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Examining Factors Among People With Opioid Use Disorder and Comorbid Mental Health Disorders

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EXAMINING FACTORS AMONG PEOPLE WITH OPIOID USE DISORDER AND COMORBID MENTAL HEALTH DISORDERS

A Dissertation Proposal

by

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ABSTRACT

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Opioid use disorder (OUD) affects over two million Americans, and over 42,000 Americans perished of opioid overdoses in 2016 (Volkow et al., 2019). During the initial years of the opioid crisis, overdose deaths were primarily attributed to prescription analgesics, heroin, and synthetic opioids. However, it was illicit prescription opioid painkiller use that ranked highest in terms of fatalities (Volkow et al., 2019). The increasing prevalence of opioid use among individuals with mental health disorders is in stark contrast to the ongoing opioid crisis (Prince, 2019). Additionally, there is evidence that individuals undergoing substance use treatment and concurrently suffering from a mental health disorder exhibit inferior treatment outcomes and a lower rate of treatment completion compared to their counterparts without such conditions. Those who have a higher incidence of prior overdose hospitalizations, psychiatric hospitalizations, housing insecurity, incarceration, and psychological issues (low self-esteem, diminished resilience threshold, and life satisfaction) and who also have comorbid mental health disorders and opioid use disorder may have a significantly reduced prognosis for recovery in comparison to those who do not have a severe mental health condition. Inmate status, housing insecurity, and multiple mental health disorder diagnoses are among the demographic factors that predict an increased risk of psychological issues including self-esteem, resilience, and life satisfaction. Personal characteristics such as prior psychiatric hospitalizations and overdose

hospitalizations are also examined. The findings of this research, which employed multiple linear regression, indicated a significant relationship between life satisfaction and both housing insecurity and the diagnosis of multiple mental health disorders. Additionally, incarceration status and multiple diagnoses of mental health disorders were significant predictors of resilience. Nevertheless, self-esteem exhibited no correlation with diagnoses of mental health disorders, housing insecurity, or incarceration status.

DEDICATION

This journey is dedicated to my mommy, Clarice Renee Warner, who has been my cheerleader, my audience for practicing presentations, and my shoulder to cry on during difficult times. Thank you for unconditionally loving me and always giving me that push to keep going. To my family and friends for your everlasting support. To my lovely companion, Ryder, for her unconditional love and emotional support, as well as her humorous moments throughout this experience. Last but not least, I want to dedicate this to every black woman who has ever been told "You can't."

Thank you to my black ancestors for blazing the trail that led to my success. Thank you all for your love, support, patience, and sacrifice.

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CHAPTER I

INTRODUCTION

More than two million Americans have an opioid use disorder (OUD); in 2016, more than 42,000 Americans died of opioid overdoses (Volkow et al., 2019). Although prescription painkillers, heroin, and synthetic opioids accounted for the majority of overdose-related deaths in the early years of the opioid crisis, illicit use of prescription opioid painkillers was the leading cause of death (Volkow et al., 2019). Opioids are a class of pharmaceuticals that includes opiates, the natural compounds generated from the opium poppy, and synthetic drugs with equivalent properties to natural opiates, which are extensively prescribed and commonly abused. An opioid is any substance that contains oxycodone or hydrocodone, as well as morphine, methadone, codeine, and fentanyl (Eitan et al., 2017). When dealing with moderate to severe pain, opioids are the standard treatment; however, they can be misused for their analgesic effects and rewarding properties. In the context of prescription opioids, misuse refers to non-prescribed administration (Volkow et al., 2019). Specifically, prescription opioid misuse is defined as using medications in a manner or dosage other than prescribed; taking someone else's prescription, even if for a legitimate medical complaint such as pain; or taking a medication to feel euphoric (Cruden & Karmali, 2021). When misused for their rewarding effects, prescription opioids are usually snorted or injected, resulting in quicker uptake in the brain and amplifying their rewarding effects. When misused via oral administration, their rewarding effects are enhanced (Volkow et al., 2019). Although the dosage of opioids varies, increasing dosage increases

euphoria and has the potential to cause serious addiction (Volkow et al., 2019). In a subset of opioid users, addiction develops more gradually than physical dependence. According to the *Diagnostic and Statistical Manual of Mental Disorders*, Fifth Edition, (DSM-5-TR) (2022), a substance use disorder (SUD) involves patterns of symptoms caused by using a substance that an individual continues taking despite its negative effects. Moreover, opioid addiction involves biological processes linked with learning, which contribute to the consolidation of automatic actions in reaction to the drug and stimuli associated with the drug, known as conditioning. Individuals can develop a tolerance to opioids due to their rewarding effects of pain alleviation, withdrawal symptoms, or dysphoria. Repeated exposure reinforces conditioning, increasing the urge and motivation to use the substance (Volkow et al., 2019). Opioid addiction is a severe, chronic, and relapsing mental health disease that may originate from legitimate medical conditions, recreational use, and experimental use (Eitan et al., 2017).

