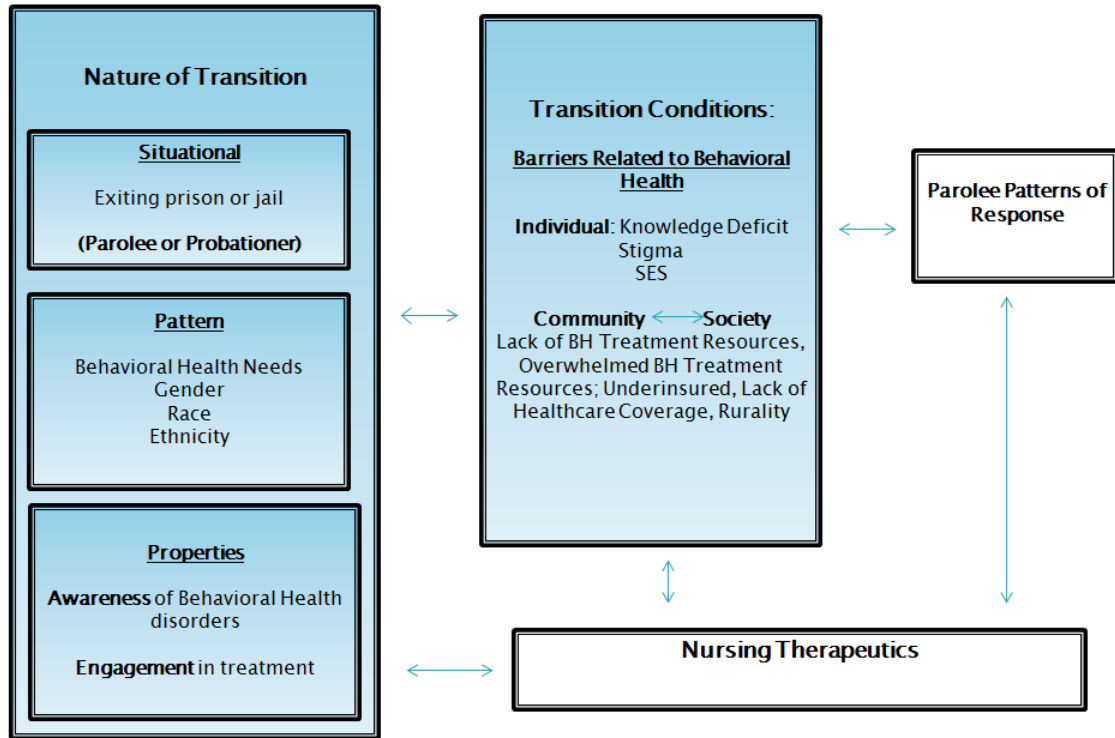
This study will be broadly guided and informed by concepts of SDOH, which recognizes the influence of structural determinants and societal conditions, such as socio-economic status and geographical location, social positioning, physical environment, and social support on the BH of individuals on parole and probation. Intersectionality will inform the approach to study these concepts by highlighting the interconnected nature of societal categorizations such as gender, race, and ethnicity as they apply to individuals on parole and probation, creating overlapping identities that further disadvantages certain groups in this population, contributing to an increased risk of poor BH and BH outcomes in this population.

Knowledge development of this study and determination of study variables and Meleis' Transitions Theory (MTT) will guide outcomes. MTT is a middle-range nursing theory that posits a framework for transitions that consists of types and patterns of transitions, properties of transition experiences, facilitating and inhibiting conditions,

process indicators, outcome indicators, and nursing therapeutics (Meleis, 2010). The concept of transitions is central to nursing, and it recognizes the increased vulnerability of the individual during the transition process related to transition experiences, interactions, and environmental conditions that expose individuals to unhealthy coping, failed transition, and poor health outcomes (Meleis, 2010).

MTT provides a framework for understanding the transition process and informs nursing therapeutics and subsequent nursing interventions to aid in the transition process through the assessment of MTT concepts (Meleis, 2010). From MTT, this study treats community reentry as a situational transition and the pattern of transition as multiple and simultaneous in that individuals on parole and probation face multiple reentry transitions related to community reintegration (Meleis, 2010). For this study, these patterns of transition focused on gender, racial, and ethnic disparities on BH outcomes (depression, PD, SU disorders) and BH treatment utilization in justice-involved individuals during community reentry. Properties of BH focused on awareness of BH outcomes and BH treatment engagement, while transition conditions related to post-release BH treatment utilization focused on individual and community/societal barriers to BH treatment utilization. Study results inform future research related to the assessment of parolee and probationer patterns of response (i.e. post-release BH needs and BH treatment utilization) and intervention development (i.e. nursing therapeutics) as a way to improve the post-release BH in individuals on parole and probation.

**Modified Version of Meleis' Transitions Framework Adapted to the Behavioral Health (BH) Needs of US Parolees and Probationers Post-release**



**Figure 1: Theoretical Framework**

**1.5 Purpose Statement**

The untreated BH needs of individuals on parole and probation has had a devastating impact on the individual, the family, the community, and society. Further, the societal costs related to the US CJS and untreated BH needs results in cuts to funding for education, public health, and other public resources that are fundamental to health maintenance and promotion, as well the continued progress and advancement of the

U.S. The financial burden of BH treatment disparities and the criminalization of BH disorders has had a deleterious effect on state and federal government spending and the employment sector, contributing to reduced productivity, an eroding tax base, results that greatly outweigh the costs of BH treatment equity (NCSL, 2018).

The novel implementation of a modified version of MTT to the BH needs of individuals on parole and probation during community reentry addressed the vulnerability unique to this transition and process of adjustment that is often lacking much needed external support and resources. The overall aim of this study was to develop a deeper understanding of the BH needs and BH treatment utilization in individuals on parole and probation, and further examine gender and racial/ethnic disparities on BH and BH treatment utilization among this group. For this study, individuals defined as adults (age  $\geq 18$ ) living in the US general community who have been under correctional supervision (i.e. on parole or probation) at any point during the past 12 months. This information is critical to informing meaningful initiatives, policies, and intervention development aimed at restorative justice and advanced BH equity for all of the groups represented among parolees and probationers.

## **1.6 Research Aims**

This dissertation study was achieved through the following aims:

### **1.6.1 Chapter Two Aim**

The overall purpose of this chapter was to understand the naturalistic/real-world ways in which adults on parole and probation with BH needs access formal community-based BH treatment when formal transitional and reentry interventions are not available or accessible. This knowledge is critical to addressing gaps in formal community-based BH treatment utilization among adults on parole or probation with BH needs and integral to advancing increased translational and implementation efforts. This was achieved through a systematic review of the extant literature to address the following aims in adults on parole and probation: 1) determine BH needs; 2) describe BH treatment utilization; and 3) and facilitators and barriers to community-based BH treatment utilization. This chapter also entails a critical evaluation of the methodological approaches of study results, in addition to the identification of knowledge gaps that addressed areas for discussion, nursing implications, and future directions in research. In addition, systematic review results assisted in the selection of measures, variables, and covariates related to community reentry BH and BH treatment utilization as guided by MTT.

### **1.6.2 Chapter Three Aim**

The overall purpose of the study was to obtain contemporary and empirically derived population estimates of the prevalence of depression, PD, and/or SU disorders among adults on parole and/or probation, and compare these estimates to adults not on

parole and/or probation using the 2016 National Survey on Drug Use and Health (NSDUH) database. The NSDUH database provides a large nationally sample that is representative of the US general population (SAMHSA, 2017). Because depression, PD, and SU disorders are the most commonly reported BH disorders among adults on parole or probation, this study focused on these BH indicators. NSDUH data allowed for the establishment of the prevalence and co-occurrence of these BH indicators, which has not been previously described in the published literature among adults ages 18-49. A social determinant of health framework guided covariate selection. Specifically, this chapter aimed to:

Aim 1. Determine and compare the prevalence of depression, PD, and/or SU disorders in adults on parole and/or probation during a 12-month period relative to adults who were not on parole and/or probation at any time during the same 12-month period, adjusting for individual characteristics (self-reported gender, race/ethnicity, age, education, income, marital status, and overall health).

### **1.6.3 Chapter Four Aims**

This chapter employed a modified version of MTT to better understand gender and racial/ethnic disparities in BH, BH treatment utilization, and barriers to BH treatment utilization among adults on parole and/or probation within the past 12 months. BH indicators of interest were depression, PD, and/or SU disorders within the

past 12 months among adults on parole and/or probation. BH treatment utilization will be defined as receipt of BH treatment/counseling during the past 12 months among parolees and/or probationers with MH and/or SU treatment needs. The study aimed to:

Aim 1. Determine the impact of self-reported gender, race/ethnicity, and their intersectionality on BH among adults on parole and/or probation, adjusting for individual characteristics (age, education, income, marital status, and overall health).

Aim 2. Describe BH treatment utilization and barriers to BH treatment utilization among adults on parole and/or probation with BH needs.

Aim 3. Determine the impact of self-reported gender, race/ethnicity, and their intersectionality on BH treatment utilization among adults on parole and/or probation with a BH need, adjusting for individual characteristics (age, education, income, marital status, and overall health).

#### **1.6.4 Chapter Five Aim**

Chapter five provides an overall summary and synthesis of study findings, and an evaluation of the application of Meleis' Transitions Theory as means to address the transitional and community reentry BH reentry needs and BH treatment utilization in adults on parole and/or probation. In addition, individual and community/societal level barriers to BH treatment utilization are discussed as a way to potentially inform and guide future justice and public health reform efforts and intervention development. In

addition, this chapter entails a discussion on study limitations, implications of results for nursing research and practice, recommendations for future research, and a conclusion.

## **2. A Systematic Review of the Unmet Behavioral Health Needs and Barriers and Facilitators to Community-Based Treatment Utilization among Justice-Involved Individuals**

### ***2.1 Introduction***

Individuals being held in jails and prisons are disproportionately burdened by behavioral health (BH) disorders, which includes emotional well-being, mental health (MH), and substance use (SU) disorders (Bronson & Berzofsky, 2017; Peters et al., 2015; SAMHSA, 2017) . More than 50% of all individuals held in jails and prisons are affected by a MH disorder compared to 18% of the general population; almost 75% are affected by a SU disorder compared to 9% of the general population (SAMHSA, 2018) and about half suffer from co-occurring MH and SU disorders (Peters et al., 2015). The overrepresentation of individuals suffering from BH disorders in the United States (US) Criminal Justice System (CJS) is multifactorial, but has been largely attributed to the lack of and inadequate funding of community-based BH treatment, BH treatment disparities, racial/ethnic sentencing disparities, the criminalization of BH disorders, and mandatory incarceration and lengthy sentencing for drug law violators (Baillargeon et al., 2009; Hinton et al., 2018; Nellis, 2016). This convergence of factors have contributed to a more than 500% increase in the US incarcerated population since the 1980s, and the number of people with a MH disorders in jails and prisons outnumber those in state

hospitals and institutions ten to one (Abramsky, Fellner, & Human Rights Watch Organization, 2003; Appelbaum, 2011).

The lack of BH treatment exists across all levels of the US CJS and significantly undermines the US CJS's ability to effect sustained reductions in the US incarcerated population (Mir et al., 2015; Spiropoulos, Salisbury, & Van Voorhis, 2014). Less than 15% of the incarcerated population receives needed BH treatment, and individuals exiting prison and jails under correctional supervision in the community (i.e. parolees or probationers) often return to the community with untreated BH needs (Vera Institute of Justice, 2016). Individuals on probation or parole face numerous challenges post-release, with community integration often accompanied by adverse social conditions and stressors. These stressors can increase the risk of a MH disorder, substance use/relapse, risk taking behaviors, poor physical health, failed community integration, and recidivism (Morenoff & Harding, 2014; Selling, Lee, Solimo, & Venters, 2015). Successful community integration of justice-involved individuals on parole or probation is integral to public health, and constitutes an opportunity to advance health equity among individuals disproportionately burdened by persistent BH disparities.

Systematic reviews of the utilization of community-based BH treatment in justice-involved individuals has typically focused on transitional and reentry efforts, with a particular focus on evidence-based practices and interventions targeting BH in the last decades (Beck, 2014; Binswanger et al., 2012; James, 2015; Prendergast, 2009).

These efforts have done much to improve BH treatment access, engagement, and outcomes, in addition to augmenting formal community-based BH treatment services. Systematic attempts to determine the long-term effectiveness of such efforts on BH and recidivism in justice-involved adults is often precluded by the considerable heterogeneity of these efforts (Bahr, Masters, & Taylor, 2012; Batastini, King, Morgan, & McDaniel, 2016; Carr, 2014; Finfgeld-Connett & Johnson, 2011; Harawa et al., 2018; Hopkin, Evans-Lacko, Forrester, Shaw, & Thornicroft, 2018; Kouyoumdjian, McIsaac, Liauw, Green, Karachiwalla, Siu, Burkholder, Binswanger, Kiefer, Kinner, Korchinski, Matheson, Young, Hwang, et al., 2015; Leigh-Hunt & Perry, 2015; Meng, Kath, Li, & Nguyen, 2017; Scroggins & Malley, 2010; Woodhouse et al., 2016). However, Hopkin et al.'s (2018) systematic review of MH interventions for individuals exiting prison found that although the interventions were helpful, some inadvertently contributed to an increase in incarceration rates (Hopkin et al., 2018). Further, there is a need for more large-scale studies of longer durations in order to reliably determine their long-term effects and the wide-scale replication, implementation, and sustainability of such efforts can be limited, particularly in lesser-resourced and/or geographical locations (Perry et al., 2016; Woodhouse et al., 2016).

Extant systematic reviews have generated critical knowledge about formal reentry interventions targeting BH among justice-involved individuals under community corrections. However, to our knowledge, there have been no systematic

reviews that have examined the naturalistic/real-world ways in which justice-involved individuals with BH needs access formal community-based BH treatment when these interventions are not available or accessible. This knowledge is critical to addressing gaps in formal community-based BH treatment utilization among justice-involved adults with BH needs and integral to advancing translational and implementation efforts. As such, the purpose of this systematic review was to describe the BH needs, BH treatment utilization, and facilitators and barriers to community-based BH treatment utilization among justice-involved adults. This study synthesized findings across studies examining these objectives; critically evaluated the methodological approaches employed, and discussed the implications of these findings.

## **2.2 Methods**

### **2.2.1 Search Strategy**

This systematic literature review was guided by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) (see Figure 1), and was conducted with the assistance of a Research & Education Librarian at a Medial Library (Moher, Liberati, Tetzlaff, Altman, & PRISMA Group, 2009). A total of seven search databases, PubMed, CINAHL, PsychINFO, the ProQuest Criminal Justice Database, the ProQuest Dissertation and Abstracts Database, the Sociological Abstracts Database, and SCOPUS were used to ensure comprehensive access to related multidisciplinary literature. Three categories of keywords were determined with the aid of a librarian, and were

subsequently employed in searches individually and in combination using the Boolean operators “AND” and “OR”, “MeSH” terms, and different variations of relevant database specific terms, as defined by the following two research objectives: 1) determine the BH needs of justice-involved adults (“mental disorders”, “mental health”, “Stress, Psychological” “Substance-Related Disorders”, “substance abuse”); 2) determine BH treatment utilization among individuals on parole or probation (“mass screening”, “treatment”, “healthcare”, “psychotherapy”, “rehabilitation”, and “therapeutic communities”); and 3) describe the barriers and facilitators to addressing BH needs among justice-involved individuals (“barrier”, “challenges”, “health knowledge, attitudes”, “help-seeking behavior”, “patient acceptant of health care”, “patient engagement”, and “patient activation”). The following filters were employed to further refine search results: adult populations (NOT ((“Adolescent” [MeSH] OR “Child” [MeSH] OR “Infant” [MeSH])); search limited to 2009-2019 in order to provide the most contemporary and up to date information after the enactment of major provisions of the Affordable Care Act (ACA); limited to the US; and peer reviewed publications written in English (Appendix A, Tables 1-7 for complete details).

## **2.2.2 Inclusion and Exclusion Criteria**

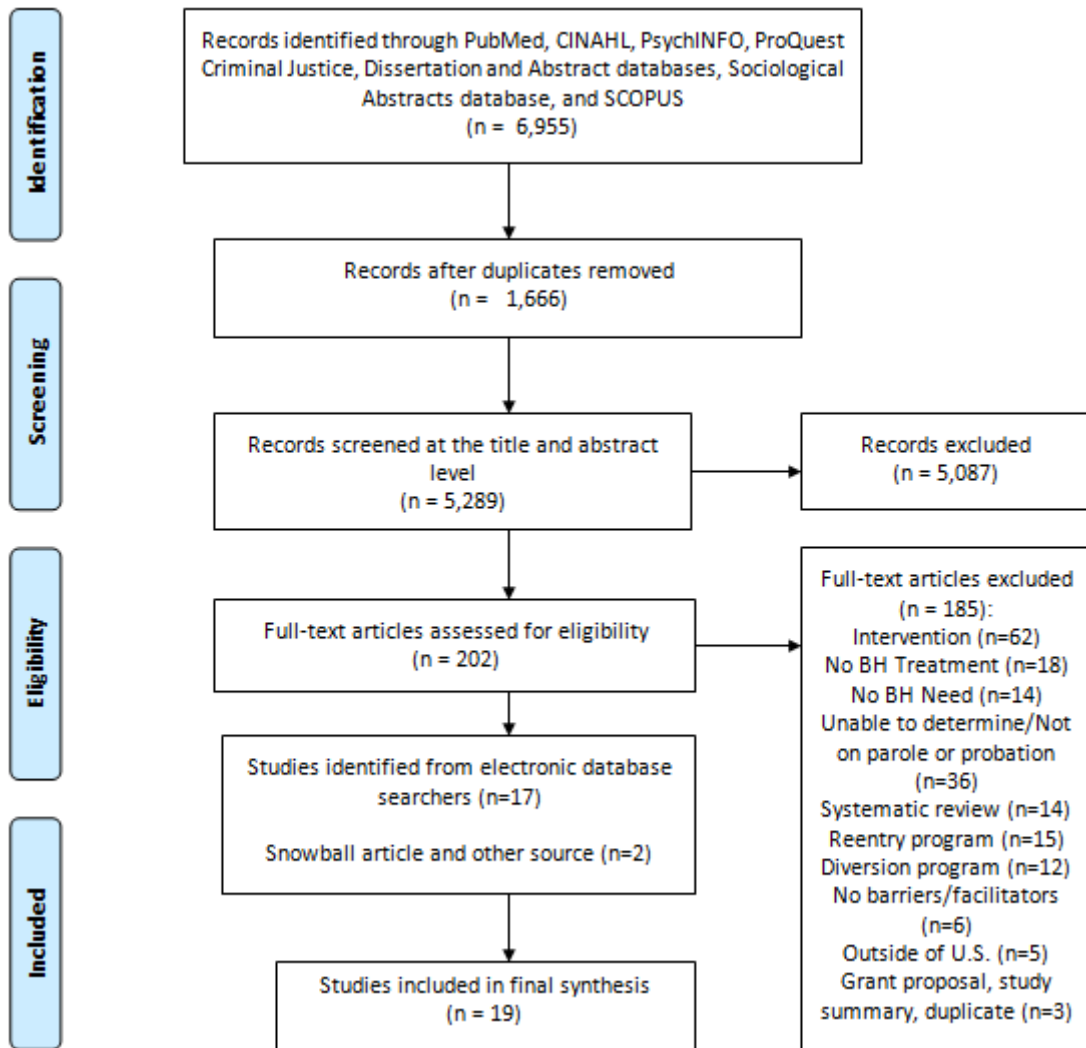
Studies were included if they met the following inclusion criteria: 1) adults  $\geq 18$  years of age as adult correctional supervision rehabilitative efforts in the community is

based on the legal and economic autonomy of an adult; 2) limited to individuals on parole or probation in the U.S.; 3) addressed BH needs as a primary outcome; 4) examined BH treatment utilization; 5) examined BH treatment and barriers and facilitators to BH treatment utilization; 6) in peer review publications, government reports, or White papers; and 7) published in English. Exclusion criteria were: 1) studies that included aggregated data that include populations <18 years of age; 2) diversionary probationary programs (e.g. MH courts, drug courts, co-occurring diagnoses courts, and alternative to incarceration programs); 3) any post-release reentry programs, wrap-around services, aftercare, specialty MH probationary/parole caseloads, forensic assertive community treatment [FACT], supervisory mandated BH treatment, etc.; 4) intervention studies; and 5) study samples that do not explicitly state the individual being on parole and/or probation (i.e. not individuals with court-mandated substance use treatment, etc.). Programs that divert individuals affected by BH needs from the US CJS were excluded as they are not often standardized across all US CJS settings, and they do not adequately address the post-release reentry BH needs of individuals that have been incarcerated, which is in and of itself a significant social determinant of health and a major driver of health inequities (Nowotny & Kuptsevych-Timmer, 2018; Phelps, 2013; Selling et al., 2015; Torrey et al., 2010; Zhang & Qiu, 2018). In addition, formal transitional and reentry efforts were excluded as they are outside of the scope of this review which seeks to understand the contextual factors that influence formal

community-based BH treatment utilization among justice-involved adults in the absence of these interventions.

### **2.2.3 Screening and Study Selection**

Two of the authors independently screened manuscripts identified through the database searches using Covidence systematic review management software. A total of 6,637 records were identified through our database searches and an additional two articles through other sources (e.g. manual search of article references). Figure 2 details the electronic databases search results and full article selection process. Both reviewers reviewed all conflicts regarding article selection according to previously determined inclusion and exclusion criteria. The quality of the final studies (N=19) identified for inclusion in this review was appraised using the Joanna Briggs Institute tools for qualitative, analytical cross-sectional studies, and cohort studies, in addition to the Mixed Methods Appraisal Tool (2018) (Hong et al., 2018; Joanna Briggs Institute, 2017). Although the methodological quality of each of the final studies selected for inclusion was appraised, this did not affect the selection and inclusion process due to the exploratory nature of this systematic review (Appendix A, Table 8).



**Figure 2: Flow Chart of Systematic Review**  
 Source: Adapted from PRISMA Flow Diagram (Moher et al., 2009)

#### **2.2.4 Data Extraction**

A data extraction table guided the extraction process. These tables included information regarding the 1) authors/year of each article; 2) the purpose/objective of each study; 3) the study design and the data analytic approach employed to address study objective/s; 4) the sociodemographic characteristics (e.g. sex, age, race, ethnicity, etc.) of the study samples, with a particular focus on the population of interest, adults on parole or probation; 5) the BH instruments used to measure BH needs and related BH outcomes/rates; 6) the methods used to assess BH treatment and their rates/outcomes; 7) stated barriers to BH treatment utilization, to include inverse correlates associated with BH treatment utilization, as well barriers posited by study authors; and 8) stated facilitators to BH treatment utilization, to include predictors of BH treatment utilization, as well as facilitators to BH treatment utilization posited by study authors. We contacted the study authors for two studies about additional information needed to complete the table if that information were unable to be ascertained from the published article.

#### **2.2.5 Synthesis**

We employed a systems level approach to understanding the individual and community/societal-level factors that influenced formal BH treatment utilization among justice-involved adults with BH needs. There was considerable heterogeneity in terms of the BH measures employed in the examined studies, and a qualitative summary of the

results and emerging themes are presented according to draw on quantitative and interpretative data to address the aims of the review: (1) description of BH needs; (2) description of BH treatment utilization; (3) barriers related to BH treatment utilization; and (4) facilitators to BH treatment utilization among justice-involved adults.

## **2.3 Results**

### **2.3.1 Quality Appraisal**

This study was a mixed study systematic review that concomitantly appraised the methodological quality of various study designs according to multiple validated appraisal tools and checklists (Appendix A, Table 8) (Pluye, Gagnon, Griffiths, & Johnson-Lafleur, 2009). Due to the exploratory nature of this systematic review and the considerable heterogeneity across studies, a scoring system was not employed to appraise the overall methodological rigor of the various study designs represented in this review. Although some of factors appraised across a limited number of studies were not applicable or not present, none of the studies had significant methodological concerns that would threaten the validity and reliability of their results and warrant their removal. The Joanna Briggs Institute checklists were used to appraise the quality of the cross-sectional, qualitative, and cohort studies, while the Mixed Methods Appraisal Tool, version 2018 was used to appraise the quality of the single mixed-methods study (Hong et al., 2018; The Joanna Briggs Institute, 2017).

### **2.3.2 Study Characteristics and Geographic Location**

The 19 articles included in this systematic review came from publications and disciplines related to public health, social work, nursing, medicine, criminal justice, correctional health and rehabilitation, law, mental health/psychiatry, and substance misuse/addiction. A full description of the study characteristics included in this systematic review is presented in Table 1. The majority of the studies examined were cross-sectional quantitative analyses (n=7), and eight examined nationally representative samples using National Survey on Drug Use and Health (NSDUH) data (Bryson et al., 2019; Crilly, Caine, Lamberti, Brown, & Friedman, 2009; Howell, Wang, & Winkelman, 2019; Saloner, Bandara, McGinty, & Barry, 2016; Sung, Mahoney, & Mellow, 2011; Winkelman et al., 2016; Yu et al., 2014; Yu & Sung, 2015). The remaining studies were qualitative (n=4), trend (n=3), cross-sectional pooled samples (n=2), longitudinal (n=2), and one mixed-methods study. The sample sizes of justice-involved adults varied considerably across the examined studies and ranged from 17 to 15,899. Two of the studies reviewed were exclusive to a rural area (Mowbray, McBeath, Bank, & Newell, 2016), one examined differences between rural and urban samples (Oser, Harp, O'Connell, Martin, & Leukefeld, 2012), and one study was located in two counties in a Southeastern (Owens et al., 2011a) state that did not specify geographical location type. The remaining seven studies examined were conducted in urban areas in California (Marlow et al., 2010), Kentucky (Golder et al., 2015), Maryland (Gryczynski et al., 2012),

New York (Valera, Bachman, & Rucker, 2016; Valera, Cook, Darout, & Dumont, 2014),  
and Rhode Island (Dong, Must, Tang, Beckwith, & Stopka, 2018).

**Table 1: Data Extraction Table**

<b>Authors (Year)</b>	<b>Purpose</b>	<b>Sample</b>	<b>Methods</b>	<b>BH Results</b>	<b>Barriers &amp; Facilitators</b>
Bryson, Cotton, Barry, Bruce, Piel, Thielke, & Williams (2019)	Compare the prevalence of serious or moderate mental illness (SMMI), and the proportion of those with SMMI who receive mental health treatment, among community-dwelling older adults on parole or probation vs. adults not on parole or probation.	<p>N=3,266: Justice-involved (JI) adults with SMMI age ≥ 50 years (n=79); Non-JI adults age ≥ 50 years with SMMI (n=3187)</p> <p><u>Racial and/or Ethnic Demographics:</u> Non-Hispanic (NH) Black/African American: 16.5% Hispanic/Latinx: 10.1% NH White: Not reported</p> <p><u>Age:</u> ≥ 50 years</p> <p><u>Self-reported Gender:</u> JI subset Female: 46% Male: 54%</p> <p><u>Geographic Region:</u></p>	<p><u>Design:</u> Cross-sectional analysis of data from the 2008-2014 National Survey on Drug Use and Health (NSDUH)</p> <p><u>MH Measures:</u> <b>SMMI:</b> Determined by Global Assessment of Functioning (GAF) score. Moderate mental illness is score of 50≤GAF&lt;60; Severe mental illness, GAF score &lt; 60.</p> <p><b>Psychological Distress (PD):</b> Kessler-6 PD Scale (K6)</p> <p><u>Substance Use (SU) Measures:</u> Substance use disorders (SUD) based on the <i>Diagnostic and Statistical Manual of Mental Disorders, 4<sup>th</sup> Edition (DSM-IV)</i> diagnostic criteria.</p> <p><u>Mental Health (MH)</u></p>	<p><u>BH Outcomes:</u> <b>SMMI:</b> JI sample = 21% Non-JI sample= 7% (p&lt;0.001)</p> <p><b>PD:</b> JI sample: Mean K6 score of 16.25 = 5% Non-JI sample: Mean K6 score of 14.56 = 5%</p> <p><b>Co-occurring SUD=41%</b></p> <p><u>BH Treatment:</u> <b>MH:</b> Any outpatient treatment JI sample = 81% Non-JI sample = 61% (p&lt;0.001).</p>	<p><u>Predictors:</u> MH treatment in the JI sample was positively associated with female gender (aOR=1.41; p&lt;0.001), a high school education or more (aOR=1.61; p&lt;0.001), health insurance (aOR=2.05; p=0.011); and PD (aOR=1.06; 0.003), when adjusting for demographic (age 50-64 vs. ≥65; gender, and race/ethnicity), socioeconomic (marital and employment status, income, and any health insurance), and clinical (self-rated health) covariates and survey year.</p> <p>MH treatment was</p>

		Nationally representative sample	<p><u>Treatment:</u> Self-report of any outpatient mental health visits or prescriptions in the past 12 months.</p> <p><u>Data Analysis:</u> Multivariate logistic regression modeling.</p>		<p>negatively associated with age <math>\geq 65</math> or older (aOR=0.44; <math>p=0.002</math>); being Black/African American (aOR=0.55; <math>p=0.0018</math>); being Hispanic/Latinx (aOR=0.57; <math>p=0.472</math>); and employment (aOR=0.49; <math>p=0.027</math>).</p> <p><u>Barriers to MH Treatment:</u> Stigma, cost, lack of coverage, distance from services.</p> <p><u>Facilitators of MH Treatment:</u> Justice-involvement that facilitates linkages with MH treatment, mandated or not, particularly among older adults (ages <math>\geq 65</math>) and Blacks/African Americans.</p>
Bunting, Oser, Staton, Eddens, &	Examine barriers to community-based SU	N=15 Social Service Clinicians (SSCs), employed by the Department of	<p><u>Design:</u> Semi-structured qualitative interviews.</p> <p><u>MH Measures:</u> Clinician-</p>	<u>BH Outcomes:</u> MH: SCC report of suicidal ideation in exemplar of a justice-	<p><u>Barriers to SU Treatment:</u> Intravenous drug use, youth and</p>

Knudsen (2018)	treatment among justice-involved individuals with opiate use disorder (OUD), using the social ecological framework, from clinicians' perspectives.	<p>Corrections, that routinely work with JI adults during the reentry period and provide post-release linkages to care.</p> <p><u>Racial and/or Ethnic Demographics:</u> NH Whites: 100% <u>Age:</u> Not reported</p> <p><u>Self-reported Gender:</u> Female, 100%</p> <p><u>Geographic Region:</u> Appalachian, Kentucky</p>	<p>report.</p> <p><u>SU Measures:</u> Clinician report of OUDs in justice-involved clients</p> <p><u>Data Analysis:</u> Interviews were transcribed verbatim, and independently coded line-by-line. Thematic analysis techniques employed, and codes organized by the social ecological framework.</p>	<p>involved individual with OUD.</p> <p>SU: All clients with OUD, number/percentage not reported.</p> <p><u>BH Treatment:</u> Discussed, peer recovery support in the community and medication-assisted therapy (MAT); number/percentage not reported.</p>	<p>limited life experiences, stigma, lack of motivation, homophobic social networks that normalized drug use and/or have limited knowledge of treatment, high SSC caseloads, lack of parole/probation officer SUD education, easy access to opioids, lack of resources for co-occurring MH and SUDs, lack of community support, lack of transportation, cost prohibitive OUD treatment options, and uncertain future of the ACA.</p> <p><u>Facilitators to SU Treatment:</u> Increase in education and training related to SU treatment among parole/probation</p>
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					officers and judges, increase in the use of telemedicine, psychosocial counseling, and provision of time-release MAT. Increased community outreach and engagement with rural communities to reduce stigma related to SU and improve SU service provision. Expanded transportation and mobile treatment providers, and the US CJS.
Crilly, Caine, Lamberti, Brown, & Friedman (2009)	Examine past-year prevalence of mental disorder symptoms among adults on probation and the probability of MH services use.	N=6141: JI adults with MH symptoms (n=311); Non-JI adults with MH symptoms (n=5,830);  <u>Racial and/or Ethnic Demographics:</u> Black/African American: 10.1%/18.1% Hispanic/Latinx: 21.4%/17.0%	<u>Design:</u> Cross-sectional analysis of data from the 2001 NSDUH  <u>MH Measures:</u> <b><i>MH Disorders Symptoms:</i></b> panic, depression, phobia, general anxiety, PTSD, mania, and psychosis. Level of functioning (none, mild, moderate, and severe difficulty).	<u>BH Outcomes:</u> <b><i>Overall MH Symptoms:</i></b> 26.6% more likely to report symptoms of psychosis (p=.001), mania (p=.001), and PTSD (p=.001); Less likely to report general anxiety (p=.04). No significant differences	<u>Predictors:</u> MH treatment in the JI sample was positively associated with severity of MH symptoms and linkage with specialized MH services.  <u>Barriers to MH Treatment:</u> Lack of MH practice

		<p>Other: 7.1%/6.4%  White: 61.4%/58.5%  All significant, p=.001</p> <p><u>Age (Prob Only/Both Arrest and Probation):</u>  18-25, 67.9%/74.3%  26-34, 16.4%/8.8%  35-64, 15.7%/17.0%</p> <p><u>Self-reported Gender:</u>  Female: 40.0%/29.2%</p> <p><u>Geographic Region:</u>  Nationally representative sample</p>	<p><u>SU Measures:</u>  Substance use disorders (SUD) based on the <i>Diagnostic and Statistical Manual of Mental Disorders, 4<sup>th</sup> Edition (DSM-IV)</i> diagnostic criteria.</p> <p><u>Mental Health Treatment:</u> Self-report of at least one visit to a MH center, private therapist, outpatient MH service, or day treatment program (excluding SU treatment) in the past 12 months.</p> <p><u>Data Analysis:</u>  Chi-square probability of comparisons of MH symptom prevalence and MH treatment service use by study group.</p>	<p>in the prevalence of depression, panic, or phobia.</p> <p><b><i>MH Symptoms (Probation/Probation and Arrest):</i></b>  Depression: 65.0%/66.1%  Phobia: 46.4%/51.5%  Panic: 47.9%/52.0%  PTSD: 48.6%/59.1%  General anxiety: 32.1%/37.4%  Psychosis: 37.1%/43.9%  Mania: 18.6%/27.5%</p> <p><b><i>Co-occurring SU:</i></b>  Probation only: 22.1%  Probation and arrest: 43.3%  No Probation or Arrest: 14.9%</p> <p><u>MH Treatment:</u>  Probation only = 18.6%  Probation and arrest</p>	<p>guidelines within the probation system.</p> <p><u>Facilitators of MH Treatment:</u> Justice-involvement that facilitates linkages with MH treatment, mandated or not.</p>
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				= 26.9% No probation or arrest= 22.9% No differences in MH service use across JI sample and non-JI sample.	
Dong, Must, Tang, Beckwith, & Stopka (2018)	Determine priority rankings of basic needs and competing priorities that rival health among adults on probation.	N=22  <u>Racial and/or Ethnic Demographics:</u> Black/African American: 23% Hispanic/Latinx: 23% White: 77%  <u>Age:</u> <i>Mean (M) = 31, Standard deviation (SD) = 27-48</i>  <u>Self-reported Gender:</u> Female: 32%  <u>Geographic Region:</u> Rhode Island (Urban)	<u>Design:</u> Qualitative, 30 minute guided in-person interviews with a convenience sample of English-speaking, adult probationers recruited from waiting room of probation office, or referral from POs; rank current priorities from pre-determined list informed by literature, and current health concerns.  <u>MH Measures:</u> Self-report  <u>SU Measures:</u> Self-report of use of any licit, illicit/prescription substance used currently and in the past.  <u>Substance Use Treatment:</u> Self-report	<u>BH Outcomes:</u> <b><i>Self-reported MH Symptoms</i></b> 55% (n=12) reported anxiety related to food insecurity, it was reported that lack of employment created worsening financial decline and negatively affected mental health.  <b><i>SU:</i></b> 45% (n=10) had a history of illicit substance use.  <u>BH Treatment:</u> No percentage reported. Reported need for suboxone prescription, effective	<u>Barriers to BH Treatment:</u> Being underinsured, gaps in coverage, high deductibles and copays, reduced services covered under ACA, a lack of social supportive resources such as housing, employment, food access, and adequate health care coverage for SU.  <u>Facilitators of BH Treatment:</u> Prioritization of SU recovery and abstinence.

			<p><u>Data Analysis:</u> Descriptive statistics; mean score and range.</p>	<p>pain management via health care, and an intensive outpatient program that does not specify if was for MH or SU.</p>	
<p>Golder, Engstrom, Hall, Higgins, &amp; Logan (2015)</p>	<p>Examine the different levels of general psychological distress, using latent class analysis (LCA), in a group of victimized women on parole and probation.</p>	<p>N=406</p> <p><u>Racial and/or Ethnic Demographics:</u> Black/African American: 41.9% Other Racial/Ethnic (Hispanic/Latina, Asian/Pacific Islander, American Indian, Multi-racial, and Other): 7.6% White: 50.5%</p> <p><u>Age:</u> M = 37, SD=10.23</p> <p><u>Self-reported Gender:</u> Female: 100%</p> <p><u>Geographic Region:</u> Jefferson County, Kentucky (Urban area)</p>	<p><u>Design:</u> Cross-sectional face-to-face survey, self-reported data collected by trained female staff using audio-computer-assisted interviewing.</p> <p><u>MH Measures:</u> <b>General Psychological Distress (PD):</b> LCA of the 9 primary symptom dimensions of the Brief Symptom Inventory (somatization, obsessive compulsive, interpersonal sensitivity, depression, anxiety, hostility, phobic, paranoid ideation, and psychoticism). <b>Post-traumatic Stress Disorder (PTSD):</b> Posttraumatic Stress Diagnostic Scale <u>SU Measures:</u> Self-report of use of any illicit/prescription substance used as not prescribed, in the</p>	<p><u>BH Outcomes:</u> Overall, higher PD associated with significantly higher (p values = <math>\leq .01/.05</math>) PTSD, higher symptom severity, and substance use.</p> <p><i>Level of PD and PTSD</i> Low PD group: 39.8% = PD and 24% = PTSD; Medium PD group: 34.9% = PD and 58.2% = PTSD; High PD group 25.2% = PD and 76.7% = PTSD</p> <p><i>Co-occurring SU:</i> Low PD group: 53.2% = use of alcohol</p>	<p><u>Predictors:</u> MH treatment was significantly (<math>p = 0.05</math>) with higher PD.</p> <p><u>Barriers to BH Treatment:</u> Low intensity SU treatment, the lack of integrative for co-occurring MH and SU needs, lack of trauma informed care, lack of attention to psychosocial needs; lack of screening and linkages to BH formal treatment services</p> <p><u>Facilitators of MH Treatment:</u> Justice-involvement</p>

			<p>past 12 months and lifetime.</p> <p><u>Mental Health Treatment:</u> Self-report of formal service utilization in the past 12 months, dichotomous variable if participant had received any services related to psychological or emotional problems.</p> <p><u>Substance Use Treatment:</u> Self-report of formal service utilization in the past 12 months, drug or alcohol treatment.</p> <p><u>Data Analysis:</u> LCA with model parameters estimated using maximum likelihood estimates. Bayesian, log likelihood, and bootstrap likelihood ratio test used to assess model fit.</p>	<p>to intoxication 27.8% = Illicit drug use Medium PD group: 49.2% = use of alcohol to intoxication 36.0% = Illicit drug use High PD group: 69.6% = use of alcohol to intoxication 55.8% = Illicit drug use</p> <p><u>MH Treatment:</u> 30.1% = Low PD group 49% = Medium PD group 60% = High PD Group</p> <p><u>SU Treatment:</u> 33.4% = Low PD group 43% = Medium PD group 46% = High PD group</p>	
Gryczynski, Kinlock,	Examine treatment	N=181	<u>Design:</u> Longitudinal face-to-face survey, self-reported data	<u>SU Outcomes:</u> There was a four-fold	<u>Predictors:</u> SU treatment was

<p>Kelly, O'Grady, Gordon, &amp; Schwartz (2012)</p>	<p>outcomes over time and baseline predictors of outcomes among heroin-dependent individual on probation enrolled in an opioid agonist maintenance with methadone or levo-alpha-acetylmethadol (LAAM).</p>	<p><u>Racial and/or Ethnic Demographics:</u> Black/African American: 84.0% <u>Age:</u> <math>M = 39.97, SD=7.41</math> <u>Self-reported Gender:</u> Female: 34.8% <u>Geographic Region:</u> Baltimore County, Maryland (Urban area)</p>	<p>collected at baseline, 2-, 6-, and 12-month follow up. <u>SU Measure:</u> Self-report of use of heroin/cocaine in past 30-days <u>Data Analysis:</u> Random-intercept negative binomial regression was used to model past 30-day SU (heroin/cocaine) and engagement in income-generating criminal activity. Number of treatment days data obtained from program records. Analysis of retention modeled from time-to-dropout via proportional hazards Cox regression.</p>	<p>decrease in heroin use days at 12 months.</p>	<p>significantly associated with probation compliance (<math>p &lt; .001</math>) and treatment readiness (<math>p = 0.05</math>), when adjusting for gender, race (Black/African American vs. Non-Black/African American), and route of heroin use.  SU treatment was negatively associated with greater addiction severity.  <u>Barriers to SU Treatment:</u> Injection drug use, lack of gender-specific treatment; underutilization of MAT, conflict of CJS goals and public health goals (harm reduction and pragmatism); lack of training and implementation of medication-assisted</p>
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					treatment (MAT) in institutional and community corrections. <u>Facilitators of SU Treatment:</u> Probation compliance
Howell, Wang, & Winkelman (2019)	Assess changes in health insurance coverage and mental health treatment among with and without involvement in the criminal justice system after implementation of key provisions of the Affordable Care Act (ACA).	N=3,688 JI adults with serious psychological distress (SPD)  <u>Racial and/or Ethnic Demographics (Weighted):</u> Black/African American: 17.9% Hispanic/Latinx: 16.3% Non-Hispanic White: 59.4 Non-Hispanic Other: 6.3%  <u>Age (Weighted):</u> 19-64 years of age 19-25, 28.7% 26-34, 28.9% 35-49, 28.2% 50-64, 14.1%  <u>Self-reported Gender</u>	<u>Design:</u> Cross-sectional, pooled data analysis of data from the 2011-2013 and 2014-2017 NSDUH.  <u>MH Measures:</u> <b>Psychological Distress (PD):</b> Kessler-6 PD Scale (K6), $\geq 13$ indicative of serious PD.  <u>Mental Health Treatment:</u> Self-report of any inpatient, outpatient, and any MH prescriptions in the past 12 months. Unmet MH Treatment Need: Needed MH treatment, but did not get due it due to financial barrier.  <u>Data Analysis:</u> Multivariable LR models with a constructed interaction terms (pre-/post-ACA and JI) were used to	<u>MH Outcomes:</u> <b>PD</b> 25% = JI sample, K6 score $M = 18.0\% \pm 4.1$ 11.5% = Non-JI sample K6 score $M = 17.2 \pm 3.6$  <u>MH Treatment:</u> <b>Any MH Treatment</b> JI sample = 50.7% (2011-2013) 47.3% (2014-2017) No significant changes  Non-JI sample = 45.7% (2011-2013) 47.9% (2014-2017) Significant increase  JI sample = No significant changes in MH treatment by	<u>Barriers to MH Treatment:</u> Adjusting for covariates age (categorical), gender, race/ethnicity, urban or rural location, marital status, and poverty level, MH service availability was not enough to meet the MH needs of JI sample. The quality and intensity of MH service may not be adequate. Competing demands, housing instability, food insecurity, potential limit to social service access due to past felony convictions. Stigma, past negative experiences with