The misuse of prescription opioids has been deemed a public health emergency in the United States. According to analyses of the National Vital Statistics (2015) multiple cause-of-death mortality statistics, deaths involving prescription opioids increased by more than fourfold between 1999 and 2015, despite a steady decline in opioid prescription rates over the past several years (Centers for Disease Control and Prevention, 2015; Eitan et al., 2017). In 2014, 1.9 million Americans aged 12 and older suffered from a substance use disorder involving prescription pain medications, and 18,893 overdose deaths were associated with prescription pain medication use (Eitan et al., 2017). In addition, the number of overall misused opioids increased in recent years. In 2019, an estimated 10.1 million people aged 12 or older misused opioids in the past year. Specifically, 9.7 million people misused prescription pain relievers, and 745,000 people used heroin (U.S. Department of Health and Human Services, 2022). Prescription opioids (including

natural and semi-synthetic opioids and methadone), other synthetic opioids other than methadone (primarily fentanyl), and heroin were responsible for 68,630 deaths through 2020 (National Institute on Drug Abuse, 2022).

As the opioid crisis continues to escalate, it is evident that people with mental health disorders are using opioids more frequently (Prince, 2019). Opioids are prescribed to approximately 19% of those with mental health disorders, and the prevalence of opioid use among those with mental health disorders is four times that of the general population (Prince, 2019). According to the DSM-5-TR, 2022), a mental disorder is a syndrome characterized by a clinically significant disturbance in the cognition, emotion regulation, or behavior of an individual, which reflects a dysfunction in the psychological, biological, or developmental processes underlying mental functioning. Typically, it is accompanied by distress or impairment in crucial areas of functioning (Thyer, 2015). There are many different types of mental disorders (i.e., schizophrenia, depression, bipolar disorder, and post-traumatic stress disorder). Mental disorders may also be referred to as mental health conditions. This latter term encompasses mental disorders, psychosocial disabilities, and other mental states associated with significant distress, impairment in functioning, or self-harm risk (World Health Organization, 2022).

When diagnosing a mental health disorder, it is essential to recognize that some individuals may self-medicate their symptoms with substances (Providers Clinical Support System, 2021). Drug abuse frequently worsens mental health symptoms over time in part, due to the addictive nature of many substances. Common risk factors for the development of a mental condition and/or substance use disorder include inherited genetic traits and environmental influences, such as trauma and/or stress (Providers Clinical Support System, 2021). An environmental factor,

such as the COVID-19 pandemic, could-and did-lead to an increase in drug use or the development of more mental disorders, such as depression or anxiety among the general population. According to Galea and Ettman (2021), several population-based studies indicate a two- to threefold increase in mood anxiety disorders during the COVID-19 pandemic. The population of people with OUDs who typically have preexisting mental health issues was more susceptible to mental distress during the COVID-19 pandemic (Sun et al., 2020).

People with mental health disorders often have an opioid use disorder. Depression, bipolar disorder, post-traumatic stress disorder (PTSD), personality disorders, schizophrenia, and psychosis have been linked to reward circuitry dysfunction. OUD is a well-known cause and predictor of depression in adults and teens, with depressed people showing a reduced (hyporeactive) striatal response to monetary rewards linked to dopamine (Levis et al., 2021; Rappaport et al., 2020). Comorbid mental health disorders are characterized by the presence of two or more disorders or illnesses in the same individual. They can occur simultaneously or one after another. Additionally, comorbidity denotes interactions between diseases that can worsen the course of both (National Institute of Drug Abuse, 2018).