		<p><u>(Weighted):</u> Female: 40.9%</p> <p><u>Geographic Region:</u> Nationally representative sample; Rural: 19.3% Non-rural: 80.6</p>	examine rates of insurance coverage between the 2011-2013 and 2014-2017 datasets.	type after ACA and proportion of individuals with unmet MH treatment need.	<p>healthcare, structural discrimination and mistrust, quality and acceptability of care; ceiling effect.</p> <p><u>Facilitators to MH Treatment:</u> The authors posited that justice involvement, care coordination, clinical settings tailored to the needs of JI, revision of the Medicaid inmate exclusion and community organizations that enroll individuals in ACA.</p>
Lorvick, Comfort, Krebs, & Kral (2015)	Examine receipt of health service utilization and social vulnerability among JI women on parole or probation in	<p>N=202; community-based sample of justice-involved women that used crack cocaine or injection drugs.</p> <p><u>Racial and/or Ethnic Demographics</u> NH Black/African American:</p>	<p><u>Design:</u> Face-to-face survey interviews collected in 2011-2013, with verbal responses entered in a computer-based personal interviewing system.</p> <p><u>MH Measures:</u> Not assessed.</p> <p><u>SU Measures:</u> Survey items taken from the Urban Health</p>	<p><u>BH Outcomes:</u> <b>SU:</b> Smoked crack cocaine past 30 days: 89% Intravenous drug use past 30 days: 30% Illicit SU past 6 months: 34%</p> <p><u>BH Treatment:</u></p>	<p><u>Barriers to BH Treatment:</u> Lack of discharge/transitional planning from correctional healthcare systems to community-based BH treatment. Lack of correctional care for women on</p>

	the past year compared to Non-JI women.	85% Hispanic/Latinx: 4% NH White: 8% Other: 3%  <u>Age:</u> Information not cited in article; corresponding author contacted.  <u>Self-reported Gender:</u> Female, 100%  <u>Geographic Region:</u> Oakland, California (Urban)	Study Questionnaire.  <u>MH Treatment:</u> Self-report of receipt of MH treatment in the past 6 months.  <u>SU Treatment:</u> Self-report of receipt of SU treatment in the past 6 months.  <u>Data Analysis:</u> Pearson Chi-square test to compared dichotomous variables and multivariable logistic regression modeling.	MH in the past 6 months: 31%  SU in the past 6 months: 19%	probation that did not serve jail time.  <u>Facilitators of BH Treatment:</u> Implementation of the ACA and active enrollment of JI females by the US CJS. Increased collaboration between the US CJS and community service agencies and one-stop reentry services to facilitate linkage with community-based BH treatment services.
Marlow, White, & Chesla (2010)	Identify perceived barriers and facilitators encounter in their efforts to access and utilize health care services in the community among parolees	N=15  <u>Racial and/or Ethnic Demographics:</u> NH Black/African American: 47% (n=8) Hispanic/Latinx: 12% (n=2) NH White: 29% (n=5) American Indian and White: 6% (n=1)	<u>Design:</u> Qualitative in-person interviews, guided by hermeneutic phenomenology.  <u>MH Measures:</u> Self-report of Depression, Anxiety, Bipolar	<u>BH Outcomes:</u> <b>MH</b> Rates not reported; anxiety and bipolar disorder.  <u>MH Treatment:</u> Otherwise not described except in exemplars. Report of community-based	<u>Predictors:</u> BH treatment was associated with chronic illness and disability, enrollment in healthcare.  <u>Barriers to BH Treatment:</u> Costs and being limited to safety net or county clinics,

	in a residential SU treatment program.	<p>Filipino and White: 6% (n=1)</p> <p><u>Age:</u> M = 48, Range = 40-62/5</p> <p><u>Self-reported Gender:</u> Males: 100%</p> <p><u>Geographic Region:</u> California (Urban)</p>		counseling/referral to psychiatrist and parole psychiatric services for bipolar medication management.	<p>which were viewed as ineffectual and of poorer quality. Stigma related to poverty, SUD, and parole status. Street and prison lives also limited regular access.</p> <p><u>Facilitators of BH Treatment:</u> Healthcare delivered on a smaller scale, readily available and conveniently located or integrated into other services and programs. Medical professionals' caring demeanor toward participants as evidenced by demonstrated concern and respect in combination with provision of relevant care.</p>
Mowbray, McBeath, Bank, & Newell	Examine demographic and clinical correlates	<p>N=148</p> <p><u>Racial and/or Ethnic Demographics:</u></p>	<u>Design:</u> Longitudinal quantitative study with latent class growth analysis (LCGA). Data collected for 8 time waves	<u>BH Outcomes:</u> <i>Depression</i> BDI score, M = 10.50, SD 8.82	<u>Predictors:</u> MH treatment utilization positively associated with

(2016)	associated with time-based trajectories of health and BH services utilization for community-corrections involved (CCI) adults	<p>Non-White Racial or Ethnic minority: 19.3% Non-Hispanic White: 79.7%</p> <p><u>Age :</u> 18-24: 21.6% 25-34: 41% &gt;35: 37.4</p> <p><u>Self-reported Gender:</u> Female: 49%</p> <p><u>Geographic Region:</u> Lincoln County, Oregon (rural coastal county).</p>	<p>(TW), q60 days, over 1.5 years, via brief telephone interviews.</p> <p><u>MH Measures:</u> Beck Depression Inventory (BDI)</p> <p><u>SU Measures:</u> SU risk index (7 items, 4-point scale from 0-3; Cronbach's alpha = .69)</p> <p><u>Mental Health Treatment:</u> Self-report of formal service utilization.</p> <p><u>SU Treatment:</u> Self-report of formal service utilization.</p> <p><u>Data Analysis:</u> Chi-square analyses to assess significant differences in growth classes. LCGA to estimate MH and SU treatment.</p>	<p><b>Substance Use</b> SU risk scale, M=1.04; SD=0.52, range=0-2.23</p> <p><u>BH Treatment:</u> (Probability of use 0-1)</p> <p><b>MH:</b> 69% = Stable-low, at or near 0 for entire period 10% = Low-baseline-increase, increase in use to 0.56-0.68 at 21% = High-baseline-decline, probability 0.84-0.36.</p> <p><b>SU</b> 61% = Stable-low, probability at or near 0 for entire period 12% = Low-baseline, increase, increase in use to 0.59-0.85 28% = High-baseline-decline, probability 0.93-0.21</p>	<p>unemployment and not being male. High baseline-decline in SU treatment correlated with being employed, less income, higher BDI scores, while an increase in SU treatment associated with higher income, higher BDI scores. Analyses adjusted for parenting intervention, socio-demographic characteristics, insurance status, clinical characteristics, BH outcomes, and growth class membership.</p> <p>BH treatment was negatively associated with employment, age ≥65 or older, being Black/African American or Hispanic/Latinx.</p>
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					<u>Barriers to BH Treatment:</u> Lack of insurance and temporal changes in BH needs (post-release vs. 1.5 years, particularly as time waves 7-8).
Oser, Harp, O'Connell, Martin, & Leukefeld (2012)	Examine correlates of participation in peer recovery/12-step programs, voluntary treatment, and mandated treatment by geographic location (rural vs. urban) among adults on probation.	N=1,464  Rural =720 Urban = 753  <u>Racial and/or Ethnic Demographics:</u> White: 95% in rural sample 24% in Urban Non-White: 5% in rural sample 76% in Urban  <u>Age:</u> M = 34 in Rural; M = 37 in Urban  <u>Self-reported Gender:</u> Female: 34% in rural 29% in urban  <u>Geographic Region:</u>	<u>Design:</u> Cross-sectional secondary analysis of two parallel studies on HIV risk reduction.  <u>Substance Use:</u> Addiction Severity Index, Self-report of lifetime use of any illicit/prescription substance used as not prescribed.  <u>SU Treatment:</u> Self-report of peer recovery support group (12-step/AA/NA/CA), voluntary treatment, and court-mandated treatment.  <u>Data Analysis:</u> Bivariate and multivariable logistic regression modeling.	<b><i>Lifetime SU (Rural/Urban):</i></b> There were significant differences ( $p < .05$ ) in the types of SU by geographic location.  Marijuana: 99% / 94% Cocaine/Crack: 73% / 80% Heroin: 12% / 40% Prescription opiates: 66% / 14% Sedatives: 68% / 27% Amphetamines: 58% / 24% PCP: 13% / 30% Hallucinogens: 64% / 34% Inhalants: 26% / 10% Injection drugs: 25% / 24%	<u>Predictors:</u> Geographical location was the primary covariate of interest and gender was the only significant demographic characteristic. 12 Step, voluntary, and mandated treatment were all positively associated with urban location ( $p < .01$ ). Cocaine/crack ( $p < .001$ ) use was associated with all three forms of treatment; amphetamines ( $p < .05$ ) were associated with 12 step and mandated treatment; and heroin/opiates ( $p$

		<p>-Appalachian and/or rural counties, Kentucky</p> <p>-Largest urban county in Delaware</p>		<p><b><i>Lifetime SU Treatment:</i></b></p> <p>There were significant differences (<math>p &lt; .05</math>) in the type of SU treatment by geographical location.</p> <p>Twelve Step: 55% / 82%</p> <p>Voluntary: 24% / 38%</p> <p>Mandated: 45% / 57%</p>	<p><math>&lt;.05</math>) were positively associated with voluntary treatment only.</p> <p>Peer recovery/12 Step use was negatively associated with rural location and females with 12% less likely to attend.</p> <p><u>Barrier to SU Treatment:</u> Rural location</p> <p><u>Facilitators to SU Treatment:</u> Justice-involvement</p>
Owens, Rogers, & Whitesell (2011)	Examine MH symptoms, MH treatment seeking, and barriers to accessing MH care for individuals on parole or probation.	<p>N=100</p> <p><u>Racial and/or Ethnic Demographics:</u> American Indian/AK Native: 1% Black/African American: 19% Multi-racial: 3% White: 77%</p>	<p><u>Design:</u> Cross-sectional, self-administered paper-and-pencil data collection. Participants recruited state parole board offices.</p> <p><u>MH Measures:</u> PTSD Checklist-S (PCL-S); 17-item assess PTSD symptom severity</p>	<p><u>BH Outcomes:</u> <b>MH:</b> 75% of sample endorsed a MH concern Self-report: <b>Anxiety</b> = 43% <b>Depression</b> = 53% <b>PTSD</b>, <math>M=42.59</math></p>	<p><u>Predictors:</u> MH treatment was positively associated with PTSD severity and drug use prior to conviction (<math>p &lt; .05</math>) and alcohol use was marginally associated (<math>p = -.59</math>).</p> <p>MH treatment was</p>

		<p><u>Age:</u> M = 35, SD=10.08</p> <p><u>Self-reported Gender:</u> Female: 48%</p> <p><u>Geographic Region:</u> Two counties in a southeastern state.</p>	<p><b>CES-D</b>, 20-item used to assess depressive symptomatology in non-psychiatric populations.</p> <p><b>Trauma History Screen (THS)</b>; 13-item meas. 11 post traumatic events Self-report of BH needs</p> <p><u>SU Measures:</u> <b>Drug Abuse Screening Test-10 (DAST-10)</b>; assess past-year drug use behaviors; reliability .88; time <b>prior to conviction</b>. <b>Short Michigan Alcoholism Screening Test (SMAST)</b>, 13-item scale, specifically asked to reflect on time <b>prior to conviction</b> as often SU abstinence as a condition of supervision.</p> <p><u>Mental Health Treatment:</u> Self-report of receipt of any services related to psychological or emotional problems.</p> <p><u>Data Analysis:</u> Multivariable logistic regression modeling that included scores for PTSD,</p>	<p>(SD=17.79, Range 17-85, cut-off 50); 36% above clinical cut-off.</p> <p><b>Depression</b>, CES Score: M = 22.41 (SD=13.28; Range 0-60, cut-off=16), 54% &gt; clinical cut-off.</p> <p><b>SU:</b> Self-report <b>SU</b>: 34%</p> <p><b>DAST-10</b>, M=5.99 (SD=3.37, Range 0-10, cut-off =≥3) 76% above cut-off</p> <p><b>SMAST</b>, M=.33 (SD=3.14, Range 0-13, cut-off =≥3); 47% with ≥3.</p> <p><u>MH Treatment:</u> 54% of participants that had a MH concern (n=75). -Felt need for MH treatment but did not seek it: 29% (n=22)</p>	<p>negatively associated with any of the variables examined (gender, type of insurance, trauma history, or charge) and there were no significant gender differences in BH measures.</p> <p><u>Barriers to MH Treatment:</u> Among those that felt a need for treatment but did not seek it, having no insurance (64%, n=14), unable to afford cost (50%, n=11), no transportation (9%, n=2) were cited.</p> <p><u>Facilitators to MH Treatment:</u> Justice-involvement, in addition to knowledge about local and low-cost/sliding scale MH treatment agencies.</p>
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			stigma, and SU as predictors of MH treatment.		
Saloner, Bandara, McGinty, & Barry (2016)	Examine how the ACA would affect SU treatment trends among adults ( $\geq 18$ ) with past year justice involvement and that had a substance use disorder (SUD).	<p>Sample Size: 1.2% of sample that was justice-involved and met criteria for a SUD. Rates similar to 2011-13, but somewhat lower than rates from 2004-2010.</p> <p>Specific sample numbers not cited in article; corresponding author contacted.</p> <p><u>Racial and/or Ethnic Demographics:</u>  Black/African American: &gt;16%  Hispanic/Latinx: &gt;16%  Other: not reported  Non-Hispanic White: ~60%</p> <p><u>Age:</u>  Majority under the age of 35, but began to shift to older in 2014</p> <p><u>Self-reported Gender:</u></p>	<p><u>Design:</u> Cross-sectional pooled analysis of NSDUH data from three times periods 2004-08, 2009-13, and 2014.</p> <p><u>Substance Use:</u> Past-year SUD (M or D) to alcohol or drug based on Drug Abuse/Dependence based on the <i>DSM-IV</i> diagnostic criteria.</p> <p><u>Substance Use Treatment:</u> Self-report of any SU treatment in the past 12 months (out/inpatient rehabilitation, MH center, ED, MD office, jail, and self-help group).</p> <p><u>Data Analysis:</u> two-tailed, t-statistics and chi-square tests to compare sample characteristics among the JI and non-JI sample and differences in outcomes between the three time periods.</p>	<p><u>SU Outcomes:</u> Prior use of most substance remained consistent, with the exception of heroin use, which increased from 5.3% in 2004-2008 to 9.75 in 2014.</p> <p><u>SU Treatment:</u> Treatment utilization rates did not change significantly during three time periods: 30% = 2004-2008 and 2009-2013; 33% = 2014.</p>	<p><u>Predictors:</u> SU treatment utilization was positively associated with justice-involvement, after adjusting for covariates (type of SU, age, race/ethnicity, sex, SES, and health insurance coverage status), in supplementary analyses.</p> <p><u>Barriers to SU Treatment:</u> The authors posited persistent stigma and lack of awareness of need for treatment as individual barriers. A limited supply of providers, particularly those that accept Medicaid and an increase in unemployment (and</p>

		<p>Male: more than 70% across all time periods</p> <p><u>Geographic Region:</u> Nationally representative sample</p>			<p>a potential decrease in private insurance) as structural barriers.</p> <p><u>Facilitators to SU Treatment:</u> JI adults with potentially greater SU treatment needs and more structural incentives (court-ordered, condition of supervision, improved linkages and coordination of care, active enrollment in Medicaid). Medicaid enrollment because of state expansions, MH, and Addiction Parity Equity Act of 2008.</p>
Sung, Mahoney, & Mellow (2011)	Examine drug use, treatment exposure, prevalence of unmet treatment needs, psychosocial	<p>N=411</p> <p><u>Racial and/or Ethnic Demographics:</u> Asian: 1.3% Black/African American: 32.0% Hispanic/Latinx: 18.8%</p>	<p><u>Design:</u> Cross-sectional analysis of data from the 2006 NSDUH</p> <p><u>MH Measures:</u> Psychological distress (PD): K6 score</p>	<p><u>BH Outcomes:</u> <b>PD:</b> K6 score <math>M = 9.0</math>, <math>SD = 7.4</math></p> <p><b>SU:</b> 24.2% prevalence of SU in JI sample</p>	<p><u>Predictors:</u> SU treatment among parolees with unmet SU treatment needs was positively associated (<math>p &lt; .001</math>) with being NH Asian (aOR=0.55), widowed or divorced</p>

	<p>risks, and barriers to treatment among individuals on parole and parolees who felt they needed SU treatment in the past year.</p>	<p>Non-Hispanic (NH)  White: 43.8%  NH More than one race: 0.8%</p> <p><u>Age (M, SD):</u>  18-25: 31.5%  26-34: 31.0%  35-49: 34.4%  ≥50: 3.1%</p> <p><u>Self-reported Gender:</u>  Female: 25%</p> <p><u>Geographic Region:</u>  Nationally representative sample:  Urban: 53.5%  Rural: 40.7%  Nonspecific: 5.8%</p>	<p><u>SU Measures:</u>  Self-report of past month drug use, past-year substance dependency or abuse based on the (<i>DSM-IV</i>) diagnostic criteria, and/or receipt of treatment for illicit or alcohol in the past year.</p> <p><u>Mental Health Treatment:</u> Self-report of past-year treatment for MH problems.</p> <p><u>SU Treatment Needs:</u>  Self-report if yes to felt a need for specialized treatment (treatment or additional treatment for a specific substance use) in the past year prior to interview.</p> <p><u>Data Analysis:</u> Pearson chi-square and multivariable logistic regression (adjusting for multiple covariates as indicated by the literature).</p>	<p>compared to a prevalence of 8.5% in non-JI sample (<math>p&lt;.001</math>). A prevalence of 20% for past-year drug use among parolees with unmet SU treatment needs vs. 3% in the non-JI sample.</p> <p><u>MH Treatment:</u>  25.6% = JI sample with unmet SU treatment need</p> <p><u>SU Treatment:</u>  30% of JI sample with unmet SU treatment need received specialized SU treatment versus 12% of the non-JI sample. Among JI sample with unmet SU treatment needs, 12% and 17% received treatment in state and federal</p>	<p>(aOR=0.17), a high school education (aOR=0.17), income between \$50K-&lt;\$75K (aOR=0.02), self-report of very good overall health (aOR=0.33), alcohol abuse or dependence (aOR=0.06), drug abuse or dependence (aOR=0.20), and urban location (aOR=0.69). Age and gender were not significantly associated with SU treatment access.</p> <p>SU treatment among parolees with an unmet SU treatment need was negatively associated (<math>p &lt;.001</math>) with being married (aOR=8.10), full or part-time employed (aOR=1.97), income &lt;\$20K (aOR=7.86) or between 20K-49,999K (aOR=3.20), religious services attendance</p>
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				prisons, respectively.	<p>(aOR=35.94), overall health of fair/poor (aOR=2.82) or good (aOR=2.21), MH treatment (aOR=10.98), rural location (aOR=3.95). NH-Whites (aOR=4.33), Blacks (aOR=4.62); American Indians (aOR=6.50) all had greater lack of access to SU treatment compared to Hispanics.</p> <p><u>Barriers (Reasons for not Getting Treatment Among Adult Parolees with SU treatment needs):</u>          Could not afford or no healthcare insurance (68.9%); no access to transportation or treatment site too far away (17.5%); not ready to stop using (16.4%); did not know where to get</p>
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					treatment (4.0%); and other responses (<1%).  <u>Facilitators of SU Treatment:</u> Authors posit justice-involvement as the important and largest referral mechanism in the U.S.
Valera, Bachman, & Rucker (2016)	Examine the smoking behaviors of adults recently released from smoke-free correctional facilities on parole or probation.	N=60  <u>Racial and/or Ethnic Demographics</u> NH Black/African American: Female 32%, Male 22% Hispanic/Latinx: Female 13%, Male 28% NH White: Female 3%, Male 0%.  <u>Age:</u> M=46.62, SD=6.8, Range= 21-6  <u>Self-reported Gender:</u> Female, 48%  <u>Geographic Region:</u>	<u>Design:</u> Semi-structured qualitative interview. Participants recruited through flyers placed in court/drug and rehabilitation centers, social service agencies, and word of mouth.  <u>MH Measures:</u> Self-report  <u>SU Measures:</u> Self-report of cigarette use.  <u>SU Treatment:</u> Self-report if tried to quit smoking as a probing question, if yes, then how (e.g. nicotine patch, self-help, etc.).  <u>Data Analysis:</u> Interview	<u>BH Outcomes:</u> <b>MH:</b> Self-endorsed anxiety and stress  <b>SU:</b> Resumed smoking during reentry: 91.7% Daily cigarettes: M=17.2, SD=12.81, Range 4-60  <b>Co-occurring Substance Use:</b> Yes  <u>BH Treatment:</u> <b>MH:</b> None reported  <b>SU:</b> Over the counter smoking cessation	<u>Barriers:</u> Among participants, 52% reported having no knowledge of the health effects of smoking and no perceived immediate smoke-related health concerns. Lack of smoking cessation aids in majority of correctional facilities, lack of available smoking cessation strategies during reentry, ease of access to cigarettes, persistent exposure in social/family relationships, and the cost of treatment.

		Bronx Borough, New York City, NY (Urban)	digitally recorded and transcribed verbatim. Content analysis, bracketing; NVivo 10 used to manage and code data.	aids and request for smoking cessation aids in the healthcare setting. None of sample participating in smoking cessation programs.	Cigarettes were also used to relieve stress/anxiety, and were considered pleasurable. <u>Facilitators:</u> Justice-involvement cost of cigarette use, use of smoking-cessation aids; and quitting as a team (family/friends).
Valera, Cook, Darout, & Dumont (2014)	Examine the smoking behaviors and smoking cessation treatment approaches of Black and Latino men on parole or probation.	N=30, Qualitative study sample. N=259, Quantitative study sample (n=197, 765 current smokers).  <u>Racial and/or Ethnic Demographics:</u> Qualitative/Quantitative Black/African American: 45/7% Puerto Rican: 55/3% <u>Age:</u> Qualitative: M=47, SD=35-60  <u>Self-reported Gender:</u> Female: 0%	<u>Design:</u> Mixed methods Qualitative, 90-minute semi-structured interviews to determine tobacco-smoking behaviors. Quantitative cancer-health cross sectional survey related to cigarette use, cessation attempts, and smoking social networks.  <u>MH Measures:</u> Self-report.  <u>SU Treatment:</u> Self-report of smoking cessations measures.  <u>Data Analysis:</u>	<u>BH Outcomes:</u> <b>MH:</b> Self-report of anxiety, stress, nerves, mood swings.  <b>SU:</b> Qualitative study sample: 80% tobacco relapse rate post-release Quantitative study sample: 76% tobacco relapse rate post-release  <b>Co-occurring SU:</b> MH symptoms and tobacco use.	<u>Barriers:</u> The lack of smoking cessation aids and strategies in correctional facilities and during reentry were cited. Further, the cost of treatment, and no immediate smoking-related health concerns were cited. Finally, 52% of study participants reported no knowledge of the health effects of smoking.  <u>Facilitators:</u> Justice-involvement

		<p><u>Geographic Region:</u> Bronx Borough, New York City, NY (Urban area).</p>	<p>Qualitative, two-author coding with constant comparative methods to determine categories/themes. Inter-coder reliability 80%.</p> <p>Quantitative, independent t-tests and linear regression to determine influence of friends/family on daily number of cigarettes smoked.</p>	<p><u>SU Treatment:</u> Overall treatment</p>	<p>and the prohibitive cost of cigarette use. Quitting as a team and the use of smoking cessation aids.</p>
Winkelman, Kieffer, Goold, Morenoff, Cross, & Ayanian (2016)	<p>Examine rates of health insurance and BH treatment utilization among JI adults ages 19-64 (age limit reflective of target population of key ACA provisions)</p>	<p>N=15,899 JI adults; N=218,595 Non-JI adults</p> <p><u>Racial and/or Ethnic Demographics of the JI Group:</u> NH Black/African American: 20.9% Hispanic/Latinx: 18.5% Other: 4.65% NH White: 56.0%</p> <p><u>Age of the JI Group:</u> 19-25, 30.8% 26-34, 27.9% 35-49, 28.1% 50-64, 13.1%</p> <p><u>Self-reported Gender of the JI Group:</u></p>	<p><u>Design:</u> Cross-sectional analysis of data from the 2008-2014 NSDUH</p> <p><u>MH Measures:</u> <b>Serious Mental Illness (SMI):</b> Global Assessment of Functioning (GAF) score of <math>50 \leq \text{GAF} \leq 60</math></p> <p><b>Depression:</b> DSM-IV diagnostic criteria.</p> <p><u>SU Measures:</u> Alcohol/illicit substance misuse/dependence based on DSM-IV diagnostic criteria.</p> <p><u>Mental Health Treatment:</u> Self-report of any</p>	<p><u>BH Outcomes:</u> <b>SMI:</b> JI sample = 10.5% Non-JI sample = 4.3% (<math>p &lt; 0.001</math>)</p> <p><b>Depression:</b> JI sample = 14.0% Non-JI sample = 7.3% (<math>p &lt; 0.001</math>)</p> <p><b>Alcohol Use Disorder:</b> JI sample = 29.4% Non-JI sample = 7.3% (<math>p &lt; 0.001</math>)</p> <p><b>SUD:</b> JI sample = 9.1% Non-JI sample = 1.1%</p>	<p>Winkelman, Kieffer, Goold, Morenoff, Cross, &amp; Ayanian (2016)</p>

		<p>Female, 28.2%</p> <p><u>Geographic Region:</u> Nationally representative sample</p>	<p>counseling/pharmacotherapy for depression or MH in/outpatient/pharmacotherapy treatment for SMI in the past 12 months.</p> <p><u>SU Treatment:</u> Self-report of any treatment for SU in the past 12 months.</p> <p><u>Data Analysis:</u> Multivariable logistic regression modeling with interaction terms for justice-involvement status*age, insurance rates, and BH treatment utilization indicators in 2008-2012 compared to 2013-2014.</p>	<p>(<math>p &lt; 0.001</math>)</p> <p><u>BH Treatment:</u> <b>MH:</b> Medicaid associated with higher levels of MH treatment for depression in JI adults (17.2%, <math>p &lt; 0.001</math>). Medicaid and private insurance associated with an increase in treatment for SMI (24.3%, <math>p &lt; 0.001</math>)</p> <p><b>SU:</b> Medicaid associated with higher levels of SU treatment for SUD (12.6%, <math>p &lt; 0.001</math>). Medicaid and private insurance associated with an increase in alcohol treatment (6.6% and 6.0%, respectively; <math>p &lt; 0.001</math>).</p>	
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Yu & Song (2015)	Examine the prevalence of suicidal ideation (SI) and risk factors for SI by gender among adults on probation.	<p>JI sample: N=1,306 Females N=3,014 Males</p> <p><u>Racial and/or Ethnic Demographics:</u> NH Black/African American: 16.5% Hispanic/Latinx: 10.15% NH White: Not reported NH Other: Not reported</p> <p><u>Age:</u> ≤29, 77.3% in JI females ≤29, 78.3% in JI males</p> <p><u>Geographic Region:</u> Nationally representative sample</p>	<p><u>Design:</u> Cross-sectional analysis of data from the 2009-2011 NSDUH</p> <p><u>MH Measures:</u> <b>SI:</b> "At any time in the past 12 months...including today, did you seriously think about trying to kill yourself?"</p> <p><b>Serious Psychological Distress (SPD):</b> Kessler-6 (K6) Scale score of ≥ 13.</p> <p><b>Major Depressive Episode (MDE):</b> DSM-IV diagnostic criteria.</p> <p><b>SU:</b> Self-report of alcohol/illicit SU in the past 12 months.</p> <p><u>Data Analysis:</u> Bivariate and Multivariable logistic regression adjusting for variables informed by extant</p>	<p><u>BH Outcomes (reported for II sample only):</u></p> <p><b>SI:</b> Overall = 9.7%, Females = 14.3% Males = 7.8% (<math>p &lt; 0.001</math>)</p> <p><b>SPD:</b> Females = 34.8% Males = 20.7% (<math>p &lt; 0.001</math>)</p> <p><b>MDE:</b> Females = 19.1% Males = 8.2% (<math>p &lt; 0.001</math>)</p> <p><b>SU:</b> <b>Alcohol Use</b> Females = 58.3% Males = 66.3% (<math>p &lt; 0.001</math>)</p>	Yu & Song (2015)

			literature.	<p><b>Illicit SU</b>  Females = 31.9%  Males = 36.8%  (<math>p = 0.002</math>)</p> <p><u>BH Treatment:</u>  <b>MH:</b>  Outpatient,  Females = 19.0%  Males = 8.0%</p> <p>Inpatient,  Females = 19.0%  Males = 8.0%</p> <p>Prescribed  Medication for a  Mood Disorder,  Females = 13.7%  Males = 4.2%</p> <p>Medication for a MH  Disorder,  Females = 26.9%  Males = 11.0%</p> <p><b>Treatment for  Alcohol or SU:</b>  Females = 21.0%  Males = 24.6%</p>	
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<p>Yu, Sung, Mellow, &amp; Shlosberg (2014)</p>	<p>Examine the prevalence and correlates of SI among adults on paroles versus Non-JI adults.</p>	<p>N=1,249 JI adults; N=114,033 Non-JI adults</p> <p><u>Racial and/or Ethnic Demographics:</u> NH Black/African American: 25.8% Hispanic/Latinx: 25.7% NH White: Not reported NH Other: Not reported</p>	<p><u>Design:</u> Cross-sectional analysis of data from the 2009-2011 NSDUH</p> <p><u>MH Measures:</u> <i>SI:</i> "At any time in the past 12 months...including today, did you seriously think about trying to kill yourself?"</p> <p><i>Serious Psychological Distress (SPD):</i> Kessler-6 (K6) Scale score of <math>\geq 13</math>.</p> <p><i>Major Depressive Episode (MDE):</i> DSM-IV diagnostic criteria.</p> <p><i>SU:</i> Self-report of alcohol/illicit SU in the past month.</p> <p><u>BH Treatment:</u> Self-report of overnight stay as a hospital inpatient or receipt of prescription medication for mood disorders.</p> <p><u>Data Analysis:</u> Bivariate and multivariable logistic regression modeling.</p>	<p><u>BH Outcomes:</u> <i>MH SI:</i> JI sample = 8.6% Non-JI sample = 3.7% (<math>p &lt; 0.001</math>) <i>SPD:</i> JI sample = 22.2% Non-JI sample = 5.20% (<math>p &lt; 0.001</math>) <i>MDE:</i> JI sample = 12.6% Non-JI sample = 3.39% (<math>p &lt; 0.001</math>) <i>Alcohol Use:</i> JI sample = 52.9% Non-JI sample = 55.8% (<math>p &lt; 0.001</math>) <i>SU:</i> JI sample = 24.3% Non-JI sample = 8.5% (<math>p &lt; 0.001</math>)</p>	<p>Yu, Sung, Mellow, &amp; Shlosberg (2014)</p>
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				<u>BH Treatment:</u> Overnight stay as a hospital inpatient, JI sample = 13.0% Non-JI sample = 10.4% ( $p < 0.001$ ) Prescription medication for mood disorders, JI sample = 7.2% Non-JI sample = 5.1% ( $p < 0.001$ )	
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### **2.3.2.1 Age, Gender, and Race/Ethnicity**

Participant ages for the studies ranged from 18-65, and only Bryson et al.'s (2019) limited their study to justice involved adults  $\geq 50$  years of age. Information related to age was not reported in one of the studies examined (Bryson et al., 2019; Lorvick et al., 2015). The justice-involved sample was disproportionately comprised of younger adults  $\leq 49$  years of age ( $n=13$ ), and there were two studies in which  $>70\%$  of the sample were comprised of adults age 18-29. Females were represented among the justice-involved samples in 16 of the studies, and the percentage of justice-involved females across the studies with both female and male participants ranged from 21.6-49%. In 12 of the studies, females constituted  $\geq 30\%$  of the justice-involved samples examined, and only Oser et al.'s (2012) purposively oversampled females on probation to ensure adequate representation. Four of the studies were gender specific, of which two were specific to justice-involved females (Golder et al., 2015; Lorvick et al., 2015) and Yu and Song's (2015) study was the only to specifically examined the effect of gender in a mixed fe/male sample (Yu & Sung, 2015).

The precise reporting of the racial and ethnic information of the adults examined in the justice-involved sample was precluded due to the variance in the reporting of this information, this information not being reported for some racial/ethnic groups, as well as the reporting of this information for the analytic sample only in some articles (e.g.

individuals on parole with a BH need). Overall, 12 of the studies examined had justice-involved samples that were  $\geq 40\%$  Non-Hispanic (NH) White, and there were stark contrasts in the racial/ethnic makeup of the justice-involved samples by geographical location. Overall, the samples of justice-involved adults residing in rural areas were 80-95% NH White. In contrast, with the exception of Golder et al.'s (2015) and Dong et al.'s (2018) studies, urban samples of justice-involved samples were overwhelmingly NH Black/African American, followed by Hispanics/Latinxs (Dong et al., 2018; Golder et al. 2015).

### **2.3.3 BH Needs**

Rates of BH disorders among justice-involved adults under correctional supervision in the community mirror those among their counterparts held in jails and prisons (Table 2). Psychological distress (PD) and depression were the most screened for MH disorders across the studies, with reported rates for symptoms ranging from 16%-35% (Bryson et al., 2019; Yu & Sung, 2015) and 54%--66% (Crilly et al., 2009; Owens et al., 2011) respectively. The prevalence of serious PD and depression/major depressive episode ranged from 22%-35% (Yu et al., 2014; Yu & Sung, 2015) and 13%-19%. Rates of other MH indicators and symptoms, as well as non-specific moderate to serious mental illness ranged from 21%-76% (Bryson et al., 2019; Golder et al., 2015). Substance use was the most commonly reported and assessed BH disorder, with rates ranging from 41-

100% ( with 100% reflective of SU treatment study setting), (Bryson et al., 2019; Gryczynski et al., 2012; Marlow et al., 2010; Oser et al., 2012) and prevalence ranging from 20%- 39% (Sung et al., 2011; Winkelman et al., 2016). Overall, rates of most types of substance use has remained consistent and alcohol was the most commonly reported type of substance use; however, there has been as significant increase in the use of heroin and other opiates 2014 (Saloner et al., 2016). Formally assessed or self-reported MH outcomes were reported with a SU outcome in thirteen of the studies examined, highlighting the increased recognition of the disproportionate burden of co-occurring MH and SU disorders among individuals under community corrections.

Justice-involvement in and of itself confers MH disability and results in social vulnerability to numerous SDOHs that can result in ineffective coping and SU relapse (Lorvick et al., 2015). In Valera et al.'s (2014, 2016) studies of cigarette smoking relapse post-release, adults on parole or probation often reported smoking cigarettes as a way to deal with self-reported anxiety, stress, and mood swings. In Dong et al.'s (2018) qualitative study with adults on probation, 55% of the sample endorsed anxiety related to food insecurity, and a persistent lack of employment negatively affected mental health. Further, stressors related to community integration can increase with time and contribute to the development and/or worsening of BH disorders among justice-involved adults. It was posited that there were temporal changes in the BH needs of some individuals on parole or probation during community integration in Mowbray et

al.'s (2016) study, and continuous assessment throughout the supervisory period, as opposed to just during initial reentry, was recommended.

Only three of the studies examined formally assessed for a history of trauma (Golder et al. 2015; Lorvick et al., 2015; Owens & Rogers, 2011). Rates of post-traumatic stress disorder (PTSD) among adult victimized women on parole or probation ranged from 24-76% and was significantly associated with higher psychological distress, increased MH symptom severity, and SU (Golder et al. 2011). Serious PD was significantly associated with co-morbid MH disorders and symptoms such as depression, anxiety, paranoid ideation, and increased somatization. Owens et al.'s (2011) study assessed for MH disorders and exposures that are significantly correlated (e.g. current or past abuse, relationship issues, anger management) with the risk and/or development of a MH and/or SU disorder. The assessment of anger in men is particularly salient as men are less likely to endorse depression, particularly US racial/ethnic minority men, and anger is often seen as depression correlate (Owens et al., 2011). Although Lorvick et al. (2015) did not formally for any MH needs, study participants were assessed for histories of sexual and physical abuse. Experiences of trauma significantly effect BH disorders/correlates and justice-involvement, and further research is needed to improve the identification of BH disorders among justice-involved adults (Golder et al., 2015).

As noted above, eight of the 19 studies examined in this systematic review used NSDUH data which includes the assessment of a MH disorder to self-report of having previously diagnosed by a healthcare professional in the community, or limits the number of screened MH disorders to MDE, PD, and or non-specific moderate or serious mental illness. In Marlow et al.'s (2010) qualitative study, one of the exemplars focused on an individual in SU residential treatment with a diagnosis of bipolar disorder. Further, Crilly et al.'s (2009) study, which assessed for self-reported symptoms of panic, depression, phobia, general anxiety, PTSD, mania, and psychosis, posited the potential for elevated rates of bipolar disorder among the justice-involved sample due to the high rates of self-reported depression and mania. Bipolar depression is another highly prevalent serious MH disorder among individuals being held in jails and prisons (Baillargeon et al., 2009; Loudon & Skeem, 2011); however, this was not supported by our systematic review results. There is the potential that this was not formerly assessed in any of the studies examined, and also because the severity of bipolar disorder symptoms may result in increased recognition and assignment to MH specialty community supervision (Epperson et al., 2014). The cumulative effect of past histories of trauma, untreated BH needs, and incarceration, coupled with community integration stressors, can significantly contribute to a range of BH disorders among justice-involved adults ( Yu et al., 2014; Yu & Sung, 2015).

### **2.3.4 BH Treatment Utilization**

There is a persistent unmet need for community-based BH treatment among justice-involved adults with BH needs. Overall, rates for some form of MH treatment utilization ranged from 7.2%-81%, whereas, rates of some form of SU treatment utilization ranged from 6.6%-100%, reflecting participants that were enrolled in a SU treatment program (Table 2). In the few instances in which justice-involved individuals had higher rates of BH treatment utilization than non-justice-involved individuals, these results were non-significant, with the exception of Bryson et al.'s (2019) study. In this instance, it is posited that the age of the justice-involved sample, limited to adults  $\geq 50$  years of age, was associated with greater healthcare usage for physical health, facilitating greater screening and treatment for MH disorders (Bryson et al., 2019). Using NSDUH data, the rate of MH treatment among justice-involved adults in 2001 was 27% (Crilly et al., 2009), but had reached an average of 51% between 2011-2013 (Howell et al., 2019). However, in Howell et al.'s (2019) examination of the effect of the ACA Medicaid expansion provision on MH treatment 2014-2017, there a non-significant decline in rates of MH treatment utilization among justice-involved adults from 51% in 2011-2013 to 47.3% in 2014-2017, while at the same time there was a significant increase in MH treatment utilization among non-justice-involved adults. There is potential that time, and different methodological approaches and analytic samples account for the differential rates of MH treatment utilization in these two studies.

Compared to the rates of BH needs among justice-involved adults, gaps in unmet BH treatment needs persist. While it is unclear whether there was greater unmet MH treatment needs versus SU treatment need, it is clear that across studies there are still a significant number of justice-involved adults with BH needs that are not receiving treatment. Studies indicated a greater need for SU treatment among justice-involved females (Golder et al., 2015; Gryczynski et al., 2012) and self-report of being NH Black/African American and/or Hispanic/Latinx was associated with less access and utilization of BH treatment resources (Bryson et al., 2019; Golder et al., 2015; Mowbray et al., 2016; Sung et al., 2011). Provisions of the ACA served to improve rates of health insurance coverage among JI adults in states that expanded Medicaid, and specifically for adults age 19-25 as a result of the dependent coverage mandate (Winkelman et al., 2016). Medicaid was associated with significantly higher levels of treatment for depression and SUDs among justice-involved adults in Winkelman et al.'s (2016) analysis of health insurance and trends in BH treatment utilization using 2008-2014 NSDUH data. Saloner et al.'s (2016) analysis of justice-involved adults with a past year SUD using 2004-2014 NSDUH data also revealed a significant increase in Medicaid coverage in 2014 which simultaneously coincided with an almost two-fold increase in heroin use from 5.3% in 2004-2008 to 9.75% in 2014. As such, although there has been a significant increase in overall BH treatment utilization among justice-involved adults due to Medicaid expansion, overall rates of SU treatment utilization have not changed

significantly. This can be due to the significant increase in SUDs related to opioid epidemic, stigma related to SU, lack of awareness of needed for treatment and/or readiness to stop, as well as limited SU treatment facilities, particularly those that accept Medicaid (Saloner et al., 2016), and in increase in unemployed that resulted in a decline in private health insurance (Saloner et al., 2016). As such, substantial untreated BH needs persist in a group and subgroups disproportionately burdened by BH disorders.

The lack of dually integrative treatment for co-occurring BH disorders continues to undermine BH treatment efforts among justice-involved adults with BH needs. Dual integrative treatment for both BH disorders was reported for only half of the studies that formally assessed for co-occurring MH and SU disorders. Overall, PD, depression, and anxiety were the most commonly reported MH disorders prompting MH treatment. These MH disorders were frequently comorbid with SU, with rates ranging from 22-76%. In the studies that focused solely on MH treatment, 22-43% of the sample in Crilly et al.'s (2001) study and 41% of the sample in Bryson et al.'s (2019) study suffered from a SU disorder. Owen et al.'s (2011) study was distinct in that 34% of the sample endorsed SU, and SU was the motivating factor for accessing MH among 30% of those that received MH treatment. These results support improved screening for dually diagnosed disorders to ensure appropriate integrative treatment.

Overall, there have been no significant changes in the type of community-based BH treatment utilization since the enactment of the ACA (Saloner et al., 2016). Although

what constituted BH treatment utilization varied across the studies, receipt of some type of treatment constituted BH treatment. Treatment at a hospital/ED and prescription medications for a MH disorder were still the most commonly reported forms of MH treatment, and females were more likely to access MH treatment, and less likely to access SU treatment than males (Bryson et al., 2019; Gryczynski et al., 2012; Yu & Sung, 2015). There was a decline in the use of community-based self-help/peer recovery support groups and hospital/emergency department (ED) for SU treatment in 2014 related to the ACA (Saloner et al., 2019); however, these results were not significant.

Although there has been a significant increase in the need for prescription/synthetic opiate and heroin use in the last decade, treatment for alcohol use continues to be the most commonly reported type of SU treatment need among justice-involved adults, followed by persistent SU treatment needs primarily related to cocaine/crack, methamphetamine, etc. (Bunting, Oser, Staton, Eddens, & Knudsen, 2018; Gryczynski et al., 2012; Oser et al., 2012; Saloner et al., 2016; Sung et al., 2011; Yu & Sung, 2015). There remain significant differences in SU treatment by geographical location, in that justice-involved adults residing in urban areas are significantly more likely to access peer recovery support groups, voluntary treatment, as well as receipt of court-mandated treatment compared to their counterparts in rural locations (Oser et al., 2012).

Gryczynski et al.'s (2012) study was singular in its examination of medication assisted therapy (MAT) for opiate use, and Marlow et al.'s (2010) was the only study specific to a

substance use residential treatment facility. Severity of drug use related to the type of drug (e.g. marijuana versus heroin) and route of administration (e.g. intravenous drug use) greatly influence treatment retention (Gryczynski et al., 2012).

### **2.3.5 Barriers to BH Treatment Utilization**

Justice-involved individuals often return to the community with untreated BH disorders, and while SU recovery is often prioritized, competing demands for basic needs such as housing, employment, food access, in addition to fulfilling the requirements of correctional supervision in the community often take precedent over BH treatment as noted in Dong et al. (2018) and Howell et al.'s (2019) studies. In addition, justice-involved individuals often return to neighborhoods or networks that engage in SU, constituting a barrier to SU recovery and compromising treatment adherence due to peer/social influence and ready availability of substances (Bunting et al. 2018; Lorvick et al., 2015; Valera et al., 2014).

Collectively, knowledge about a BH disorder, BH treatment, and treatment readiness were significant barriers to BH treatment utilization in justice-involved adults. Lack of awareness of being affected by a MH disorder and/or the need, importance, and effectiveness of treatment represent a significant barrier to MH treatment among justice-involved adults (Dong et al., 2018; Golder et al., 2015). Further, lack of readiness of treatment, lack of knowledge related to the health effects of SU, no immediate perceived

health concerns related to SU, and belief the SU treatment was ineffective, are significant barriers to SU treatment utilization and retention across multiple studies (Bunting et al., 2018; Gryczynski et al., 2012; Sung et al., 2011; Valera et al., 2016). Treatment readiness can also be a proxy for treatment motivation, which can be influenced by chronic health conditions, stigma, or the inability to access appropriate SU treatment (Bunting et al., 2018). Further, knowledge about the need for MAT to treat SU can also be a barrier to SU treatment engagement as noted in Bunting et al.'s (2018) study in which a justice-involved adult didn't understand the utility of substituting one pill for another in order to treat their SU.