When multiple mental health disorders coexist, one may be even more severe than the others. According to Prince (2019), while people with mental disorders may turn to opioids to alleviate psychological distress, opioids may also be used to address elevated levels of pain and physical illness associated with severe mental illness (SMI). A person diagnosed with non-organic psychosis may also suffer from a serious mental disorder (Ruggeri et al., 2000). People with mental illness are more prone than those without mental illness to develop a substance use disorder (Novak et al., 2019). According to the National Survey on Drug Use and Health (2018),

conducted by the Substance Abuse and Mental Health Services Administration, roughly 9.2 million American individuals have a co-occurring disorder (Substance Abuse and Mental Health Services Administration, 2018). Less attention has been given to co-occurring mental health conditions in this population, even though substance use disorders frequently co-occur with mental illness. This is especially true for people with OUD, of whom between 50% and 75% are estimated to have a co-occurring mental disorder (Novak et al., 2019). Individuals undergoing treatment for opioid abuse or dependence face numerous obstacles to treatment adherence, including a lack of specialized substance use providers, geographic misdistribution of substance use treatment facilities (such as the physical isolation of rural communities), economic-related obstacles (i.e., high rates of unemployment, lack of quality jobs, high rates of poverty) and health insurance gaps (Cavazos-Rehg et al., 2021).

Those with substance use disorder and at least one comorbid mental health disorder may be more likely to receive treatment than those without comorbidities (Baginski et al., 2022). Nevertheless, only 31% of those with a mental health disorder and SUD receive treatment for substance abuse. The severity of mental health disorders may serve as a predictor of treatment according to additional research (Harris & Edlund, 2005). A review of factors predicting substance abuse treatment outcomes concluded that mental health severity, in addition to demographic factors, is one of the strongest predictors of substance abuse treatment outcomes (McKay & Weiss, 2001). However, only a small percentage of those who do receive treatment also receive care for their mental health (Harris & Edlund, 2005). This is crucial because mental health treatment alone may be ineffective for co-occurring disorders (Baginski et al., 2022). People with co-occurring substance use disorder and mental health disorders may have distinct treatment patterns and complex treatment requirements. Some researchers, Urbanoski et al. (2007), have discovered that

individuals with substance use disorders and co-occurring mental health disorders are more likely to receive substance use treatment, but also the most likely to express dissatisfaction with the quality of their care. Additionally, Urbanoski et al. (2007) demonstrated that people with substance use disorder, but no mental health disorder, are more likely to receive mental health care. There is also evidence that people in substance use treatment who also have a mental health disorder are less likely to complete treatment and have poorer treatment outcomes than those who do not have a mental health disorder. It is recommended that individuals with co-occurring mental health and substance use disorders should receive treatment for both disorders concurrently (Novak et al., 2019). One study by Cacciola et al. (2001) found that people in methadone maintenance treatment for opioids who had more severe mental illnesses had worse psychosocial outcomes at treatment entry and exit.

As the opioid-related overdose death rate continues to make national headlines, increased emphasis has been placed on the challenges faced by an estimated 2.1 million individuals with opioid use disorder in gaining access to evidence-based care (Williams et al., 2020). Buprenorphine, which was approved by the U.S. Food and Drug Administration in 2002 for the treatment of opioid dependence, is the most frequently prescribed medication for opioid use disorder in the United States, with more than 700,000 individuals receiving it annually. However, most buprenorphine-treated patients are unsuccessfully retained in care (Williams et al., 2020). Moreover, the needs of individuals with co-occurring substance abuse and mental health disorders may not be adequately met by the current healthcare system, in which substance abuse and mental health treatment are frequently not integrated or coordinated (Novak et al., 2019). Outside of clinical indications, opioid use disorder is associated with wider societal costs, such as harm to family cohesion, reduced employment and economic contribution, and increased

risk and costs of crime (both from the illegal drug market and individuals using crime to fund their drug use) (Strang et al., 2020).

Compared to the general population, individuals with SUDs and severe mental illnesses face numerous obstacles in finding, obtaining, and maintaining employment, including lower educational attainment, poor interpersonal skills, low motivation to work, lack of vocational and job skills, lack of transportation, lack of childcare, lack of computing/technical skills, probation/treatment program requirements, and continued substance use/relapse (Dunigan et al., 2014; Magura, 2003; Schottenfeld et al., 1992; Sigurdsson et al., 2012; Zanis et al., 2001). In addition, sensitivity to stressors following the transition to the workplace may contribute to relapse and job loss, frequently resulting in employment gaps. Along with a criminal record and the stigma associated with substance abuse, employment gaps, and a poor work history exacerbate the difficulty of obtaining employment (Schottenfeld et al., 1992; Sherba et al., 2018). Multiple external factors, including housing insecurity, may also contribute to the employment difficulties of individuals with substance use disorders (Sherba et al., 2018).

It is estimated that at least 20% of the US population has a family member with a SUD, indicating that these disorders affect a substantial number of families (Daley et al., 2018). Numerous studies and reports have documented negative effects on family, marital, financial, and emotional stability; parental competence; family functioning within and outside the family; and individual family members' physical and mental health, which constitutes a lack of support for people with SUD (Lander et al., 2013; Ward & Daley, 2014; Weisner, 2010; White & Savage, 2005; Young et al., 2015).

Divorce or separation due to marital conflict, incarceration, and repeated admissions to hospitals or rehabilitation centers may also occur and disrupt the family's stability (White & Daley, 2016). When a loved one decides to seek treatment for a substance use disorder (SUD), family members are concerned about the low rates of treatment admittance as well as the difficulties and limitations of treatment systems (Liepman et al., 2014; Wallace, 2014). Other barriers include access to medication-assisted treatment (MAT) for opioid addiction, limited professional care to support long-term recovery after a rehabilitation program, limits to funding to pay for certain types of treatment, and limited or lack of professional care to support long-term recovery after a rehabilitation program. Another barrier to treatment is the common absence of adequate treatment services in rural areas (Daley et al., 2018).

Suicide and suicide attempts are prevalent among individuals with opioid use disorder compared to the general population (Archambault et al., 2022). Although it can be difficult to distinguish between suicides and overdoses in people with substance use disorders, some researchers have demonstrated that lethal suicides in people with opioid use disorders are most frequently the result of intentional self-poisoning with poly substances that include opioids (Hesse et al., 2020; Pfeifer et al., 2021; Rockett et al., 2018). Others have even hypothesized that untreatable increases in opioid use disorders may also be contributing to the rise in suicide and overdose rates (Bohnert & Ilgen, 2019). Considering rising trends in opioid-related deaths, many of which are estimated to be suicides by individuals with opioid use disorders, it is crucial to gain a deeper understanding of the interrelated and concurrent problems associated with opioid use disorders and suicidal behaviors (Archambault et al., 2022; Bohnert & Ilgen, 2019, p. 71).

The prevalence of mental illness in the past year is estimated to be 64% among individuals with opioid use disorders (Archambault et al., 2022; Jones & McCance-Katz, 2019).

Consequently, mental health disorders are linked to suicidal ideation, plans, and attempts. Depression and borderline personality disorders are psychiatric risk factors associated with chronic pain and suicide. The authors also imply that persons with a history of depression are more likely to receive long-term opioid medication for non-cancer pain than those without a history of depression (Archambault et al., 2022; Braden et al., 2009). In addition, 19.1% of participants in a study on chronic pain were diagnosed with borderline personality disorder, and the authors report an increased risk of suicidal behavior among these patients (Campbell et al., 2015). Prior research has demonstrated that patients with an opioid use disorder are at increased risk for suicidal behavior and that certain prevalent comorbidities in this population are also associated with suicidal behavior (Archambault et al., 2022).

Statement of Problem

Individuals with comorbid mental health disorders and opioid use disorders who have experienced a greater prevalence of past overdose hospitalizations, past psychiatric hospitalizations, housing insecurity, incarceration, and psychological issues (life satisfaction, lower threshold for resilience, and low self-esteem) may have a much lower chance of recovering than those without a serious mental health disorder. Recovery is defined as reductions in substance use, improvement in biopsychosocial functioning, and remission from SUD (Baginski et al., 2022). According to SAMHSA (2020), the combined presence of substance use disorders and mental health disorders results in more severe functional impairment, poorer treatment outcomes, higher morbidity and mortality, increased treatment costs, and a higher risk for homelessness, incarceration, and suicide than if only one of these disorders were present. It can be extremely challenging to treat individuals with both OUD and mental health disorders

(National Institute of Drug Abuse, 2021). Despite evidence indicating the need for comprehensive and integrated therapy to address comorbidity, research shows that only about 18% of SUD treatment programs and 9% of mental health treatment organizations can serve dually diagnosed patients (National Institute of Drug Abuse, 2021).