The passage of the Affordable Care Act has done much to improve rates of healthcare coverage and BH treatment utilization among justice-involved adults (Winkelman et al., 2016). However, gaps persist, and lack of insurance and/or cost continues to be a persistent barrier to not accessing BH treatment among justice-involved adults with BH needs. In Sung et al.'s (2011) study, in which 58% of justice-involved adults recognized a need for SU treatment but did not seek it, and in Owen's et al. (2011) study, in which 29% of justice-involved adults recognized a need for MH treatment but also did not seek it, cost and/or lack of health insurance was the primary reason cited. The increases in rates of BH treatment utilization among justice-involved adults noted in Bunting et al. (2018), Saloner et al. (2016), Winkelman et al. (2016), and Yu & Song (2015) was greatly attributed to the ACA Medicaid expansion in many states

which significantly increased rates of healthcare coverage among justice-involved adults, and was a substantial payer of BH treatment in justice-involved adults. Notwithstanding, in spite of the increase in rates of healthcare coverage among justice-involved adults, this did not always translate to increased rates of BH treatment utilization, due to a number of individual and community/societal-level factors (Howell et al., 2019; Saloner et al., 2016; Winkelman et al., 2016). Overall, a ceiling effect was posited in that the community-based public infrastructure was still lacking and not able to meet the need for BH treatment utilization. In addition, while provisions of the ACA significantly increased access to BH treatment among justice-involved adults (Saloner et al., 2016; Winkelman et al., 2016), resultant changes in fees for services contributed to treatment gaps, reductions in BH services, and higher deductibles and/or copays (Dong et al., 2018). Specifically, the cost of MAT for the treatment of opiate use disorders can be a significant barrier to accessing this much needed form of SU treatment (Bunting et al., 2018).

Geographical location significantly affected the availability and type of BH treatment resources, and while urban dwelling justice-involved adults often had access to more BH treatment resources, they were often faced with long waits, delays, and transportation concerns due to the limited availability of safety net facilities, and/or caps on BH treatment services and limited acceptability of Medicaid for services (Dong et al., 2018; Marlow et al., 2010; Oser et al., 2012). Justice-involved individuals in rural

locations faced similar challenges, however, the lack of community-based BH treatment resources were more pronounced (Bunting et al., 2018; Mowbray et al., 2016; Oser et al., 2012). As noted in Oser et al.'s (2012) study on the correlates of participation in peer recovery support among rural and urban probationers, there was lesser availability and use of peer recovery support groups and formal BH treatment resources in rural communities. In Bunting et al.'s (2018) study about BH treatment utilization among adults on probation or parole in rural Appalachia, the nearest peer recovery support group was more than 20 miles away from their home, resulting in a distance and transportation barrier to accessing BH treatment. Further, stigma related to SU can actually be a deterrent to the construction of SU treatment facilities in rural areas as often, local business and residences do not want to be located nearby. (Bunting et al., 2018) The need to further research related to challenges to providing BH treatment in rural is critically urgent due the significant rates of BH orders in these medically underserved areas (Seigel, 2018).

Self-report of being female was often noted as a barrier to BH treatment utilization due to the lack of trauma informed care and gender responsive treatment (Golder et al., 2015; Gryczynski et al., 2012). At the same time, female gender was also frequently cited as a predictor of BH treatment utilization across numerous studies that could be explained by female biological needs and gender norms that effect greater healthcare utilization among justice-involved females, potentially improving rates of

detection and treatment of BH disorders (Bryson et al., 2019; Mowbray et al., 2016). Although gender was frequently a covariate across many of the mixed sample studies, only three of the studies noted there were statistical differences in the examined BH outcomes and/or predictors of BH treatment utilization by gender (Bryson et al., 2019; Mowbray et al., 2016; Oser et al., 2012; Owens et al., 2011; Sung et al., 2011; Yu et al., 2014). Specifically, Gryczynski et al.'s (2012) study, which included gender as a covariate, still identified that use of heroin and cocaine among female probationers in treatment for opioid misuse was significantly higher than their male counterparts at 12 months, and a lack of gender-specific treatment was identified as a barrier to treatment. In addition, Oser et al. (2012) showed that being female was associated with lower odds of attend peer recovery support groups for SU. Otherwise, female gender was a statistically significant predictor of MH treatment only in Bryson et al (2019) and Mowbray et al.'s (2016) studies.

Multiple concerns specific to the clinical setting were also cited as significant barriers to accessing BH treatment utilization. Perceived competency safety net administrative clinical staff and healthcare providers to provide appropriate care was cited as a barrier to seeking BH treatment utilization, particularly in regards to processing needed paperwork to access greater healthcare coverage and acute medical procedures (Marlow et al., 2010). Concerns that the staff in many safety net facilities was overwhelmed and unable to provide care was also reported in Marlow et al.'s (2010)

study. Further, perceived stigma related to BH disorders and justice-involvement from healthcare providers and staff undermined and/or resulted in delayed health-seeking treatment behaviors for BH needs and also contributed to perceived harsher medical treatment (Marlow et al., 2010).

### **2.3.6 Facilitators of BH Treatment Utilization**

Justice-involvement was an important and significant facilitator of BH treatment utilization among justice-involved adults (Bryson et al., 2019; Crilly et al., 2009; Golder et al., 2015; Gryczynski et al., 2012; Howell et al., 2019; Mowbray et al., 2016; Oser et al., 2012; Owens et al., 2011; Saloner et al., 2016; Sung et al., 2011; Valera et al., 2016, 2014; Winkelman et al., 2016). Correctional discharge planning, and proactive and efficient enrollment in Medicaid and other forms of healthcare (e.g. disability, state insurance programs, etc.) critically aided in continuity of care and linkages to community-based BH treatment services serving to overcome barriers related to insurance coverage and lack of knowledge of how to navigate the healthcare system. In addition, frequently integral to community-based BH treatment among justice-involved adults is family and social support. In conjunction with correctional rehabilitative efforts, family/personal social support often facilitates not only recognition of a BH need, but engagement in treatment (Sung et al., 2011; Valera et al., 2016, 2014).

Further, knowledge and attitudes related to BH disorders and the need for BH treatment among parole and probation officers was another significant facilitator that served to optimize BH treatment utilization among justice-involved adults with BH needs (Bunting et al., 2018; Gryczynski et al., 2012; Mowbray et al., 2016; Sung et al., 2011; Yu et al., 2014). When parole and probation officers have an understanding of substance use disorders and the need for SU treatment, particularly an understanding that MAT is not in conflict with community supervision, they can be effective and powerful agents in linking justice-involved adults with much needed treatment (Bunting et al., 2018). In Gryczynski et al.'s (2012) examination of predictors of treatment for opioid use among adults on probation, probation officers exerted critical influence in prompting SU treatment. The potential to strengthen the US CJS's ability to facilitate access to much need BH treatment for justice-involved adults can be greatly enhanced with more educational and training efforts to empower parole and probation officers' ability to detect BH disorders and refer BH treatment.

Similarly important to measures and initiatives to increase access to BH treatment utilization via expanded healthcare coverage and BH treatment service provision is the role of healthcare staff and providers. Healthcare personnel have the ability to improve BH treatment engagement among justice-involved adults through caring demeanor, providing clinically relevant treatment of BH disorders and their associated physical health consequences, in a manner that is professional, and absent of

judgement and stigma. As noted in Marlow et al.'s (2010) qualitative study on the barriers and facilitators of individuals on parole perceptions of community-based care, healthcare staff and providers that engaged justice-involved adults with a caring and professional demeanor, that understood the sometimes conflicting challenges of engaging in BH treatment while fulfilling required BH treatment provisions of correctional supervision in the community, greatly enhanced justice-involved adults receptiveness to and retention in BH treatment.

## **2.4 Discussion**

In this systematic review, we attempted to understand the ways in which justice-involved adults with BH needs access community-based BH treatment that is not mandated or a condition of community corrections supervision as treatment readiness is a significant predictor of BH treatment retention and long-term success (Gryczynski et al., 2012). We also addressed the gap in knowledge about the facilitators and barriers to accessing formal community-based BH treatment utilization in the absence of critically important transitional and reentry efforts targeting BH. Systematic evaluations of such transitional and reentry efforts often posit the critical need to address upstream and structural determinants of BH to effect sustained positive BH outcomes, and treatment retention (Bahr et al., 2012; Batastini et al., 2016; Harawa et al., 2018; Leigh-Hunt & Perry, 2015; Scroggins & Malley, 2010; Woodhouse et al., 2016). The lack of supportive

service provision (e.g. employment, supportive housing, childcare, etc.) and social support frequently undermine treatment adherence and retention. The results from this review are fundamental to advancing efforts to addressing the gaps in knowledge needed to enhance and expand the capacity of the existing formal social service and community-based BH infrastructure.

Our results support a need for a more comprehensive and continuous assessment of BH, to include suicidal ideation. The risk of suicide is almost seven times higher among justice-involved adults compared to the non-justice-involved population, and is potentially associated with higher rates of BH needs and reentry stressors (Jones & Maynard, 2013). Further, suicidal ideation is highly prevalent (9.7%) among justice-involved adults, and the prevalence rates is higher among justice-involved females (14.3%) (Cardarelli et al., 2014; Jones & Maynard, 2013). The BH disorders examined in this review are consistent with many commonly reported BH disorders which typically focus on SU, PD, and depression (Batastini et al., 2016; Finfgeld-Connett & Johnson, 2011; Hopkin et al., 2018; Leigh-Hunt & Perry, 2015; Scroggins & Malley, 2010; Woodhouse et al., 2016). However, justice-involved adults are also affected by higher rates of anxiety-related disorders, bipolar disorder, schizophrenia (Carr, 2014; Finfgeld-Connett & Johnson, 2011). Justice-involved individuals, particularly women, have extensive histories of trauma that have a detrimental effect on behavioral and physical health; despite this, only two of the studies in this review assessed for trauma (Golder et

al., 2015; Owens et al., 2011). Further, personality disorders, persistent inflexible behaviors based on inner experiences that can result in PD and functional impairment are highly prevalent among justice-involved adults, are frequently comorbid with other BH disorders, and are significant predictors of poor BH treatment adherence and retention (Carr, 2014). Comprehensive BH screening can address multiple barriers to BH treatment utilization among justice-involved adults such as lack of awareness of a BH need, and stigma and mistrust that may discourage disclosure of a BH need. The screening and diagnosis of a BH disorder in the clinical setting can afford providers the opportunity to address additional barriers to BH treatment utilization such as the perceived need for and effectiveness of BH treatment. It also provides the opportunity to address other individual level barriers and competing demands that can undermine health-seeking behaviors and BH treatment utilization (e.g. employment, childcare, cost, transportation, etc.).

Greater integration of patient- and family-centered care in BH treatment can improve BH outcomes among justice-involved adults. The family/social networks of justice-involved adults are critical, and can significantly impact BH outcomes. Justice-involved adults are often returning to social networks similarly affected by BH needs and/or additional social determinants of health that can increase the risk for a BH disorder or undermine recovery efforts (e.g. relationship problem, abuse, concurrent SU, etc.). In contrast, social networks can also aid in the detection of a BH need and

positively affect treatment motivation and readiness. Family and personal social support enhance social capital and are a critical informal component of formal community-based BH treatment and care. Efforts to empower and enhance family and personal social support among justice-involved individuals with BH needs as a means to sustain recovery, and improve BH treatment adherence and retention, is supported to further enhance and expand the community-based BH treatment infrastructure.

There is significant potential that much of the BH treatment in justice-involved adults is not clinically relevant, resulting in suboptimal clinical outcomes (Golder et al., 2015). In Bahr et al.'s (2012) systematic review of SU treatment programs, pharmacological and non-pharmacological methods were determined to be more effective than the commonly cited receipt of peer recovery support among justice-involved adults. With the increase in heroin and synthetic opiate use, in addition to the use of drugs such as cocaine/crack, and methamphetamines, frequently MAT in combination with other forms of therapy are needed to effect sustained recovery (Bahr et al., 2012; Woodhouse et al., 2016). In addition, dually integrative therapy for co-occurring MH and SU disorders continues to be lacking. Continued research to determine the clinical effectiveness of the BH treatment received by justice-involved adults is needed to inform community-based BH treatment service planning and development. In addition, poorly treated BH disorders, justice-involvement, and many of the psychosocial stressors related to community reentry often faced by justice-

involved adults can undermine treatment efforts and adherence, resulting in acute severity of undertreated BH disorders and contributing to higher healthcare costs and utilization (Bender, Cobbina, & McGarrell, 2016). The ability to meet basic needs is integral to well-being, and failure to address these need constitutes a significant risk factor for BH disorders and significantly undermines treatment adherence and retention (Dong et al., 2018).

The US CJS is uniquely positioned to be a powerful agent of restorative justice and the advancement of BH equity among justice-involved adults with BH needs. The US CJS can also constitute a significant mechanism of outreach among health populations that have traditionally underserved and/or excluded from formal community-based BH treatment. However, its ability to do so will be conditional upon improved evidenced-based BH educational and training resources for community corrections personnel, strengthened linkages with community-based and improved capacity and expansion of community-based BH infrastructure healthcare (Helms, Gutierrez, & Reeves-Gutierrez, 2016). Geographical location was found to have a critical influence on BH need disparities, BH treatment utilization, and the socio-demographic characteristics of the justice-involved samples in our study. This is a particularly salient issue as incarceration rates in rural areas have surpassed those of urban areas, and they are also often medically underserved and resourced (Acevedo et al., 2018; Hunsker & Kantayya, 2010; Hauenstein et al., 2007). Although there were rural and urban specific

challenges to BH treatment utilization among justice-involved adults, the lack of sufficient community-based BH infrastructure across both geographical locations was evident (Pullen & Oser, 2014). Collaboration and partnerships between the US CJS and community-based healthcare/public sector will be key to advancing national translational and implementation science related to reentry efforts targeting BH among justice-involved adults.

Overall, the barriers to BH treatment utilization reported in this systematic review were consistent with many of commonly cited barriers to community-based BH treatment utilization encountered in both justice-involved adults (Begun, Early, & Hodge, 2016; Douthit, Kiv, Dwolatzky, & Biswas, 2015; Owens, Chen, Simpson, Timko, & Williams, 2018; Semenza & Link, 2019). While these barriers may be more pronounced among justice-involved adults, particularly among those that have overlapping and intersecting identities that may serve to further disadvantage those among the justice-involved, they are reflective of the historical normative views that have contributed to the criminalization of BH disorders and the persistent lack of prioritization and parity of BH treatment with physical health treatment, resulting in the BH national crisis and an under-resourced community-based BH treatment infrastructure (Crenshaw, 1991; Lopez & Gadsden, 2016). Despite the increases in healthcare coverage among justice-involved adults afforded by the passage of the ACA and that fact that Medicaid is single largest payer of BH treatment, this has not resulted in a significant increase in BH treatment

utilization among justice-involved adults (Dickson et al., 2018; Mezuk et al., 2010; Saloner, Bandara, Bachhuber, & Barry, 2017; Winkelman et al., 2016). There are still many states that have substantial justice-involved populations that have not expanded Medicaid, and a lack of health insurance was still a very commonly cited barrier to BH treatment utilization, coupled with low rates of private healthcare coverage due to the large rates of un/underemployment among justice-involved adults (Saloner et al., 2016). In addition, some provisions of the ACA have resulted in less intense BH treatment and greater copays and deductibles, limited access and potentially effecting suboptimal BH clinical outcomes (Dong et al., 2018). Further research is needed to examine the potentially unintended consequences of certain ACA provisions that serve as barriers to BH treatment utilization while simultaneously increasing access among justice-involved adults.

Females are the fastest growing group in the US CJS and the lack of BH treatment utilization research among justice-involved females is a critical barrier to the development and advancement of gender-specific responsive BH treatment. With the exception of Lorvick et al.'s (2015) study, our results suggested that females had greater access to MH treatment as opposed to SU treatment; inconsistent with Scroggin et al.'s (2010) systematic review of reentry services targeting BH services among justice-involved females. Similar to US racial and ethnic groups, females have largely been missing from the normative research on BH, particularly in the field of SU (McHugh, Votaw,

Sugarman, & Greenfield, 2018). In addition to enhanced social vulnerability among justice-involved females, there are substantial rates of victimization and histories of trauma that must be examined when prescribing BH treatment in justice-involved females. Integral to increasing rates of BH treatment utilization among females is programming that addresses social factors such as housing, job training/employment, food access, and child care (Fingeld-Connett & Johnson, 2011; Kouyoumdjian, McIsaac, Liauw, Green, Karachiwalla, Siu, Burkholder, Binswanger, Kiefer, Kinner, Korchinski, Matheson, Young, & Hwang, 2015; Leigh-Hunt & Perry, 2015; Scroggins & Malley, 2010).

The majority of the samples in this review were NH Whites; however, US racial/ethnic minorities (specifically NH Blacks/African Americans, NH American Indians/Alaska Natives, and Hispanics/Latinxs) are disproportionately represented at all points of contact across the US CJS, and continue to suffer from persistent BH treatment inequities (Hinton et al., 2018; White, 2018; Wildeman & Wang, 2017). Historically disadvantaged US racial/ethnic minorities and other marginalized identities have largely been excluded from the normative research on BH, and this knowledge and research is still being developed (Bensley et al., 2017; Hines et al., 2017; Pinedo, 2020). Purposeful assessment and evaluation of BH treatment initiatives is supported to ensure that all justice-involved subgroups affected by BH needs are equally able to access and benefit from advanced BH discourse, research, and treatment provision to prevent the unintentional effect of contributing to persistent health disparities.

### **2.4.1 Limitations**

The number of studies included in this study was small, and some of the cited barriers and facilitators to BH treatment utilization cited were specific to a few/small number of studies. As noted, there was significant variation in the study sample sizes examined and the gender and racial/ethnic makeup of our sample was not reflective of overall racial/ethnic makeup of the correctional population; as such, many of the results may not be generalizable. In addition, while 18 of the 19 studies included in the study focused on justice-involved adults, Bunting et al.'s (2018) study was specific to clinician-identified barriers to the individual and community/system levels barriers and facilitators to BH treatment among adults under community corrections with opioid use disorder. However, while this study was specific to clinician-identified barriers, they were relayed as informed by patient/clinical experiences and as such, were found to both relevant and critical to our study. Further, while the authors excluded studies that entailed mandated BH treatment, there were a limited number of studies (Marlow et al., 2010; Owens et al., 2011) included in this review in which the research investigators were not able to determine if BH treatment was court-mandated or not, and as such could not determine its effect on reported rates of BH treatment utilization. Gryczynski et al.'s (2012) study reported the influence of probation officers in effect SU treatment in the study sample; however, probation compliance was not a significant predictor of treatment retention. Although Marlow et al.'s (2010) study focused on accessing health

care for physical conditions, this study was included as it also relayed much needed information regarding barriers and facilitators to BH treatment utilization among individuals on parole with BH disorders. The study sample in Mowbray et al.'s (2016) study received a 12-week parenting skill intervention; however, the study was conducted for 1.5 years and the effect of the intervention did not significantly effect BH treatment utilization. Finally, in many of the studies examined, the researchers/authors often posited barriers and facilitators to BH treatment utilization that were study specific or based on their knowledge of the existing literature; accordingly, the individual-level barriers and facilitators to community-based BH treatment utilization among justice-involved adults presented in our study may not comprehensive.

#### **2.4.2 Implications for Nursing**

It is imperative that the nursing profession take advantage of the renewed emphasis on treatment versus criminalization of BH disorders to implement restorative justice to justice-involved adults. Professional, caring, and non-judgmental care for justice-involved adults with BH needs in the formal BH/healthcare setting was a critical factor that fostered increased trust and confidence and effected positive BH outcomes and improved treatment utilization. Efficient coordination and accessible services facilitated improved BH treatment engagement and addresses barriers related to transportation and convenience. Further, as we address individual factors related to BH

and BH treatment utilization among justice-involved adults, we must also simultaneously address the structural determinants of health that have served to create such social inequities as well as expand community-based BH treatment service provision and infrastructure that jointly serve to create as a pipeline and revolving door for justice-involvement. Any efforts to advance BH treatment equity among justice-involved adults without simultaneously addressing the structural determinants of BH health will be ineffective (Woolf & Braveman, 2011).

The justice-involved population is disproportionately comprised of adults affected by multiple SDOHs that are often marginalized from healthcare both prior to and after justice-involvement. As such, greater efforts to expand curriculum/continued education, training, and clinical experiences related to BH, stigma and bias, in addition to expanded community outreach and engagement is sorely needed in order to improve BH treatment outcomes among adults disproportionately affected by BH treatment. Justice-involved females also tend to have higher rates of physical disorders, SU among older adults has increased substantially and older adults may be more vulnerable to the health consequences of SU, and medically underserved areas serve patients with higher rates of BH disorders (Scroggins & Malley, 2010). As such, increased efforts are needed to integrate BH into the primary/physical health care to increase screening, detection, and treatment of BH disorders adults.

The silos that exist between the US CJS and formal community-based BH treatment constitute a significant barrier. Consideration of geographic specific challenges to BH treatment utilization is paramount to efforts to expand the community-based infrastructure, particularly in medically underserved rural areas, and the US CJS is a prominent gatekeeper to BH treatment utilization in rural areas. Improved BH training and educational efforts can improve parole and probation officers' abilities to detect BH needs and support BH treatment engagement. Greater investment in the development of social capital via improved safety new program, expanded training and resources of family medicine physicians and advanced practice nurses is supported as a means to augment the existing BH treatment capacity and treatment referral resources.

## ***2.5 Conclusion***

More than half of all adults on parole or probation are charged with non-violent offenses, and up to two-thirds of admissions to jails and prisons annually are due to parole and probation violations related to substance use, inability to obtain and/or maintain employment, and or failure to comply other supervisory requirements such as the payment of fees/restitution, missed appointments with parole/probationer officers, etc. Parole and probation have increasingly been relied upon as a means by which to effect sustained reductions in the US incarcerated population; however, it is now recognized that parole and probation have become significant mechanisms for entry into

jails and prisons and have become a second “revolving door” that serves to greatly disrupt lives and healthcare utilization among justice-involved adults (Angle, 2014).

The national BH crisis among justice-involved individuals is a critically urgent public health concern that by and large will be addressed by state and local initiatives. In an effort to address “mass incarceration”, we are now in a state of “mass supervision” that has been primarily driven by local and state policies (McNeill, Beyens, McNeill, & Beyens, 2013; Reuben, Jonathan, Miller, & Stuart, 2017). Although federal initiatives can serve to greatly support and advance state and local initiatives to address this issue, local and state specific reform efforts will be critical due to the significant heterogeneity in BH disorders, BH treatment resources, and sociodemographic characteristics of the community-corrections populations across geographical location. Finally, the unique contextual factors that influence BH needs and BH treatment utilization among local justice-involved adults must inform local and state policies in order to develop effective BH treatment service provision.

## **3. Behavioral Health in Justice-involved Individuals**

### ***3.1 Introduction***

Behavioral health (BH) disorders, which include disorders related to emotional well-being, mental health (MH), and substance use (SU), have increased substantially in the last decade and the United States (US) is currently experiencing a BH crisis (Dwyer-Lindgren et al., 2018; Hidaka, 2012; SAMHSA, 2017; Weinberger et al., 2018).

Approximately one in five US adults have experienced a MH disorder in any given year, with depression being among the most prevalent and the leading cause of disability in individuals ages 15-44 in the U.S. (SAMHSA, 2015). In addition, psychological distress (PD), a state of emotional suffering and a non-specific indicator of a MH problem that can adversely affect an individual's level of functioning and health, has significantly increased in US adults (Drapeau, Marchand, & Beaulieu-Prevost, 2012; Hedden et al., 2012; Ridner, 2004; Weissman, Pratt, Miller, & Parker, 2015). About one in ten US adults reported a SU disorder in the past year and it is estimated that one in seven individuals in the U.S. will suffer from substance addiction at some point during their lifetime (Murthy, 2017). There is frequent co-occurrence of MH and SU disorders as there is considerable communality in the risk factors for these disorders. In fact, 8.1% of individuals in the US general population suffer from co-occurring MH and SU disorders (Ahrnsbrak, Bose, Hedden, Lipari, & Park-Lee, 2017). The BH crisis in the US general

population is further pronounced in the US Criminal Justice System (CJS) incarcerated population, which experiences four to nine times higher prevalence rates in BH disorders than in the US general population (Fearn et al., 2016; Feucht & Gfroerer, 2011; D. J. James & Glaze, 2006; Peters et al., 2015; Petersilla, 2001; Steadman et al., 2014).

The ability of the US CJS to treat the BH needs of the incarcerated population is beyond the abilities of the US CJS healthcare system, and post-release SU relapse has been cited as a significant contributor to recidivism (Chandler, Fletcher, & Volkow, 2009; E. Johnson et al., 2013; Fearn et al., 2016; Holliday et al., 2016; Kopak, 2015; Luciano et al., 2014; Peters, Young, Rojas, & Gorey, 2017; Skeem, Emke-Francis, & Loudon, 2006; Stanton et al., 2016; Stahler et al., 2013). Post-release rehabilitative efforts typically focus on SU alone, frequently neglecting the underlying MH disorders and/or PD that can contribute to SU relapse and recidivism (Cardarelli et al., 2014; Feucht & Gfroerer, 2011; Mir et al., 2015; Nowotny et al., 2014; Skeem, Manchak, & Peterson, 2011; Wells et al., 2001; Wilson et al., 2011). Despite the extensive documentation of the disproportionately high rates of BH disorders in the incarcerated population, little is known about the BH needs of justice-involved individuals in the community (Skeem & Loudon, 2006; Wang, Macmadu, & Rich, 2019). Justice-involved individuals under US CJS supervision in the community (i.e. parolees and probationers) are at the intersection of the US CJS and the US general population and constitute an extremely vulnerable group (Feucht &

Gfroerer, 2011; Maruna, Dabney, & Topalli, 2012; Petersilla, 2001; Winkelman, Frank, Binswanger, & Pinals, 2017; Yu et al., 2014).

BH is critical to successful community reintegration, and a public health response that now emphasizes treatment versus the previous approach that emphasized criminalization and a US CJS response must be inclusive of justice-involved adults (Anderson et al., 2015; Bui, Wendt, & Bakos, 2019; Cole et al., 2018; Hansen & Netherland, 2016; Provine, 2011). Requisite to reentry efforts targeting BH is an estimated prevalence of the BH needs (i.e. the presence of a diagnosis for which there is an effective available treatment) among justice-involved individuals (Ritter, Mellor, Chalmers, Sunderland, & Lancaster, 2019). The most recent nationally representative estimated prevalence rate of MH and/or SUDs among justice-involved adults were in 2014, with the exception of SPD in 2017. There has been a significant increase in the rates of depression among adults since 2013 coupled with a substantial increase in the use of heroin and synthetic opiates since 2014 resulting in significant shifts in the impact of opiate use by geographical location, gender, and Medicaid insurance status (Blue Cross Blue Shield [BCBS], 2018); Bohm, Bridwell, Zibbell, & Zhang, 2019). These are all factors disproportionately represented among justice-involved adults with BH needs, and as such, the objective of this study was to examine a more contemporary prevalence of BH needs among justice-involved individuals. This will provide needed new knowledge to inform the planning and development of effective and evidence-based

reentry efforts targeting BH needs and community-based BH treatment and serve to improve the linkages between the US CJS and public health.

### **3.1.1 Background**

The unprecedented number of individuals cycling through US jails and prisons has prompted the implementation of numerous efforts aimed at diverting the disproportionate number of individuals suffering from BH disorders from justice involvement, such as the use of harm reduction efforts, acts to decriminalize SU, and the development of MH and drug courts (Compton et al., 2017; James & Glaze, 2006; Phelps, 2013; Pilkinton & Pilkinton, 2014; Prins, 2014; Scott, McGilloway, Dempster, Browne, & Donnelly, 2013). The exponential rise in the number of parolees and probationers since the 1980s has resulted in national and state efforts to further understand the BH reentry needs that contribute to SU relapse, a significant contributor of recidivism (Friedmann, Rhodes, Taxman, & Step'n Out Research Group of CJ-DATS, 2009). Although much of the data collected by the US Department of Justice and individual states about parolees and probationers is census-based, in the 1990s this focus expanded to provide more detailed information related to the BH of parolees and probationers (Friedmann et al., 2009). Beginning in the 1970s, national surveys such as the National Survey on Drug Use and Health (NSDUH) became additional resources by which to further research on these two populations. The NSDUH in particular has become an integral form of accessory

data to the US CJS, providing important and critical information about the largest group of justice-involved individuals, those under correctional supervision in the community (Kaeble et al., 2018; Minton, T. D., Brumbaugh, S., & Rohloff, 2017).

Although overall incarceration rates in the U.S. have declined since 2009, the US CJS has been unable to effect sustained reductions in its population due to numerous factors, with high rates of recidivism being implicated as a significant contributor to this phenomenon (DeFina & Hannon, 2013; James, 2015; Martin, Wright, & Steiner, 2016; Pew Center on the States, 2011; Rabury & Kopf, 2015; Schneider & Turney, 2015). Contact with the US CJS serves to greatly disadvantage individuals, and successful community reintegration is reduced with each subsequent contact (Harding, Wyse, Dobson, & Morenoff, 2014; Morenoff & Harding, 2014). Further, incarceration is associated with post-release disability and poorer BH outcomes, and it is widely acknowledged that the disproportionate rates of BH disorders within the incarcerated population extends to and may be potentially higher among their justice-involved counterparts in the community (Freudenberg & Heller, 2016; Mahaffey et al., 2016; Massoglia & Pridemore, 2015). Accordingly, reentry efforts that effect successful community reintegration have become paramount to this discourse, as it is now recognized that correctional health is community health and the societal and financial burden of the US CJS can no longer be sustained (Braveman et al., 2011; Cuellar &

Cheema, 2014; Dumont, Allen, Brockmann, Alexander, & Rich, 2013; Espinosa & Regenstein, 2014; Marks & Turner, 2014; Patel et al., 2014; Rich et al., 2014).

Despite an increase in SU treatment in the justice-involved population, there continues to be an unmet need for MH treatment (Bradford, 2016; Fearn et al., 2016; Feucht & Gfroerer, 2011; Fox et al., 2014; Lee et al., 2017; Mir et al., 2015; Winkelman et al., 2016). Depression and PD are the most commonly reported MH conditions or disorders among US parolees and probationers with SUDs (Crilly et al., 2009; Mallik-Kane & Visser, 2008; Minton et al., 2015; Nyamathi et al., 2011). Despite this, to our knowledge, only eight studies to date have estimated a prevalence of the BH disorders in nationally representative samples of US parolees and/or probationers (Boone, 1995; Ditton, 1999; Fearn et al., 2016; Feucht & Gfroerer, 2011; Lipari & Gfroerer, 2013; Vaughn, DeLisi, Beaver, Perron, & Abdon, 2012; Yu et al., 2014; Yu & Sung, 2015). Of these studies, two were conducted in the 1990s and four were secondary analyses of existing data from the 2009-2012 NSDUH surveys (Boone, 1995; Ditton, 1999; Feucht & Gfroerer, 2011; Vaughn et al., 2012; Yu et al., 2014; Yu & Sung, 2015). The most recent study examining BH in a nationally representative sample of justice-involved individuals focused on trends and correlates of SU by conducting a secondary analysis of existing databases from 2002-2014 NSDUH surveys, with the only MH indicator entailing an assessment of past year receipt of MH treatment (Fearn et al., 2016).

While these studies are critical to our limited understanding of the epidemiology of BH disorders in justice-involved individuals, they varied in their measurement of MH disorders, particularly depression, and only three studies measured depression and PD according to criterion based on the Diagnostic and Statistical Manual of Mental Disorders (Feucht & Gfroerer, 2011; Yu et al., 2014; Yu & Sung, 2015). Depression was frequently measured by assessing for a previous diagnosis and/or treatment by a MH provider or treatment facility in the US general community (Ditton, 1999). As US racial/ethnic minorities are less likely to have access to MH services, and are less likely to use community MH services, this measurement of depression may have resulted in an underestimation of depression in the groups that are disproportionately represented in the justice-involved population (Budhwani et al., 2015; Lee et al., 2017; McGuire & Miranda, 2008; Spencer et al., 2010). Finally, none of these studies examined the prevalence of co-occurring MH and SU disorders, information that is critical to advancing integrative BH treatment in a population with high rates of co-occurring BH disorders and unmet MH treatment needs (Boone, 1995; Ditton, 1999; Fearn et al., 2016; Feucht & Gforrer, 2011; Vaughn et al., 2012).

#### **3.1.1.1 Social Determinants of Health Framework**

Social determinants of health (SDOH) is a framework used to examine the societal factors that determine health and recognizes the influence of structural

determinants, societal conditions, and other socially-imposed constructs such as gender, race, and/or ethnicity, and their distribution among populations, that influence societal positioning and individual and group differences in health status (Braveman et al., 2011). Increasingly, SDOHs, and the resultant health disparities that serve to adversely affect the BH of certain groups, are recognized as being systemic, reflecting social disadvantage, and increased exposure of certain groups to factors and conditions that serve to influence health behaviors, self-care, and enhanced vulnerability to poor BH outcomes (Shim et al., 2014). Justice-involved individuals constitute an extremely vulnerable group exposed to multiple SDOHs and it is a population that is disproportionately represented by individuals from neighborhoods of economic disadvantage and violence, of lower socio-economic status and educational attainment, and with higher burdens of trauma and abuse (verbal, emotional, physical, and sexual) (Golder et al., 2014; Morse et al., 2017; Ruzich, Reichert, & Lurigio, 2014). Justice-involved individuals are also disproportionately from historically disadvantaged US racial/ethnic minority groups and/or sexual and gender minority groups. Justice-involved individuals frequently have lower social support and resources, lesser access to healthcare and/or are underinsured, experience greater health inequities, and are increasingly from families with histories of incarceration and justice involvement (Brinkley-Rubinstein, 2013; Bui et al., 2019; Haney, 2003; Martin et al., 2016; Skeem & Loudon, 2006).

The influence of SDOHs on BH can contribute to an increased risk and vulnerability to BH disorders, and SDOHs are strongly associated with BH disorders such as depression, PD, and SU (Ansari, Carson, Ackland, & Vaughan, 1996; Braveman, Cubbin, Egerter, Williams, & Pamuk, 2010; Braveman et al., 2011; Denton & Walters, 1999; Shim et al., 2014; Spear et al., 2013; Woolf & Braveman, 2011). Untreated BH disorders in the US general population and in justice-involved adults have tremendous societal and economic consequences, contributing to disruptions in family and personal relationships, significant loss work productivity, and increased justice involvement (NCSL, 2018). Untreated BH disorders are significantly associated with poor health behaviors and/or an increased risk of chronic medical conditions resulting in billions spent annually on health care utilization related to health inequities and premature death (Bui et al., 2019; NCSL, 2018). Coupled with the costs of BH treatment disparities in the US general population, combined federal, state, and local CJS costs exceed more than \$80 billion annually due to the costs of operating jails, prisons, and community corrections alone (Wagner & Rabuy, 2017).

Persistent BH treatment disparities and their resultant adverse effect contributes to an increased pipeline for US CJS contact, an overall reduction in the nation's health, in addition to undermining funding and resources for public health measures (e.g. increased health care access and community-based BH treatment service provision, social safety nets, etc.) aimed at addressing the current national BH crisis (NCSL, 2018).

Improved measures to increase community-based BH treatment service provision for justice-involved individuals with BH needs are integral to not only preserving US public health, but can potentially result in decreased CJS contact among individuals with BH needs, effecting sustained reductions and costs of the US CJS, reduced societal and financial burden, and improved overall national health.

### **3.1.2 Specific Aim**

The overall purpose of the study was to obtain contemporary and empirically derived population estimates of the prevalence of depression, PD, and/or SUDs among justice-involved adults on parole and/or probation. Because depression, PD, and SUDs are the most commonly reported BH disorders among adults on parole or probation, this study focused on these BH indicators. NSDUH data also allowed for establishing the prevalence and co-occurrence of these BH indicators, which has not been previously described in justice-involved individuals in the published literature. The study specifically aimed to determine and compare the prevalence of depression, PD, and/or SUDs in adults on parole and/or probation during a 12-month period relative to adults who were not on parole and/or probation during the same 12-month period, adjusting for individual characteristics (self-reported gender, race/ethnicity, age, education, income, marital status, and overall health).

## **3.2 Methods**

### **3.2.1 Study Design**

This was a cross-sectional, descriptive, and correlational study focused on BH in justice-involved adults (JI group) compared to adults without justice involvement (non-JI, reference group) in the past year. The JI group was comprised of adults on parole and/or probationer within the past 12 months, while the Non-JI group included adults not on parole and/or probation within the past 12 months. For the purposes of this study, BH needs were referred to as BH indicators. The BH indicators of interest were depression, PD, and/or SUD and covariates were self-reported gender, race/ethnicity, age, education, income, marital status, and overall health due to their potential influence on BH. This study was a secondary analysis of a large nationally representative sample from the 2016 NSDUH database. The Duke University Health System IRB determined that use of this database for this study was exempt. IRB approval was granted for the original NSDUH study and a distressed respondent's protocol was developed to ensure participant safety (Center for Behavioral Health Statistics and Quality [CBHSQ], 2016). Permission to use data in subsequent studies was granted during initial consent (CBHSQ, 2016).

### **3.2.2 National Survey on Drug Use and Health (NSDUH)**

This study used the 2016 NSDUH database, a large national sample that is representative of the US general population as informed by the US census to address

this aim. The database allowed for accurate BH estimates according to empirical and clinical diagnostic measures for various subgroups (including those justice-involved), increasing the potential to capture data that may not be possible with other nationwide surveys of non-institutionalized individuals (CBHSQ, 2016). The database also allowed us to consider the inherently hierarchal nature of US society and its subsequent effect on societal positioning and increased risk of exposure to SDOH that contribute to poor BH and increased criminal justice contact among adults on parole and/or probation (Braveman et al., 2011; Marotta, 2017; Mezuk et al., 2010; Shim et al., 2014; Williams & Mohammed, 2009).

The NSDUH is an annual, cross-sectional, nationwide survey sponsored by the Substance Abuse and Mental Health Services Administration (SAMHSA), an agency within the US Department of Health and Human Services (CBHSQ, 2016). The NSDUH provides national, state, and substrate-level data on licit and illicit SU, as well as the identification of MH disorders based on Diagnostic and Statistical Manual of Mental Disorders diagnostic criteria (CBHSQ, 2016). Due to its large sample size and representativeness, the NSDUH database is a frequently relied upon resource to determine estimates of SU and MH disorders in the U.S. non-institutionalized population (CBHSQ, 2016). This study used the fully de-identified public use data obtained from the 2016 NSDUH original (restricted use) database. All measures included in this survey were self-report.

The 2016 NSDUH survey sample was selected using a multistage, multi-probability, stratified sample design from each of the 50 states and the District of Columbia, based on US census tracts (CBHSQ, 2016). Following the finalization of the sampling segments, specially trained field household listers visited each sample segment to count and obtain an accurate address listing of all eligible dwelling units (DUs). An interviewer then visited the chosen DU to obtain a register of all residing residents, and eligible individuals were invited to participate in a face-to-face household survey. Participants were compensated \$30 in cash as an appreciation for their time and study contribution, and data was collected directly in English, Spanish, and some Asian languages. A statistical disclosure limitation method was employed to remove all potential identifying variables in the preparation of the 2016 NSDUH public-use data file. Quality measures were implemented to ensure the validity, reliability, and comparability of data quality between the original database and the public use database.

### **3.2.3 Sample**

The 2016 NSDUH sample size was N=67,942 for the original database, while the sample size for the de-identified public use database which was used for this secondary analysis was N=56,897. After applying inclusion and exclusion criteria, the final analytic dataset for this study included N=42,484 adults from the public use database (Figure 1). The final analytic sample included (1) adults age  $\geq 18$  or older, as this is generally the

minimum age of entrance into adult correctional facilities in the U.S., and (2) participants with known study group status (i.e., self-report of parolee, probationers, and no parole or probationer status at any time during the past 12 months prior to study survey). Exclusion criteria, therefore, were: (1) participants <18 years of age and (2) unknown group status (i.e. unable to determine whether participant is justice-involved or not).

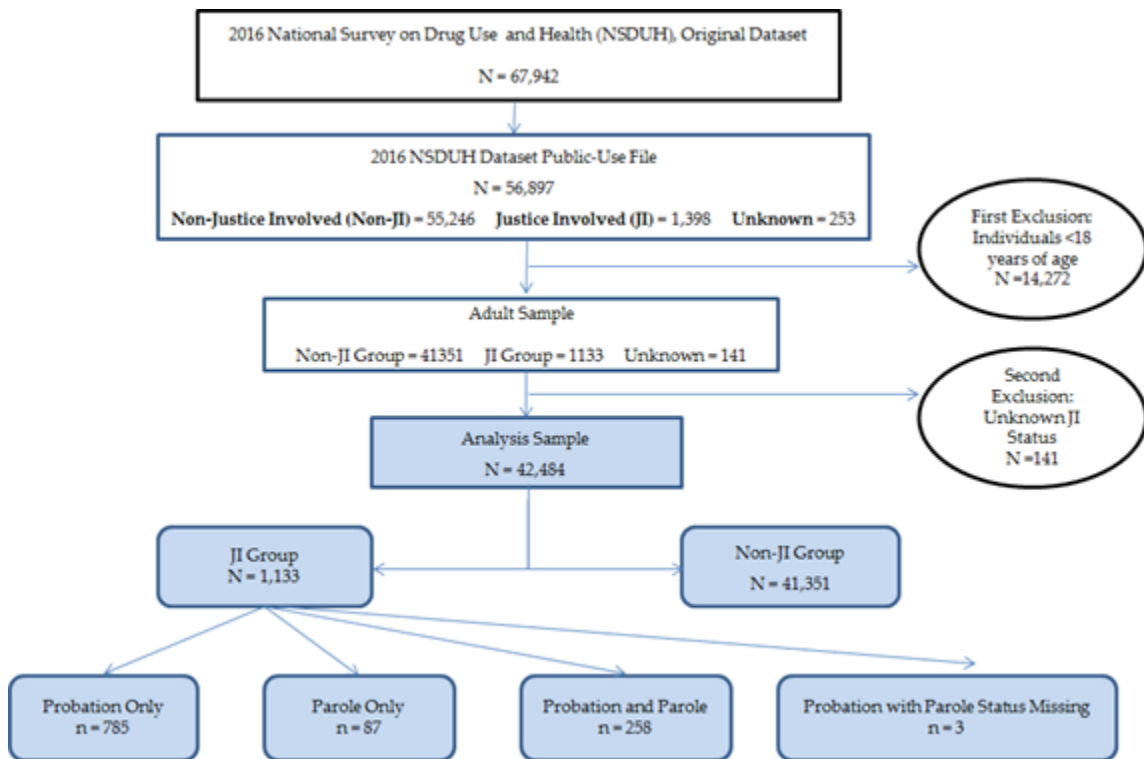


Figure 3: Determination of the Analysis Sample

## **3.2.4 Measures**

### **3.2.4.1 Study Group**

The two study groups were: 1) JI adults that were on probation and/or parole at any time during the past 12 months prior to study survey and 2) Non-JI adults that reported “no” to being on probation and/or parole at any time within the past 12 months of the survey (reference group).

### **3.2.4.2 Behavioral Indicators**

For each BH indicator, past year refers at any point during the past 12 months. The depression variable was created from 22 NSDUH survey questions used to assess major depressive episode (MDE) during the past year based on *Diagnostic and Statistical Manual of Mental Disorders, Fourth edition (DSM-IV)* criteria (CBHSQ, 2017). Participants that self-reported five of the nine symptoms of MDE in the past year with at least one of the criteria being a depressed mood or loss of interest or pleasure in daily activities were classified as having experienced MDE in the past year according to *DSM-IV* diagnostic criteria. PD was assessed using the six-item Kessler Scale (K6) total score from the Psychological Distress Scale, an instrument used to measure non-specific psychological disorders among non-clinical populations with demonstrable validity and reliability for use across diverse populations and languages (Breslau et al., 2006; Kessler et al., 2003; Mitchell & Beals, 2011; Parker et al., 2010; Thomas et al., 2016). Serious PD will be defined as a K6 total score of  $\geq 13$  during any month during the past year. Past year

substance misuse (SUD-M) and substance use dependence (SUD-D) were determined using diagnostic criteria outlined in the DSM-IV (CBHSQ, 2017). SUD-M was indicated when one or more out of the four substance abuse diagnostic criteria for alcohol, an illicit drug, and prescription medications (e.g., pain reliever, sedative, tranquilizer, and/or stimulant) was met during the past year (CBHSQ, 2016). SUD-D was indicated when participant met three or more out of the six diagnostic criteria for substance dependence for any of the above substances in addition to having endorsed an additional withdrawal criterion based on type of substance use (CBHSQ, 2016). Whether the participant had any of the above BH indicators during the past year was also be determined. Specific substances for which participants met criteria for SUD-M and/or SUD-D were detailed under sample characteristics.

**Table 2: Study Group Variable and Indicators of BH in Past Year**

<b>Variables</b>	<b>Coding and Definition</b>
Study Group	<b>0 = Non-Justice-involved (Non-JI) Group</b> , adults not on probation and/or parole at any time within the past 12 months prior to study survey ( <b>reference group</b> ); <b>1= Justice-involved (JI) Group</b> , adults on parole and/or probation at any time within the past 12 months prior to study survey
<b>Mental Health (MH) Indicators in Past Year</b>	
Major Depressive Episode (MDE)	No=0; Yes=1, met 5 of the 9 DSM-IV diagnostic criteria for MDE with at least one being a depressed mood or loss of interest or pleasure in daily activities(March, 2018).
Serious Psychological Distress (PD)	No=0, Yes=1, serious PD defined as a Kessler Screening Scale (K6) total score of $\geq 13$ ; K6 total score from the Kessler Psychological Distress Scale, total score range 0-24; Cronbach alpha 0.84-0.89 (Kessler et al., 2003; Mitchell & Beals, 2011; Olfson, Wang, Wall, Marcus, & Blanco, 2019)
<b>Substance Use Disorder (SUD) Indicators in Past Year</b>	
Substance Misuse (SUD-M)	No = 0; Yes = 1, abused alcohol, illicit drug, prescription pain reliever, prescription sedative, prescription tranquilizer, and/or prescription stimulant and determined not to be dependent on any of these substances as defined by DSM-IV; met $\geq 1$ of 4 abuse diagnostic criteria for any of these substances
Substance Use Dependence (SUD-D)	No = 0; Yes = 1; met criteria substance use dependence as defined by DSM-IV. For marijuana, hallucinogen, inhalants, and prescription tranquilizers (met $\geq 3$ of 6 dependence criteria). For alcohol, cocaine, heroin, methamphetamine; prescription pain relievers; prescription sedatives; and prescription stimulants (met $\geq 3$ or more of 6 dependence criteria plus an additional withdrawal criterion)
<b>Overall BH Indicators in Past Year</b>	
BH	No = 0; Yes = 1, met criteria for at least one of the above BH indicators
MH	No = 0; Yes = 1, met criteria for MDE <b>and/or</b> PD
SUD	No = 0; Yes = 1, met criteria for SUD-M <b>and/or</b> SUD-D
<b>Co-occurrence of BH Indicators in Past Year</b>	
MH & SUD	No = 0; Yes = 1, met criteria for MH and SUD
MDE & PD	No = 0; Yes = 1, met criteria for MDE and PD
MDE & SUD-M	No = 0; Yes = 1, met criteria for MDE and SUD-M
MDE & SUD-D	No = 0; Yes = 1, met criteria for MDE and SUD-D
PD & SUD-M	No = 0; Yes = 1, met criteria for PD and SUD-M
PD & SUD-D	No = 0; Yes = 1, met criteria for PD and SUD-D
MDE, PD, SUD-M	No = 0; Yes = 1, met criteria for MDE and PD and SUD-M
MDE, PD, SUD-D	No = 0; Yes = 1, met criteria for MDE and PD and SUD-D

SUD\_M & SUD\_D not included in list because they are mutually exclusive, respondent can only have one or the other, but not both. As such, no participant can have “SUD\_M & SUD\_D” or “All 4 BH indicators” co-occurrences.

### 3.2.4.3 Sample Characteristics

Table 3 presents the socio-demographic and health characteristics of the JI and non-JI groups. Of these, several individual characteristics were used as covariates in the analyses comparing the study groups, namely self-reported gender, race/ethnicity, age, education, income, marital status, and overall health. Sample characteristics and covariates were selected based on the SDOH framework and extant literature on BH and community reentry in justice-involved individuals (Ansari et al., 1996; Woolf & Braveman, 2011).

Gender was determined based on participant self-report of gender at the time of survey. Demographic information related to race and ethnicity was based on self-report and categorized according to the US Census Bureau and federal reporting standards for racial and ethnic classifications (CBHSQ, 2016). Ethnicity was specific to Hispanicity (i.e., being of Hispanic/Latinx/Spanish origin), regardless of race, and racial information was not collected for this group. A race/ethnicity variable was constructed that included the Hispanic group as a racial group to ensure inclusion of participants of Hispanic/Latinx origin. Race/ethnicity was collapsed into four groups: (1) 1) Hispanic/Latinx; (2) Non-Hispanic (NH) White, (3) NH Black/African American, and (4) NH American Indian (AI)/Alaska (AK) Native for the multivariable logistic regression analytic models. Sample characteristics for the remaining racial groups were detailed for individuals that self-identified as NH Native Hawaiian/Pacific Islander, NH Asian, or NH

Biracial/Multiracial. However, these groups were not examined as separate individual racial/ethnic groups in the multivariable logistic regression analytic models due to their small sample sizes. Due to the potential heterogeneity of the NH Biracial/Multiracial group, and the inability to make specific group inferences related to BH, this group was not examined as a separate racial/ethnic group in the multivariable logistic regression analytic models, despite their disproportionate representation in the matter JI group.

**Table 3: Sample Characteristics**

<b>Variables</b>	<b>Coding and Definition</b>
Gender	Self-reported gender at time of survey: Male=0; Female=1
Race/Ethnicity	Total of 7 race/ethnicity variables will be created and coded: 0=No, 1=Yes for each of the following four groups: (1) Hispanic/Latinx; (2) Non-Hispanic White; (3) Non-Hispanic Black/African American; (4) Non-Hispanic American Indian/Alaska Native; (5) NH Native Hawaiian/Pacific Islander; (6) NH Asian; (7) NH Biracial/Multiracial.
Age	1=18-25 years old; 2=26-34 years old; 3=35-49 years old; 4=50-64 years old; 5=65 or older
Education	1=less than high school; 2=high school graduate; 3=some college/associate's degree; 4=college graduate or higher
Income	Annual income, 1=<\$10,000; 2=\$10,000-\$19,999; 3=\$20,000-\$29,999; 4=\$30,000-\$39,999; 5=\$40,000-\$49,999; 6=\$50,000-\$74,999; and 7=≥\$75,000 or higher; seven levels.
Marital status	No=0, widowed, divorced/separated, never been married; Yes = 1, married
Overall health	1=Excellent; 2=Very good; 3=Good; 4=Fair; 5=Poor, response to "Would you say your general health is excellent, very good, etc.?"
Psychological distress level	0=None or low (K6 total score of 0 to 4); 1=moderate (K6 total score of 5 to 12)(Prochaska, Sung, Max, Shi, & Ong, 2012); 2=serious (K6 total score of 13 to 24)(Prochaska et al., 2012), based on K6 total score from the Kessler Psychological Distress Scale, total score range 0-24; Cronbach alpha 0.84-0.89(Kessler et al., 2003; Mitchell & Beals, 2011; Olfson et al., 2019).
Lifetime major depressive episode (MDE)	No=0, Yes=1; lifetime history of MDE if meets 5 out of 9 DSM-IV diagnostic criteria for MDE during lifetime with at least one of the criteria being a depressed mood or loss of interest/pleasure in daily activities.
Lifetime health conditions	No=0, Yes=1, coded for each of the following 11 health conditions. Response to "Below is a list of health conditions you have had during your lifetime"; The 11 health conditions were: 1) STD; 2) Heart condition; 3) Diabetes; 4) COPD; 5) Cirrhosis; 6) Hepatitis B or C; 7) Kidney disease; 8) Asthma; 9) HIV or AIDs; 10) Cancer; and 11) High blood pressure.
SUD-M substances	Total of 10 specific substances will be detailed; For each substance, 0=No, 1=Yes, met SUD-M criteria for: (1) marijuana; (2) cocaine; (3) heroin; (4) hallucinogen; (5) inhalants; (6) methamphetamine; (7) prescription pain reliever; (8) prescription stimulant; (9) prescription sedative; and (10) alcohol.
SUD-D substances	Total of 10 specific substances will be detailed; For each substance, 0=No, 1=Yes, met SUD-M criteria for: (1) marijuana; (2) cocaine; (3) heroin; (4) hallucinogen; (5) inhalants; (6) methamphetamine; (7) prescription pain reliever; (8) prescription stimulant; (9) prescription sedative; and (10) alcohol.
Sexual orientation	0=Heterosexual; 1=Lesbian or Gay; 2=Bisexual, response to "Which of the following do you consider yourself to be?"
Post 9/11 Veteran	No=0, Yes=1, response to "Serve[d] on active duty in the US Armed Forces or Reserves September 2001 or later?"

From the set of sample characteristics, 11 characteristics were identified *a priori* as covariates to be included in the analytic models. Table 3 indicates the recoding of each covariate applied during the analysis process and designates the reference group (ref) for each covariate.

**Table 4: Individual Characteristics, Analytic Model Covariates**

<b>Covariates</b>	<b>Coding and Definition</b>
Female	Self-reported gender: 1=Female, 2=Male (ref)
Hispanic/Latinx	Hispanic or Latinx: 1=Yes, 2=No (ref)
NH White	Non-Hispanic (NH) white: 1=Yes, 2=No (ref)
NH Black/AA	Non-Hispanic Black/African American (AA): 1=Yes, 2=No (ref)
NH AI/AK Native	Non-Hispanic American Indian/Alaska Native: 1=Yes, 2=No (ref)
Age group	1= Age 18-49; 2= Age 50 or older (ref)
High school or less	1= Yes, less than high school or high school graduate; 2=No, some college/associate degree, college graduate, or higher level of education (ref)
Income level	1= < \$20K; 2= \$20K-\$49K; 3= \$50K or more (ref)
Not married	1=Not married 2=Married (ref)
Poor/fair health	Self-reported overall health: 1 = poor or fair, 2= Excellent, very good, or good (ref)

### 3.2.5 Data Management

The 2016 NSDUH dataset, a publicly available dataset was accessed from the Substance Abuse and Mental Health Data Archive (SAMHDA) website. The dataset was downloaded from: <https://www.datafiles.samhsa.gov/study-dataset/national-survey-drug-use-and-health-2016-nsduh-2016-ds0001-nid17185>. The 2016 NSDUH database, codebook, and survey questionnaires were downloaded from the SAMHSA website for the purpose of designing this study and a preparing a SAS 9.4.2® analysis dataset.

Although validation checks were performed and data discrepancies were resolved prior

to the 2016 NSDUH database becoming publicly available, the analytic dataset was examined for completeness and data quality issues (CBHSQ, 2016). Descriptive statistics were calculated to examine data distributions, variability, inconsistencies, and missing values. Variables were recoded to reflect variables defined in Tables 1 and 2. Not applicable / not determined values were coded to missing. All SAS datasets, their codebooks, and data preparation programs were archived in a folder that was only accessible to designated research team members and was stored in a secure, encrypted server at Duke University.

### **3.2.6 Data Analysis**

Descriptive statistics were used to detail sample characteristics and BH indicators for each study group (JI versus Non-JI). Non-directional statistical tests were performed using SAS 9.4.2<sup>®</sup> with level of significance set at 0.05 for each statistical significance test. The level of significance was not adjusted for multiple outcomes to safeguard against Type II errors when testing for study group differences in the BH indicators and influence of the specified covariates on the BH indicators. Stratification weighting was included in all descriptive and inferential statistical analyses. The weights were applied using the SAS 9.4.2<sup>®</sup> survey weight procedures. Effect sizes and their 95% confidence intervals (CI) were used to address the clinical relevance of the BH results comparing the JI and Non-JI study groups.

### **3.2.6.1 Stratification Weighting**

The NSDUH is based on a multi-probability, complex sample survey design, and sample weights must be applied to ensure valid and reliable population/national estimates (CBHSQ). The complex survey design utilized non-random sampling within strata, the oversampling of certain subgroups, and clustering within primary sample units (sampling segments and DUs). All 2016 NSDUH population estimates in the post-stratification adjustment were based on 2010 census data (March, 2018) and the 2016 NSDUH public use file included variance estimation variables derived from the original study's complex sample design: variance estimation cluster replicates (VEREP); variance estimation stratum (VESTR), and the final analysis weight (ANALWT\_C). In the public use file, the VEREP was nested within the VESTR, allowing for a single-stage stratified clustering design where clusters are sampled with replacement (WR). SAS statistical software has WR as a default design and was used with the 2016 NSDUH public use data file and its variance estimation variables and final analysis weight to estimate various parameters and their standard errors (CBHSQ, 2016). The WR default design and recommended sample weights were applied for all analyses.

### **3.2.6.2 Data Analysis Considerations**

The rate of missingness was determined for study variables required to address each study aim. Data transformation procedures were considered to normalize the data distribution for continuous measures when there were issues with non-normality and

variance that affect the validity of the statistical methods. Unweighted frequencies (*f*) and weighted parameter estimates (e.g., weighted percent, weighted standard error of percent, weighted adjusted odds ratios, and weighted 95% CI) are presented in the result section and tables.

### **3.2.6.3 Sample Characteristics**

All sample characteristics were categorical measures (Table 3). Thus, number (*f*) and percent (%) were used to describe the distribution of the socio-demographic and health characteristics for each study group (JI versus Non-JI). Chi-square (alternatively, Fisher's Exact) was used to test for a study group difference in proportions for each characteristic. Self-reported gender, race/ethnicity, age, education, income, marital status, and overall health were individual characteristics incorporated as covariates in the primary analysis due to their expected influence on BH. Table 3 details the coding of the 11 covariates included in the primary analysis.

### **3.2.6.4 Primary Analysis**

The primary analysis determined and compared the prevalence of BH indicators (depression, PD, and/or SUDs) in adults on parole and/or probation (JI group) during a 12-month period relative to adults who were not on parole and/or probation (Non-JI group) during the same 12-month period, after adjusting for individual characteristics represented by 11 covariates. First, descriptive statistics were used to summarize the 15

BH indicators by study group. Next, bivariate logistic regression models were used to examine the simple association between study group and each of the 15 BH indicators as well as estimate the odds ratio (OR) for each BH indicator. Finally, a multivariable logistic regression model was conducted to test for the association between study group and each BH indicator after co-varying for individual characteristics. Adjusted ORs (aOR) and their 95% CIs for study group and each covariate were determined.

### **3.2.6.5 Statistical Power**

The total sample for the primary analysis included two study groups: (1) JI adults on probationer and/or parole at any point during the past 12 months (N=1,133); and (2) a Non-JI reference group (N=41,351). The two-tailed level of significance was set at 0.05 for all tests and was not adjusted for multiple BH indicators and multiple statistical tests for this initial study. The multivariable logistic regression model with one study group variable and 11 covariates as predictor terms will be the final and most complex model for each BH indicator. The minimum number of cases for the final model for each BH indicator was estimated to be N=600, based on the assumptions that (a) 12 predictors in the model, (b) the proportion of “positive BH cases” may be as low 0.20, (c) two-sided tests will be performed, and (d) at least 80% statistical power. The required sample size was estimated using guidelines recommended by Peduzzi, Concato, Kemper, Holford, & Feinstein (1996). The expected total sample size of 42, 484

with 1,133 in the JI group provided at least 80% statistical power to test for study group differences in the probability of each BH indicator when including 15 predictors terms.

### **3.3 Results**

#### **3.3.1 Sample Characteristics**

Tables 5-6 detail the weighted sample characteristics for two study groups (Non-JI vs JI). The two groups significantly differed on all socio-demographics characteristics (Table 5). The age distribution for the two groups were significantly different, with the JI group having a higher percent of adults under 35 years of age (52%) than the Non-JI group (30%). The JI group compared to the Non-JI group had a significantly lower percent of females (26% vs 52%), higher percent of Hispanics/Latinx (21% vs 16%), lower percent of NH Whites (54% vs 65%), higher percent of NH Blacks/African Americans (19% vs 12%), and higher percent of NH Other Minorities (1.0% vs 0.6%), lower percent with education after high school (40% vs 62%), a higher percent with an annual income under \$10K (41% vs 22%), lower percent who are married (27% vs 52%), and higher percent of adults reporting lesbian/gay/bisexual orientation (6% vs 4%). The weighted percentages for the NH minorities other than NH American Indians/Alaskan Natives are presented, but differences in proportion tests were not conducted for these racial/ethnic groups due to the small sample sizes in the JI group.

**Table 5: Weighted Socio-demographic Characteristics**

Socio-demographic Characteristics	Non-JI Group (N=41,351)			JI Group (N=1,133)			p-value
	f	%	95% CI	f	%	95% CI	
<b>Age</b>							<0.0001
18-25 years old	13109	13.93	13.60-14.25	507	24.70	21.88-27.52	
26-34 years old	8420	15.65	15.24-16.07	302	27.06	23.58-30.54	
35-49 years old	11076	24.72	24.18-25.26	247	30.49	26.54-34.43	
50-64 years old	5157	25.72	25.02-26.42	66	15.46	11.59-19.32	
65 or older	3589	19.98	19.31-20.66	11	2.30	0.75-3.84	
<b>Female Gender</b>	22366	52.32	51.61-53.02	351	26.29	22.85-29.73	<0.0001
<b>Race/Ethnicity</b>							
Hispanic/Latinx	6811	15.63	15.11-16.15	222	21.13	17.56-24.70	0.0033
Non-Hispanic (NH)	25347	64.66	64.00-65.33	575	54.29	50.19-58.39	<0.0001
<b>White</b>							
NH Black/African American	5231	11.64	11.21-12.07	216	18.87	15.96-21.78	<0.0001
NH AI/AK Native	596	0.56	0.48-0.63	46	1.20	0.61-1.80	0.0347
NH Native HI/Other PI	216	---	---	7	1.00	0.00-2.13	---
NH Asian	1860	---	---	8	0.73	0.09-1.36	---
NH Biracial/Multiracial	1290	---	---	59	2.78	1.57-3.99	---
<b>Education</b>							<0.0001
Less than High School	5150	12.62	12.14-13.10	290	24.01	20.51-27.52	
High School Graduate	10848	25.04	24.43-25.65	411	36.09	32.10-40.09	
Some college/Associate Degree	14037	30.87	30.23-31.51	369	32.42	28.61-36.22	
College Graduate	11316	31.47	30.81-32.14	63	7.48	5.13-9.83	
<b>Income</b>							<0.0001
Less than \$10,000	12249	22.35	21.80-22.90	498	40.78	36.71-44.84	
\$10,000 - \$19,999	7878	18.01	17.48-18.55	316	27.73	24.05-31.42	
\$20,000 - \$29,999	5347	13.32	12.83-13.81	128	12.51	9.77-15.24	
\$30,000 - \$39,999	3988	10.48	10.03-10.92	91	7.98	5.88-10.07	
\$40,000 - \$49,999	3285	9.22	8.79-9.64	43	3.88	2.46-5.31	
\$50,000 - \$74,999	4289	12.22	11.75-12.69	41	4.39	2.65-6.12	
\$75,000 or more	4315	14.40	13.88-14.93	16	2.74	1.05-4.43	
<b>Marital Status</b>							<0.0001
Not married	24164	47.79	47.09-48.48	891	72.53	68.53-76.53	
Married	17187	52.21	51.51-52.91	242	27.47	23.47-31.47	
<b>Sexual Orientation</b>							0.0382
Heterosexual	38104	95.64	95.39-95.90	1027	93.55	91.74-95.37	
Lesbian or Gay	855	1.85	1.66-2.04	23	2.14	0.96-3.33	
Bisexual	1702	2.51	2.34-2.68	69	4.30	2.90-5.71	
<b>Post 9/11 Veteran</b>	673	18.17	16.30-20.03	31	50.31	33.04-67.59	0.0004

Unweighted frequencies (f) provided; weighted percent and 95% Confidence Interval (CI) for percent; p-values for Wald chi-square test comparing Non-JI and JI on each characteristic. Post 9/11 Veteran: 95% of data missing; AI = American Indian; AK = Alaska; HI = Hawaiian; PI = Pacific Islander; Not married = Divorced/separated/not married.

The JI group differed significantly from the Non-JI on health characteristics (Table 6). The JI group relative to the Non-JI group had a higher rate of poor or fair overall health (20% vs 14%), higher rate of moderate to serious PD (57% vs 37%), and higher rate of lifetime MDE (19% vs 13%). In terms of other lifetime health conditions, the JI group compared to the Non-JI group had a significantly higher rate of STDs (5% vs 2%), Hepatitis B or C (11% vs 3%), asthma (29% vs 22%), 4) HIV or AIDS (3% vs 0.4%), and 5) kidney disease (8% vs 5%), but had significantly lower rates for high blood pressure (29% vs 48%) and cancer (5% vs 15%). The missing rate was 68% for 10 of 11 lifetime health conditions evaluated. The estimates for these conditions, thus, may be impacted by the high missing rate and should be interpreted with caution.

**Table 6: Weighted Health Characteristics**

Characteristics	Non-JI Group (N=41,351)			JI Group (N=1,133)			p-value
	<i>f</i>	%	95% CI	<i>f</i>	%	95% CI	
<b>Overall Health</b>							<b>&lt;0.0001</b>
Excellent	9707	21.18	20.62-21.73	192	16.02	13.17-18.87	
Very good	15726	35.97	35.31-36.64	375	29.06	25.47-32.65	
Good	11340	29.03	28.38-29.68	377	35.13	31.10-39.15	
Fair	3789	11.07	10.60-11.54	165	17.19	13.90-20.49	
Poor	786	2.75	2.49-3.00	24	2.60	1.13-4.08	
<b>Psychological Distress (PD)</b>							<b>&lt;0.0001</b>
None or low PD	23351	62.93	62.26-63.59	456	42.93	38.83-47.03	
Moderate PD	12088	26.48	25.88-27.09	377	35.39	31.32-39.45	
Serious PD	5912	10.60	10.20-10.98	300	21.69	18.59-24.79	
<b>Lifetime MDE</b>	6355	13.23	12.78-13.69	212	18.72	15.48-22.00	<b>0.0011</b>
<b>Lifetime Health Conditions</b>							
STD	995	1.97	1.80-2.14	69	4.93	3.38-6.48	<b>0.0002</b>
Heart Condition	2704	25.07	24.00-26.15	54	19.38	13.07-25.69	0.0804
COPD	1214	10.39	9.65-11.12	45	13.84	8.83-18.86	0.1826
Hepatitis B or C	368	3.48	3.01-3.94	34	11.14	6.33-15.94	<b>0.0026</b>
High Blood Pressure	5179	48.20	47.00-49.41	90	28.59	22.03-35.15	<b>&lt;0.0001</b>
Asthma	4458	22.06	21.17-22.94	139	28.81	22.69-34.94	<b>0.0293</b>
Diabetes	2770	25.07	24.00-26.14	64	25.00	18.01-31.98	0.9837
HIV or AIDS	73	0.43	0.29-0.57	9	2.92	0.59-5.25	<b>&lt;0.0381</b>
Cancer	1490	15.22	14.30-16.14	16	5.46	2.37-8.55	<b>&lt;0.0001</b>
Cirrhosis	83	0.84	0.60-1.08	5	2.11	0.00-4.48	0.2954
Kidney Disease	489	4.60	4.08-5.11	17	8.08	3.56-12.60	0.1387

Unweighted frequencies (*f*); weighted percent and 95% Confidence Interval (CI) for percent; p-values for Wald chi-square test. Lifetime Major Depressive Episode (MDE) had 351 missing values. Each lifetime health condition, with the exception of Sexually Transmitted Diseases (STDs), had 68% missing data. COPD=Chronic Obstructive Pulmonary Disease.

Table 7 details the rates of substance misuse and dependence by type of substance. The JI group relative to the Non-JI group in the past year had significantly

higher rate of substance-related issues with: (1) alcohol - misuse: (10% vs 3%), dependence: (12% vs 3%); (2) marijuana – misuse: (2% vs 0.4%), dependence: (6% vs 0.8%); (3) cocaine – misuse: (1.4% vs 0.1%), dependence: (1.8% vs 0.2%); (4) heroin - dependence: (4% vs 0.2%); (5) hallucinogens – misuse: (0.5% vs 0.05%), dependence: (0.8% vs 0.05%); (5) methamphetamines – misuse: (1.0% vs 0.03%), dependence: (3.0% vs 0.2%); (6) pain relievers - dependence: (5.0% vs 0.5%); (7) tranquilizers – dependence: (1.4% vs 0.1%); (8) stimulants – misuse: (0.7% vs 0.03%); dependence: (0.9% vs 0.2%).

**Table 7: Weighted Past-Year Substance Use Disorder, Misuse and Dependence**

Characteristics	Non-JI Group (N=41,351)			JI Group (N=1,133)			<i>p</i> -value
	<i>f</i>	%	95% CI	<i>f</i>	%	95% CI	
<b>SUD-Misuse</b>							
Alcohol	1474	2.62	2.43-2.82	112	10.40	7.83-12.97	<0.0001
Marijuana	288	0.44	0.37-0.51	36	1.97	1.19-2.76	<b>0.0001</b>
Cocaine	50	0.08	0.05-0.11	11	1.37	0.16-2.57	<b>0.0386</b>
Heroin	6	0.01	0.00-0.02	2	0.33	0.00-0.85	0.2293
Hallucinogen	45	0.05	0.03-0.07	8	0.54	0.12-0.97	<b>0.0244</b>
Inhalant	5	0.01	0.00-0.02	2	0.02	0.00-0.05	0.4259
Methamphetamine	22	0.03	0.01-0.05	12	0.95	0.09-1.81	<b>0.0364</b>
Pain reliever	54	0.11	0.08-0.15	6	0.36	0.00-0.73	0.1888
Tranquilizer	53	0.08	0.05-0.10	7	0.35	0.05-0.66	0.0760
Stimulant	25	0.03	0.01-0.06	8	0.65	0.11-1.19	<b>0.0261</b>
Sedative	7	0.02	0.00-0.03	4	0.34	0.00-0.75	0.1136
<b>SUD-Dependence</b>							
Alcohol	1576	3.11	2.88-3.33	121	11.59	8.79-14.39	<0.0001
Marijuana	568	0.84	0.74-0.94	78	5.58	3.99-7.16	<0.0001
Cocaine	108	0.22	0.16-0.28	21	1.82	0.90-2.74	<b>0.0007</b>
Heroin	109	0.17	0.12-0.21	48	3.97	2.53-5.41	<0.0001
Hallucinogen	23	0.05	0.02-0.07	9	0.76	0.06-1.46	<b>0.0457</b>
Inhalant	3	0.00	0.00-0.01	2	0.33	0.00-0.94	0.2901
Methamphetamine	98	0.16	0.12-0.21	39	3.22	1.82-4.61	<0.0001
Pain reliever	256	0.49	0.41-0.58	44	4.98	3.15-6.81	<0.0001
Tranquilizer	63	0.13	0.08-0.17	13	1.36	0.55-2.17	<b>0.0031</b>
Stimulant	85	0.15	0.11-0.20	11	0.92	0.27-1.57	<b>0.0211</b>
Sedative	19	0.04	0.02-0.06	1	0.06	0.00-0.19	0.6910

Unweighted frequencies (*f*); weighted percent and 95% Confidence Interval (CI) for percent; *p*-values for Wald chi-square tests.

### 3.3.2 BH Indicators: Bivariate Logistic Regression

Table 8 details the unweighted frequency (*f*), unweighted percent, weighted percent, and its weighted 95% CI for each of the 15 BH indicators in the Non-JI vs JI groups.

**Table 8: Weighted Health Characteristics**

BH Indicator	Non-JI Group (N=41,351)				JI-Group (N=1,133)			
	Unweighted		Weighted		Unweighted		Weighted	
	<i>f</i>	%	%	95% CI	<i>f</i>	%	%	95% CI
MDE	3449	8.42	6.59	6.27-6.91	138	12.38	11.90	9.25-14.54
PD	5912	14.30	10.59	10.20-10.98	300	26.48	21.69	18.59-24.79
SUD-M	1605	3.88	2.88	2.68-3.08	119	10.50	10.55	7.98-13.13
SUD-D	2429	5.87	4.52	4.26-4.78	270	23.83	23.56	20.10-27.01
BH	9290	22.62	17.62	17.13-18.12	553	49.02	45.98	41.86-50.09
MH	6836	16.66	12.68	12.26-13.11	328	29.26	25.16	21.73-28.59
SUD	4034	9.76	7.40	7.07-7.72	389	34.33	34.11	30.21-38.01
MH & SUD	1580	3.85	2.51	2.34-2.68	164	14.63	13.46	10.80-16.12
MDE & PD	2525	6.17	4.57	4.31-4.84	110	9.87	8.68	6.61-10.75
MDE & SUD-M	221	0.54	0.33	0.27-0.39	11	0.99	0.96	0.28-1.63
MDE & SUD-D	614	1.50	1.02	0.90-1.13	62	5.56	5.56	3.84-7.28
PD & SUD-M	407	0.98	0.57	0.49-0.64	32	2.82	2.63	1.20-4.07
PD & SUD-D	1030	2.49	1.65	1.51-1.79	120	10.59	9.36	7.24-11.48
MDE, PD, SUD-M	167	0.41	0.25	0.20-0.30	9	0.81	0.63	0.17-1.08
MDE, PD, SUD-D	525	1.28	0.82	0.72-0.92	52	4.66	4.56	3.01-6.11

MDE could not be determined for n=429 due to missing data; Sample size for MDE data for Non-JI was N=40,922 and JI was N=704.

The JI group compared to the Non-JI reference group had a significantly higher odds of reporting of each of the 15 BH indicators (Table 9, all  $p \leq .0146$ ). With the

exception of MDE and MDE & PD, the odds of each BH indicator among the JI adults were at least two times greater than among the Non-JI adults.

**Table 9: Weighted BH Indicators: Bivariate Logistic Regression Results**

BH Indicator	Group (JI vs Non-JI) Weighted Percents	<i>t</i>	<i>p</i> -value	OR	OR 95% CI
MDE	11.9% vs 6.6%	4.95	<0.0001	1.92	1.48-2.45
PD	21.7% vs 10.6%	8.90	<0.0001	2.34	1.94-2.82
SUD-M	10.6% vs 2.9%	9.60	<0.0001	4.00	3.00-5.28
SUD-D	23.6% vs 4.5%	18.26	<0.0001	6.51	5.32-7.96
BH	45.9% vs 17.6%	16.00	<0.0001	3.98	3.36-4.71
MH	25.2% vs 12.7%	8.84	<0.0001	2.32	1.92-2.79
SUD	34.1% vs 7.4%	20.36	<0.0001	6.48	5.41-7.76
MH & SUD	13.5% vs 2.5%	14.77	<0.0001	6.05	4.76-7.68
MDE & PD	8.7% vs 4.6%	5.00	<0.0001	1.98	1.52-2.59
MDE & SUD-M	1.0% vs 0.3%	2.85	0.0043	2.94	1.40-6.16
MDE & SUD-D	5.6% vs 1.0%	9.87	<0.0001	5.73	4.05-8.10
PD & SUD-M	2.6% vs 0.6%	5.30	<0.0001	4.74	2.67-8.42
PD & SUD-D	9.4% vs 1.7%	13.48	<0.0001	6.16	4.73-8.03
MDE, PD, SUD-M	0.6% vs 0.3%	2.44	0.0146	2.56	1.20-5.44
MDE, PD, SUD-D	4.6% vs 0.8%	9.13	<0.0001	5.76	3.96-8.38

### 3.3.3 BH Indicators: Multivariable Logistic Regression

#### 3.3.3.1 Study Group

Tables 10-11 detail the multivariable logistic regression results for each BH indicator. Study group was a significant predictor of 13 of the 15 BH indicators (all  $p \leq 0.0074$ ). The odds of having the co-occurrence of (a) MDE and SUD-M and (b) MDE, PD, and SUD-M did not differ for the two study groups (both  $p > 0.05$ ). Both of these BH

indicators had a weighted estimated prevalence of less than 1% for both groups. Among the 13 BH indicators in which study group was a significant predictor, the weighted aORs comparing the JI group relative to the Non-JI group ranged from 1.55 to 4.23. Notably, the odds of having (1) SUD-D, (2) SUD, (3) MH & SUD, (4) MDE & SUD-D, (5) MDE, PD, & SUD-D, or (6) PD & SUD-D were more than 3 times higher in the JI group compared to the Non-JI group.

### **3.3.3.1 Individual Characteristics**

Among individual characteristics included as covariates, the odds of having a BH need were significantly higher among those who reported: 1) Less than 50 years of age for all 15 BH indicators; 2) Not married for 15 BH indicators; 3) Lower annual income defined as less than \$20K when compared to those with an income of \$50K or greater for 13 BH indicators – exceptions were (a) SUD-M and (b) SUD; 4) Poor or fair health for 13 BH indicators – exceptions were (a) SUD-M and (b) MDE & SUD-M; and 5) NH Whites for 12 BH indicators – exceptions were (a) MDE & SUD-D, (b) PD & SUD-M, (c) MDE, PD, & SUD-M.

The results also indicated the odds of having a BH need were significantly lower among those who reported less education defined as high school graduate or less for 14 BH indicators, with the exception of SUD-D. The results for females compared to males varied in that the odds of having each BH indicator were: 1) significantly higher among

females for (a) MDE, (b) PD, (c) MH, (d) MDE & PD; 2) significantly lower among females for (a) SUD-M, (b) SUD-D, (c) SUD, (d) MH & SUD; and 3) not significantly different for (a) BH, (b) MDE & SUD-M, (c) MDE & SUD-D, (d) MDE, PD, & SUD-M, (e) MDE, PD, & SUD-D, (f) PD & SUD-M, (g) PD & SUD-D. The odds of having a BH need were significantly: 1) lower among Hispanic/Latinx for MH & SUD; 2) lower among NH Black/African Americans for (a) PD and (b) MH; 3) higher among NH Black/African Americans for (a) SUD-D, (b) SUD; 4) lower among those with an annual income of \$20K-\$49K compared to those with an income of \$50K or greater for (a) SUD-M and (b) SUD; and 5) higher among NH American Indian/Alaska Native for (a) SUD-D, (b) any BH, (c) SUD, (d) MH & SUD, and (e) PD & SUD-D.

**Table 10: Predictors of Weighted Behavioral Health Indicators**

Predictors	Multivariable Logistic Regression Results for BH Indicators: Adjusted Odds Ratios (95% CI)							
	MDE	PD	SUD-M	SUD-D	BH	MH	SUD	MH & SUD
<b>Group: JI vs Non-JI</b>	1.55*	1.61*	2.74*	4.08*	2.79*	1.68*	4.23*	3.61*
	(1.18-2.04)	(1.31-1.97)	(2.03-3.70)	(3.30-5.06)	(2.31-2.37)	(1.36-2.06)	(3.47-5.15)	(2.80-4.64)
<b>Age</b>	2.00*	2.98*	2.24*	2.33*	2.51*	2.56*	2.52*	4.31*
	(1.75-2.29)	(2.64-3.36)	(1.80-2.77)	(2.15-3.03)	(2.29-2.75)	(2.29-2.85)	(2.20-2.89)	(3.35-5.54)
<b>Female</b>	1.63*	1.47*	0.53*	0.62*	1.05	1.51*	0.56*	0.86*
	(1.46-1.83)	(1.35-1.61)	(0.46-0.61)	(0.55-0.70)	(0.98-1.13)	(1.39-1.64)	(0.51-0.62)	(0.75-0.99)
<b>Hispanic/Latinx</b>	0.92	0.92	1.25	1.10	1.05	0.90	1.16	0.70*
	(0.72-1.17)	(0.76-1.13)	(0.85-1.83)	(0.84-1.45)	(0.89-1.23)	(0.75-1.08)	(0.92-1.47)	(0.49-0.99)
<b>NH Black/AA</b>	0.80	0.77*	1.29	1.34*	0.95	0.76*	1.34*	0.97
	(0.63-1.02)	(0.63-0.94)	(0.87-1.91)	(1.02-1.77)	(0.80-1.11)	(0.63-0.92)	(1.06-1.69)	(0.69-1.37)
<b>NH AI/AK Native</b>	1.24	1.03	0.82	2.90*	1.56*	1.28	2.19*	1.96*
	(0.66-2.34)	(0.69-1.53)	(0.42-1.59)	(1.83-4.61)	(1.07-2.24)	(0.83-1.97)	(1.45-3.31)	(1.05-3.66)
<b>NH White</b>	1.63*	1.50*	1.67*	1.71*	1.62*	1.47*	1.75*	1.60*
	(1.35-1.97)	(1.27-1.77)	(1.16-2.40)	(1.35-2.17)	(1.41-1.86)	(1.26-1.71)	(1.42-2.15)	(1.19-2.14)
<b>High school or less</b>	0.64*	0.84*	0.83*	0.90	0.84*	0.81*	0.87*	0.73*
	(0.57-0.72)	(0.77-0.92)	(0.71-0.96)	(0.79-1.03)	(0.78-0.91)	(0.74-0.88)	(0.78-0.96)	(0.63-0.85)
<b>Income: &lt;\$20K vs ≥\$50K</b>	2.01*	2.18*	0.81	1.17*	1.53*	2.13*	1.00	2.04*
	(1.70-2.37)	(1.91-2.50)	(0.67-0.97)	(0.98-1.40)	(1.37-1.70)	(1.88-2.41)	(0.88-1.15)	(1.61-2.57)
<b>Income: \$20-49K vs ≥\$50K</b>	1.38	1.55	0.75*	0.97	1.14	1.51	0.86*	1.47
	(1.16-1.64)	(1.34-1.78)	(0.62-0.90)	(0.80-1.18)	(1.03-1.27)	(1.33-1.72)	(0.75-0.99)	(1.16-1.88)
<b>Not Married</b>	1.82*	1.99*	2.21*	2.10*	2.06*	1.95*	2.23*	2.64*
	(1.16-2.05)	(1.81-2.19)	(1.88-2.60)	(1.82-2.41)	(1.91-2.23)	(1.78-2.13)	(1.99-2.48)	(2.19-3.18)
<b>Poor/fair health</b>	3.10*	3.23*	0.81	1.62*	2.39*	2.97*	1.30*	2.18*
	(2.70-3.55)	2.88-3.63)	(0.63-1.04)	(1.37-1.91)	(2.15-2.65)	(2.66-3.32)	(1.13-1.50)	(1.81-2.63)

Adjusted odds ratio (aOR) and 95% Confidence Interval (95% CI); \* *p*-values significant at 0.05 level of significance; Non-JI = Referent group; NH = Non- Hispanic/Latinx; AA=African American; AI/AK (American Indian/Alaska) Native; K=thousand.

**Table 11: Predictors of Weighted Behavioral Health Indicators**

Predictors	Multivariable Logistic Regression Results for BH Indicators: Adjusted Odds Ratios (95% CIs)						
	MDE & PD	MDE & SUD-M	MDE & SUD-D	PD & SUD-M	PD & SUD-D	MDE, PD, SUD-M	MDE, PD, SUD-D
<b>Group: JI vs Non-JI</b>	1.47*	1.95	3.70*	2.68*	3.62*	1.67	3.69*
	(1.11-1.96)	(0.93-4.10)	(2.59-5.27)	(1.45-4.96)	(2.75-4.76)	(0.77-3.61)	(2.50-5.44)
<b>Age</b>	2.62*	3.51*	4.04*	4.72*	4.46*	4.77*	4.33*
	(2.22-3.10)	(1.57-7.82)	(2.83-5.78)	(2.64-8.46)	(3.32-5.99)	(1.98-11.47)	(2.91-6.45)
<b>Female</b>	1.64*	1.06	1.08	0.90	0.89	1.24	1.18
	(1.44-1.87)	(0.72-1.56)	(0.86-1.36)	(0.68-1.19)	(0.75-1.06)	(0.81-1.91)	(0.92-6.45)
<b>Hispanic/Latinx</b>	0.99	0.89	0.68	0.75	0.72	0.90	0.73
	(0.74-1.32)	(0.40-1.98)	(0.39-1.20)	(0.39-1.42)	(0.47-1.09)	(0.38-2.15)	(0.42-1.28)
<b>NH Black/AA</b>	0.83	1.38	0.88	1.29	0.89	1.21	0.97
	(0.62-1.10)	(0.64-2.96)	(0.49-1.56)	(0.68-2.47)	(0.60-1.32)	(0.51-2.86)	(0.56-1.68)
<b>NH AI/AK Native</b>	0.71	0.69	0.95	0.53	2.47*	0.77	0.71
	(0.39-1.27)	(0.09-5.40)	(0.35-2.54)	(0.14-2.01)	(1.23-4.95)	(0.10-6.16)	(0.23-2.17)
<b>NH White</b>	1.84*	1.88*	1.53	1.67	1.62*	1.65	1.72*
	(1.48-2.28)	(1.01-3.51)	(0.94-2.47)	(0.97-2.88)	(1.16-2.25)	(0.83-3.28)	(1.11-2.66)
<b>High School or less</b>	0.63*	0.39*	0.64*	0.70*	0.79*	0.41*	0.65*
	(0.55-0.72)	(0.24-0.62)	(0.50-0.80)	(0.52-0.93)	(0.66-0.95)	(0.24-0.70)	(0.50-0.83)
<b>Income: &lt;\$20K vs ≥\$50K</b>	2.17*	2.11*	1.81*	2.43*	1.89*	1.93*	1.84*
	(1.78-2.64)	(0.81-2.73)	(1.27-2.58)	(1.52-3.90)	(1.43-2.51)	(1.03-3.64)	(1.26-2.69)
<b>Income: \$20-49K vs ≥\$50K</b>	1.40	1.49	1.27	1.74	1.31	1.14	1.17
	(1.13-1.73)	(0.01-2.73)	(0.86-1.89)	(1.09-2.79)	(0.98-1.75)	(0.58-2.26)	(0.77-1.78)
<b>Not Married</b>	1.94*	4.09*	2.38*	2.97*	2.48*	3.63*	2.48*
	(1.69-2.24)	(2.45-6.85)	(1.81-3.12)	(1.98-4.44)	(1.98-3.10)	(2.05-6.45)	(1.83-3.36)
<b>Poor/Fair health</b>	4.01*	1.68	2.84*	1.89*	2.38*	2.31*	3.10*
	(3.46-4.64)	(0.99-2.85)	(2.17-3.74)	(1.32-2.71)	(1.91-2.95)	(1.33-3.99)	(2.33-4.11)

Adjusted odds ratio (aOR) and 95% Confidence Interval (95% CI); \* *p*-values significant at 0.05 level of significance; Non-JI = Referent group; NH = Non-Hispanic/Latinx; AA =African American; AI/AK (American Indian/Alaska) Native; K=thousand.

Figures 4-5 detail the bivariate BH indicator rates and the covariate adjusted odds ratios for eight of the 15 BH indicators by study group.