In the United States, SUD treatment is frequently compartmentalized from the larger healthcare system (Vekaria et al., 2021). Most frequently, primary care physicians are the first line of defense in the treatment of mental problems. Typically, the specialty of the mental health treatment system treats only severe mental illnesses, whereas the separate SUD treatment system provides drug therapy. However, none of these systems have an adequate breadth of knowledge to address the whole spectrum of difficulties presented by patients with dual diagnoses. Although this is gradually improving, some SUD treatment clinics and clinicians continue to be prejudiced against the use of any drugs, particularly those required to treat serious mental illnesses such as depression (Vekaria et al., 2021).

In addition, many substance abuse treatment programs do not employ professionals who can prescribe, deliver, and monitor drugs. When left untreated, patients with co-occurring disorders typically have worse health outcomes—including more mental illness symptomatology, more severe functional impairment, lower recovery rates, increased suicidal ideation and attempts, and higher rates of healthcare utilization—than those with a diagnosis of a severe mental health illness alone (Vekaria et al., 2021). Furthermore, there are numerous individuals in the criminal justice system who would benefit from treatment. In addition to substance abuse or addiction, an estimated 45% of those incarcerated in state and local prisons and jails have a mental health disorder. In these circumstances, however, appropriate treatment services for substance use

disorders and other mental health disorders are often unavailable. The treatment of comorbid illnesses can reduce not only medical comorbidities but also negative social effects, such as recidivism and reincarceration (National Institute of Health, 2022).

Statement of Purpose

The purpose of this study is to examine the demographic factors, such as multiple mental health disorder diagnoses, incarceration status, and housing insecurity, that predict an increased risk of psychological issues such as life satisfaction, resilience, self-esteem, and personal characteristics such as past psychiatric hospitalizations and past overdose hospitalizations. OUD is a chronic condition characterized by recurrent relapse as well as substantial morbidity, mortality, and healthcare-related costs. Numerous adverse health effects are associated with overdose, addiction, and dependence in those who are dependent on opioids. Faced with this epidemic, there is an increasing need to identify potential OUD risk factors (Orhurhu et al., 2019). This study will identify pertinent potential risk factors that will assist substance abuse counselors with treatment and recovery for this population. These risk factors will determine the intrapersonal (involve only one individual's thoughts, emotions, ideas, values, and predispositions issues) and past behaviors of the individual, as well as the interpersonal (involving other people) factors relating to how our healthcare system may have failed this most vulnerable population, resulting in more relapses and deaths (Van Kleef et al., 2010). As such, the following research questions and hypotheses will be explored:

1. To what extent do demographic factors (multiple mental health disorder diagnoses, incarceration status, and housing insecurity) predict overdosing hospitalization?

   H_0 1: Demographic factors (multiple mental health disorder diagnoses, incarceration status, and housing insecurity) do not predict overdosing hospitalization.

H_a 1: Demographic factors (multiple mental health disorder diagnoses, incarceration status, and housing insecurity) do predict overdosing hospitalization.

2. To what extent do demographic factors (multiple mental health disorder diagnoses, incarceration status, and housing insecurity) predict being hospitalized for mental illness reasons?

   H_0 2: Demographic factors (multiple mental health disorder diagnoses, incarceration status, and housing insecurity) do not predict being hospitalized for mental illness reasons.

   H_a 2: Demographic factors (multiple mental health disorder diagnoses, incarceration status, and housing insecurity) do predict being hospitalized for mental illness reasons.

3. To what extent do demographic factors (multiple mental health disorder diagnoses, incarceration status, and housing insecurity) predict self-esteem?

   H_0 3: Demographic factors (multiple mental health disorder diagnoses, incarceration status, and housing insecurity) do not predict self-esteem.

   H_a 3: Demographic factors (multiple mental health disorder diagnoses, incarceration status, and housing insecurity) do predict self-esteem.

4. To what extent do demographic factors (multiple mental health disorder diagnoses, incarceration status, and housing insecurity) predict resilience?

H_0 4: Demographic factors (multiple mental health disorder diagnoses, incarceration status, and housing insecurity) do not predict resilience.

H_a 4: Demographic factors (multiple mental health disorder diagnoses, incarceration status, and housing insecurity) do predict resilience.

5. To what extent do demographic factors (multiple mental health disorder diagnoses, incarceration status, and housing insecurity) predict life satisfaction?