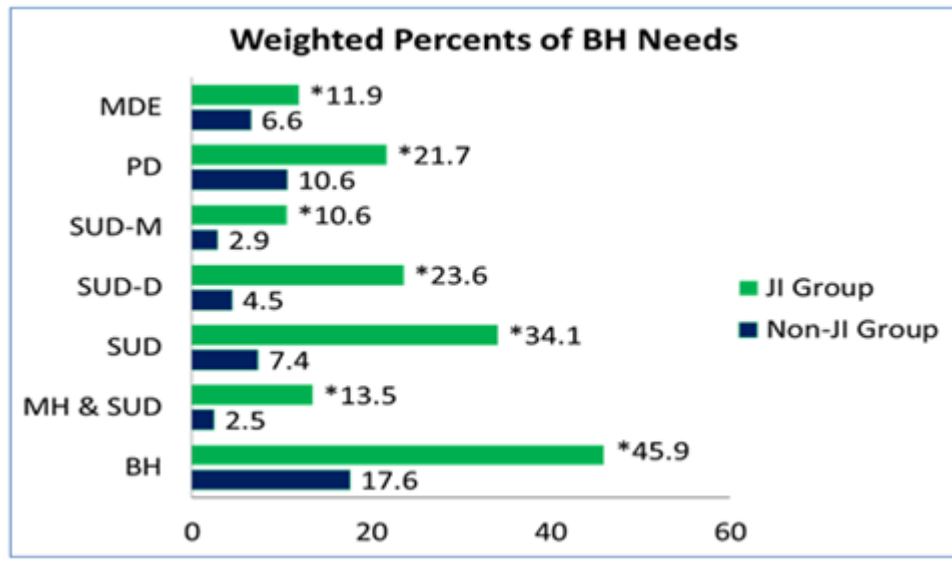


Figure 4: Bivariate Logistic Regression Results, \* $p < 0.0001$

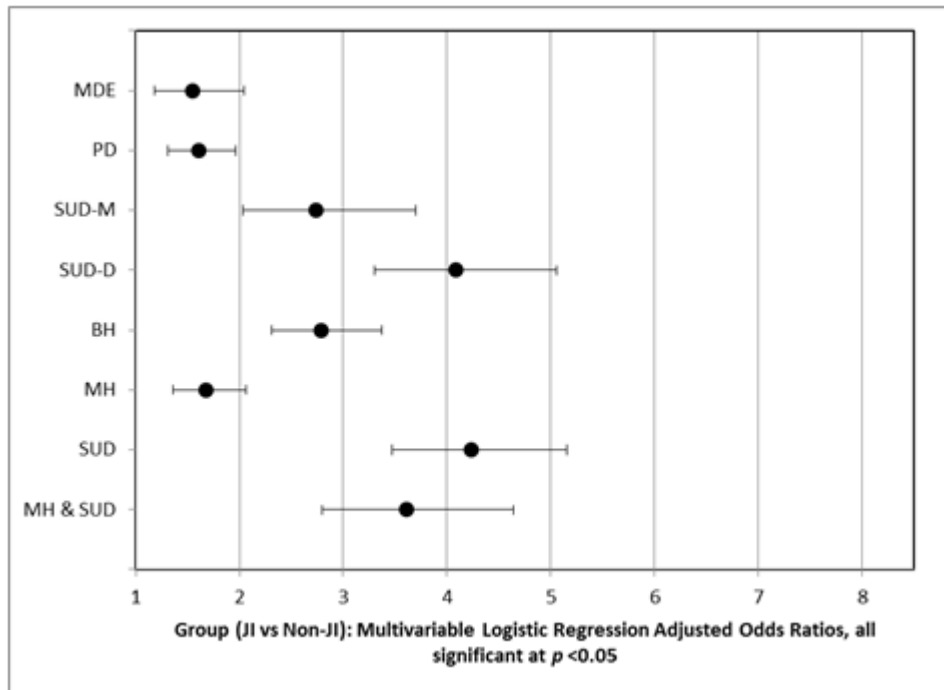


Figure 5: Covariate Adjusted Odds Ratios of BH Indicators by Study Group

### 3.4 Discussion

BH treatment inequities, the criminalization of BH disorders, and a long-standing under-resourced community-based BH treatment infrastructure has resulted in the US CJS becoming the de facto answer to the national BH crisis, contributing to disproportionate justice contact among individuals affected by BH disorders. The BH crisis in the justice-involved population is reflective of the persistent lack of public health interventions targeting the BH crisis in the US general population. Any efforts to address the national BH crisis must involve the US CJS. The BH indicators used in this

study represent BH needs (i.e. the presence of a diagnosis for which there is an effective available treatment) (Ritter et al., 2019). SDOH discourse and research has increasingly recognized justice-involvement as a SDOH (Bui et al., 2019). Justice involvement was significantly associated with a BH need and 46% of all justice -involved adults in the current study were affected by a past-year BH disorder compared to a rate of 18% among non-justice-involved adults. Improved access to BH treatment can serve to reduce the justice population, improve community reintegration, as well as effect reductions in recidivism (Brolin, Dennehy, Booxbaum, & Horgan, 2015).

This study elucidated the disparate burden of MH and co-occurring MH and SUDs among justice-involved adults to emphasize the critical need for improved screening and treatment of MH and/or dual diagnoses in justice-involved adults. Consistent with other studies, our results showed that about 12% of justice-involved adults had experienced a MDE in the past year, and almost 22% of justice-involved adults had experienced serious PD in the past year (Feucht & Gfroerer, 2011; Yu et al., 2014). The current study was unique in its examination of co-occurring MH and SU disorders in a nationally representative sample of adults on parole or probation, and about 14% of justice-involved adults had experienced a co-occurring MH and SUD in the past year, compared to a rate of approximately 3% in adults not on probation or parole in the past year. This knowledge is critical because rates of co-occurring MH and SU disorders are significantly higher among justice-involved adults and co-occurring BH

disorders pose a particular challenge to US CJS rehabilitative efforts that often lack dually integrative treatment for individuals experiencing both a MH and SU disorder (Bradford, 2016; Morash et al., 2018; Peters et al., 2015; Prince & Wald, 2018).

Although this study sought to highlight MH and co-occurring MH and substance use needs among justice-involved adults, substance misuse and/or dependency are of equal importance and are significant correlates and risk factors for a MH disorder (Ehlers et al., 2018; Han, Compton, Blanco, & Colpe, 2017; Hasin, Stinson, Ogburn, & Grant, 2007; Holliday et al., 2016; Knighton, Stevens-Watkins, Staton, & Pangburn, 2018; Neupert et al., 2017; Perreira et al., 2019). The overall prevalence of substance misuse and dependence among justice-involved adults in the current study was slightly lower than in previous years (34.1%), but consistent with more than a third of justice-involved adults being affected by substance misuse or dependence (Feucht & Gfroerer, 2011; Lipari & Gfroerer, 2013; Winkelman et al., 2016; Yu & Sung, 2015). Previous studies employed various methods to determine the prevalence of substance use (e.g. past month/year substance use vs. past year substance misuse/dependency based on DSM-IV criteria, etc.), and the justice-involved population (e.g. individuals with past year arrests and bookings, individuals on parole and/or probation) (Fearn et al., 2016; Feucht & Gfroerer 2011; Winkelman et al., 2016; Yu et al., 2014; Yu & Sung, 2015). Results from the current study support the persistent and disproportionate burden in this population; however, the lower prevalence could also reflect the increased rates in SU treatment due

to increased healthcare coverage afforded by the Affordable Care Act (Winkelman et al., 2016).

Our study contributed to the limited research on the differential examination of substance misuse and dependency in a nationally-representative sample of justice-involved adults, and justice-involved adults in this study suffered from a significantly higher prevalence of substance use dependency (24% vs 5%) and substance misuse (11% vs 3%) compared to non-justice-involved adults in the past year (Fearn et al., 2016).

Psychosocial stress is significantly associated with substance use in general, particularly alcohol use, and the development of stress-related disorders such as PD, anxiety, and depression (McHugh, 2019; Weera, 2019). Alcohol continues to be the leading substance of misuse and dependence among justice-involved adults, potentially because it is legal, widely available, and is often not a substance that will result in a parole or probation revocation. However, alcohol use in the context of a MH disorder is associated with negative consequences and can contribute to illicit substance use (Rossheim, Livingston, Lerch, Taxman, & Walters, 2018). This knowledge is integral to informing SU treatment service provision that is appropriate and effective.

Among many underserved health groups, justice-involvement constitutes the first contact for recognition and/or treatment of a BH disorder. The justice-involved population is disproportionately comprised of individuals affected by multiple SDOHs that increase the risk of poor BH, reduced access to BH treatment, BH treatment

disparities, and an increased risk for justice contact. Multiple societally imposed constructs and norms related to gender, sex, geographical location, and race and/or ethnicity influence societal positioning and mobility, particularly as it relates to socioeconomic status (SES). Many BH disorders are considered pathologies of poverty, and lower SES was significantly associated with a higher risk for a BH disorder in the current study. Younger adults (ages 18-49) were disproportionately justice-involved in the current study, and constitute an age group increasingly affected by the current BH crisis (Alfieri, 2007; Case & Deaton, 2015; Miller, 2013; Shim et al., 2014; Twenge, Cooper, Joiner, Duffy, & Binau, 2019; Zang, Zheng, Yang, & Land, 2018). Younger adults are in their prime developmental, relationship forming, and educational and working years, and incarceration in younger adults is associated with poor physical and behavioral health over the life course (Barnert et al., 2017). Failure to address the BH crisis in this population will continue to have detrimental societal and economic consequences for generations to come.

There were significant racial and ethnic disparities in the risk of BH disorders among justice-involved adults in the current study. Adults that reported being NH White or NH American Indian/Alaska Native had a significantly higher risk of being affected by any BH disorder, substance misuse/dependence, and a co-occurring MH disorder. Hispanics/Latinxs had a significantly lower risk of a SUD and a co-occurring MH disorder, while NH Blacks/African Americans had a significantly higher risk of any

substance use disorder and substance use dependency. The current study did not differentiate substance misuse and dependency by type of substance in the multivariable analytic models; however, Fearn et al. (2016) examination of NSDUH data from 2002-2014 showed that justice-involved Hispanics/Latinxs had a significantly higher risk of alcohol and marijuana abuse. Disadvantaged US racial and ethnic minorities have historically experienced higher rates of poverty and unmet SU treatment needs (Han & Redlich, 2018; Murthy, 2017; NCSL, 2018; Nowotny, 2015).

Overall, justice-involved adults in the current study that reported being NH Blacks/African American and Hispanic/Latinx had a significantly lower risk of being affected by a MH disorder. The interacting stigma of justice-involvement and a MH disorder in US racial and/or ethnic minorities may potentially discourage self-report or endorsement of feelings of depression or hopelessness. In addition, there is the potential concern that having a BH need can adversely affect an individual's community supervision status. Non-institutionalized US racial and/or ethnic minorities have experienced an increased risk for and prevalence of MH disorders in the last two decades, and there is significant potential that this extends to justice-involved US racial/ethnic minorities, supporting further research in this area.

Self-reported female gender was significantly associated with a greater likelihood of being affected by a MH need and a lower likelihood of a SUD, potentially reflecting gendered behavioral norms regarding female substance use that may work to

reduce the likelihood of substance use engagement in females (Fleming et al., 2014; Ibañez et al., 2017; McCabe et al., 2007; Perreira et al., 2019; Treatment, 2009; Yip et al., 2008). MH disorders often precede SU in females, and females have the same odds as developing a SUD as males (McHugh et al., 2018). Further, females have an increased risk and susceptibility to addiction and relapse (R. K. McHugh et al., 2018; Tuchman, 2010). In this study, more than half of the justice involved sample (N=1,133) were adults on probation (n=785). However, the percentage of justice-involved females (26%) in the current study was in sharp contrast to the actual makeup of females in the US probationer population which is almost seventy-five percent (Kajstura, 2018). While we are unable to determine the reasons for the underrepresentation of females on probation in this study, this result does mirror the persistent lack of representation of justice-involved females in mixed gender studies in the US CJS literature (Oser et al., 2012). Drug use and non-violent offenses related to drug-seeking behaviors are major drivers of justice-involvement among females, and they are the fastest growing group in the US justice population. Justice-involvement may further increase the risk for and effect differential rates of substance use in females (Kajstura, 2018). Study results support increased representation of justice-involved females in BH studies advance gender-responsive BH treatment.

This study showed that adults that had a significantly higher risk of being affected by a MH and/or SUD were disproportionately justice-involved. The justice-

involved adults in the current study had two times the odds of being affected by a MH disorder, and six to seven times the odds being affected by a SUD, and a co-occurring MH and SUD, respectively (Figure 2). These differences in risk for a BH disorder not only increase the risk for justice involvement, but also influence difficulty in community integration post-release. Justice-involvement, particularly the transition from incarceration in jails and prisons to the community, has become an increasingly common phenomenon in the age of mass incarceration (Western, Braga, Davis, & Sirois, 2015). Further, probation (which may be mandated en lieu of incarceration) and parole are increasing mechanisms for jail and prison entry, often due to inability to pay fines, substance use relapse, and/or technical violations (Phelps, 2013).

Justice-involvement is an increasingly prevalent SDOH associated with poor health and disability; however, there have been instances in which justice contact has acted to reduce health disparities by providing and/or connecting individuals to much needed BH treatment services. As such, there is a tremendous opportunity for justice-involvement to serve as mechanism by which to advance BH equity, restorative justice, and successful community integration. However, critical and requisite to these efforts are improved and strengthened community linkages between the US CJS and the public health sector, improved BH training and resources for justice personnel, and increased funding and expansion of community-based BH service provision.

### **3.4.1 Implications for Nursing**

Nurses are the largest component of the healthcare system and have become critical to advancing healthcare research and science. There is critically urgent need for greater involvement of the nursing profession in the discipline of justice health. However, requisite to these efforts is improved training and incorporation of curriculum focused on justice health. The addition of more nursing content focused on justice health in the undergraduate nursing curriculum can provide an improved understanding of the substantial unmet BH treatment needs and enhanced social vulnerability of justice-involved adults. Further, the addition of clinical engagement practicums for advance practice graduate students within correctional settings, or with justice-involved individuals, would help to reduce stigma and clinical bias related to a history of justice involvement, and contribute to improved clinical experiences and healthcare engagement in a high-need and marginalized population.

Greater integration of justice health into public health policies, initiatives, and research is critical to addressing the current BH crisis that has been largely influenced by persistent inequities in BH and SDOH. Dissertation findings support justice-involvement as a significant SDOH, adding to the limited research on this matter. Continued efforts targeting SDOH as a way to address upstream determinants of health to effect improved health outcomes and preventive health strategies must include justice-involvement and risk factors associated with justice-involvement. The nursing

profession, with its holistic care approach, will be integral to and uniquely posed to advance the clinical and advocacy measures needed to address the current BH crisis in justice-involved adults.

### **3.4.2 Recommendations for Future Research**

The NSDUH annual survey is considered the premier source of MH and SU indicators in the U.S. and is increasingly recognized as an adjunct source of data for the US CJS. However, the data analysis for this study identified potential areas of concern, particularly in regards to estimating BH needs for groups that are at an increased risk of these disorders and their disproportionate involvement with the US CJS. Currently, the gender and racial/ethnic group sample sizes are determined by US Census data; however, there should be a more strategic effort to oversample groups that experience greater BH disparities in order to further the knowledge and research about the persistent BH disparities (i.e. Post 9/11 Veterans, non-heterosexual individuals, etc.). This study attempted to estimate the BH needs of justice-involved Post 9/11 veterans and sexual minorities; however, we were unable to do so due to the high rate of missing data (Blue-Howells, Clark, van den Berk-Clark, & McGuire, 2013; Clark, White-Hughto, & Pachankis, 2017; Finlay et al., 2016; Lim, Sullivan, Salazar, Spaulding, & Dinunno, 2011; Lipsky et al., 2012; Meyer et al., 2017; Pinals, 2010; Shipherd, Green, & Abramovitz, 2010). In addition, assessment of gender minorities (i.e. transgender individuals) has not

been included in the NSDUH series even though this group experiences some of the highest rates of BH needs. Further, having a criminal justice history is a SDOH and serves as a barrier to employment, housing, and access to healthcare and other social safety net services during community reentry, increasing the risk of poor BH outcome and BH needs. As such, a more strategic effort should be made to oversample this group as it is disproportionately burdened by BH disorders. This would allow for increased reliability, inferential statistics, and greater generalizability about the BH needs of groups with an increased associated risk of being affected by BH disorders that is critical to preserving US public health.

In addition, although the NSDUH seeks to provide accurate and up-to-date rates on substance use and MH indicators in the US population, the NSDUH only assesses for a past diagnosis and/or treatment for anxiety. Assessment of this disorder according to DSM diagnostic criteria is lacking and there is significant potential for the underestimation of these disorders in the NSDUH survey. Anxiety disorders are collectively the most prevalent MH disorders in the U.S. and anxiety disorders frequently co-occur with MDE and SU misuse/dependence. Consideration of adding diagnostic criteria for anxiety disorders is warranted.

Finally, integral to the NSDUH survey is data about physical health conditions and physical and emotional/mental/behavioral health are intricately linked (Hidaka, 2012). There were higher rates of health conditions potentially related to risk taking

behaviors such as unprotected sex and SUDs (STD, Hepatitis B or C, HIV or AIDs) among justice-involved adults. In addition, respiratory health conditions that can reflect both lower SES, environmental racism, and/or confined living spaces (e.g. housing in jails or prisons) could potentially have been reflected in the higher rates of asthma and COPD found in justice-involved adults. There was a 68% rate of missing data for 10 of the 11 lifetime health variables precluding inferential population health estimates. A greater effort should be made to improve the completeness of physical health data in order to further a more comprehensive health profile that affords greater inferences about the factors related to chronic respiratory and other physical health conditions.

There is a considerable need for future research on the BH needs of often understudied and underserved racial/ethnic groups disproportionately represented in the justice-involved population. There were higher percentages of Hispanics/Latinxs and all of the NH Non-White racial groups, with the exception of NH Asians, among the justice-involved population compared to their rates in the US general population, reflective of the disproportionate US CJS contact among US racial and ethnic minority groups.

Justice-involvement itself confers its own level of risk of a BH need, and this study did not examine the differential influence of racial/ethnic differences and its intersection with gender, on BH needs between justice-involved and non-justice involved adults. Consideration of the interactive effects of gender, and/or race and/or

ethnicity and justice-involvement will be important for future analyses since justice-involvement may effect further gender/racial/ethnic differences in BH.

### **3.4.3 Limitations**

There are several potential limitations to this study. The cross-sectional nature of this data and having data only for the past year could result in potential underestimates of BH needs of both groups. The time since release and start of parole or probation can adversely affect BH, and the first two weeks post-release pose a substantial risk for overdose and suicide (Jones & Maynard, 2013). Further, as BH outcomes were self-reported, there could be issues with under-reporting related to recall, stigma, as well as the potential fear of retribution or a self-incriminatory effect on parole or probationary status. Despite this, historical precedence of the validity and reliability of this self-reported data in the NSDUH surveys is supported (Fearn et al., 2016; Feucht & Gfroerer, 2011; Vaughn et al., 2012).

This study recognizes gender as a societal construct that is associated with preconceived norms and that is applied to biological sex. Socially imposed norms of gender can be further differentiated by additional intersecting identities related to race and/or ethnicity. Further, the concept of gender can have biological and cultural underpinnings that results in BH and biological sex differences as a response to environmental and social experiences related to gender and sex (Carroll & Smethells,

2016; Fausto-Sterling, 2012). The proposed study was limited to self-report of gender only as measured in the NSDUH dataset.

Probation and parole constitute different categories of justice involvement, with parole exclusively representing supervisory and conditional release from prison compared to probation, which may be en lieu of incarceration, a US CJS diversionary status often requiring community-based BH treatment, and/or less stringent supervisory conditions. Interestingly 252 survey participants endorsed both probationary and parole status during the year, and it is unclear whether the available data accurately reflects the individual's post-release status at the time of the survey.

### **3.5 Conclusion**

Justice involvement has a detrimental effect on individuals, and its punitive and harmful effect can continue even after release and/or termination of correctional supervisory status. The BH crisis in justice-involved adults is a PH priority, and justice-involvement is a significant SDOH (Bui et al., 2019). Discrimination, stigma, and bias based on justice-involvement, particularly when coupled with other forms of discrimination/stigma/bias (e.g. BH, racial, non-heterosexuality, etc.), can serve as a significant challenge to community integration among individuals on probation and/or parole. Population-based PH interventions must employ risk stratification based on a nuanced examination and estimation of the differential BH needs of the multiple

subgroups represented within the justice-involved. A SDOH framework and intersectional lens that examines the potential moderating effects of SDOHs (e.g. gender and/or race/ethnicity, etc.) on community-based BH treatment utilization among justice-involved adults with BH needs, is integral to the planning and development of effective reentry BH treatment funding and service provision.

## **4. Gender and Racial/Ethnic Disparities in Behavioral Health (BH) and BH Treatment Utilization among Justice-involved Individuals**

### **4.1 Introduction**

Two-thirds of all new prison entries and half of all new jails entries annually are due to probation and parole violations, and probation and parole are increasingly recognized as mechanisms for incarceration (Manchak, Loudon, & Skeem, 2014; Skeem, Manchak, & Peterson, 2011; Wodahl et al., 2015). Although the behavioral health (BH) of the US incarcerated population has been extensively documented, less is known about the BH of justice involved (JI) individuals (i.e., parolees and probationers) (Baillargeon et al., 2009a; Bloom, 2010; Bronson & Berzofsky, 2017; Peters et al., 2015; Selling et al., 2015; Torrey et al., 2010). Despite limited nationally representative estimates, it is now recognized that BH disorders among justice-involved (JI) individuals are equal to or surpass that of those found in the US incarcerated population and incarceration in and of itself can contribute to BH disorders (Cardarelli et al., 2014; Clark, Li, & Cropsey, 2016; Fearn et al., 2016; Johnson et al., 2015; Rossheim et al., 2018; Skeem et al., 2006; Van Dorn et al., 2017; Vaughn et al., 2012; Yu et al., 2014).

BH disorders are a critical challenge to community reintegration for JI individuals, with depression, psychological distress (PD), a nonspecific indicator of a mental health (MH) disorder and a state of emotional suffering, and substance use

disorders (SUDs) being the most prevalent (Golder et al., 2014; Johnson, 2015; Lamberti, 2007; Makarios, Steiner, & Travis, 2010; Matejkowski & Ostermann, 2015; Nyamathi et al., 2011; Taxman, Walters, Sloas, Lerch, & Rodriguez, 2015; Thomas et al., 2016; Yu et al., 2014). High rates of co-occurring MH disorders and SUDs in this population further complicate community reentry as post-release rehabilitative efforts typically lack screening and integrative treatment for co-occurring disorders (SAMHSA, 2017). Successful community reentry for JI individuals is critical to overall community well-being and safety, elucidating a very much needed public health impetus for further research about the BH needs of this vulnerable population that is at the intersection of the US Criminal Justice System (CJS) and public health (James & Glaze, 2006; Patillo, Weiman, & Western, 2004; Smith & Braithwaite, 2016; Vaughn, Salas-Wright, Delisi, & Piquero, 2014).

Mass incarceration and current efforts to reform the US CJS have revealed vast societal inequities related to the criminalization of BH disorders and social determinants of health (SDOH), such as gender and race/ethnicity, across all levels of the US CJS from the number of contacts and arrests, to sentencing and incarceration (Dobbie, Goldin, & Yang, 2018; Hartney & Vuong, 2009; Miller, Browning, & Spruance, 2003; Smith & Hattery, 2010; Williams, 2017). The proposed study will be distinct in its examination of the impact of gender, race/ethnicity, and their interactions on BH and BH treatment utilization in a nationally representative sample of JI adults. This contemporary and

empirically derived BH epidemiology and its examination of community reentry BH treatment utilization is requisite to the development of comprehensive, inclusive, and targeted BH transitional and reentry interventions that can potentially advance BH equity in the US racial/ethnic groups disproportionately burdened by JI and persistent BH treatment disparities.

#### **4.1.1 Background**

##### **4.1.1.1 Group Disparities in the US CJS**

Gender Disparities. Females are the fastest growing group in the incarcerated population, and non-violent property and drug offenses have been identified as two major pathways to incarceration for JI females (Sawyer, 2018). Further, policing changes related to “Tough on Crime” policies have resulted in an increased focus on low-level arrests (e.g. public intoxication, etc.), and the “War on Drugs” policies have subjected JI females to the harmful effects of differential gender and motherhood biases related to substance use (SU) resulting in retaliatory sentencing practices (Kim, Becker-Cohen, & Serakos, 2015; Mauer, 2013).

JI females are disproportionately burdened by histories of trauma, physical or sexual abuse, victimization, higher levels of physical illnesses, and SU (pain alleviation vs. euphoria), and MH disorders compared to both their counterparts in the US general community and JI males (Golder et al., 2014; Golder & Logan, 2014; Green et al., 2013, Johnson et al., 2015; Like-Haislip & Warren, 2011). Fewer diversion programs are

available to females, and as such, females can be incarcerated due to their inability to take part in diversion programs that are only open to males (Sawyer, 2018). During incarceration, females face sexual abuse and harassment from correctional staff, and/or other incarcerated females, in addition to the effects of sexism and implicit bias, resulting in a greater likelihood of receiving disciplinary action/sanction for comparable behavior to males (Kreager & Kruttschnitt, 2018; Shayo, 2007). Further, there are substantial racial/ethnic gender disparities in US CJS, with African American and American Indian/Alaska Native females disproportionately overrepresented in the US CJS (Hartney & Vuong, 2009; Hinton et al., 2018).

JI females have different challenges to community reentry related to their parenting roles. JI females primarily assume parenting responsibilities, and 80% of justice-involved females lived with their minor children (Glaze & Maruschak, 2010). Females of color are disproportionately single mothers and head of households due to the disproportionate US CJS involvement for US racial and ethnic males (Hinton et al., 2018). The deleterious impact of the US CJS on female parents is particularly pronounced among African Americans and American Indians/Alaska Natives, as it leaves them disproportionately vulnerable to the placement of their children in foster care during incarceration (Drake et al., 2011; Drywater-Whitekiller, 2014; Font, Berger, & Slack, 2012). As such, many JI females are reestablishing family connections and/or regaining custody of their children during community re-entry.

The Welfare Reform Act of 1996 enacted a lifetime ban on social safety net entitlements such as cash assistance and food stamps for individuals with a state or federal felony drug offense (Mauer & McCalmont, 2015). As such, females with past felony convictions, are subject to further vulnerability to poverty on top of the already present pay inequities based on gender, race, and parenting/caregiving roles, and their further reduced earning power related to having a criminal history, all while trying to fulfill the conditions of correctional supervision that often entails restitution/fees. This contributes to generational poverty, arrested development, and poor BH outcomes.

Gender-neutral policies related to post-release rehabilitative interventions in JI females warrant greater attention as they may unintentionally pose unique barriers to BH treatment due to gender unique challenges BH treatment options for female, particularly intensive inpatient residential BH treatment facilities are limited or may not take into account female caregiving demands, which can also serve as a barrier to outpatient BH treatment (Marquis, 2018). This point will become increasingly salient due to the exponential growth of JI females, particularly those with minor/dependent children (Children's Bureau, 2016). Improved BH outcomes in JI females will contribute to improved self-efficacy and agency, and improved BH, resulting in reunited families and the improved health and socialization of previously removed children. Results from this study can contribute to the limited knowledge of the unique and differential

gendered BH needs and BH treatment utilization of JI females in the community, further informing diversionary and reentry efforts to improve the BH needs in JI females.

Racial and Ethnic Disparities. African Americans and Hispanics/Latinxs are particularly vulnerable to biased and discriminatory over-policing policies that result in disproportionate justice involvement African Americans and Hispanics/Latinxs are arrested, incarcerated, and sentenced to probation and parole at significantly higher rates than Whites (Rehavi & Starr, 2014). African Americans and Hispanics/Latinxs are also more likely to have parole and probation revocations compared to Whites, for comparable infractions, lending to the adverse influence of implicit bias that serves to greatly disadvantage US racial and ethnic minorities on parole or probation (Janetta, Breaux, Ho, The Urban Institute, Porter, & City University of New York, 2014). In addition, the criminalization of SU during the “War on Drugs” resulted in disparate sentencing laws and requisite mandatory sentencing served as a significant driver of the disproportionate contact of African Americans and Hispanics/Latinx with the US CJS (Hinton et al., 2018; Palamar, Davies, Ompad, Cleland, & Weitzman, 2015; Pope, Falck, Carlson, Leukefeld, & Booth, 2011).

The disproportionate and adverse impact of the US CJS on African Americans and Hispanics/Latinxs has been extensively documented; however, there is a paucity of literature related to this phenomenon in American Indians/Alaskan Natives (Healey, 2013). American Indians/Alaska Natives constitute about two percent of the US general

population, but are arrested 1.5 times more than Whites and are incarcerated in state prisons at over four times the rates of Whites (Hartney & Vuong, 2009; Norris, Vines, & Hoeffel, 2012). There has been an increase in the number of American Indians/Alaskan Natives in US jails and state prisons in the last decades, and between 1999 to 2014, the number of American Indian/Alaska Natives jails inmates increased by an average of 4.3% annually compared to 1.8% for all other racial and/or ethnic groups (Minton et al., 2017).

Post-release, societal inequities among US racial and ethnic minorities with a history of justice involvement are further pronounced (Pager, 2003). Although half of Whites with a criminal history are less likely to receive a callback for jobs that do not require licensing, African Americans without criminal histories period are less likely to receive a job callback in the first place, and this discrimination is even further pronounced in JI African Americans (Pager, 2003). JI individuals face discrimination in housing and are often disqualified from accessing social welfare/safety net assistance, federal student aid, and their ability to exercise their constitutional right to vote, essentially barring them from traditional institutions of social advancement. The overall number of non-African American individuals with felony convictions in the U.S. is 8% compared to rate of 33% in African American males (Shannon et al., 2017). In Florida, Kentucky, and Tennessee, these disparities in felony disenfranchisement are so high that more than one in five African Americans of voting age are unable to vote (Uggen,

Larson, & Shannon, 2016). Mass incarceration has served to disenfranchise and lock out significant sections of racial and ethnic minority groups from civil citizenship and political engagement. As such, large sections of JI racial/ethnic minorities are essentially locked out of institutions of social and economic advancement, contributing to enhanced vulnerability to poverty and poor BH.

#### **4.1.1.2 Racial/Ethnic BH Disparities**

There continues to be contradictory research findings related to MH in racial and ethnic minorities among nationally representative population studies(Alegria, Carson, Goncalves, & Keefe, 2011; Barnes et al., 2013; Berg et al., 2012; Budhwani et al., 2015; Coleman et al., 2016; Le Cook, Liu, Lessios, Loder, & McGuire, 2015; Fortuna et al., 2010; Garbarski, 2015; McGuire & Miranda, 2008; Yip et al., 2008). Mood disorders, (particularly depression), PD, and SU are often viewed as being greatly influenced by SDOH and greater exposure to social stressors (Drapeau et al., 2012; Duncan et al., 2014; Hudson et al., 2016a; Miranda et al., 2008; Rodriquez et al., 2018; Shim et al., 2014; Williams & Mohammed, 2009). However, there is a “race paradox” in MH in that often African Americans are exposed to more SDOHs and social stressors, and racial discrimination, yet they often have lower levels of depression than Whites and other US racial/ethnic minorities (Barnes & Bates, 2017; Barnes et al., 2013; Britton et al., 2011;

Kading et al., 2015; Keyes, 2009). However, this is dependent upon the data source, depression scale, and the type of depression and/or risk for depression being measured.

Further, African Americans experience higher levels of PD, contradicting expected outcomes as posited by the Social Stress Theory and research on PD (Barnes & Bates, 2017). Attempts to explain this “race paradox” in MH, particularly in African Americans, has suggested that African Americans frequently employ stress coping behaviors that serve to preserve MH while adversely affecting physical health, resulting in the observed higher rates of physical morbidities (Bates, Barnes, & Keyes, 2011; Keyes, 2009; Rodriquez et al., 2018). However, replication studies and methodological studies have repudiated this theory, known as the Jackson theory (Bates et al., 2011; Rodriquez et al., 2018) or Environmental Affordances model, supporting further research into the mechanisms related to depression in minorities (Keyes, Barnes, & Bates, 2011).

There also exists a “Hispanic/Latino Paradox” in that Hispanic/Latinx immigrants arrive to the U.S. healthier than most of the US population; however, the health of this group (to include BH) deteriorates over time by length of residence in the U.S, potentially due to acculturation stress (Ayón, Marsiglia, & Bermudez-Parsai, 2010; Budhwani et al., 2015; Chartier et al., 2015; González-Guarda, McCabe, Leblanc, De Santis, & Provencio-Vasquez, 2016; Yip et al., 2008). In addition, nativity and years of residence greatly affect BH in Hispanics/Latinxs and this is further complicated by the immense diversity and heterogeneity of this group (González, Tarraf, Whitfield, & Vega,

2010; Ibañez et al., 2017; Nyamathi et al., 2011; Vaeth et al., 2017). Finally, racial/ethnic minorities may suffer from more persistent depression, have a higher severity of depression, and a greater level of functional impairment compared to depression in Whites (Chyu & Upchurch, 2011; Hankerson et al., 2011; Keyes, 2009; Keyes et al., 2011; Rodriquez et al., 2018). These contradictions in racial/ethnic MH disparities in the US general population can extend to the JI population due to their disproportionate justice involvement.

#### **4.1.1.3 Racial/Ethnic and Geographic BH Disparities**

Nationally, US racial/ethnic minorities are disproportionately burdened by persistent BH treatment disparities, due to factors both within and outside of healthcare (HC) and the need to improve access to BH treatment for US racial/ethnic minorities has been widely acknowledged (Alegría et al., 2008; Carter et al., 2016; Le Cook, Trinh, Li, Hou, & Progovac 2017; Fortuna et al., 2010; Guerrero et al., 2013; LeMaster et al., 2004; McDonell et al., 2016; Mileviciute et al., 2014; Montag et al., 2015; O’Keefe et al., 2014). Provider competency, residing in a medically underserved area, health insurance differences, and geographical location has also been implicated as factors contributing to BH health disparities in US racial and ethnic minorities and NH Whites (Atdijan & Vega, 2005; Benz, Espinosa, Welsh, & Fontes, 2011; Bryant, Haynes, Greer-Williams, & Hartwig, 2014; Douthit et al., 2015; Hauenstein et al., 2007; Molina et al., 2018; Sprague et

al., 2010). Rurality has been implicated as a significant factor associated with an increased risk of BH disparities and reduced access to BH treatment utilization across multiple groups (Douthit et al., 2015). Although the level of MH disorders and trauma exposure in rural areas are comparable to urban areas, rural residents often have access to few HC services, underutilization of available resources, in addition to often experiencing more financial difficulty (Douthit et al., 2015; Haggerty, Roberge, Lévesque, Gauthier, & Loignon, 2014; Weaver, Himle, Taylor, Matusko, & Abelson, 2015).

Overall, 18% of rural populations live in poverty compare to less than 16% in urban areas; however, 62% of African Americans and 53% of Hispanics/Latinxs living in rural areas live in poverty (i.e. an annual income of less than \$25,000 annually) (Seigel, 2018). These factors, in addition to a greater need for culturally competent MH care, are further pronounced among African Americans, the largest rural minority group, Hispanic/Latinx immigrants, and American Indians/Alaska Natives residing on federal reservations and other rural areas as they have an increased vulnerability to MH disorders (McDonnell et al., 2016; Rieckmann et al., 2016; Warshaw, 2017). Residing in a rural areas confers less anonymity and increased concerns for confidentiality due to the often stigmatized nature of BH disorders, serving to undermine HC seeking behaviors for BH (Douthit et al., 2015).

HC providers are often harder to retain on a long-term basis in rural areas, and although 20% of the US population resides in rural areas, only 9% of all physicians practice in rural areas (Seigel, 2018). Additional logistical concerns such as a lack of broadband internet is an important barrier to the implementation of telehealth, which holds great promise to improving health care access in rural areas, particularly in the field of BH (Douthit et al., 2015). Public transportation is another barrier, and longer travel and emergency services wait times results in reduced BH treatment retention and increased risk for mortality (Douthit et al., 2015).

Historically, US racial/ethnic minorities, particularly African Americans, were shielded from the opioid epidemic in one of the rare instances in which racism acted as a protective factor (Cicero et al., 2014). HC providers were more reluctant to prescribe prescription pain relievers to racial/ethnic minorities, particularly NH Blacks/African Americans, worried that they would sell them, or become more easily addicted to them. This resulted in the under treatment of pain and suffering in many US racial/ethnic patients, while contributing to prescription substance addiction in NH Whites (Cicero et al., 2014). Increased prescription drug regulation and addiction resulted in a shift to an increased demand and use of illicit drug consumption (Cicero et al., 2014; Provine, 2011; Shavers et al., 2012)

Race and SES have played important roles in the current approach to SU addiction, and these factors have been credited with changing the current social

consciousness regarding SU, in that Whites of higher SES have, greater advocacy power (i.e. can exert greater pressure on local and state legislators). Those that support this change see themselves in these individuals suffering from SU, a life full of potential and promise, something that previously they did not recognize in the minorities and Whites of lower SES during previous drug epidemics (Cicero et al., 2014; Moran, 2018). The proposed study will contribute to current restorative justice initiatives for JI individuals with BH disorders who were not afforded the benefits of current diversionary and treatment efforts.

#### **4.1.1.4 Theoretical Framework**

SDOH is a framework used to examine the societal factors that determine health and recognizes the influence of structural determinants and other socially-imposed constructs such as gender and race/ethnicity, and their distribution among populations that influence individual and group differences in health status (Braveman et al., 2011). This study recognizes the impact of SDOH on differential BH outcomes and BH treatment utilization among JI subgroups. Intersectionality will inform our approach to study these concepts by highlighting the interconnected nature of societal categorizations such as gender and race/ethnicity as they apply to JI adults creating overlapping identities that further disadvantage certain groups within in this population, contributing to an increased risk of poor BH and BH outcomes (McCall &

Lauridsen-Hoegh, 2014; Perry, Harp, & Oser, 2013).

Knowledge development of this study and the determination of study variables and outcomes were guided by Meleis' Transitions Theory (MTT) (study addressed the theoretical components shaded in blue in Figure 4). MTT is a middle-range nursing theory that posits a framework for transitions that consists of types and patterns of transitions, properties of transition experiences, facilitating and inhibiting conditions, process indicators, outcome indicators, and nursing therapeutics (Meleis, 2010). MTT provides a framework for understanding the transition process and informs nursing therapeutics and subsequent nursing interventions to aid in the transition process through the assessment of MTT concepts (Meleis, 2010). MTT acknowledges the increased vulnerability of the individual during the transition process that can expose individuals to unhealthy coping, failed transition, and poor health outcomes. The proposed study treats community reentry as a situational transition and the pattern of transition as multiple and simultaneous in that JI individuals face multiple reentry transitions related to community reintegration (Meleis, 2010). This study focused on the impact of gender and racial/ethnic disparities (factors that influence the pattern of transition) on BH (depression, PD, and/or SUDs) among JI adults, as well as their influence on BH treatment utilization among those with a BH need (MTT properties). Transition conditions will examine individual and community/societal level barriers to BH treatment utilization.

Modified Version of Meleis' Transitions Framework Adapted to the Behavioral Health (BH) Needs of US Parolees and Probationers Post-Release

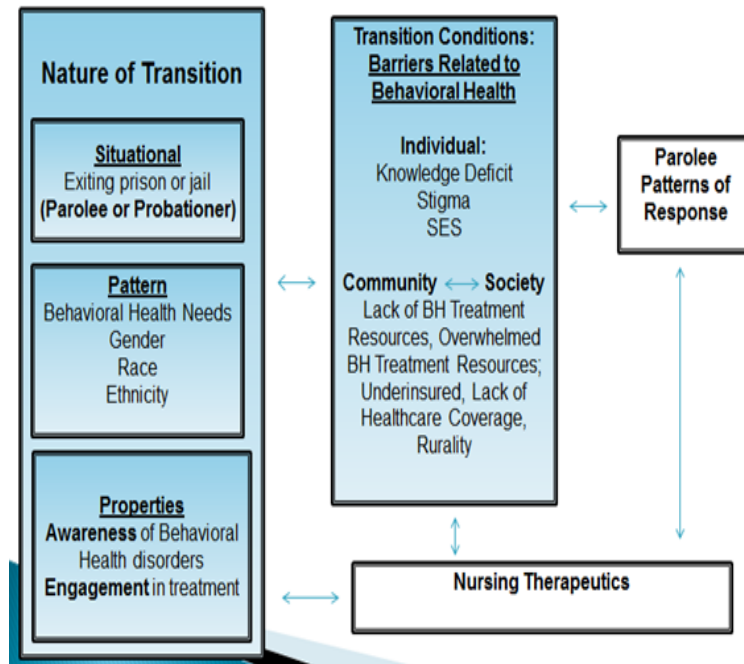


Figure 6: Theoretical Framework

#### 4.1.1.5 Specific Aims

The overall goal of this study was to gain a better understand gender and racial/ethnic disparities in BH, BH treatment utilization, and barriers to BH treatment utilization among adults on parole and/or probation within the past 12 months. BH indicators of interest were depression, PD, and/or SUD within the past 12 months among the parolees and/or probationers. BH treatment utilization was defined as receipt of BH treatment/counseling during the past 12 months among parolees and/or probationers with MH and/or SU treatment needs. The study aimed to:

Aim 1. Determine the impact of self-reported gender, race/ethnicity, and their intersectionality on BH among adults on parole and/or probation, adjusting for individual characteristics (age, education, income, marital status, and overall health).

Aim 2. Describe BH treatment utilization and barriers to BH treatment utilization among the adults on parole and/or probation with BH needs.

Aim 3. Determine the impact of self-reported gender, race/ethnicity, and their intersectionality on BH treatment utilization among adults on parole and/or probation with a BH need, adjusting for individual characteristics.

## **4.2 Methods**

### **4.2.1 Study Design**

The study was a cross-sectional, descriptive, correlational study that included adults on parole and/or probation within the past 12 months (JI group, N=1,133). Within this group, the study focused on: (a) determining the influence of gender, race/ethnicity, and their interactions on BH and (b) identifying individuals with BH needs. The presence of depression, PD, and/or SUD indicated BH needs. Among those with BH needs, BH treatment utilization and barriers to BH treatment utilization were described, and gender and racial/ethnic disparities and their interactions on treatment utilization were evaluated. Covariates were individual characteristics, namely age, education, income, marital status, and overall health.

This study was conducted using a large nationally representative sample from the 2016 National Survey on Drug Use and Health (NSDUH) database. Intuitional Review Board (IRB) approval was granted for the original NSDUH study and permission to use data in subsequent studies was granted during initial consent (CBHSQ, 2016). This study involving a secondary analysis of the NSDUH database was reviewed and determined to be exempt by the Duke University Health System IRB.

#### **4.2.2 National Survey on Drug Use and Health (NSDUH)**

The NSDUH is an annual, cross-sectional, nationwide survey sponsored by the Substance Abuse and Mental Health Services Administration (SAMHSA), an agency within the US Department of Health and Human Services (CBHSQ, 2016) The NSDUH provides national, state, and substrate-level data on licit and illicit SU, as well as the identification of MH disorders based on Diagnostic and Statistical Manual of Mental Disorders diagnostic criteria (CBHSQ, 2016) Due to the large sample size and representativeness, the NSDUH database is a frequently relied upon resource to determine estimates of SU and MH disorders in the U.S. non-institutionalized population (CBHSQ, 2016). This study used the fully de-identified public use data obtained from the 2016 NSDUH original (restricted use) database. All measures included in this study were self-report.

### **4.2.3 Sample and Subsample**

The 2016 NSDUH de-identified public use database included data for 56,897 individuals. The following inclusion criteria were applied to identify the JI subpopulation of interest. The JI group included adults on parole and/or probation at any point during the past 12 months. JI individuals < 18 years of age were excluded since age 18 is generally the minimum age of entrance into adult correctional facilities in 48 US States. 1,133 adults met criteria for the JI group. In terms community correctional supervision, the JI group was comprised of 785 adults on probation only, 87 adults on parole only; 258 on probation and parole; and 3 with on probation with parole status missing.

The first aim focused on BH outcomes in JI adults (N=1,133). The second and third aims addressed BH treatment utilization among the JI with a BH need. The latter aims focused on subsample of the 1,133 JI adults. An individual was determined to have a BH need if the s/he met criteria for at least one of the following BH indicators: major depressive episode (MDE); serious psychological distress (PD); substance use disorder due to misuse (SUD-M); and/or a substance use disorder due to dependency (SUD-D). The subsample size was determined as part of the analysis to determine prevalence of the BH indicators within the JI group.

## 4.2.4 Measures

### 4.2.4.1 Social Determinants of Health (SDOH)

Gender was determined based on participant self-report of gender. Demographic information related to race and ethnicity was based on self-report and categorized according to the US Census Bureau and federal reporting standards for racial and ethnic classifications (CBHSQ, 2016). Ethnicity was specific to Hispanicity (i.e. being of Hispanic/Latinx/Spanish origin), regardless of race, as racial information was not collected for this group. A race/ethnicity variable was constructed that included the Hispanic group as a racial group to ensure inclusion of Hispanic/Latinx participants. Among the 1,133 JI adults, the racial/ethnic breakdown was: Hispanic/Latinx (n=222, 20%); Non-Hispanic/Latinx (NH) White (n=575, 51%), NH Black/African American (n=216, 19%), NH American Indian/Alaskan Native (n=46, 4%), NH Native Hawaiian/Pacific Islander (n=7, 0.6%), NH Asian (n=8, 0.7%), and NH Biracial/Multiracial (n=59, 5%). Due to their small sample sizes, the JI adults who self-identified as Native Hawaiian/Pacific Islander, Asian, and Biracial/Multiracial were placed in “Non-Hispanic/Latinx Other Minorities” (n=74, 7%). Although only 4% of the sample was NH American Indian/Alaskan Native, this group was not placed under “Other minorities” due to a particular interest in comparing this group to the other racial/ethnic categories. Table 12 summarizes the SDOH measures.

#### **4.2.4.2 Individual Characteristics**

Age, education, income, marital status, and overall health were included in the analyses as covariates. Table 12 provides the definition and coding for SDOH and individual characteristics included as covariates in the analyses.

Table 12: Social Determinants of Health (SDOH) and Individual Characteristics

Variables	Coding and Definition
Female	Self-reported gender: 1=Female, 2=Male (ref)
Race/Ethnicity	Race/ethnicity groups was collapsed into five groups: (1) Hispanic/Latinx; (2) NH White; (3) NH Black/African American; (4) NH American Indian/Alaskan Native; and (5) NH Other Minorities, defined as Native Hawaiian/Pacific Islander, Asian, and Biracial/Multiracial.
Age	Age, in years: 1= Age 18-49; 2= Age 50 or older (ref)
High school or less	Level of education: 1= Yes, less than high school or high school graduate; 2=No, some college/associate degree, college graduate, or higher level of education (ref)
Income	Annual family income 1= < \$20K; 2= \$20K-\$49K; 3= \$50K or more (ref)
Not married	Marital status: 1=Not married 2=Married (ref)
Overall health	Self-reported overall health: 1 = fair/poor, 2= good/very good/excellent (ref)

Ref = reference group for planned logistic regression models

#### 4.2.4.3 BH Indicators

The BH indicators were determined during community-based interviews and indicate the presence of a clinically relevant BH disorder or condition, which if encountered within the healthcare setting, would necessitate further screening, diagnosis and/or BH treatment. Table 13 details each BH indicator (outcome) assessed. For each BH indicator, past year refers at any point during the past 12 months.

The MH indicator was created from 22 questions used to assess MDE during the past year based on *Diagnostic and Statistical Manual of Mental Disorders, Fourth edition (DSM-IV)*<sup>10</sup> criteria. The PD outcome was assessed using the six-item Kessler Scale (K6) total score from the Psychological Distress Scale (March, 2018), an instrument used to

measure non-specific psychological disorders among non-clinical populations with demonstrable validity and reliability for use across diverse populations and languages (Breslau et al., 2006; Kessler et al., 2003, 2005; Mitchell & Beals, 2011; Parker et al., 2010; Thomas et al., 2016). Serious PD was defined as a Kessler 6 Screening Scale total score of  $\geq 13$  during any month during the past year. Past year substance use disorder due to misuse (SUD-M) and substance use disorder due to dependence (SUD-D) were determined using diagnostic criteria outlined in the DSM-IV (CBHSQ, 2016). Whether the participant had any of the above BH outcomes during the past year was also determined. Eight BH indicators were evaluated in this study (see Table 13).

**Table 13: Indicators of Behavioral Health in the Past Year**

Variables	Coding and Definition
	Mental Health (MH) Indicators in Past Year
Major Depressive Episode (MDE)	No=0; Yes=1, met 5 of the 9 DSM-IV diagnostic criteria for MDE with at least one being a depressed mood or loss of interest or pleasure in daily activities.
Serious Psychological Distress (PD)	No=0, Yes=1, serious PD defined as a Kessler Screening Scale (K6) total score of $\geq 13$ ; K6 total score from the Kessler Psychological Distress Scale, total score range 0-24; Cronbach alpha 0.84-0.89 (Kessler et al., 2003; Mitchell & Beals, 2011; Olfson et al., 2019)
	Substance Use Disorder (SUD) Indicators in Past Year
Substance Misuse (SUD-M)	No = 0; Yes = 1, abused alcohol, illicit drug, prescription pain reliever, prescription sedative, prescription tranquilizer, and/or prescription stimulant and determined not to be dependent on any of these substances as defined by DSM-IV; met $\geq 1$ of 4 abuse diagnostic criteria for any of these substances
Substance Use Dependence (SUD-D)	No = 0; Yes = 1; met criteria substance use dependence as defined by DSM-IV. For marijuana, hallucinogen, inhalants, and prescription tranquilizers (met $\geq 3$ of 6 dependence criteria). For alcohol, cocaine, heroin, methamphetamine; prescription pain relievers; prescription sedatives; and prescription stimulants (met $\geq 3$ or more of 6 dependence criteria plus an additional withdrawal criterion)
	Overall BH Indicators in Past Year
BH	No = 0; Yes = 1, met criteria for at least one of the above BH indicators
MH	No = 0; Yes = 1, met criteria for MDE and/or PD
SUD	No = 0; Yes = 1, met criteria for SUD-M or SUD-D
MH & SUD	No = 0; Yes = 1, met criteria for MH and SUD

BH will be used to identify individuals with BH needs for the Aim 2 and 3 analyses.

These indicators were also selected because they allow us to identify individuals with different types of BH needs, namely MH needs, SUD needs, or both MH and SUD needs. Further, each indicator had a weighted percent of  $\geq 10$ , allowing for a sufficient number of BH events for the multivariable analysis.

#### 4.2.4.4. BH Needs

A JI adult was determined to have a BH need if the s/he met criteria for at least one of the following: MDE, PD, SUD-M, and SUD-D in the past year. Thus, the BH indicator variables in Table 14 were used to identify JI adults with BH needs in the past year.

**Table 14: BH Needs in the Past Year Based on BH Indicators**

Variables	Coding and Definition
	<b>Identification of JI Adults with a BH Need</b>
BH Need	No = 0; Yes = 1, met criteria for at least one BH indicator (MDE, PD, SUD-M, and/or SUD-D)
	<b>Types of BH Needs</b>
MH Need	No = 0; Yes = 1, met criteria for MDE and/or PD
SUD Need	No = 0; Yes = 1, met criteria for SUD-M or SUD-D
MH & SUD Need	No = 0; Yes = 1, met criteria for MH and SUD

#### 4.2.4.5 BH Treatment Utilization

Treatment utilization in the past year (12 months) was described among those JI adults with a BH need, defined as BH need score of 1 (yes) indicating that the individual met criteria for at least one of the BH indicators (MDE, PD, SUD-M, and/or SUD-D). The 2016 NSDUH survey defined: (a) “treatment” as treatment and/or counseling; (b) “MH treatment” as MH treatment for any MH condition – excluding treatment for alcohol or drug use; (c) “drug use” as illicit drugs as well as prescription pain reliever, sedative, tranquilizer, and/or stimulant in the past year. Table 15 presents the types of treatment utilization examined among those with a BH need in the past year.

**Table 15: BH Treatment Utilization in the Past Year Among Those with a BH Need**

Variables	Coding and Definition
MH Treatment	No=0, Yes=1; any MH treatment or counseling (excluding treatment for alcohol or drug use)
SUD Treatment	No=0, Yes=1; SU treatment for alcohol and/or drug use
ALC Treatment	No=0, Yes=1; SU treatment for alcohol (ALC) use
BH Treatment	No = 0; Yes=1; Treatment or counseling for MH, depression, alcohol, or drug use, defined as 1 (yes) to any of the above treatment utilizations

The 2016 NSDUH survey presented the following treatment utilization questions only to adults with MDE who indicated that they had received treatment or counseling for feelings of depression or used prescription medication for feelings of depression in the past year. Table 16 details the specific type of depression treatment received among those with MDE (MDE indicator = 1 in Table 1) and received treatment, counseling, and/or prescription medications for feelings of depression in the past year (MDE treatment = 1 in Table 16).

**Table 16: Types of Depression Treatment Among Those with MDE in the Past Year**

Variables	Coding and Definition
MDE Treatment	No=0, Yes=1; treatment, counseling, or medications for depressive feelings
General/Family	No=0, Yes=1; General Practice and Family Medicine MD for depressive feelings
Other MD	No=0, Yes=1; Other MD for depressive feelings
Psychiatrist	No=0, Yes=1; Psychiatrist for depressive feelings
Psychologist	No=0, Yes=1; Psychologist for depressive feelings
Social Worker	No=0, Yes=1; Social worker for depressive feelings
Counselor	No=0, Yes=1; Counselor for depressive feelings
Nurse/OT	No=0, Yes=1; Nurse/Occupational Therapists for depressive feelings
Religious Advisor	No=0, Yes=1; Religious advisor for depressive feelings
Another Healer	No=0, Yes=1; Another healer for depressive feelings
Other MH	No=0, Yes=1; Other MH professional for depressive feelings

The 2016 NSDUH survey presented the following SU treatment utilization questions only to adults who endorsed any lifetime substance use (alcohol and/or drug use). Table 17 details the type of substance use (SU, alcohol and/or drug use) treatment received in the past year among those with a past-year SUD and a lifetime history of substance use.

**Table 17: Types of Substance Use Treatment Among Those with SUD in the Past Year**

Variables	Coding and Definition
Specialty Facility	No=0, Yes=1; SU treatment or counseling in specialty facility (Inpatient Hospital, inpatient or outpatient rehabilitation, and Mental Health Center)
Emergency Room	No=0, Yes=1; SU treatment or counseling in Emergency Department
Inpatient Hospital	No=0, Yes=1; SU treatment or counseling as inpatient in the hospital
Inpatient Rehab	No=0, Yes=1; SU treatment or counseling as inpatient a rehabilitation facility
Outpatient Rehab	No=0, Yes=1; SU treatment or counseling as outpatient a rehabilitation facility
MH Center	No=0, Yes=1; SU treatment or counseling in a Mental Health Center
Doctor's Office	No=0, Yes=1; SU treatment or counseling in a Doctor's Office
Self-Help Group	No=0, Yes=1; SU treatment or counseling in a Self-Help group

#### **4.2.4.6 Barriers to BH Treatment Utilization**

Barriers to treatment utilization in the past year were described among those JI adults with a BH need who did not receive any treatment for their specific BH needs. Specifically, (1) barriers to MH treatment utilization were described for those with a MH need and that did not receive any MH treatment; and (2) barriers to SU treatment utilization were described for those with SUD needs and that did not receive any SUD treatment.

Individual and community/societal barriers were assessed from questions pertaining to: (a) reasons for not utilizing MH treatment services among those who did not receive any type of MH treatment and (b) reasons for not utilizing SU treatment services among those who did not receive any type of SU treatment (see Tables 18 and 19).

**Table 18: Individual Barriers to BH Treatment Utilization in Past Year Among Those with a BH Need**

Variables	Coding and Definition
MH Stigma Barrier	No=0, Yes=1, any of the following MH service utilization concerns: 1=Didn't want other to find out; 2=Concern about opinion of neighbors; 3=Negative effect on job; or 4=Confidentiality.
SU Stigma Barrier	No=0, Yes=1, any of the following SU service utilization concerns: 1=Didn't want other to find out; 2=Concern about opinion of neighbors; 3=Negative effect on job.
MH Cost Barrier	No=0, Yes=1, did not receive treatment because could not afford
SU Cost Barrier	No=0, Yes=1, did not receive treatment because could not afford
MH Transportation Barrier	No=0, Yes=1, did not receive treatment because no transportation or too far away
SU Transportation Barrier	No=0, Yes=1, did not receive treatment because no transportation, too far away, or not convenient (no convenient was specific to SU questions only)
MH Knowledge Barrier	No=0, Yes=1, didn't know where to go for service
SU Knowledge Barrier	No=0, Yes=1, didn't know where to get treatment
MH Beliefs Barrier	No=0, Yes=1, any one of the following: 1=Didn't think treatment would help; 2= Didn't think you needed treatment at the time; 3=Thought you could handle the problem yourself at the time
SU Beliefs Barrier	No=0, Yes=1, any one of the following: 1=Didn't think treatment would help; 2= Didn't think you needed treatment at the time; 3=Thought you could handle the problem yourself at the time
MH Medication Barrier	No=0, Yes=1, didn't want to be committed to take MH medication
SU Readiness Barrier	No=0, Yes=1, not ready to stop using the {substance}
SU Other Barriers	No=0, Yes=1, any one of the following: 1=Did not have time for treatment due to job/childcare/other commitment; 2=Some other reason

**Table 19: Community/Societal Barriers to BH Treatment Utilization in the Past Year  
Among Those with a BH Need**

Variables	Coding and Definition
Rurality Barrier	No=0, Yes=1, resides in a small metro/ non-metro area
Health Insurance	No=0, Yes=1, had health insurance coverage
MH Insurance Barrier	No=0, Yes=1, did not receive treatment because no healthcare coverage or not enough healthcare coverage or MH treatment not covered by health insurance
SU Insurance Barrier	No=0, Yes=1, did not receive treatment because no healthcare coverage or SU treatment not covered by health insurance
SU Services Barrier	No=0, Yes=1, lack of availability of SU services due to any of the following: 1= No openings in program; or 2=Treatment not found for type wanted

#### **4.2.4.7 Data Management**

The 2016 NSDUH dataset (<https://www.datafiles.samhsa.gov/study-dataset/national-survey-drug-use-and-health-2016-nsduh-2016-ds0001-nid17185>), codebook, and survey questionnaires were downloaded from the SAMHSA website. Although validation checks were performed and data discrepancies were resolved prior to the 2016 NSDUH database becoming publicly available, the analytic dataset was examined for completeness and data quality (CBHSQ, 2016). Descriptive statistics were calculated to examine data distributions, variability, inconsistencies, and missing values. Not applicable / not determined values were coded to missing.

#### **4.2.5 Data Analysis**

Descriptive statistics detail sample characteristics and key analysis variables. Non-directional statistical tests will be performed using SAS 9.4.2® with level of

significance set at 0.05 for each test. The significance level was not adjusted for multiple tests and outcomes to safeguard against Type II errors. Effect sizes and 95% confidence intervals (CI) were calculated to address the clinical relevance of the BH results.

#### **4.2.5.1 Sampling Weights**

The NSDUH is based on a multi-probability, complex sample survey design, and sample weights must be applied to ensure valid and reliable population/national estimates (March, 2018). The 2016 NSDUH utilized non-random sampling within strata, the oversampling of certain subgroups, and clustering within primary sample units. All 2016 NSDUH population estimates in the post-stratification adjustment were based on 2010 census data and the 2016 NSDUH public use file includes variance estimation variables: variance estimation cluster replicates (VEREP); variance estimation stratum (VESTR), and the final analysis weight (ANALWT\_C). In the public use file, the VEREP was nested within the VESTR, allowing for a single-stage stratified clustering design where clusters are sampled with replacement (WR). SAS has WR as a default design and was used with the 2016 NSDUH public use data file and its variance estimation variables. Sampling weights were applied to estimate various parameters and their standard errors (CBHSQ, 2016).

#### **4.2.5.2 Aim 1 Analysis**

Logistic regression models were used to determine the impact of gender, race/ethnicity, and their intersectionality on BH during the past year among adult parolees and probationers, adjusting for individual characteristics (age, education, income, marital status, and overall health). Gender, racial/ethnic (collapsed into five categories: Hispanic/Latinxs, NH White, NH Black/African American, and NH American Indian/Alaska Native, NH Other Minorities), their interaction, and individual characteristics were explanatory variables in the models. Eight BH indicators (outcomes) were examined. *A priori* pairwise contrasts of the main and interaction effects were conducted regardless of the overall statistical significance. Adjusted odds ratios (aOR) with their 95% CIs will be reported to address clinical relevance.

#### **4.2.5.3 Aim 2 Analyses**

The following approach was used to describe BH treatment utilization and barriers to BH treatment utilization among the adults with BH needs on parole and/or probation. First, descriptive statistics was used to summarize BH needs and types of BH needs of the JI group. Among the JI adults with any type of BH need, descriptive statistics were used to detail each type of BH treatment utilization and barriers to BH treatment utilization measures.

#### **4.2.5.4 Aim 3 Analyses**

Logistic regression was used to determine the impact of gender, race/ethnicity, and their intersectionality on BH treatment utilization among JI adults with a BH need, adjusting for individual characteristics. Clinical relevance was addressed with aORs and their 95% CIs. *A priori* pairwise contrasts of main and interaction effects were conducted regardless of statistical significance of the effects.

#### **4.2.5.5 Statistical Power**

The required sample size to achieve at least 80% statistical power with the two-tailed significance at set 0.05 for the multivariable logistics regression model for Aims 1 and 3 was determined using the formula  $N = 10k/p$ , whereby  $k$ =number of predictors and  $p$ =expected proportion of cases with the outcome event (Hsieh et al., 1998; Park, 2013). Based on this formula, the required sample size for a multivariable logistic regression with 8 predictors and an expected event rate of 0.15, representing smallest clinically meaningful effect, was 553. Thus, the sample size of  $N=1,133$  provided adequate power to address Aim 1, and a subsample of  $N=553$  was needed to adequately address Aim 3. Aim 3 was a descriptive analysis for power calculations were not needed.

## **4.3 Results**

### **4.3.1 Sample Characteristics**

Table 20 details the unweighted frequency ( $f$ ), unweighted percent, weighted percent, and weighted percent, 95% CI of each of the sample characteristics. Of the 1133 JI adults, 82% were between 18-49 years of age, 74% were males, 54% were Non-Hispanic Whites, 76% had an education of high school or more, 41% reported an annual income of  $\leq$ \$10 thousand dollars, and 27% reported being married.

**Table 20: Unweighted and Weighted Sample Characteristics for JI Group (N=1,133)**

Socio-demographic Characteristics	<i>f</i>	Non-weighted	Weighted	
		%	%	95% CI
<b>Age</b>				
18-25 years old	507	44.75	24.70	21.88-27.52
26-34 years old	302	26.65	27.06	23.58-30.54
35-49 years old	247	21.80	30.49	26.54-34.43
50-64 years old	66	5.83	15.46	11.59-19.32
65 or older	11	0.97	2.30	0.75-3.84
<b>Gender</b>				
Female	351	30.98	26.29	22.85-29.73
Male	782	69.02	73.71	70.26-77.15
<b>Race/Ethnicity</b>				
Hispanic/Latinx	222	19.59	21.13	17.61-24.66
Non-Hispanic (NH) White	575	50.75	54.29	50.22-58.36
NH Black/African American	216	19.06	18.87	15.95-21.79
NH American Indian/AK Native	46	4.06	1.20	0.60-1.80
NH Native HI/Pacific Islander	7	0.62	1.00	0.00-2.13
NH Asian	8	0.71	0.73	0.09-1.36
NH Biracial/Multiracial	59	5.21	2.78	1.57-3.99
<b>Education</b>				
Less than High School	290	25.60	24.01	20.51-27.52
High School Graduate	411	36.28	36.09	32.10-40.09
Some college/Assoc Degree	369	32.57	32.42	28.61-36.22
College Graduate	63	5.56	7.48	5.13-9.83
<b>Income</b>				
Less than \$10,000	498	43.95	40.78	36.71-44.84
\$10,000 - \$19,999	316	27.89	27.73	24.05-31.42
\$20,000 - \$29,999	128	11.30	12.51	9.77-15.24
\$30,000 - \$39,999	91	8.03	7.98	5.88-10.07
\$40,000 - \$49,999	43	3.80	3.88	2.46-5.31
\$50,000 - \$74,999	41	3.62	4.39	2.65-6.12
\$75,000 or more	16	1.41	2.74	1.05-4.43
<b>Married</b>				
Widowed/Div or Separated/NM	891	78.64	72.53	68.53-76.53
Married	242	21.36	27.47	23.47-31.47
<b>Sexual Orientation</b>				
Heterosexual	1027	91.78	93.55	91.74-95.37
Lesbian or Gay	23	2.06	2.14	0.96-3.33
Bisexual	69	6.17	4.30	2.90-5.71

Unweighted frequencies (*f*); weighted percent, and 95% Confidence Interval (CI) for percent; AK = Alaska; HI = Hawaiian; Assoc. = Associate; Div = Divorced; NM = Not Married.

Table 21 indicates that weighted distribution of the ethnic/racial group for females and males. The distribution is similar, with a slight difference in the percent of Hispanic/Latinx and NH American Indian/Alaska Native in each gender group.

**Table 21: Gender and Racial/Ethnic Characteristics for JI Group (N=1,133)**

Race/Ethnicity	Females (N=351)				Males (N=782)			
	Unweighted		Weighted		Unweighted		Weighted	
	<i>f</i>	%	%	95% CI	<i>f</i>	%	%	95% CI
Hispanic/Latinx	68	19.37	19.89	13.65-26.13	154	19.69	21.57	17.33-25.82
NH White	179	51.00	54.29	46.99-61-60	396	50.64	54.29	49.42-59.15
NH Black/AA	58	16.52	18.77	13.17-24.37	158	20.20	18.91	15.49-22.32
NH AI/AKN	20	5.70	2.50	0.61-4.39	26	3.32	0.74	0.30-1.19
NH Other Minorities	26	7.41	4.54	2.10-6.99	48	6.14	4.49	2.28-6.70

Unweighted frequency (*f*); unweighted and weighted percent; 95% Confidence Interval (CI) for weighted percent; NH = Non-Hispanic/Latinx; AA = African American; AI / AKN = American Indian / Alaska Native; NH Other Minorities = Native/Hawaiians/Other Pacific Islander, Asian, and Bi-/Multi-racial groups.

Overall, 46% of the sample suffered from a BH disorder, 34% were affected by a SUD, and a co-occurring MH and SUD (Table 22) affected 13%. One in four individuals (25%) was affected by a MH disorder, with PD being the more prevalent (22%) than MDE (12%). The rates of SUD-D (24%) were higher than SUD-M (11%) (see Table 22).

**Table 22: Unweighted and Weighted Behavioral Health Indicators, Descriptive Statistics**

BH Indicator	JI-Group (N=1,133)				
	N	Unweighted		Weighted	
		<i>f</i>	%	%	95% CI
MDE	1,115	138	12.38	11.90	9.25-14.56
PD	1,133	300	26.48	21.69	18.59-24.79
SUD-M	1,133	119	10.50	10.55	7.98-13.13
SUD-D	1,133	270	23.83	23.56	20.10-27.01
BH	1,128	553	49.02	45.98	41.89-50.07
MH	1,121	328	29.26	25.16	21.73-28.60
SUD	1,133	389	34.33	34.11	30.21-38.01
MH & SUD	1,121	164	14.63	13.46	10.80-16.12

Unweighted frequency (*f*), 95% Confidence Interval (CI); N = Data Available for each BH Indicator.

Table 23 presents the weighted percent of the JI adults with each BH indicator (outcome) within each level of gender, race/ethnicity group, and their subgroups for each BH indicator. The BH rate exceeded 42% across all racial/ethnic groups, and more than half of all the females (50.3%) had a BH disorder, while males had a BH disorder rate of 44.4%. The highest rates of MDE were reported for NH White females (20.3%). The PD rate exceeded 20% in multiple groups and subgroups, with the highest PD rate observed in NH American Indian/Alaskan Native females (50.6%). Rates of SUD-M were highest among NH Other Minorities males (24.5%) and NH Black/African American females (14.0%). The SUD-D rate exceeded 20% in multiple groups and subgroups, with

the highest SUD-D rate observed in NH American Indian/Alaskan Native females (67.8%). The highest rates of MH were reported for NH American Indian/Alaskan Natives females (52.4%), NH Other Minority males (33.6%), NH White females (32.6%), and NH Black/African American females (32.3%). SUD-D rates were comparable in both females and males (34.3% vs 34.1%), exceeded 25% across multiple groups and subgroups, and were highest amongst NH American Indian/Alaska Native females (71.8%), NH Other Minority males (51.3%), and NH Black/African American females (41.1%). The rate of MH & SUD was highest among females, with the highest rates among NH American Indian/Alaska Native females (42.9%)

**Table 23: BH Indicators by Gender, Race/Ethnicity, and their Intersectionality, Unweighted frequencies (*f*) and Weighted Percents (%)**

	MDE	PD	SUD-M	SUD-D	BH	MH	SUD	MH & SUD
<b>Gender</b>								
Female (N=351)	58 (15.2)	122 (29.2)	29 (8.8)	85 (25.5)	185 (50.3)	129 (31.0)	114 (34.2)	58 (15.2)
Male (N=782)	80 (10.7)	178 (19.0)	90 (11.2)	185 (22.9)	368 (44.4)	199 (23.1)	275 (34.1)	106 (12.8)
<b>Race/Ethnicity</b>								
Hispanic/Latinx (N=222)	20 (7.7)	56 (17.5)	26 (9.2)	42 (17.8)	103 (42.0)	59 (21.1)	68 (27.0)	24 (6.7)
NH White (N=575)	86 (15.5)	178 (25.0)	57 (9.5)	150 (26.8)	298 (48.4)	193 (29.0)	207 (36.3)	102 (17.0)
NH Black/African American (N=216)	19 (6.7)	34 (15.0)	23 (12.2)	47 (21.1)	90 (41.8)	39 (17.0)	70 (33.3)	19 (8.5)
NH American Indian/AKN (N=46)	5 (4.4)	11 (32.6)	4 (3.1)	12 (38.0)	23 (51.2)	13 (33.7)	16 (41.1)	6 (23.5)
NH Other Minorities (N=74)	8 (11.0)	21 (26.7)	9 (24.5)	19 (18.2)	39 (50.9)	24 (29.1)	28 (42.6)	13 (20.8)
<b>Female Gender-by-Race/Ethnicity</b>								
Hispanic/Latinx (N=68)	9 (10.3)	21 (24.8)	6 (6.8)	8 (8.2)	29 (34.2)	22 (26.3)	14 (15.0)	7 (7.2)
NH White (N=179)	35 (20.3)	72 (31.0)	16 (8.6)	47 (30.0)	103 (54.4)	74 (32.6)	63 (38.5)	34 (17.2)
NH Black/African American (N=58)	9 (9.9)	16 (29.7)	5 (14.0)	15 (27.1)	29 (57.1)	18 (32.3)	20 (41.1)	9 (16.5)
NH American Indian/AKN (N=20)	3 (3.9)	7 (50.6)	2 (4.0)	9 (67.8)	14 (81.2)	8 (52.4)	11 (71.8)	5 (43.0)
NH Other Minorities (N=26)	2 (5.1)	6 (12.7)	0 (0.0)	6 (18.5)	10 (28.4)	7 (16.6)	6 (18.5)	3 (6.7)
<b>Male Gender-by-Race/Ethnicity</b>								
Hispanic/Latinx (N=154)	11 (7.18)	35 (15.1)	20 (10.0)	34 (20.9)	74 (44.6)	37 (19.4)	54 (30.9)	17 (6.6)
NH White (N=396)	51 (13.8)	106 (22.9)	41 (9.8)	103 (25.7)	195 (46.3)	119 (27.8)	144 (35.5)	68 (16.9)
NH Black/African American (N=158)	10 (5.57)	18 (9.8)	18 (11.6)	32 (19.0)	61 (36.5)	21 (11.6)	50 (30.5)	10 (5.7)
NH American Indian/AKN (N=26)	2 (5.0)	4 (10.9)	2 (2.0)	3 (2.2)	9 (15.1)	5 (11.1)	5 (4.2)	1 (0.2)
NH Other Minorities (N=48)	6 (13.1)	15 (31.7)	9 (33.3)	13 (18.0)	29 (59.0)	17 (33.6)	22 (51.3)	10 (25.9)

Unweighted frequency (*f*); unweighted and weighted percent; AKN=Alaska Native; NH = Non-Hispanic/Latinx; NH Other Minorities = Native/Hawaiians/Other Pacific Islander, Asian, and Bi-/Multi-racial groups.

### **4.3.3 BH Indicators: Multivariable Logistic Regression**

#### **4.3.3.1 Gender and Racial/ Ethnic Main Effects on BH Indicators**

Tables 24 details the multivariable logistic regression results and pairwise contrasts for each of the BH indicators. Although included as a racial/ethnic group in the analysis, the table does not present the pairwise contrasts with the NH Other Minorities due to the (1) *a priori* focus on differences in Hispanic/Latinx, NH White, NH Blacks/African Americans, and NH American Indians/Alaska Natives and (2) this group was composite of multiple racial/ethnic adults, making it difficult to interpret the generalizability of any significant contrasts. Gender was significantly associated with five of the eight examined BH indicators ( $p \leq 0.05$ ). Specifically, females relative to males had greater odds of PD, SUD-D, MH, and MH & SUD, with aORs ranging from 1.82 to 3.08. Furthermore, females had significantly lower odds of SUD-M than males (aOR=0.05). That is, the odds of SUD-M were 20 times higher in males compared to females.

The main effect of race/ethnicity was significantly associated with five of the eight examined BH indicators (MDE, SUD-M, SUD-D, SUD, and MH & SUD). For three of the five BH indicators, Hispanic/Latinx had significantly lower odds of SUD-D, SUD, and MH & SUD-D compared to NH Whites, and significantly lower odds of SUD relative NH Black/African American. In terms of NH comparisons, NH Whites had significantly higher odds of MDE compared to NH Blacks/African Americans and

higher odds of MDE, SUD-M, and MH & SUD compared to NH American Indians/Alaska Natives. NH Blacks/African Americans had significantly higher odds of SUD-M relative to NH American Indians/Alaska Natives.

Although the overall racial/ethnic main effect was non-significant for PD and MH ( $p > 0.05$ ), Hispanics/Latinxs had significantly lower odds of PD relative to NH Whites, and NH Whites had significantly higher odds of PD and MH compared to NH Blacks/African Americans.

#### **4.3.3.2 Gender-by-Race/Ethnicity Relationship to BH Indicators**

The interaction of gender and race/ethnicity was significantly associated with all BH indicators, with the exception of MDE (Table 24). Among females, Hispanics/Latinxs had significantly lower odds of having SUD-D and SUD relative to NH Whites and NH Blacks/African Americans. Hispanic/Latinx, NH Whites, and NH Blacks/African Americans females all had significantly lower odds for SUD-D relative to NH American Indian/Alaska Native females. Hispanic/Latinx females also had significantly lower odds of BH, SUD, and MH & SUD relative to NH American Indian/Alaska Native females. NH Whites had significantly lower odds of being affected by SUD relative to NH American Indian/Alaska Native females. Although the interaction effect was non-significant for MDE ( $p > 0.05$ ), NH White females had significantly higher odds of MDE compared to NH American Indian/Alaska Native females.

Among males, Hispanics/Latinxs had significantly lower odds of PD, MH, and MH & SUD compared to NH Whites. In contrast, Hispanic/Latinx males had significantly higher odds of SUD-M, SUD-D, BH, SUD, and MH & SUD relative to NH American Indian/Alaska Native males. NH White males had significantly higher odds of PD, BH, MH, and MH & SUD relative to NH Black/African American males. In addition, NH White males had significantly higher odds of SUD-M, SUD-D, BH, MH, SUD, and MH & SUD relative to NH American Indian/Alaska Native males. NH Black/African American males had significantly higher odds of SUD-M, SUD-D, BH, SUD, and MH & SUD compared to NH American Indian/Alaska Native males. Although the interaction effect was non-significant for MDE ( $p > 0.05$ ), NH White males had significantly higher odds of MDE compared to NH Black/African American males.

**Table 24: Multivariable Logistic Regression, Impact of Gender, Race/Ethnicity, and Their Intersection on BH Indicators**

Explanatory Variables	aOR (95% CI)							
	MDE	PD	SUD-M	SUD-D	BH	MH	SUD	MH & SUD
<b>Gender (main effect)</b>	<i>p</i> =0.9272	<i>p</i> =0.0365	<i>p</i> <0.0001	<i>p</i> =0.0103	<i>p</i> =0.0645	<i>p</i> =0.0543	<i>p</i> =0.1658	<i>p</i> =0.0048
Female vs Male	0.97	1.95*	0.05***	2.25**	1.63	1.82*	1.47	3.08**
	(0.45-2.06)	(1.04-3.63)	(0.03-0.11)	(1.21-4.16)	(0.97-2.74)	(0.99-3.35)	(0.85-2.51)	(1.41-6.74)
<b>Race/Ethnicity (main effects)</b>	<i>p</i> =0.0169	<i>p</i> =0.1197	<i>p</i> <0.0001	<i>p</i> =0.0118	<i>p</i> =0.3663	<i>p</i> =0.1551	<i>p</i> =0.0434	<i>p</i> =0.0015
Hispanic/Latinx vs Non-Hispanic (NH) White	0.48	0.57*	0.93	0.38**	0.61	0.62	0.47**	0.32**
	(0.21-1.09)	(0.33-1.00)	(0.45-1.93)	(0.22-0.67)	(0.36-1.02)	(0.35-1.08)	(0.29-0.77)	(0.17-0.62)
Hispanic/Latinx vs NH Black/African American	1.19	1.08	0.69	0.53	0.76	1.14	0.54*	0.69
	(0.46-3.07)	(0.52-2.25)	(0.29-1.67)	(0.27-1.05)	(0.42-1.38)	(0.57-2.29)	(0.30-0.99)	(0.28-1.72)
Hispanic/Latinx vs NH American Indian/AKN	2.06	0.70	3.52	0.69	0.76	0.81	0.89	2.31
	(0.47-8.95)	(0.20-2.47)	(0.94-13.13)	(0.20-2.42)	(0.28-2.06)	(0.24-2.79)	(0.31-2.50)	(0.47-11.30)
NH White vs NH Black/African American	2.48**	1.88*	0.74	1.40	1.25	1.85*	1.15	2.16
	(1.24-4.96)	(1.03-3.46)	(0.34-1.63)	(0.82-2.40)	(0.77-2.02)	(1.06-3.23)	(0.69-1.91)	(0.97-4.79)
NH White vs NH American Indian/Alaska Native	4.29*	1.22	3.77*	1.81	1.24	1.32	1.89	7.20**
	(1.14-16.23)	(0.38-3.97)	(1.09-13.08)	(0.55-5.92)	(0.49-3.15)	(0.41-4.21)	(0.71-5.01)	(1.58-32.74)
NH Black/African American vs NH American Indian/AKN	1.74	0.65	5.09*	1.29	1.00	0.71	1.64	3.33
	(0.41-7.32)	(0.18-2.31)	(1.33-19.46)	(0.37-4.46)	(0.37-2.67)	(0.21-2.45)	(0.58-4.61)	(0.64-17.29)
<b>Gender-by-Race/Ethnicity (interaction effects)</b>	<i>p</i> =0.8045	<i>p</i> =0.0129	<i>p</i> <0.0001	<i>p</i> =0.0003	<i>p</i> =0.0005	<i>p</i> =0.0153	<i>p</i> <0.0001	<i>p</i> <0.0001
Female: Hispanic/Latinx vs NH White	0.55	0.75	0.79	0.22**	0.45	0.78	0.30**	0.41
	(0.18-1.68)	(0.30-1.89)	(0.25-2.54)	(0.09-0.57)	(0.19-1.07)	(0.32-1.91)	(0.13-0.67)	(0.14-1.15)
Female: Hispanic/Latinx vs NH Black/African American	1.14	0.73	0.49	0.25*	0.40	0.72	0.27**	0.40
	(0.29-4.56)	(0.21-2.52)	(0.11-2.25)	(0.08-0.77)	(0.14-1.11)	(0.23-2.31)	(0.10-0.74)	(0.09-1.79)

<b>Female: Hispanic/Latinx vs NH American Indian/AKN</b>	3.00 (0.47-19.31)	0.29 (0.04-2.23)	2.09 (0.27-15.93)	0.04*** (0.01-0.20)	0.11** (0.02-0.57)	0.30 (0.04-2.20)	0.07** (0.02-0.32)	0.10* (0.01-0.97)
<b>Female: NH White vs NH Black/African American</b>	2.07 (0.68-6.33)	0.97 (0.35-2.65)	0.62 (0.16-2.44)	1.13 (0.46-2.79)	0.88 (0.39-2.00)	0.93 (0.37-2.35)	0.90 (0.38-2.14)	0.98 (0.26-3.70)
<b>Female: NH White vs NH American Indian/AKN</b>	5.45* (1.08-27.47)	0.39 (0.06-2.54)	2.63 (0.40-17.46)	0.17* (0.04-0.77)	0.25 (0.06-1.09)	0.39 (0.06-2.44)	0.23* (0.06-0.98)	0.24 (0.03-2.12)
<b>Female: NH Black/AA vs NH American Indian/AKN</b>	2.63 (0.41-16.93)	0.40 (0.05-3.15)	4.24 (0.51-34.95)	0.15** (0.03-0.77)	0.29 (0.06-1.37)	0.42 (0.06-3.05)	0.26 (0.05-1.23)	0.24 (0.02-2.82)
<b>Male: Hispanic/Latinx vs NH White</b>	0.42 (0.12-1.41)	0.44** (0.24-0.80)	1.10 (0.44-2.75)	0.66 (0.36-1.22)	0.82 (0.47-1.42)	0.48* (0.25-0.95)	0.74 (0.42-1.33)	0.25** (0.11-0.57)
<b>Male: Hispanic/Latinx vs NH Black/African American</b>	1.24 (0.33-4.63)	1.62 (0.75-3.49)	0.97 (0.40-2.35)	1.14 (0.55-2.37)	1.44 (0.78-2.67)	1.79 (0.82-3.90)	1.09 (0.57-2.07)	1.20 (0.43-3.39)
<b>Male: Hispanic/Latinx vs NH American Indian/AKN</b>	1.42 (0.13-15.03)	1.71 (0.39-7.46)	5.92* (1.10-31.75)	12.63** (1.89-84.67)	5.02** (1.48-16.97)	2.18 (0.49-9.78)	11.39** (2.86-45.37)	54.56** (6.00-496.22)
<b>Male: NH White vs NH Black/African American</b>	2.96** (1.31-6.68)	3.67*** (1.94-6.94)	0.89 (0.41-1.93)	1.74 (0.96-3.16)	1.77* (1.08-2.90)	3.70*** (2.05-6.71)	1.46 (0.86-2.48)	4.74** (2.09-10.75)
<b>Male: NH White vs NH American Indian/AKN</b>	3.39 (0.41-28.19)	3.88 (0.94-16.04)	5.40* (1.02-28.51)	19.19** (3.00-122.72)	6.13** (1.91-19.70)	2.92* (1.09-18.59)	15.32*** (4.02-58.40)	215.47*** (26.09->999.99)
<b>Male: NH Black/AA vs NH American Indian/AKN</b>	1.15 (0.13-10.47)	1.06 (0.24-4.70)	6.10* (1.14-32.72)	11.05** (1.67-72.95)	3.47* (1.05-11.48)	1.22 (0.28-5.34)	10.47** (2.68-40.99)	45.51** (5.01-413.51)

Adjusted odds ratio (aOR) and 95% Confidence Interval (95% CI); p-values for the overall main and interaction effects reported; pairwise contrasts:  $p \leq 0.05$ ; \*\*  $p \leq 0.01$ ; \*\*\*  $p < 0.0001$ ; AKN=Alaska Native; AA = African American.

#### 4.3.3.3 Covariate Relationships with BH Indicators

Table 25 summarizes the individual characteristic results from the multivariable logistic regression. The odds of having PD, MH, and MH & SUD were significantly higher among adults aged 18 to 40 compared to adults 50 years or older. Education was not significantly associated with any of the eight BH indicators. Income level was significantly associated with all of the BH indicators, with the exception of SUD-M. The odds of having PD, SUD-D, BH, MH, SUD, and MH & SUD were significantly higher among adults with an annual income of <\$20K compared to those whose annual income was \$20-\$49K. Adults that earned <\$20K had significantly higher odds of MDE, PD, BH, MH, and MH & SUD relative to adults that reported an annual income of >\$50K. Individuals that reported an annual income between \$20K-\$49K had significantly higher odds of MH, compared to individuals that earned >\$50K. Individuals that were not married had significantly higher odds of having SUD-D, BH, and SUD, relative to those that reported being married. Adults that reported their overall health as being fair or poor had significantly higher odds of SUD-D compared to those with good to excellent health.

**Table 25: Multivariable Logistic Regression, Impact of Social Determinants of Health on Behavioral Health Indicators**

Explanatory variables	aOR (95% CI)							
	MDE	PD	SUD-M	SUD-D	BH	MH	SUD	MH & SUD
<b>Age</b>	<i>p</i> =0.2680	<i>p</i> =0.0013	<i>p</i> =0.7431	<i>p</i> =0.1717	<i>p</i> =0.2680	<i>p</i> =0.0500	<i>p</i> =0.2954	<i>p</i> =0.0130
18-49 vs 50 or older	1.05 (0.45-2.45)	3.65** (1.66-8.03)	0.85 (0.31-2.30)	1.72 (0.79-3.75)	1.41 (0.77-2.59)	2.06* (1.00-4.25)	1.43 (0.73-2.77)	3.55** (1.31-9.64)
<b>Education</b>	<i>p</i> =0.2135	<i>p</i> =0.5822	<i>p</i> =0.7145	<i>p</i> =0.1713	<i>p</i> =0.2135	<i>p</i> =0.1516	<i>p</i> =0.1589	<i>p</i> =0.0669
HS or less vs Post-Secondary	0.45 (0.27-0.74)	0.89 (0.60-1.34)	0.90 (0.52-1.56)	0.75 (0.50-1.13)	0.80 (0.56-1.14)	0.75 (0.51-1.11)	0.77 (0.53-1.11)	0.63 (0.38-1.03)
<b>Income level</b>	<i>p</i> =0.0025	<i>p</i> =0.0001	<i>p</i> =0.9652	<i>p</i> =0.0028	<i>p</i> =0.0025	<i>p</i> <0.0001	<i>p</i> =0.0096	<i>p</i> <0.0001
Less than \$20K vs \$20-\$49K	1.97 (0.98-3.96)	2.16** (1.36-3.45)	1.02 (0.51-2.06)	2.27** (1.38-3.72)	1.85** (1.23-2.80)	2.01** (1.26-3.22)	1.91** (1.20-2.97)	3.13** (1.73-5.65)
Less than \$20K vs >\$50K or more	8.99** (1.86-43.48)	5.55** (1.94-15.88)	1.17 (0.37-3.70)	2.06 (0.86-4.92)	2.41* (1.15-5.05)	7.33** (2.57-20.88)	1.89 (0.86-4.14)	15.04** (1.84-122.89)
\$20K-\$49K vs >50K or more	4.57 (0.83-25.12)	2.57 (0.88-7.52)	1.14 (0.37-3.57)	0.91 (0.36-2.30)	1.30 (0.60-2.84)	3.64* (1.22-10.92)	0.99 (0.44-2.23)	4.81 (0.58-39.92)
<b>Marital Status</b>	<i>p</i> =0.0561	<i>p</i> =0.7209	<i>p</i> =0.2859	<i>p</i> =0.0500	<i>p</i> =0.0561	<i>p</i> =0.6891	<i>p</i> =0.0118	<i>p</i> =0.6342
Not Married vs Married/Partner	1.01 (0.53-1.92)	0.92 (0.57-1.48)	1.59 (0.68-3.74)	1.79* (1.00-3.19)	1.51 (0.99-2.31)	0.91 (0.57-1.45)	1.88** (1.15-3.06)	1.18 (0.60-2.32)
<b>Overall Health</b>	<i>p</i> =0.0602	<i>p</i> =0.0920	<i>p</i> =0.2507	<i>p</i> =0.0260	<i>p</i> =0.0602	<i>p</i> =0.0646	<i>p</i> =0.1958	<i>p</i> =0.1428
Fair/Poor vs Good/Very Good/Excellent	2.41 (1.38-4.18)	1.49 (0.94-2.38)	0.60 (0.25-1.44)	1.85* (1.08-3.17)	1.57 (0.98-2.52)	1.55 (0.97-2.45)	1.38 (0.85-2.23)	1.52 (0.87-2.64)

Adjusted odds ratio (aOR) and 95% Confidence Interval (95% CI); pairwise contrasts: \*  $p \leq 0.05$ ; \*\*  $p \leq 0.01$ ; \*\*\*  $p < 0.0001$ ; HS = high school; K= thousand.

### 4.3.4 BH Treatment Utilization and Barriers

#### 4.3.4.1 BH Treatment Utilization

Of the 1133 adults, 553 had a BH need defined as one or more endorsed BH indicator. Among the 553, (a) 55.1% had a need for MDE and/or PD treatment; 74.7% had a need for SUD-D or SUD-M treatment; and 29.5% had both MH and SUD related treatment needs. Among adults with a BH need, 39% received some form of BH treatment, 15.0% received some form of MH treatment, and 46.5% received SU treatment (Table 26).

**Table 26: Type of Need and Treatment Utilization Among Those with a BH Need (N=553)**

BH Needs and Treatment	N	Non-weighted		Weighted	
		<i>f</i>	%	%	95% CI
Type of Need					
MH Need	1,121	328	60.07	55.08	48.93-61.22
SUD Need	1,133	389	70.34	74.69	69.58-79.80
MH & SUD Need	1,121	164	30.04	29.47	24.11-34.82
Treatment Utilization					
BH Treatment	549	198	36.07	38.99	33.09-44.88
MH Treatment	549	86	15.55	15.01	10.93-19.10
SUD Treatment	553	241	43.90	46.46	40.44-52.48

Justice-involved adults with at least one BH need in the past year. N = unweighted sample size; Unweighted frequencies (*f*); weighted percent and 95% Confidence Interval (CI) for percent. BH Treatment = Any BH treatment utilized for MH or SU needs; MH = Any MH treatment or counseling; SU Treatment for alcohol or drug use.