H_0 5: Demographic factors (multiple mental health disorder diagnoses, incarceration status, and housing insecurity) do not predict life satisfaction.

H_a 5: Demographic factors (multiple mental health disorder diagnoses, incarceration status, and housing insecurity) do predict life satisfaction.

Significance of the Study

Long-term undetected mental illness and/or co-occurring mental health disorders may impair a person's ability to make decisions regarding their health care. Clients who have been diagnosed with mental health disorders are more likely to receive opioid prescriptions, even though they have an increased risk of addiction and overdose. If additional barriers to receiving proven therapies, such as the stigma associated with both disorders, are added, many such clients find themselves facing an uphill battle to recover (National Institute of Health, 2022). While healthcare professionals are frequently on the front lines of treating substance use disorders, the majority have limited (if any) training in treating patients with co-occurring severe mental health

disorders and OUDs (Providers Clinical Support System, 2021). Essentially, health professionals should be aware of potential risk factors when treating this population. Moreover, to utilize a successful integrative approach to treatment, both new and experienced substance abuse counselors must recognize these risk factors within this population to have a holistic view of their clients and create a more efficient and holistic path to recovery noting not only their client's history but also investigating the potential shortfalls of the mental health system.

Greater "recovery capital" may increase a person's ability to overcome such obstacles (Baginski et al., 2022). Rehabilitation capital is the amount of personal and environmental resources a person possesses in order to commence and sustain recovery. Recovery capital comprises aspects such as social support, physical and mental health, housing, and employment. Greater recovery capital is associated with reduced severity of addiction, improved treatment outcomes, and maintained recovery. There are evident societal disparities in the availability of recovery capital. Race, gender, and employment are recovery capital characteristics that are connected with the beginning and maintenance of substance abuse treatment (Baginski et al., 2022). Once substance abuse and mental health counselors are exposed to the potential recovery-impairing risk factors of this vulnerable population, they may be more aware of the treatment needs of this population. Ultimately, this study will assist both emerging and experienced substance abuse and mental health counselors in better preparing to treat individuals with OUDs and co-occurring severe mental health disorders by educating them on these psychosocial issues that significantly reduce the likelihood of recovery.

Terminology

Table 1

Terminology

Term	Definition
Opioids	are a class of pharmaceuticals that includes opiates, the natural compounds generated from the opium poppy, and synthetic drugs with equivalent properties to natural opiates, which are extensively prescribed and commonly abused. An opioid is any substance that contains oxycodone or hydrocodone, as well as morphine, methadone, codeine, and fentanyl (Eitan et al., 2017).
Recovery	reductions in substance use, improvement in biopsychosocial functioning, and remission from substance use disorder (SUD) (Baginski et al., 2022).
Substance Use Disorder	involves patterns of symptoms caused by using a substance that an individual continues taking despite its negative effects (Volkow et al., 2019).
Opioid Addiction	is a severe, chronic, and relapsing mental health disease that may originate from legitimate medical conditions, recreational use, and experimental use (Eitan et al., 2017).
Rehabilitation Capital	is the amount of personal and environmental resources a person possesses in order to commence and sustain recovery (Baginski et al., 2022).
Life satisfaction	a general evaluation of a person's quality of life based on their own criteria (Yi, Liang, Rui, 2016).
Resilience	as the capacity of an individual to retain physical and mental health in the face of adversity, such as trauma, tragedy, threat, and other substantial stressors (Connor & Davidson, 2003).
Self Esteem	as the individual's evaluation of self-worth (Rizwan & Ahmad, 2015).

CHAPTER II

LITERATURE REVIEW

Opioid use disorder and mental health disorders in relation to various factors and life circumstances have been studied by previous researchers. Factors studied have included gender, age, quality of life, life satisfaction, resilience, self-esteem, hope, depression, psychiatric hospitalizations, overdose hospitalizations, health insurance, and housing insecurity.

Gender/Age

Gender may be one of the most evident potential biological predictors of disease, and it is increasingly acknowledged that male and female medication responses are qualitatively distinct and clinically significant (Huhn et al., 2019). There is evidence in the preclinical literature that sex hormones confer sex-based differences in opioid-based effects, and animal studies suggest that females are more susceptible to the positive reinforcing effects of opioids. The negative reinforcing effects of opioids promote dysregulation, escalation, and relapse, which may also increase the rate of OUD progression. The majority of publications on this topic have focused on outcomes linked to opioid-based analgesia and there is a scarcity of empirical data available about sex-based differences in OUD treatment results (Huhn et al., 2019; Plawecki et al., 2018; Priddy et al., 2017, Randall et al., 2017).