MH medication (30.2%) was the most commonly reported form of BH treatment. Among individuals with a MH need, 52.1% received MH treatment or counseling, whereas only 17.2% of adults with a SUD need received some form of past-year treatment. Among individuals with co-occurring MH and SU needs, 52.1% received MH treatment and 20.1% had received some form of SU treatment for drug or alcohol use (Table 27).

**Table 27: Past-Year BH Treatment Utilization for Individuals with a BH Need**

Type of Treatment Utilization	Non-weighted		Weighted	
	<i>f</i>	%	%	95% CI
BH Need (N=553)				
Behavioral Health Treatment				
MH Inpatient Treatment <sup>1</sup> (with or without presc meds)	29	5.31	6.27	3.17-9.37
MH Outpatient Treatment only (with or without presc meds)	96	17.58	18.99	14.46-23.53
MH Medication Treatment	157	28.75	30.18	24.71-35.65
SUD Alcohol Treatment	42	7.59	7.35	4.30-10.40
SUD Drug Treatment	44	7.96	7.66	4.83-10.50
MH Need (N=328)				
MH Treatment or Counseling				
MH Inpatient Treatment <sup>1</sup> (with or without presc meds)	23	7.10	9.03	4.17-13.89
MH Outpatient Treatment only (with or without presc meds)	79	24.38	26.89	20.29-33.50
MH Medication Treatment	125	38.58	41.76	34.06-49.45
SUD Need (N=389)				
SU Treatment for alcohol or drug use				
Alcohol Treatment	37	9.51	8.49	4.67-12.31
Drug Treatment	34	8.74	8.74	5.11-12.37
Co-occurring MH and SU Needs (N=164)				
MH Treatment or Counseling				
MH Inpatient Treatment <sup>1</sup> (with or without presc meds)	17	10.43	13.37	5.40-21.34
MH Outpatient Treatment only (with or without presc meds)	44	26.99	26.99	17.60-36.40
MH Medication Treatment	59	36.20	36.99	27.18-46.81
SU Treatment for alcohol or drug use				
Alcohol Treatment	15	9.15	9.57	3.56-15.57
Drug Treatment	18	10.98	10.57	4.45-16.69

<sup>1</sup>MH Inpatient treatment only as well as those that received both Inpatient and Outpatient MH Treatment. <sup>2</sup>MH Medication Treatment with or without MH treatment or counseling. Unweighted frequencies (*f*) provided; weighted percent and 95% Confidence Interval (CI) for percent provided. Mental health treatment or counseling only (excludes treatment for alcohol or drug use). Presc meds = Prescription Medications.

Overall, 67.1% of individuals with past-year MDE received some form of MH treatment, with the primary sources of depression treatment provided by a general practice/family medical doctor (34.5%), a psychiatrist (29.8%), a psychologist (26.5%), and a counselor (25.6%) (Table 28 details the types of depression treatment among JI adults affected by MDE).

**Table 28: Type of Depression Treatment Among Those with MDE in the Past Year (N=138)**

Past Year Treatment for Depressive Feelings	Non-weighted		Weighted	
	<i>f</i>	%	%	95% CI
MH Treatment <sup>1</sup>	85	61.59	67.15	55.89-78.41
General Practice/Family Medical Doctor	37	27.01	34.47	24.45-44.48
Other Medical Doctor	4	2.92	2.82	0.00-5.95
Psychiatrist	40	29.20	29.79	20.11-39.46
Psychologist	31	22.63	26.49	17.38-35.60
Social Worker	18	13.14	12.03	6.29-17.78
Counselor	39	28.47	25.63	16.64-34.62
Nurse / Occupational Therapist	6	4.38	3.41	0.16-6.66
Religious Advisor	14	10.22	9.31	4.13-14.49
Another Healer (Herbalist)	5	3.65	2.35	0.00-4.86
Other Mental Health Professional	8	5.84	5.03	1.08-8.98

Unweighted frequencies (*f*); weighted percent and 95% Confidence Interval (CI) for percent provided. <sup>1</sup>MH Treatment = any mental health treatment or counseling (excluding treatment for alcohol or drug use); Of the N=138, one individual with missing data for all depression treatment variables, thus, N=137.

Table 29 details the types of SU treatment among JI adults affected by a past-year SUD. SU treatment was primarily provided at specialty facilities (24%), self-help groups

(18.4%), outpatient rehabilitation programs (17.7%), and inpatient rehabilitation programs (10.3%).

**Table 29: SU Treatment Among Those with a SUD in the Past Year (N=389)**

Past Year Treatment or Counseling for SU	Non-weighted		Weighted	
	<i>f</i>	%	%	95% CI
Specialty Facility <sup>1</sup>	106	27.25	24.26	18.43-30.09
Emergency Room	31	7.97	7.65	4.24-11.05
Inpatient Hospital	33	8.48	7.42	3.89-10.95
Inpatient Rehabilitation	44	11.31	10.33	6.31-14.35
Outpatient Rehabilitation	84	21.59	17.69	12.78-22.61
Mental Health Center	42	10.80	9.78	5.92-13.64
Doctor's Office	25	6.43	6.75	3.57-9.93
Self-help Group	83	21.34	18.63	13.54-23.71

<sup>1</sup>Treatment or counseling in a specialty facility (either as an inpatient in a hospital, inpatient or outpatient rehabilitation, or a mental health center). Unweighted frequencies (*f*) provided; weighted percent and 95% Confidence Interval (CI) for percent provided.

#### 4.3.4.2 Barriers to BH Treatment Utilization

Table 30 details the types of individual and community/societal level barriers to MH treatment utilization in the past year among JI adults with a past-year MH need. Approximately 31% needed MH treatment but did not get it. The most commonly reported individual-level barriers to seeking MH treatment were cost (47.9%), fear of being committed to/or taking medicine (19.9%), did not know where to get treatment (18.1%), and negative effect on job (16.6%). Examination of community-level barriers revealed that 86.1% lived in a non-rural area, 77.7% had some form of health insurance, and 4.0% reported that they did not receive need MH treatment because insurance did not pay enough.

**Table 30: Barriers to Mental Health (MH) Treatment Utilization in the Past Year**

	Non-weighted		Weighted	
	<i>f</i>	%	%	95% CI
Individuals with a MH need (N=328)				
Had a MH Need and Needed MH Treatment but did not get it	91	27.91	30.54	23.50-37.59
Reasons did not get MH Treatment (N=91)				
Individual-level barriers				
MH stigma				
Did not want other to find out	3	3.41	3.93	0.41-7.46
Concern about the opinion of neighbors	8	9.09	8.40	1.05-15.75
Negative effect on job	10	11.36	16.61	7.55-25.66
Concerns about confidentiality	9	10.23	12.22	4.67-19.77
MH treatment cost				
Did not receive treatment because could not afford cost	42	47.73	47.99	37.94-58.04
MH transportation				
No treatment because no transportation or too far away	7	7.95	8.46	2.79-14.13
MH knowledge				
No treatment because did not know where to go for treatment	20	22.73	18.09	10.26-25.93
MH treatment beliefs				
Did not think treatment would help	10	11.36	11.74	5.65-17.84
Did not think you needed treatment at the time	6	6.82	4.74	1.29-8.18
Thought you could handle the problem yourself at the time	12	13.64	13.39	7.13-19.65
MH medication				
No treatment for fear of being committed to/ taking medicine	17	19.32	19.97	12.80-27.14
Community-level barriers				
Level of Rurality				
Rural	19	20.88	13.84	6.54-21.13
Non-rural	72	79.12	86.16	78.87-93.46
Health Insurance				
No	21	23.08	22.32	13.05-31.59
Yes	70	76.92	77.68	68.41-86.95
MH treatment coverage				
Did not receive treatment because insurance did not cover at all	3	3.41	2.68	0.00-5.44
Did not receive treatment because insurance did not pay enough	7	7.95	4.01	0.00-8.32

Unweighted frequencies (*f*) provided; weighted percent and 95% Confidence Interval (CI) for percent provided. Please refer to Tables 18 and 19 for a full description of individual and community barriers to BH treatment utilization.

Table 31 presents the types of individual and community/societal level barriers to past-year SU treatment utilization among JI adults with a SU need. Approximately 87% did not feel a need for treatment. The most commonly reported individual-level barriers to seeking SU treatment were not ready to stop substance use (46.4%) and cost (36.8%). Examination of community-level barriers revealed that 86.7% lived in a non-rural area, 44.5% had some form of health insurance, and 6.9% reported that they did not receive needed SU treatment because insurance did not cover treatment or cost.

**Table 31: Barriers to Substance Use (SU) Treatment Utilization in the Past Year**

	Non-weighted		Weighted	
	<i>f</i>	%	%	95% CI
Individuals with a SU Need (N=389)				
Had a SU need and felt a need for treatment <sup>1</sup>				
No	349	89.72	86.79	81.74-91.83
Yes	40	10.28	13.22	8.17-18.26
Reasons did not get SU Treatment (N=40)				
Individual-level barriers				
SU stigma				
Did not want others to find out	0	0	0	0
Concern about the opinion of neighbors	0	0	0	0
Negative effect on job	1	6.25	1.74	0.00-2.60
SU treatment cost				
Did not receive treatment because could not afford/no insurance	5	31.25	36.81	0.00-100.00
SU transportation				
No treatment because no transportation or too far away	0	0	0	0
SU knowledge				
No treatment because did not know where to go for treatment	2	12.50	8.67	0.00-19.17
SU treatment beliefs				
Did not think treatment would help	0	0	0	0
Did not feel need for treatment	0	0	0	0
Thought you could handle the problem without treatment	1	6.25	6.86	0.00-15.17
SU other reasons did not seek treatment				
Some other reasons	1	6.25	6.86	0.00-15.17
Type of treatment wanted not offered	2	12.50	12.93	0.00-28.60
Not ready to stop using	10	62.50	46.43	0.00-100.00
Did not have time for treatment due to job/childcare/other commitment	1	6.25	11.55	0.00-100.00
Community-level barriers (N=16):				
Level of Rurality				
Rural	2	12.50	13.31	0.00-29.44
Non-rural	14	87.50	86.69	70.56-100.00
SU treatment availability				
No SU treatment because no openings in program	2	12.50	4.57	0.00-10.10

Health Insurance				
No	7	43.75	55.51	1.58-100.00
Yes	9	56.25	44.49	0.00-98.42
SU treatment coverage				
Did not receive treatment because insurance did not cover treatment/cost	1	6.25	6.86	0.00-15.17

<sup>1</sup>Felt a need for SU treatment or additional SU treatment. Unweighted frequencies (*f*) provided; weighted percent and 95% Confidence Interval (CI) for percent provided. Please refer to Tables 18 and 19 for a full description of individual and community barriers to SU treatment utilization.

### 4.3.5 BH Treatment Utilization: Multivariable Logistic Regression

#### 4.3.5.1 Gender and Racial/Ethnic Main Effects

Table 32 details the impact of gender, race/ethnicity, and their intersectionality on BH treatment utilization among JI adults with past-year BH needs. Gender was not significantly associated with BH treatment utilization. However, race/ethnicity was significantly associated with BH treatment utilization. Hispanics/Latinxs had significantly lower odds of BH treatment utilization than NH Whites (aOR=0.27). That is, the odds of BH treatment utilization were 3.70 times higher in NH Whites compared to Hispanics/Latinxs. NH Whites also had significantly higher odds of BH treatment utilization than NH Blacks/African Americans (aOR=2.40).

#### 4.3.5.2 Gender-by-Race/Ethnicity Relationship to BH Treatment

The interaction of gender and race/ethnicity was non-significant ( $p > .05$ , Table 32) for BH treatment utilization. However, *a priori* contrast indicated that Hispanic/Latinx females had significantly lower odds of BH treatment utilization than NH White females (aOR=0.25). Specifically, the odds of BH treatment utilization were

4.0 times higher in NH Whites females compared to Hispanic/Latinx females. NH Whites females also had significantly higher odds of BH treatment utilization (aOR=3.92) than NH Black/African American females. Among males, Hispanic/Latinx had significantly lower odds of BH treatment utilization (aOR=0.30) compared to NH White males. That is, the odds of accessing BH treatment utilization were 3.33 times higher among NH White males relative to Hispanic/Latinx males.

**Table 32: Logistic Regression, Gender, Race/Ethnicity, and Their Intersectionality on BH Treatment Utilization**

Explanatory variables	aOR (95% CI)
Gender (main effects)	$p = 0.2907$
Female vs Male	1.53 (0.70-3.35)
Race/Ethnicity (main effects)	$p = 0.0027$
Hispanic/Latinx vs Non-Hispanic (NH) White	0.27** (0.13-0.56)
Hispanic/Latinx vs NH Black/African American	0.66 (0.27-1.58)
Hispanic/Latinx vs NH American Indian/Alaska Native (AKN)	0.29 (0.06-1.29)
NH White vs NH Black/African American	2.40** (1.21-4.77)
NH White vs NH American Indian/AKN	1.05 (0.26-4.26)
NH Black/African American vs NH American Indian/AKN	0.44 (0.10-1.92)
Gender-by-Race/Ethnicity (interaction effects)	$p = 0.6463$
Female: Hispanic/Latinx vs NH White	0.25** (0.08-0.72)
Female: Hispanic/Latinx vs NH Black/African American	0.96 (0.25-3.74)
Female: Hispanic/Latinx vs NH American Indian/AKN	0.25 (0.03-1.15)
Female: NH White vs NH Black/African American	3.92* (1.27-12.11)
Female: NH White vs NH American Indian/AKN	1.01 (0.14-7.21)
Female: NH Black/AA vs NH American Indian/AKN	0.26 (0.03-2.14)
Male: Hispanic/Latinx vs NH White	0.30* (0.11-0.80)
Male: Hispanic/Latinx vs NH Black/African American	0.45 (0.15-1.36)
Male: Hispanic/Latinx vs NH American Indian/AKN	0.33 (0.04-2.92)
Male: NH White vs NH Black/African American	1.47 (0.68-3.21)
Male: NH White vs NH American Indian/AKN	1.09 (0.14-8.26)
Male: NH Black/African American vs NH American Indian/AKN	0.74 (0.09-5.95)

Adjusted odds ratio (aOR) and 95% Confidence Interval (95% CI); \*  $p \leq 0.05$ ; \*\*  $p \leq 0.01$ ; \*\*\*  $p < 0.0001$ .

### 4.3.5.3 Covariate Relationships with BH Treatment

Among JI adults with a BH need, the only individual characteristic significantly associated with BH treatment utilization was self-reported overall health. Individuals that reported fair/poor health had significantly higher odds of BH treatment utilization (aOR=1.93) compared to those that reported their overall health as good/very good/excellent (Table 33).

**Table 33: Logistic Regression, Social Determinants of Health on BH Treatment Utilization**

Explanatory variables	aOR (95% CI)
Age	<i>p</i> = 0.3422
18-49 vs 50 or older	0.62 (0.23-1.66)
Education	<i>p</i> = 0.698
HS or less vs Post-Secondary Education	0.70 (0.41-1.18)
Income level	<i>p</i> = 0.8758
Less than \$20K vs \$20-\$49K	0.64 (0.35-1.17)
Less than \$20K vs >\$50K or more	1.11 (0.31-3.91)
\$20-\$49K vs >50K or more	1.72 (0.46-6.38)
Marital Status	<i>p</i> = 0.5772
Not Married vs Married/Partner	1.22 (0.61-2.41)
Overall Health	<i>p</i> = 0.0535
Fair/Poor vs Good/Very Good/Excellent	1.93* (0.99-3.77)

Adjusted odds ratio (aOR) and 95% Confidence Interval (95% CI); \* *p* ≤0.05; \*\* *p* ≤0.01; \*\*\* *p*<0.0001; HS = high school; K= thousand.

#### **4.4 Discussion**

There is a critically urgent need to expand efforts that target the transitional BH treatment needs of justice-involved adults. Almost half (46%) of the justice-involved adults in this study were affected by a BH need, and there were significant disparities by gender, race/ethnicity, and their intersectionality. Justice-involvement as a SDOH, coupled with other SDOH (e.g. gender, race/ethnicity, socioeconomic status, etc.) greatly increase the risk of BH disorders, justice-involvement, and access to BH treatment utilization. These multiple and intersecting SDOHs undermine the BH of justice-involved adults during the transition and community reentry/integration period, contributing to sustained inequities in BH and BH treatment, resulting in a “revolving door” of justice-involvement significantly influenced by untreated BH needs.

Overall, half of all justice-involved females in our study were affected by a BH disorder compared to males (50.3% vs. 44.4%), and females had significantly higher odds of being affected by co-occurring MH and SUDs. NH American Indian/Alaskan Native females were significantly more likely to be affected by substance dependency compared to the females of the other racial/ethnic groups, while NH White females had significantly higher odds of being affected by MDE. Consistent with the existing literature, our study supports the disproportionate burden of MH needs among justice-involved females (King, Tripodi, & Veeh, 2018; Yu & Sung, 2015). Similarly, our results mirror the substantial increase in substance misuse and dependency among females in

the last two decades that has greatly contributed to their exponential growth in the US CJS (Busen, 2014; Golder & Logan, 2014; Lorvick et al., 2015; Marsh, Park, Lin, & Bersamira, 2018; Mauer, 2013; McCollister et al., 2014). Justice-involved females often face gender-specific challenges related to parenting, childcare, and gender-rooted social inequities related to both gender and race/ethnicity that can significantly affect community reentry/integration and act as potential barriers to community-based BH treatment utilization. Justice-involvement confers further enhanced social vulnerability among all justice-involved females that can result in an increased risk and vulnerability to psychosocial stressors related to community reentry that can adversely affect MH and undermine SU abstinence/recovery. Race-specific gender-responsive community-based BH treatment is a critically important treatment consideration in BH service provision planning (Guerrero, Marsh, Cao, Shin, & Andrews, 2014).

In our examination of racial/ethnic disparities in BH, NH Whites had significantly higher odds of being affected by a MH disorder and co-occurring SU. Although this is consistent with the overall MH profile of the US general population, recent studies have demonstrated an increase in the rates of depression in NH Blacks/African Americans and Hispanics/Latinxs, that in some instances, have surpassed rates of depression in NH Whites (Rodriquez et al., 2018). Further, when NH Blacks/African Americans and Hispanics/Latinxs do experience depression, they often experience greater symptom severity and social and physical function impairment

(Gonzalez, Tarraf, Whitfield, & Vega, 2010; Hankerson, 2011). This study did not examine MH symptom severity and functional impairment. There is that potential that while overall Hispanics/Latinxs and NH Blacks/African Americans had lower odds of being affected by a BH need, there was greater MH functional impairment in the two groups. Although NH Blacks/African Americans and Hispanics/Latinxs are disproportionately criminalized for SU, the prevalence of SU among NH Blacks/African Americans in our study did not differ significantly from that of NH Whites, and Hispanics/Latinxs were significantly less likely to be affected a substance use dependency. Our results are consistent with the extensive literature supporting the disproportionately criminalization of SU among US racial and/or ethnic minorities (Doerner & Demuth, 2010; Gross, 2015; Hinton et al., 2018; Palamar et al., 2015; Vearrier, 2019). US racial and/or ethnic minorities and NH Whites of lower SES have been disproportionately impacted by the US CJS, and all points of contact with the US CJS can act as mechanism for worsening physical and BH health (Brinkley-Rubinstein, 2013).

In addition to gender, race/ethnicity, and their intersectionality, other SDOHs were also significantly associated with being affected by a BH need. Socioeconomic status, specifically an annual income of <\$20K, was significantly associated with many of the BH disorders examined, and about 41% of our sample reported earning an annual income <\$10K. Greater than 80% of our sample was between the ages of 18-49, and this age group was significantly associated with PD, and co-occurring SUD. Finally, not

being married and fair/poor overall health were significantly associated with substance use dependency. The intersectionality of multiple and overlapping SDOH can serve to significantly and differentially impact the BH and transitional and community reentry/integration experiences of justice-involved adults. US racial and/or ethnic minorities and other marginalized communities without justice involvement already considerable barriers related to discrimination, racism, and/or sexism in employment and housing (Pager, 2003). Coupled with a history of justice-involvement, these barriers can be even more pronounced, and severely impair justice-involved adults' ability to access fundamental components to meeting basic needs and preserving health (Harding et al., 2014; Miller, 2013; Schneider & Turney, 2015; Western et al., 2015). Greater integration of this knowledge into transitional and community reentry/integration efforts is imperative to informing targeted and culturally tailored interventions that not only address the BH needs of all of the different groups represented, but also to additional SDOH that are also integral to positive BH outcomes and sustained community reintegration.

Justice-involved adults continue to be impacted by persistent BH treatment inequities, and rates of BH treatment were insufficient relative to the high prevalence of BH needs. There were no gender differences related to BH treatment utilization in our study; however, female gender has been associated with lesser access and as a potential barrier to BH treatment, particularly SU treatment, due to the lack of gender-responsive

treatment (Gryczynski et al., 2012). Consistent with the extant literature, self-report of overall health as being fair/poor significantly associated with BH treatment utilization. Hispanics/Latinx and NH Blacks/African Americans had significantly lower odds of BH treatment utilization, consistent with numerous studies reporting the inverse association of these two groups with BH treatment utilization (Marlow et al., 2010; Sung et al., 2011).

Although this study posited a greater need for MH treatment needs based on the extant literature our results supported the opposite (Feucht & Gfroerrer, 2011; Howell et al., 2019). More than half (52.1%) of all adults with a MH need received some form of MH treatment, compared to 17.2% of adults with a SU need that received SU treatment. Among those with co-occurring MH and SU needs, 52.1% received some form of MH treatment, and 20.1% received some form of SU treatment. In Fearn et al.'s (2016) examination of SU correlates among adults on parole or probation using 2002-2014 NSDUH data, 21.9% of adults affected by SUDs had received some form of past year MH treatment.

Of note, our study differed from many existing studies in that we only analyzed one year of NSDUH data (2016), our justice sample was less than previously reported annual sizes, our justice involved sample only included individuals on parole and/or probation in the past year (as opposed to some studies also including individuals with past year bookings or arrests), the sample size and our analyses related to BH treatment utilization were limited to adults with past year BH needs versus the entire justice-

involved sample (Feucht & Gfroerer, 2011). Due to the heterogeneity in the methodological approaches to measuring BH treatment utilization across studies, it is difficult to definitively assess if rates of BH treatment utilization have improved among justice-involved adults. However, our results are consistent with those from Saloner et al. (2016) and Winkelman et al. (2016), and support the still considerable unmet BH treatment needs among justice-involved adults with identified BH needs, particularly SU treatment, potentially indicative of the exponential growth in heroin and non-prescription opiates in the last decade that has resulted in an increase in access that has outpaced the SU treatment infrastructure.

Affordability and cost of BH treatment remain a persistent barrier to BH treatment utilization (Bryson et al., 2019; Dong et al., 2018; Marlow et al., 2010; Sung et al., 2011; Winkelman et al., 2016). About 48% of justice-involved adults reported treatment affordability and cost as a significant barrier to MH treatment, although almost 78% had some form of health insurance. Among individuals with SU needs, about 45% reported having some form of health insurance and about 37% reported affordability and cost as a barrier to SU treatment. There is the potential that continued efforts to establish parity in the treatment of BH and physical health conditions have had the unintended consequence of adding additional barrier to accessing needed MH treatment in the form of high copays and deductibles (Dong et al., 2018; Howell et al., 2019; Saloner et al., 2016; Winkelman et al., 2016). Nonetheless, provisions of the ACA

(e.g. dependent coverage mandate and Medicaid expansion) have served to greatly improve the rates of insurance coverage among justice-involved adults, and Medicaid specifically was a substantial payer of BH treatment and was significantly associated with higher levels of treatment for depression/MDE and SU (Winkelman et al., 2016).

There are differential barriers to MH and SU treatment that will require specific and targeted efforts to improve BH treatment utilization among justice-involved adults with BH needs. Collective responses related to MH stigma, beliefs about the efficacy and/or need for MH treatment, and fear of having to take prescribed MH medications, were the most commonly reported barriers among individuals with a MH need that needed treatment, but did not get it. These are individual level barriers that can greatly undermine MH treatment utilization even when community/societal-level barriers related to access have been address, supporting greater efforts to reduce MH stigma and improve education related to the importance of MH treatment as with other chronic health conditions. The most leading barrier to SU treatment was treatment readiness, in that 46% of individuals did not seek SU treatment because they were not ready to stop using. Further, about 13.2% of adults with a SU need felt a need for treatment, underlying the importance of treatment motivation and readiness as factors significantly influencing SU treatment adherence and retention. Further, access to a desired type of treatment was also another prominent barrier to SU treatment. These are particularly salient findings in that while justice-involvement is a substantial referrer and facilitator

of SU treatment, it is often mandated, may not be clinically relevant or effect sustained clinical outcomes, and the ability to access desired type of treatment may be limited, undermining sustained/long-term recovery.

#### **4.4.1 Implications for Nursing**

There is an urgent need to improve nursing curriculum on BH, the SDOH of BH, as well as the addition of content related to justice health. Cultural norms and beliefs related to MH can affect individual symptomatology and perceptions of BH, as well as disclosure of this information within the healthcare setting. Further, SU among NH Whites of higher SES is associated with a medicalized approach that emphasizes neuropsychiatric disease and treatment (Anderson et al., 2015; Hansen & Netherland, 2016). This is contrary to perceptions about SU among US racial and/or ethnic minorities and NH Whites of lower SES, which is often centered around personal choices, deviance, and justice-involvement (Anderson et al., 2015). These beliefs and preconceptions, coupled with perceived discrimination and bias in the clinical setting, can significantly discourage health seeking behaviors and the implementation of pragmatic and harm reduction initiatives.

The effects of SU can differentially affect functionality and appropriate assessment is critical to prescribing appropriate and effective treatment. NSDUH respondents were assessed for both substance misuse and dependence, and while an

individual may endorse polysubstance misuse and dependence, substance use dependence took precedence in results reporting. Substance use by type can result in misuse that can result in substance addiction, but not physiological substance dependence and dependence does not always equate addiction (Ballantyne, Sullivan, & Kolodny, 2012; González-Guarda et al., 2016; Hasin et al., 2013). Further, MH stressors and disorders are significantly correlated with SU, and there is also significant potential for substance use induced mood/affective disorders (Ehlers et al., 2018; Kelly & Daley, 2013). Anxiety-related disorders such as post-traumatic distress disorder (PTSD) and personality disorders, such as antisocial and borderline personality, are MH disorders that are not frequently assessed for in the clinical setting, but are commonly reported among justice-involved adults. A comprehensive MH assessment is integral to determining treatment for MH and/or SU needs to not only ensure an appropriate prescribed treatment, but also critical consideration of the influence and predictive power of certain type of SU and MH disorders or factors (i.e. impulsivity and compulsivity) on treatment adherence and retention (McLellan, 2017; Mir et al., 2015). Expanded curriculum and clinical exposure in the nursing curriculum for undergraduate and graduate levels are supported to ensure competency and confidence in appropriately assessing the BH treatment needs among justice-involved adults. These efforts can also do much to improve clinician understanding of BH, contributing to

reduced biases and multiple forms of discrimination when treating adults affected by BH needs.

Provisions of the ACA have greatly reduced the rates of un-insurance among justice-involved adults and have been significantly associated with increased receipt of needed BH treatment. However, this has not necessarily translated to a significant increase in BH treatment utilization potentially related to numerous and commonly reported barriers to individual and community-level barriers of BH treatment utilization (Howell et al., 2019; Winkelman et al., 2016). The nursing profession is holistic in nature, meets patients at their level of need, and can an important factor in improving BH treatment equity among justice-involved adults. Greater efforts to develop or improve linkages with the US CJS can not only enhance continuity of care during community reentry, but also advance knowledge of where to get treatment. Within the clinical setting, nurses across all levels can provide non-judgmental care in a caring and professional manner can do much to promote improved treatment adherence, routine and timely health seeking behaviors, and positive health outcomes. Promotion of the importance of mental health as being integral to physical health, and its influence on health promoting behaviors can do much to address concerns related to BH stigma and the need/efficacy of BH treatment. Further, meaningful interactions within the clinical setting can allow for the comprehensive assessment of potential psychosocial stressors

related to transition and community reentry/integration that can also influence BH and BH treatment.

Nursing is a powerful agent of public health that has worked collaboratively with many disciplines to advance initiatives and policies across the local, state, and national levels to address the current national BH health crisis. The BH crisis in the justice-involved population is critical to addressing the national BH crisis and must be prioritized as a key issue critical to address public health. The US CJS has become a powerful adjunct informal component of the formal community-based BH infrastructure, and increased collaboration between nursing and the US CJS can result in improved outreach and engagement with many marginalized communities to can result in improved BH treatment utilization among justice-involved adults. Although the ACA has done more to improve rates of BH treatment utilization among justice-involved adults, there is the potential of a community/societal-level barrier of a ceiling effect in that the current BH infrastructure is unable to meet treatment demands. As such, even when addressing individual-level barriers and improving insurance coverage rates, we have to continue to advocate for an expanded BH treatment service provision. This will not improve efforts to address the BH crisis among justice-involved adults, but serves as mechanism that is aligned with treatment versus criminalization, diverting individuals affected by BH disorders to much needed treatment as opposed to incarceration and/or some form of justice-involvement.

#### **4.4.2 Recommendations for Future Research**

The NSDUH is an important informal adjunct data source of the US CJS that provides critical health information about justice-involved individuals in the community. However, this annually conducted nationally representative survey employs census level informed ranges for the numerous US racial/ethnic groups in this country that results in insufficient data to assess the groups most disproportionately affected by justice-involvement and BH disorders. American Indians/Alaska Natives are often geographically concentrated have rates of justice-contact that parallel and sometimes surpass those of NH Blacks/African Americans; yet, there is a critical paucity of US CJS literature about this group. We attempted to address this gap and generate knowledge regarding the BH of this group; however, there was considerable under-representation of some of the US racial/ethnic groups in the NSDUH database for many of the BH treatment utilization variables of interest, resulting in smaller sample sizes of some of the racial/ethnic groups in the analyses. Further, there are additional groups that may hold other identities (i.e. Post 9/11, gender, and sexual minorities) that are disproportionately affected by BH needs and justice-involvement that we were also unable to examine due to their under-representation and small sample sizes.

Until the community-based BH infrastructure and public health measures can adequately address the current BH crisis, the US CJS will continue to be a crucial component of BH treatment service provision. The NSDUH can greatly advance the

research knowledge about the BH needs of groups that are disproportionately burdened by persistent BH disparities and that are often marginalized from formal healthcare. A more intentional effort to oversample these groups would greatly aid in informing BH treatment service planning and advance BH treatment equity among groups that are often affected by numerous and overlapping SDOH and identities, and are often overlooked. Further, as we continue to advance BH treatment initiatives we must also implement continuous evaluation methods to ensure that these groups are afforded equal access and benefits; if not, we will continue to make treatment advances based on data that is not representative of the US health population, and perpetuate unintended BH treatment inequities.

#### **4.4.3 Limitations**

There were several potential limitations to this study that should be taken into consideration when reviewing results. The racial/ethnic makeup of our sample was not reflective of the racial/ethnic groups that have been most disproportionately affected by the US CJS (i.e., American Indians, NH Blacks/African American, and Hispanics/Latinxs). Consistent with other studies, NH Blacks/African Americans and Hispanics/Latinxs were represented in higher percentages among the justice-involved sample in our study compared to their makeup in the US general population (Bryson et al., 2019; Howell et al., 2019; Saloner et al., 2016; Sung et al., 2011; Winkelman et al., 2016;

Yu et al., 2014; Yu & Sung, 2015). However, although NH Whites comprise approximately 40% of the US correctional population, they constituted more than half of (54.3%) of our study sample, consistent with much of the extant literature using nationally representative data in which the majority of the racial/ethnic representation of the parole and probation populations is disproportionately represented by NH Whites (Bryson et al., 2019; Crilly et al., 2009; Howell et al., 2019; Saloner et al., 2016; Sung et al., 2011; Winkelman et al., 2016; Yu et al., 2014; Yu & Sung, 2015). Although there are numerous meaningful and contextual factors that can influence the persistent disproportionate makeup of NH Whites in studies related to BH among justice-involved adults on probation or parole (e.g. geographic location, disparities in parole/probation revocations, etc.), intentional efforts to oversample these groups is supported to ensure representation and BH knowledge generation about the groups more affected by justice-involvement.

Although there were comparable rates of BH disorders across the racial/ethnic groups, it is possible that due to the under-representation of individuals with BH needs among some of the racial/ethnic groups compared to the NH White group in our sample, the ability to detect statistical significance in the analytical multivariable models was precluded. Further, we were unable to examine the impact of gender, race/ethnicity, and their interaction on barriers to BH treatment utilization due to the low number of responses among some of the racial/ethnic groups, allowing only for a descriptive

analysis. It is quite possible that this lack of responses was not only due to under-representation of some of the racial/ethnic groups, but also indicative of lesser BH treatment access and utilization among US racial/ethnic minorities. Approximately 14% of the justice-involved adults that reported barriers/reasons for not getting MH and SU treatment were from rural areas, further reducing response counts, precluding our ability to examine rurality as community/societal-level barrier to BH treatment utilization. The lack of/low cell counts of responses related to MH and SU treatment utilization among the different gender and racial/ethnic groups undermined our ability to determine the impact of gender, race/ethnicity, and their interaction on MH and SU treatment in the analytic models, prohibiting reporting of reliable and valid results. In addition, although the NH Other Minority group was affected substantial rates of BH disorders, this group was not used in the analytical models as the generalizability of this information was precluded as it was driven primarily by adults that identified as bi-/multiracial and the specific racial and/or ethnic information about this group was unknown. Overall, US minorities have lesser access to BH treatment, and in the instances in which BH treatment is provide, it frequently not guideline concordant (Gonzalez et al., 2010). Hispanic/Latinxs may even lesser access to much needed BH treatment compared American Indians/Alaska Native and NH Blacks/African Americans, supporting further research regarding the differential access to BH treatment utilization (Sung et al., 2011). Hispanics/Latinx are tremendously diverse group that

vary considerable by geographic location and cultural identity, which can influence the type of BH need, as well as inform more specific and targeted culturally competent and effective interventions. Greater efforts to integrate BH care into primary care among US minorities may improve access and BH treatment outcomes in US minority groups affected by BH treatment disparities.

#### **4.5 Conclusion**

This study sought to advance a more comprehensive understanding of the gender and racial/ethnic disparities in BH needs among justice-involved adults during community reentry/integration, as guided by MTT and the intersectionality and social determinants of health frameworks. The racial/ethnic groups were differentially affected by the BH disorders examined, and there were notable within racial/ethnic disparities in rates of these BH disorders by gender. All of the racial/ethnic groups examined in this study were affected by higher rates of BH disorder than the US general population, and there were significant disparities by gender. Gender is a particularly salient issue, as females are increasingly affected by SU and there is a considerable lack of gender-response BH treatment for justice-involved females. We found substantial unmet BH treatment needs, and untreated BH disorders are a critical barrier to sustained community integration among justice-involved adults.

Justice-involved adults are disproportionately represented by groups exposed to multiple and intersecting SDOHs that have not only increased their risk and vulnerability to BH disorders and inequities to BH treatment, but also to justice-involvement. MH is critical to overall health, is highly correlated with SU, and substance use and substance-use related offenses are significant drivers of justice-involvement (Edwards, Bunting, & Garcia, 2013). American Indians/Alaska Natives, NH Blacks/African Americans, Hispanics/Latinxs and NH Whites of lower SES have detrimentally affected by the US CJS, particularly in rural areas where incarceration rates have surpassed those of urban areas. It is critical that we advance our knowledge and research about the BH needs and BH treatment utilization experiences of justice-involved for these groups to inform local, state, and national initiatives to address not only the BH needs of justice-involved adults during community reentry, but also critical SDOH related to housing, employment, and family/social support that are fundamental to BH, community-based BH treatment utilization, and successful community integration.

## **5. Conclusions**

### ***5.1 Summary of Findings***

The purpose of this dissertation was to develop a more comprehensive understanding of the BH needs (depression, psychological distress [PD], and/or substance use disorders [SUDs]), barriers to, and facilitators of BH treatment utilization among adults under correctional supervision in the community (i.e. parole and/or probation), heretofore referred to as justice-involved adults. This purpose was achieved through a systematic review of the extant literature that examined unmet BH needs, and barriers and facilitators to community-based BH treatment utilization among justice-involved adults. A secondary analysis of a large nationally representative sample from the 2016 National Survey on Drug Use and Health (NSDUH) database was used to achieve the following: 1) an examination of past-year BH needs of justice-involved adults compared to adults without justice-involvement; 2) an examination of the impact of self-reported gender, race/ethnicity, and their intersectionality on past-year BH needs among justice-involved adults; 3) a description of BH treatment utilization and barriers to BH treatment utilization among justice-involved adults; and 4) an examination of the impact of self-reported gender, race/ethnicity, and their intersectionality on BH treatment utilization among justice-involved adults with a BH need.

### **5.1.1 Systematic Review of the Unmet BH Needs and Barriers and Facilitators to Community-Based BH Treatment Utilization Among Justice-Involved Individuals**

In chapter two, we synthesized findings from 19 studies in our systematic review of the extant literature from 2010-2019. In this systematic review, we attempted to understand the way in which justice-involved adults with BH needs access community-based BH treatment that was not mandated or a condition of community corrections supervision. In addition, we wanted to understand the facilitators and barriers to accessing formal community-based BH treatment utilization in the absence of critically important transitional and reentry efforts. Synthesized major findings revealed that 1) there was a significant lack of gender-responsive BH treatment among justice-involved females; 2) although the Affordable Care Act (ACA) has increased rates of health insurance coverage and BH treatment utilization among justice-involved adults, there remains substantial unmet BH treatment need; 3) psychosocial stressors related to basic needs (e.g. employment, housing, etc.) during community reentry adversely affect BH and greatly undermine BH treatment utilization; 4) knowledge related to BH disorders, BH treatment, BH treatment readiness, and stigma were substantial individual-level barriers to BH treatment utilization; and 5) justice-involvement was a significant facilitator of BH treatment utilization among justice-involved adults.

There were several gaps in this literature review that this dissertation study attempted to address. There is a critically urgent need to further research related to

gender-specific/responsive BH treatment. To this end, chapters three and four of this dissertation study examined gender disparities in BH needs and the impact of gender on BH treatment utilization. In chapter four, gender disparities in BH needs and BH treatment utilization were further differentiated by race/ethnicity to acknowledge the impact of intersectionality and the effects of sexism and/or racism in justice-involved females. This dissertation study also examined BH needs and factors influencing BH treatment utilization among justice-involved NH Blacks/African American, Hispanics/Latinx adults, and American Indians/Alaska Natives, to address the gap in knowledge regarding BH and BH treatment disparities in these groups (chapters three and four). Finally, in chapter four, an examination of community/societal-level barriers was conducted to further knowledge on the accessibility of community-based BH treatment to address the gap in the literature regarding an insufficient BH treatment infrastructure as a structural barrier to BH treatment utilization.

### **5.1.2 BH in Justice-Involved Individuals**

Guided by a social determinant of health (SDOH) framework, a cross-sectional, descriptive, and correlational study using the 2016 NSDUH dataset determined past-year BH needs among justice-involved adults compared to adults that were not justice-involved during the past 12 months adjusting for individual characteristics (self-reported gender, race/ethnicity, age, education, income, marital status, and overall

health). SDOH discourse and research has increasingly recognized justice-involvement as a SDOH.(Bui et al., 2019) Justice involvement was significantly associated with a BH need and 46% of all justice -involved adults in the current study was affected by a past-year BH disorder compared to a rate of 18% among non-justice-involved adults. The current study contributes to the limited literature on co-occurring MH and SU disorders in a nationally representative sample of justice-involved adults, and is unique in its examination of co-occurring MH and SU disorders in a nationally representative sample of justice-involved adults between the ages of 18-49. About 14% of justice-involved adults had experienced a co-occurring MH and SUD in the past year, compared to a rate of approximately 3% in adults not on probation or parole in the past year.

The justice-involved population is disproportionately comprised of individuals affected by multiple SDOHs that increase the risk of poor BH, reduced access to BH treatment, BH treatment disparities, and an increased risk for justice contact. Many BH disorders are considered pathologies of poverty(Alfieri, n.d.; R. J. Miller, 2013; Shim et al., 2014), and lower SES was significantly associated with a higher risk for a BH disorder in the current study. Younger adults (ages 18-49) were disproportionately justice-involved in the current study, and constitute an age group increasingly affected by the current BH crisis (Case & Deaton, 2015; Twenge et al., 2019; Zang, Zheng, Yang, & Land, 2018). Younger adults are in their prime developmental, relationship forming, and

educational and working years, and incarceration in younger adults is associated with poor physical and behavioral health over the life course (Barnert et al., 2017).

Co-occurring MH and SU disorders are significantly higher among justice-involved adults and co-occurring BH disorders pose a particular challenge to US CJS rehabilitative efforts that often lack dually integrative treatment for individuals experiencing both a MH and SU disorder (Bradford, 2016; Morash et al., 2018; Peters et al., 2015; Prince & Wald, 2018). Our results contributed to the limited research on the differential examination co-occurring MH and SU disorders, and substance misuse and substance dependency in a nationally-representative sample of justice-involved adults; knowledge critical to appropriate BH treatment service provision.

### **5.1.3 Gender and Racial/Ethnic Disparities in BH and BH Treatment Utilization Among Justice-Involved Individuals**

Overall, half of all justice-involved females in our study were affected by a BH disorder compared to males (50.3% vs. 44.4%), and females had significantly higher odds of being affected by co-occurring MH and SUDs. NH American Indian/Alaskan Native females were significantly more likely to be affected by substance dependency compared to the females of the other racial/ethnic groups, while NH White females had significantly higher odds of being affected by MDE. Consistent with the existing literature, our study supports the disproportionate burden of MH needs among justice-involved females (Bloom, 2004; King et al., 2018; Yu & Sung, 2015). Similarly, our results

mirror the substantial increase in substance misuse and dependency among females in the last two decades that has greatly contributed to their exponential growth in the US CJS (Busen, 2014; Golder & Logan, 2014; Lorvick et al., 2015; Marsh et al., 2018; Mauer, 2013; McCollister et al., 2014). Justice-involved females often face gender-specific challenges related to parenting, childcare, and gender-rooted social inequities related to both gender and race/ethnicity that can significantly affect community reentry/integration and act as potential barriers to community-based BH treatment utilization. Justice-involvement confers further enhanced social vulnerability among all justice-involved females that can result in an increased risk and vulnerability to psychosocial stressors related to community reentry that can adversely affect MH and undermine SU abstinence/recovery. Race-specific gender-responsive community-based BH treatment is a critically important treatment consideration in BH service provision planning (Guerrero et al., 2014).

In our examination of racial/ethnic disparities in BH, NH Whites had significantly higher odds of being affected by a MH disorder and co-occurring SU. Although NH Blacks/African Americans and Hispanics/Latinxs are disproportionately criminalized for SU, the prevalence of SU among NH Blacks/African Americans in our study did not differ significantly from that of NH Whites, and Hispanics/Latinxs were significantly less likely to be affected a substance use dependency. Our results are consistent with the extensive literature supporting the disproportionate criminalization

of SU among US racial and/or ethnic minorities and communities of lower income (Doerner, & Demuth, 2010; Gross, 2015; Hinton et al., 2018; Palamar et al., 2015; Vearrier, 2019). US racial and/or ethnic minorities and NH Whites of lower SES have been disproportionately impacted by the US CJS, and all points of contact with the US CJS can act as mechanism for worsening physical and BH health (Brinkley-Rubinstein, 2013).

Justice-involved adults continue to be impacted by persistent BH treatment inequities, and rates of BH treatment were insufficient relative to the high prevalence of BH needs. There were no gender differences related to BH treatment utilization in our study; however, female gender has been associated with lesser access and as a potential barrier to BH treatment, particularly SU treatment, due to the lack of gender-responsive treatment (Gryczynski et al., 2012). Consistent with the extant literature self-report of overall health as being fair/poor significantly associated with BH treatment utilization (Marlow et al., 2010; Sung et al., 2011). Hispanics/Latinx and NH Blacks/African Americans had significantly lower odds of BH treatment utilization, consistent with numerous studies reporting the inverse association of these two groups with BH treatment utilization.

Our results support the disproportionately high levels of unmet need for BH treatment among adults on parole and/or probation. Affordability and cost of BH treatment remain a persistent barrier to BH treatment utilization (Bryson et al., 2019; Dong et al., 2018; Feucht, & Gfroerer, 2011; Howell et al., 2019; Marlow et al., 2010; Sung

et al., 2011; Winkelman et al., 2016). There are differential barriers to MH and SU treatment that will require specific and targeted efforts to improve BH treatment utilization among justice-involved adults with BH needs. Individual-level barriers can greatly undermine MH treatment utilization even when community/societal-level barriers related to access have been address, supporting greater efforts to reduce MH stigma and improve education related to the importance of MH treatment as with other chronic health conditions.

The most leading barrier to SU treatment was treatment readiness, in that 46% of individuals did not seek SU treatment because they were not ready to stop using. Further, about 13.2% of adults with a SU need felt a need for treatment, underlying the importance of treatment motivation and readiness as factors significantly influencing SU treatment adherence and retention. Further, access to a desired type of treatment was also another prominent barrier to SU treatment. These are particularly salient findings in that while justice-involvement is a substantial referrer and facilitator of SU treatment, it is often mandated, many not be clinically relevant, and ability to access desired type of treatment may be limited, undermining sustained/long-term recovery.

#### **5.1.4 Limitations**

The number of studies included in the systematic review of the extant literature in this dissertation was small, and some of the identified barriers to and facilitators of

BH treatment utilization were specific to a few studies and/or small sample sizes. In addition, across many of the studies examined, the researchers/authors often posited barriers and facilitators to BH treatment utilization that were based on their knowledge of the exiting literature or were study specific. Further, this systematic review of the literature aimed to understand the naturalistic/real-world contextual factors that influence community-based BH treatment utilization in justice-involved adults with BH needs, and studies that entailed mandated BH treatment were excluded. However, there were a limited number of studies included in this review in which the researchers/authors were not able to determine if BH treatment in the justice-involved study sample was court-mandated or not. As such, the effect of mandated BH treatment on reported rates of BH treatment utilization could not be determined.

A potential limitation of the NSDUH database is that “past 12 months” may include a portion of time when the individual may have been incarcerated. In many instances, incarceration has served to reduce health disparities among US racial and ethnic groups by providing access to healthcare to many medically-underserved and marginalized health populations (Dumont et al., 2013). An additional potential limitation of this study was our inability to compare and contrast BH needs and BH treatment utilization among adults on parole versus adults on probation due to low statistical power. As such, there is potential that are significant differences in the BH needs and BH treatment utilization among adults on parole versus adults on probation.

All data on gender in this study was based on self-reported. Gender as a societal construct that is associated with preconceived norms and that is applied to biological sex is recognized. Socially imposed norms of gender can be further differentiated by additional intersecting identities related to race and/or ethnicity. Further, the concept of gender can have biological and cultural underpinnings that results in BH and biological sex differences as a response to environmental and social experiences related to gender and sex (Carroll & Smethells, 2016; Fausto-Sterling, 2012). The proposed study was limited to self-report of gender only as measured in the NSDUH dataset.

The racial/ethnic makeup of our sample was not reflective of the racial/ethnic groups that have been most disproportionately affected by the US CJS (i.e., American Indians, NH Blacks/African American, and Hispanics/Latinxs). Consistent with other studies, NH Blacks/African Americans and Hispanics/Latinxs were represented in higher percentages among the justice-involved sample in our study compared to their makeup in the US general population (Bryson et al., 2019; Howell et al., 2019; Saloner et al., 2016; Sung et al., 2011; Winkelman et al., 2016; Yu et al., 2014; Yu & Sung, 2015). However, although NH Whites comprise approximately 40% of the US correctional population, they constituted more than half of (54.3%) of our study sample, consistent with much of the extant literature using nationally representative data in which the majority of the racial/ethnic representation of the parole and probation populations is disproportionately represented by NH Whites (Bryson et al., 2019; Crilly et al., 2009;

Howell et al., 2019; Saloner et al., 2016; Sung et al., 2011; Winkelman et al., 2016; Yu et al., 2014; Yu & Sung, 2015). Further, we were unable to examine the impact of gender, race/ethnicity, and their interaction on barriers to BH treatment utilization due to the low number of responses among some of the racial/ethnic groups, allowing only for a descriptive analysis. It is quite possible that this lack of responses was not only due to under-representation of some of the racial/ethnic groups, but also indicative of lesser BH treatment access and utilization among US racial/ethnic minorities and individuals from rural geographic locations. Hispanic/Latinxs may even lesser access to much needed BH treatment compared American Indians/Alaska Native and NH Blacks/African Americans, supporting further research regarding the differential access to BH treatment utilization (Sung et al., 2011). Hispanics/Latinxs are a tremendously diverse group that varies by geographic location, cultural identity, and race. These factors, in addition to the impact of the intersectionality of gender and race/ethnicity (e.g., Afro Latinas) can influence BH need type, as well as inform more culturally targeted and tailored effective BH treatment interventions.

## ***5.2 Recommendations for Future Research***

Our systematic review results revealed that there is an urgent need for more comprehensive and continuous assessment of BH needs across the reentry/community integration period, and greater integration of patient- and family-centered care in BH

treatment can improve BH outcomes among justice-involved adults. Further, although the ACA has greatly improved rates of healthcare insurance and BH treatment utilization among justice-involved adults, there is critical need to examine the clinically-relevancy of BH treatment utilization and as well as improved efforts to address the basic needs of justice-involved adults (e.g. housing, employment, etc.).

The NSDUH is an important informal adjunct data source of the US CJS that provides critical health information about justice-involved individuals in the community. A more strategic oversampling of groups that are at an increased risk of BH disorders is supported. In addition, assessment of gender minorities (i.e. transgender individuals) has not been included in the NSDUH series even though this group experiences substantially high rates of BH needs.

These recommendations for the NSDUH survey could greatly advance the knowledge and research capabilities about the BH needs of groups that are disproportionately burdened by persistent BH disparities and treatment inequities and are often marginalized from formal healthcare. A more intentional effort to oversample these groups would greatly aid in informing BH treatment service planning and advance BH treatment equity among groups that are often affected by numerous and overlapping SDOH and identities, and who are often overlooked. Further, as we continue to advance BH treatment initiatives we must also implementation continuous evaluation methods to ensure that are groups are afforded equal access and benefits; if

not, we will continue to make treatment advances based on data that is not representative of the US health population, and perpetuate unintended BH treatment inequities.

Integral to the NSDUH survey is data about physical health conditions and physical and emotional/mental/behavioral health are intricately linked (Hidaka, 2012). There was a 68% rate of missing data for 10 of the 11 lifetime health variables precluding inferential population health estimates. As noted above, incarceration can serve as a much-needed mechanism of advancing health equity by providing access to healthcare among individuals being held in jails in prisons. However, much of this care is based on infectious disease or acute medical need (e.g. uncontrolled diabetes, asthma, etc.), and many correctional facilities often lack screening for medical conditions that do not have progressed in acuity (i.e. early stage cancers and hypertension) (Wang et al., 2017). As such, a greater effort to improve the completeness of physical health data in order to further a more comprehensive health profile that affords greater inferences about the factors related to chronic respiratory and other physical health conditions.

In our study, we attempted to employ a modified version of Meleis' Transitions Theory adapted to the transitional/reentry BH needs and BH treatment utilization among adults on parole and/or probation. Due to the low sample sizes for many of the theoretical components examined in our study related to the individual and community/societal-level barriers to BH treatment utilization and MH and SU treatment

utilization among justice-involved adults, were unable to determine the efficacy of this model. However, our study results support the appropriateness of Meleis' Transitions Theory as a model to inform interventions targeting BH and BH treatment utilization among justice-involved adults, supporting further research and implementation.

### ***5.3 Implications for Nursing***

The nursing profession, with its holistic care approach, will be integral and uniquely posed to advance the clinical and advocacy measures needed to address the current BH crisis in justice-involved adults. To further this effort, we offer the following considerations for nursing implications.

Improved nursing curriculum training and institutional policies to reduce stigma and implicit and explicit bias related to BH within the clinical setting. There is an urgent need to improve nursing curriculum on BH, the SDOH of BH, as well as the addition of content related to justice health. Cultural norms and beliefs related to MH cannot only affect individual symptomatology and perceptions of BH, but also disclosure of this information within the healthcare setting. Further, SU among NH Whites of higher SES is associated with a medicalized approach that emphasizes neuropsychiatric disease and treatment (Anderson et al., 2015; Hansen & Netherland, 2016). This is contrary to perceptions about SU among US racial and/or ethnic minorities and NH Whites of lower SES, which is often centered around personal choices, deviance, and justice-involvement

(Anderson et al., 2015). These beliefs and preconceptions, coupled with perceived discrimination and bias in the clinical setting, can significantly discourage health seeking behaviors and the implementation of pragmatic and harm reduction initiatives.

Stigma is a considerable driver and mechanism of population health disparities and inequities (Hatzenbuehler, Phelan, & Link, 2013). Stigma related to BH exists among health care providers and implicit and explicit bias can preclude assessment and appropriate treatment of BH disorders. BH stigma can also foster mistrust and discourage healthcare seeking behaviors and patient disclosure of information related to BH disorders, resulting in persistent BH treatment disparities. Improved training and incorporation of curriculum focused on BH may serve to advance nursing knowledge, acceptance, and competence in providing BH treatment. Finally, institutional policies that hold nursing accountable for the appropriate assessment, screening, and treatment of BH disorders across all patient populations will serve to foster improved equity and accountability in BH treatment. Reduced stigma would also further advance medication assisted treatment (MAT) for substance use dependency, particularly in justice-involved individuals that are often grappling with multiple stigmatized identities that discourage individuals from seeking healthcare while at the same time increasing their risk for BH outcomes (Fox et al., 2015; Krawczyk, Picher, Feder, & Saloner, 2017; Linden, Marullo, Bone, Barry, & Bell, 2018).

Implementation of standardized assessment and screening of BH disorders, particularly co-occurring BH disorders in order to ensure the appropriate type BH treatment (e.g. dual integrative treatment). The increasing prevalence of BH disorders, particularly SU, has prompted a cautious recommendation from the U.S. Preventive Services Task Force for healthcare providers to screen adult patients for illicit drug use. Universal screening of BH disorders will promote parity with physical health disorders, as well as connect symptomatic and asymptomatic individuals with effective treatment. Universal screening can also serve to improve BH treatment equity in BH disparity groups. MH and SU disorders are highly correlated, sharing many of the same underlying causes (e.g. exposure to life stressors, trauma, genetic susceptibility, etc.). More than one-fourth of adults with MH disorders also have a SUD, and nearly half of adults with an SUD also suffer from a MH disorder (Ahrnsbrak, Bose, Hedden, Lipari, & Park-Lee, 2017). Treatment for co-occurring disorders requires dual and integrative treatment for both MH and SU disorders in order to be effective. Consideration of dual diagnoses should always be present, particularly in high-risk populations such as individuals affected by serious mental illness, trauma, life stressors, adverse life events, and/or justice-involved adults. Failure to identify a co-occurring disorder can result in inappropriate treatment provision, resulting in failed treatment and poor BH outcomes.

Improved pain control. Inadequate pain control is significant driver of substance misuse, often resulting in substance dependency. Consistent with our study results, self-

report of poor physical health, which is often associated with chronic pain, was significantly associated with MH disorders and substance use dependency (Jaremo, Arman, Gerdle, Larsson, & Gottberg, 2017; Tsao, Stein, Ostrow, Stall, & Plankey, 2011). Greater implementation and acceptance of prevention methods aimed at preserved functioning and reduced chronic pain risk, in addition to non-opiate and non-pharmacological pain management strategies, are integral to reducing the risk and prevalence of substance use dependency in individuals endorsing poor health, chronic pain, and inadequate pain management.

Improved integration of BH in primary care. There is no health without BH and no BH without health, yet physical health conditions have been vastly more normalized and accepted as opposed to the often stigmatized view of BH conditions (Office of the Surgeon General., 1999). Further, in areas with limited BH treatment resources, health-seeking behaviors related to BH treatment can be discouraged due to stigma and/or not enough supply to meet demand. As such, there should be a greater effort to integrate BH and primary care, helping to advance physical and BH treatment parity. Further, primary care serves as a substantial entrance point for BH treatment. Individuals with physical health conditions are often affected by co-morbid BH disorders, and justice-involved individuals are disproportionately burdened by physical and BH disorders. There is a strong need for BH care in the primary care setting, and improving resources to encourage provider competency in treating BH disorders, as well as increasing the

presence of BH providers in primary care setting could greatly enhance community-based BH treatment infrastructure (Fox et al., 2014; Hudson et al. 2016b; Morse et al., 2017). As such, primary care can be critical to advancing BH treatment equity in justice-involved individuals.

Improved linkages between healthcare and community-based social support services. SDOHs such as lower SES, housing instability, and lack of healthcare access greatly influence the development and treatment of BH disorders (Hatzenbuehler et al., 2013; Noonan, Velasco-Mondragon, & Wagner, 2016; Spear et al., 2013; Woolf & Braveman, 2011). Substance use treatment needs for justice-involved adults with substance misuse and dependency can vary between the need for community-based self-help groups to specialized facilities that employ detoxification and medication assisted treatment services (Patel et al., 2014; Ritter et al., 2019). There is considerable potential for natural/spontaneous remission of substance misuse/dependence of certain substances with the improvement of social support and resources for justice-involved individuals that may resort to substance misuse and/or dependence as a way to cope with social stressors related to community reentry (e.g. supportive housing, employment, improved health care access and community-based BH treatment, etc.) (Ritter et al., 2019). As such, greater attention to addressing these factors can serve to reduce risk and burden of BH disorders.

Improved training and expansion of nurse practitioners' (NPs) scope of practice to include medication assisted treatment (MAT) for substance use dependence is supported. Substance use dependence is often the category of SUDs that require specialized SU treatment, particularly depending upon the type of substance dependency. Study results indicated that SUD-D rates for cocaine, heroin, methamphetamine, and pain relievers were approximately two to five times higher among justice-involved adults, when controlling for other SDOHs that can influence SUD-D (e.g. gender, race/ethnicity, lower SES, etc.). These substances are highly addictive and frequently entail specialized treatment services, particularly those that provide medication assisted therapy for detoxification, withdrawal, behavioral therapy, and/or sustained abstinence. Buprenorphine is a safe and effective treatment of opioid dependency it is less potent and less likely to result in fatal overdoses than methadone and a federal waiver allows for its prescription in a variety of clinical settings (Jackson & Lopez, 2018). Federal efforts have greatly reduced the certification burden for MAT and the 2016 Comprehensive Addiction and Recovery Act (CARA) expanded MAT training and certification to NPs and physician assistants. CARA was specifically designed to address the need for MAT in rural and underserved areas where NPs makeup a considerable bulk of the healthcare providers (Pullen & Oser, 2014). However, there are still currently many states that restrict NPs from MAT with buprenorphine limiting access to much need MAT in many underserved areas hit hardest by the opioid

epidemic. Lifting of state limitations on NPs' ability to prescribe buprenorphine for MAT would serve to greatly improve access and treatment for opioid dependency in addition to enhancing current treatments for polysubstance use with cocaine and methamphetamine abuse and dependency (Ahmadi & Razeghian Jahromi, 2017; Ling et al., 2016; Salehi, Emadossadat, Kheirabadi, Maracy, & Sharbafchi, 2015).

Nursing advocacy for expanded and improved transition and community reentry services to ensure continuity or initiation of care post-release. The increased need for strengthened linkage between the US CJS and the community began to inform local and state efforts that have proven successful and cost-savings at effectively addressing BH among justice-involved individuals (Covington, Burke, Keaton, & Norcott, 2008; Fox et al., 2014; Khan et al., 2017; Kouyoumdjian et al., 2015; Rich et al., 2014). In addition, a fundamental driving force for this success has been the increased access to BH treatment and healthcare due to state Medicaid expansions under the Affordable Care Act (ACA) which has greatly expanded healthcare access and coverage to the justice-involved population (Fox et al., 2014; Freudenberg & Heller, 2016; Patel et al., 2014; Rich et al., 2014). Transition services by the US CJS have been key to these efforts by providing assistance with Medicaid enrollment of justice-involved individuals (Grodensky et al., 2018; Patel et al., 2014; Rich et al., 2014). States that have expanded Medicaid and actively enrolled justice-involved individuals in ACA have reported significant savings related to Medicaid enrollment, specifically significant reductions in

recidivism, improved access and treatment engagement, cost-savings, and improved BH outcomes (Fox et al., 2014; MacMadu & Rich, 2015; Patel et al., 2014; Rich, Wakeman, & Dickman, 2011). In states that have not expanded Medicaid but have significant correctional expenditures, greater consideration should be given to increased funding of transitional and reentry efforts that target improved BH treatment as a means to reduce correctional expenditures. This can contribute to greater funding availability for PH measures aimed at improving BH and reducing the risk factors associated with BH disorders and justice involvement.

#### **5.4 Conclusion**

BH treatment inequities, the criminalization of BH disorders and a long-standing under-resourced community-based BH treatment infrastructure has resulted in the US CJS becoming the de facto answer to the national BH crisis, contributing to disproportionate justice contact among individuals affected by BH disorders. The BH crisis in the justice-involved population is reflective of the persistent lack of public health interventions targeting the BH crisis in the US general population. Any efforts to address the national BH crisis must involve the US CJS. The BH indicators used in this study represent BH needs (i.e. the presence of a diagnosis for which there is an effective available treatment) (Ritter et al., 2019).

There is a critically urgent need to expand efforts that target the transitional BH treatment needs of justice-involved adults. Justice-involvement as a SDOH, coupled with other SDOH (e.g. gender, race/ethnicity, socioeconomic status, etc.) greatly increases the risk of BH disorders, justice-involvement, and access to BH treatment utilization. These multiple and intersecting SDOHs undermine the BH of justice-involved adults during the transition and community reentry/integration period, contributing to sustained inequities in BH and BH treatment, resulting in a “revolving door” of justice-involvement significantly influenced by untreated BH needs. Study results support advanced research about the BH needs and BH treatment utilization experiences of all justice-involved adults to inform local, state, and national initiatives that address not only the BH needs of justice-involved adults during community reentry, but also critical SDOH related to housing, employment, and family/social support that are fundamental to BH, community-based BH treatment utilization, and successful community integration.

## Appendix A. Chapter 2 Systematic Review Search Database Search Trails and Quality Appraisal Table

Table A1: PubMed Search Trail

Search #	MeSH Terms and Key Words	Results
1	"Mental Disorders"[Mesh] OR "Mental Disorders"[tw] OR "mental health"[tw] OR "Bipolar and Related Disorders"[Mesh] OR bipolar[tw] OR "Borderline Personality Disorder"[Mesh] OR "Borderline Personality Disorder"[tw] OR "Schizophrenia"[Mesh] OR "Schizophrenia"[tw] OR Depression[mesh] OR "depressive disorder"[mesh] OR depression[tw] OR depressions[tw] OR depressive[tw] OR depressed[tw] OR "Stress Disorders, Traumatic"[Mesh] OR PTSD[tw] OR "Post Traumatic Stress Disorder"[tw] OR "Stress, Psychological"[mesh] OR stress[tw] OR stressed[tw] OR stressors[tw] OR stressor[tw] OR stresses[tw] OR stressing[tw] OR anguish[tw] OR distress[tw] OR distressed[tw] OR distressing[tw] OR distresses[tw] OR suffering[tw] OR "Substance-Related Disorders"[mesh] OR "substance abuse"[tw] OR (("Pharmaceutical Preparations"[mesh] OR "Alcoholic Beverages"[mesh] OR drug[tw] OR drugs[tw] OR "Alcohol"[tw] OR "Alcohol Drinking"[Mesh] OR substance) AND ("dependence"[tw] OR "dependency"[tw] OR "dependent"[tw] OR disorder[tw] OR disorders[tw] OR "addiction"[tw] OR "addictions"[tw] OR addict[tw] OR addicts[tw] OR "abuse"[tw] OR misuse[tw] OR use[tw] OR user[tw] OR users[tw] OR misuse[tw] OR "habituation"[tw])) OR Alcoholic[tw] OR Alcoholism[tw]	3383498
2	Parolee[tw] OR parolees[tw] OR parole[tw] OR probationer[tw] OR probationers[tw] OR probation[tw] OR "community corrections"[tw] OR "community-based corrections"[tw] OR "community correction"[tw] OR "community-based correction"[tw] OR "community supervision"[tw] OR prison* OR inmate* OR incarceration* OR correctional* OR jail* OR correction* OR	224754

	"correctional facilities" OR "correctional facility"[tw] OR "justice involved"[tw] OR "court involved"[tw] OR "supervised release"[tw] OR "mental health court"[tw] OR "mental health courts"[tw] OR "diversion program"[tw] OR "diversion programs"[tw]	
3	("mental health"[mesh] OR "mental health"[tw] OR psycholog*[tw] OR behavior[mesh] OR behavior*[tw]) AND (facilitator[tw] OR facilitators[tw] OR "mass screening"[mesh] OR screen*[tw] OR Therapeutics[mesh] OR Therapeutic[tw] OR Therapeutic[tw] OR therapy[tw] OR therapies[tw] OR treatment[tw] OR treatments[tw] OR "Patient Acceptance of Health Care"[mesh] OR "health care"[tw] OR "healthcare"[tw] OR Rehabilitation[mesh] OR rehabilit*[tw] OR Psychotherapy[mesh] OR psychotherapy[tw] OR "Therapeutic Community"[tw] OR "Therapeutic Communities"[tw] OR "Help-seeking behavior"[MeSH] OR "help-seeking behavior" [tiab] OR "Patient Acceptance of Health Care"[mesh] OR "patient engagement" [tiab] OR "patient activation" [tiab] OR "patient participation" [tiab] OR barrier[tiab] OR barriers[tiab] OR challenges[tw] OR challenge[tw] OR facilitate[tw] OR attitude[tw] OR attitudes[tw] OR "patient involvement" [tiab] OR "Health knowledge, attitudes, practice"[mesh])	1530788
4	#1 AND #2 AND #3	9740
5	NOT ("Adolescent"[Mesh] OR "Child"[Mesh] OR "Infant"[Mesh])	7093
6	2010-2019	3415

**Table A2: CINAHL Search Trail**

Search #	Subject Headings and Key Words	Results
1	<p>(MH "Mental Disorders+") OR (MH "Bipolar Disorder+") OR (MH "Borderline Personality Disorder") OR (MH "Schizotypal Personality Disorder") OR (MH "Stress Disorders, Post-Traumatic+") OR (MH "Stress+") OR (MH "Depression+") OR TI (("Mental Disorders" OR "mental health" OR bipolar OR "Borderline Personality Disorder" OR "Schizophrenia" OR depression OR depressions OR depressive OR depressed OR PTSD OR "Post Traumatic Stress Disorder" OR stress OR stressed OR stressors OR stressor OR stresses OR stressing OR anguish OR distress OR distressed OR distressing OR distresses OR suffering OR "substance abuse" OR (((MH "Drugs+") OR (MH "Drugs, Prescription") OR (MH "Alcohol Drinking+") OR TI (drug OR drugs OR "Alcohol" OR OR substance) OR AB (drug OR drugs OR "Alcohol" OR OR substance)) AND (TI ("dependence" OR "dependency" OR "dependent" OR disorder OR disorders OR "addiction" OR "addictions" OR addict OR addicts OR "abuse" OR misuse OR use OR user OR users OR misuse OR "habituation") OR AB ("dependence" OR "dependency" OR "dependent" OR disorder OR disorders OR "addiction" OR "addictions" OR addict OR addicts OR "abuse" OR misuse OR use OR user OR users OR misuse OR "habituation"))) OR Alcoholic OR Alcoholism) OR AB (("Mental Disorders" OR "mental health" OR bipolar OR "Borderline Personality Disorder" OR "Schizophrenia" OR depression OR depressions OR depressive OR depressed OR PTSD OR "Post Traumatic Stress Disorder" OR stress OR stressed OR stressors OR stressor OR stresses OR stressing OR anguish OR distress OR distressed OR distressing OR distresses OR suffering OR "substance abuse" OR (((MH "Drugs+") OR (MH "Drugs, Prescription") OR (MH "Alcohol Drinking+") OR TI (drug OR drugs OR "Alcohol" OR OR substance) OR AB (drug OR drugs OR "Alcohol" OR OR substance)) AND (TI ("dependence" OR "dependency" OR "dependent" OR disorder OR disorders OR "addiction" OR "addictions" OR addict OR addicts OR "abuse" OR misuse OR use OR user OR users OR misuse OR "habituation") OR AB ("dependence" OR "dependency" OR "dependent" OR disorder OR disorders OR "addiction" OR "addictions" OR addict OR addicts OR "abuse" OR misuse OR use</p>	871,901

	OR user OR users OR misuse OR "habituation")) OR Alcoholic OR Alcoholism)	
2	(MH "Correctional Facilities") OR (MH "Prisoners") OR TI (Parolee OR parolees OR parole OR probationer OR probationers OR probation OR "community corrections" OR "community supervision" OR prison* OR inmate* OR incarceration* OR correctional* OR jail* OR correction* OR "correctional facilities" OR "correctional facility") OR AB (Parolee OR parolees OR parole OR probationer OR probationers OR probation OR "community corrections" OR "community supervision" OR prison* OR inmate* OR incarceration* OR correctional* OR jail* OR correction* OR "correctional facilities" OR "correctional facility")	41,114
3	((MH "Mental Health") OR (MH "Community Mental Health Services+") OR TI ("mental health" OR psycholog* OR behavior*) OR AB ("mental health" OR psycholog* OR behavior*)) AND ((MH "Therapeutics+") OR (MH "Health Knowledge") OR (MH "Attitude to Mental Illness") OR (MH "Attitude to Health+") OR (MH "Rehabilitation+") OR (MH "Psychotherapy+") OR (MH "Help Seeking Behavior") OR TI (facilitator OR facilitators OR screen* OR Therapeutic OR Therapeutic OR therapy OR therapies OR treatment OR treatments OR "health care" OR "healthcare" OR rehabilit* OR psychotherapy OR "Therapeutic Community" OR "Therapeutic Communities" OR "help-seeking behavior" OR "patient engagement" OR "patient activation" OR "patient participation" OR barrier OR barriers OR challenges OR challenge OR facilitate OR attitude OR attitudes OR "patient involvement" ) OR AB (facilitator OR facilitators OR screen* OR Therapeutic OR Therapeutic OR therapy OR therapies OR treatment OR treatments OR "health care" OR "healthcare" OR rehabilit* OR psychotherapy OR "Therapeutic Community" OR "Therapeutic Communities" OR "help-seeking behavior" OR OR "patient engagement" OR "patient activation" OR "patient participation" OR barrier OR barriers OR challenges OR challenge OR facilitate OR attitude OR attitudes OR "patient involvement" ))	195,624
4	Results of #1 and #2, add #3	2091
5	<b>Narrow by Subject Age:</b> - all adult	777
6	<b>Limiters</b> - Published Date: 20090101-20191231	560

**Table A3: PsychINFO Search Trail**

Search #	Subject Headings and Key Words	Results
1	(DE "Mental Disorders+") OR (DE "Bipolar Disorder+") OR (DE "Borderline Personality Disorder") OR (DE "Schizotypal Personality Disorder") OR (DE "Stress Disorders, Post-Traumatic+") OR (DE "Stress+") OR (DE "Depression+") OR TI ("Mental Disorders" OR "mental health" OR bipolar OR "Borderline Personality Disorder" OR "Schizophrenia" OR depression OR depressions OR depressive OR depressed OR PTSD OR "Post Traumatic Stress Disorder" OR stress OR stressed OR stressors OR stressor OR stresses OR stressing OR anguish OR distress OR distressed OR distressing OR distresses OR suffering OR "substance abuse" OR ((DE "Drugs+") OR (DE "Alcohol Drinking+") OR TI (drug OR drugs OR "Alcohol" OR OR substance) OR AB (drug OR drugs OR "Alcohol" OR OR substance)) AND (TI ("dependence" OR "dependency" OR "dependent" OR disorder OR disorders OR "addiction" OR "addictions" OR addict OR addicts OR "abuse" OR misuse OR use OR user OR users OR misuse OR "habitation") OR AB ("dependence" OR "dependency" OR "dependent" OR disorder OR disorders OR "addiction" OR "addictions" OR addict OR addicts OR "abuse" OR misuse OR use OR user OR users OR misuse OR "habitation")) OR Alcoholic OR Alcoholism) OR AB ("Mental Disorders" OR "mental health" OR bipolar OR "Borderline Personality Disorder" OR "Schizophrenia" OR depression OR depressions OR depressive OR depressed OR PTSD OR "Post Traumatic Stress Disorder" OR stress OR stressed OR stressors OR stressor OR stresses OR stressing OR anguish OR distress OR distressed OR distressing OR distresses OR suffering OR "substance abuse" OR ((DE "Drugs+") OR (DE "Alcohol Drinking+") OR TI (drug OR drugs OR "Alcohol" OR substance) OR AB (drug OR drugs OR "Alcohol" OR substance)) AND (TI ("dependence" OR	1,313,933

	"dependency" OR "dependent" OR disorder OR disorders OR "addiction" OR "addictions" OR addict OR addicts OR "abuse" OR misuse OR use OR user OR users OR misuse OR "habituation") OR AB ("dependence" OR "dependency" OR "dependent" OR disorder OR disorders OR "addiction" OR "addictions" OR addict OR addicts OR "abuse" OR misuse OR use OR user OR users OR misuse OR "habituation")) OR Alcoholic OR Alcoholism)	
2	DE "Correctional Institutions" OR DE "Prisons" OR DE "Reformatories" OR DE "Prisoners" OR TI (Parolee OR parolees OR parole OR probationer OR probationers OR probation OR "community corrections" OR "community supervision" OR prison* OR inmate* OR incarceration* OR correctional* OR jail* OR correction* OR "correctional facilities" OR "correctional facility") OR AB (Parolee OR parolees OR parole OR probationer OR probationers OR probation OR "community corrections" OR "community supervision" OR prison* OR inmate* OR incarceration* OR correctional* OR jail* OR correction* OR "correctional facilities" OR "correctional facility")	75,041
3	((DE "Mental Health") OR (DE "Community Mental Health Services+") OR TI ("mental health" OR psycholog* OR behavior*) OR AB ("mental health" OR psycholog* OR behavior*)) AND ( OR (DE "Health Knowledge") OR (DE "Attitude to Mental Illness") OR (DE "Health Attitudes") OR (DE "Rehabilitation+") OR (DE "Psychotherapy+") OR (DE "Help Seeking Behavior") OR TI (facilitator OR facilitators OR screen* OR Therapeutic OR Therapeutic OR therapy OR therapies OR treatment OR treatments OR "health care" OR "healthcare" OR rehabilit* OR psychotherapy OR "Therapeutic Community" OR "Therapeutic Communities" OR "help-seeking behavior" OR "patient engagement" OR "patient activation" OR "patient participation" OR barrier OR barriers OR challenges OR challenge OR facilitate OR attitude OR attitudes OR "patient involvement" ) OR AB	459.997

	(facilitator OR facilitators OR screen* OR Therapeutic OR Therapeutic OR therapy OR therapies OR treatment OR treatments OR "health care" OR "healthcare" OR rehabilit* OR psychotherapy OR "Therapeutic Community" OR "Therapeutic Communities" OR "help-seeking behavior" OR "patient engagement" OR "patient activation" OR "patient participation" OR barrier OR barriers OR challenges OR challenge OR facilitate OR attitude OR attitudes OR "patient involvement" ))	
4	Results of #1 and #2, add #3	7497
5	<b>Limiters</b> - Publication Year: 2009-2019	4350
6	<b>Narrow by Subject Age:</b> - adulthood (18 yrs. & older)	2096

**Table A4: Criminal Justice Database Search Trail**

Search #	Key Words	Results
1	ti("Mental Disorders" OR "mental health" OR bipolar OR "Borderline Personality Disorder" OR "Schizophrenia" OR Depression OR depressive OR PTSD OR "Post Traumatic Stress Disorder" OR stress OR anguish OR distress OR distressed OR suffering OR "substance abuse" OR ((drug OR drugs OR "Alcohol" OR substance) AND ("dependence" OR "dependency" OR "dependent" OR disorder OR disorders OR "addiction" OR "addictions" OR addict OR addicts OR "abuse" OR misuse OR use OR user OR users OR misuse OR "habituation"))) OR Alcoholic OR Alcoholism) OR ab("Mental Disorders" OR "mental health" OR bipolar OR "Borderline Personality Disorder" OR "Schizophrenia" OR Depression OR depressive OR PTSD OR "Post Traumatic Stress Disorder" OR stress OR anguish OR distress OR distressed OR suffering OR "substance abuse" OR ((drug OR drugs OR "Alcohol" OR substance) AND ("dependence" OR "dependency" OR "dependent" OR disorder OR disorders OR "addiction" OR "addictions" OR addict OR addicts OR "abuse" OR misuse OR use OR user OR users OR misuse OR "habituation"))) OR Alcoholic OR Alcoholism)	75,743
2	ti(Parolee OR parolees OR parole OR probationer OR probationers OR probation OR "community corrections" OR "community supervision" OR probationer OR probationers) OR ab(Parolee OR parolees OR parole OR probationer OR probationers OR probation OR "community corrections" OR "community supervision" OR probationer OR probationers)	10,713
3	ti(("mental health" OR psychology OR behavioral) AND (facilitator OR facilitators OR Therapeutic OR therapy OR therapies OR treatment OR treatments OR "health care" OR "healthcare" OR rehabilitation OR psychotherapy OR "Therapeutic Community" OR "Therapeutic Communities" OR "help-seeking behavior" OR "patient engagement" OR "patient activation" OR "patient participation" OR barrier OR barriers	12,648

	OR challenges OR challenge OR facilitate OR attitude OR attitudes OR "patient involvement" )) OR ab(("mental health" OR psychology OR behavioral) AND (facilitator OR facilitators OR Therapeutic OR therapy OR therapies OR treatment OR treatments OR "health care" OR "healthcare" OR rehabilitation OR psychotherapy OR "Therapeutic Community" OR "Therapeutic Communities" OR "help-seeking behavior" OR "patient engagement" OR "patient activation" OR "patient participation" OR barrier OR barriers OR challenges OR challenge OR facilitate OR attitude OR attitudes OR "patient involvement" ))	
4	Results of #1 and #2, add #3	252
5	<b>Limiters</b> - Publication Year: 2009-2019	180

**Table A5: ProQuest Dissertation and Abstract Database Search Trail**

Search #	Key Words	Results
1	ti("Mental Disorders" OR "mental health" OR bipolar OR "Borderline Personality Disorder" OR "Schizophrenia" OR Depression OR depressive OR PTSD OR "Post Traumatic Stress Disorder" OR stress OR anguish OR distress OR distressed OR suffering OR "substance abuse" OR ((drug OR drugs OR "Alcohol" OR substance) AND ("dependence" OR "dependency" OR "dependent" OR disorder OR disorders OR "addiction" OR "addictions" OR addict OR addicts OR "abuse" OR misuse OR use OR user OR users OR misuse OR "habituation"))) OR Alcoholic OR Alcoholism) OR ab("Mental Disorders" OR "mental health" OR bipolar OR "Borderline Personality Disorder" OR "Schizophrenia" OR Depression OR depressive OR PTSD OR "Post Traumatic Stress Disorder" OR stress OR anguish OR distress OR distressed OR suffering OR "substance abuse" OR ((drug OR drugs OR "Alcohol" OR substance) AND ("dependence" OR "dependency" OR "dependent" OR disorder OR disorders OR "addiction" OR "addictions" OR addict OR addicts OR "abuse" OR misuse OR use OR user OR users OR misuse OR "habituation"))) OR Alcoholic OR Alcoholism)	323,741
2	ti(Parolee OR parolees OR parole OR probationer OR probationers OR probation OR "community corrections" OR "community supervision" OR probationer OR probationers) OR ab(Parolee OR parolees OR parole OR probationer OR probationers OR probation OR "community corrections" OR "community supervision" OR probationer OR probationers)	3,931
3	ti(("mental health" OR psychology OR behavioral) AND (facilitator OR facilitators OR Therapeutic OR therapy OR therapies OR treatment OR treatments OR "health care" OR "healthcare" OR rehabilitation OR psychotherapy OR "Therapeutic Community" OR "Therapeutic Communities" OR "help-seeking behavior" OR "patient engagement" OR	57,021

	<p>“patient activation” OR “patient participation” OR barrier OR barriers OR challenges OR challenge OR facilitate OR attitude OR attitudes OR “patient involvement” )) OR ab(("mental health" OR psychology OR behavioral) AND (facilitator OR facilitators OR Therapeutic OR therapy OR therapies OR treatment OR treatments OR “health care” OR “healthcare” OR rehabilitation OR psychotherapy OR "Therapeutic Community" OR "Therapeutic Communities" OR “help-seeking behavior” OR “patient engagement” OR “patient activation” OR “patient participation” OR barrier OR barriers OR challenges OR challenge OR facilitate OR attitude OR attitudes OR “patient involvement” ))</p>	
4	Results of #1 and #2, add #3	164
5	<b>Limiters</b> - Publication Year: 2009-2019	92

**Table A6: Sociological Abstracts Database Search Trail**

Search #	Key Words	Results
1	ti("Mental Disorders" OR "mental health" OR bipolar OR "Borderline Personality Disorder" OR "Schizophrenia" OR Depression OR depressive OR PTSD OR "Post Traumatic Stress Disorder" OR stress OR anguish OR distress OR distressed OR suffering OR "substance abuse" OR ((drug OR drugs OR "Alcohol" OR substance) AND ("dependence" OR "dependency" OR "dependent" OR disorder OR disorders OR "addiction" OR "addictions" OR addict OR addicts OR "abuse" OR misuse OR use OR user OR users OR misuse OR "habituation"))) OR Alcoholic OR Alcoholism) OR ab("Mental Disorders" OR "mental health" OR bipolar OR "Borderline Personality Disorder" OR "Schizophrenia" OR Depression OR depressive OR PTSD OR "Post Traumatic Stress Disorder" OR stress OR anguish OR distress OR distressed OR suffering OR "substance abuse" OR ((drug OR drugs OR "Alcohol" OR substance) AND ("dependence" OR "dependency" OR "dependent" OR disorder OR disorders OR "addiction" OR "addictions" OR addict OR addicts OR "abuse" OR misuse OR use OR user OR users OR misuse OR "habituation"))) OR Alcoholic OR Alcoholism)	97,638
2	ti(Parolee OR parolees OR parole OR probationer OR probationers OR probation OR "community corrections" OR "community supervision" OR probationer OR probationers) OR ab(Parolee OR parolees OR parole OR probationer OR probationers OR probation OR "community corrections" OR "community supervision" OR probationer OR probationers)	4,723
3	ti(("mental health" OR psychology OR behavioral) AND (facilitator OR facilitators OR Therapeutic OR therapy OR therapies OR treatment OR treatments OR "health care" OR "healthcare" OR rehabilitation OR psychotherapy OR "Therapeutic Community" OR "Therapeutic Communities" OR "help-seeking behavior" OR "patient engagement" OR "patient activation" OR "patient participation" OR barrier OR barriers OR challenges OR challenge OR facilitate OR attitude OR attitudes OR "patient involvement" )) OR ab(("mental health" OR psychology OR behavioral) AND (facilitator OR facilitators OR Therapeutic OR therapy OR therapies OR treatment OR treatments OR "health care" OR "healthcare" OR	15,530

	rehabilitation OR psychotherapy OR "Therapeutic Community" OR "Therapeutic Communities" OR "help-seeking behavior" OR "patient engagement" OR "patient activation" OR "patient participation" OR barrier OR barriers OR challenges OR challenge OR facilitate OR attitude OR attitudes OR "patient involvement" ))	
4	Results of #1 and #2, add #3	95
5	<b>Limiters</b> - Publication Year: 2009-2019	60

**Table A7: Scopus Database Search Trail**

Search #	Key Words	Results
1	TITLE-ABS("Mental Disorders" OR "mental health" OR bipolar OR "Borderline Personality Disorder" OR "Schizophrenia" OR Depression OR depressive OR PTSD OR "Post Traumatic Stress Disorder" OR stress OR anguish OR distress OR distressed OR suffering OR "substance abuse" OR ((drug OR drugs OR "Alcohol" OR substance) AND ("dependence" OR "dependency" OR "dependent" OR disorder OR disorders OR "addiction" OR "addictions" OR addict OR addicts OR "abuse" OR misuse OR use OR user OR users OR misuse OR "habituation"))) OR Alcoholic OR Alcoholism)	3,849,241
2	TITLE-ABS(Parolee OR parolees OR parole OR probationer OR probationers OR probation OR "community corrections" OR "community supervision" OR probationer OR probationers)	10,446
3	TITLE-ABS(("mental health" OR psychology OR behavioral) AND (facilitator OR facilitators OR Therapeutic OR therapy OR therapies OR treatment OR treatments OR "health care" OR "healthcare" OR rehabilitation OR psychotherapy OR "Therapeutic Community" OR "Therapeutic Communities" OR "help-seeking behavior" OR "patient engagement" OR "patient activation" OR "patient participation" OR barrier OR barriers OR challenges OR challenge OR facilitate OR attitude OR attitudes OR "patient involvement" ))	292,006
4	Results of #1 and #2, add #3	361
5	<b>Limiters</b> - Publication Year: 2009-2019	234

Table A8. Critical Appraisal Checklist (N=19)

Citation	Yu et al. (2014)	Yu & Sung (2015)	Winkelman et al. (2016)	Valera et al. (2016)	Valera et al. (2014)	Sung et al. (2011)	Saloner et al. (2016)	Owens et al. (2011)	Oser et al. (2012)	Mowbray et al. (2016)	Marlow et al. (2010)	Lorrick et al. (2013)	Howell et al. (2019)	Gryczynski, et al. (2012)	Golder, et al. (2015)	Dong et al. (2018)	Crilly et al. (2009)	Bunting et al. (2018)	Bryson et al. (2019)
<b>Overall Appraisal: Included (I) vs Excluded (E)</b>	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I
<b>Joanna Briggs Institute (JBI) Checklist for Cross-Sectional Studies (N=14):</b>																			
Were the criteria for inclusion in the sample clearly defined?	Y	Y	Y			Y	Y	Y	Y	Y		Y	Y	Y	Y		Y		Y
Were the study subjects and the setting described in detail?	Y	Y	Y			Y	N	Y	Y	Y		Y	Y	Y	Y		Y		Y
Was the exposure measured in a valid and reliable way?	Y	Y	Y			Y	Y	Y	Y	Y		Y	Y	Y	Y		Y		Y
Were objective, standard criteria used for measurement of the condition?	Y	Y	Y			Y	Y	Y	Y	Y		Y	Y	Y	Y		Y		Y
Were confounding factors identified?	Y	Y	Y			Y	Y	Y	Y	Y		Y	Y	Y	Y		Y		Y
Were strategies to deal with	Y	Y	Y			Y	Y	Y	Y	Y		Y	Y	Y	Y		Y		Y





Is the risk of nonresponse bias low?																			N					
Is the statistical analysis appropriate to answer the research question?																				Y				
<b>Mixed Methods</b>																								
Is there an adequate rationale for using a mixed methods design to address the research question?																				Y				
Are the different components of the study effectively integrated to answer the research question?																				Y				
Are the outputs of the integration of qualitative and quantitative components adequately interpreted?																				Y				
Are divergences and inconsistencies between quantitative and qualitative results adequately addressed?																				Y				
Do the different components of the study adhere to the quality criteria of each tradition of the methods involved?																				Y				

Y = Yes; N = No.

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## Biography

Vanessa T. Curlee graduated in 2008 with a Bachelor of Science in Nursing (BSN) from the accelerated BSN program at Winston-Salem State University (WSSU). In 2013, Vanessa was chosen as a member of the first cohort of the WSSU-Duke University Bridge to the Doctorate program and completed an additional 17 credit hours in research and thesis curriculum. In 2015, Vanessa graduated from Winston-Salem State University's Master of Science Nursing Program, with a concentration in Family Nurse Practitioner, and a research intensive concentration. During her time as a Ph.D. student, Vanessa was a Duke University Global Health Institute Doctoral Certificate Scholar and was selected to be a Jonas Scholar from the Jonas Center for Nursing Excellence (2016). In 2017, Vanessa was awarded a Pre-doctoral Individual National Research Service Award from the National Institutes of Health, National Institute on Minority Health and Health Disparities.