With the recent shift in the prevalence of opioid misuse and abuse among the female population, women are at a greater risk than men for the misuse of prescription opioid medications and the development of opioid use disorder (Koons et al., 2018). Among treatment centers in the United States, women reported significantly higher rates of abuse (15.4% vs. 11.1%), were more likely to be prescribed opioids, and were 48% more likely than men to use any prescription drugs. Several factors contribute to the increasing rates of prescription opioid abuse and prescribing patterns among women. First, women are more likely than men to seek out health professionals and are more frequently targeted in pharmaceutical marketing. This, combined with the fact that physicians are more likely to prescribe opioids to female patients, places women at a greater risk for medication abuse and, consequently, opioid use disorder. Second, women are more likely to experience gender-based violence and sexual abuse, as well as the ensuing psychological consequences, such as post-traumatic stress disorder, anxiety, and depression (Koons et al., 2018).

The psychological effects of trauma may heighten the risk of opioid abuse (Koons et al., 2018). In a study conducted by Vigna-Taglianti et al. (2016), women were more likely than men to have psychiatric comorbidities, such as depression, self-injury, and suicide attempts. According to El-Gohari et al. (2022), although the precise causal relationship between psychiatric disorders and SUDs remained unclear, it was suggested that the interaction between genetic susceptibility, shared brain circuitry, epigenetic influences, and environmental stimuli could explain this association. Also, clients with psychiatric disorders would have impaired judgment, leading them to use the drug to self-medicate their psychiatric symptoms; however, substance use would be an independent risk factor for the emergence of psychiatric disorders.

This assumed comorbidity between psychiatric disorders and SUDs may have a negative effect on the course, treatment, and outcome of both disorders, as the symptoms of psychiatric disorders typically exacerbate the symptoms of SUDs, and vice versa. These conditions are difficult to treat and are more frequently treated with opioids than other diseases (Koons et al., 2018).

Significant roles are played by sex- and gender-specific risk factors in opioid use disorder. Among women, risk factors for opioid use disorder include a history of alcoholism, an age of 54, a history of inhalant use, and a history of drug overdose (Koons et al., 2018). Women, whites, and middle-aged adults were among the top three groups with the greatest increase in prescription opioid and heroin overdoses (Unick et al., 2013). Men have different risk factors, including being 34 years old, living with their children, using hallucinogens, and experiencing recent depression (Koons et al., 2018). Women with opioid use disorder have more physical and mental health issues, a family history of psychiatric disorder, and childcare responsibilities, and they are more likely than men to begin using opioids with a prescription. A history of tobacco abuse has also been linked to the nonmedical use of prescription opioids among women (Koons et al., 2018). Patterns of prescribing that increase the availability of controlled substances, such as opioids, are associated with an increased risk of misuse and abuse. While men are more likely to obtain opioids from dealers, women are more likely to obtain the drugs from friends, family, or legitimate prescriptions (Hemsing et al., 2016).

Age is a significant covariable when assessing the risk of opioid use disorder in women (Koons et al., 2018). Young and middle-aged women report higher global pain scores (compared to men and younger women) while being treated for chronic pain, which increases their risk for dose escalation under current therapy guidelines (LeResche et al., 2015). Theoretically, this dose

increase could result in a longer course of treatment and an increased risk of dependence and withdrawal. Multiple reports have noted a greater risk for opioid misuse among women 65 years of age compared with men of the same age group (Koons et al., 2018).

At nearly 10%, older women have the highest prevalence of long-term opioid use (Hemsing et al., 2016). Other risk factors, including low income, mental health issues, and physical health issues, increase the likelihood of opioid abuse and misuse among women of this age group (Hemsing et al., 2016). Women initiate drug use at lower doses, increase their use more rapidly than men, and are more likely to relapse after a period of abstinence than men (Koons et al., 2018). Women with opioid use disorder are typically younger, married, unemployed, and have an earlier onset age of heroin use (Vigna-Taglianti et al., 2016). Despite these differences, knowledge gaps remain about differences in methadone treatment outcomes between the sexes (Koons et al., 2018). A study by Marchand et al. (2015) found a difference in satisfaction with methadone treatment based on dosage in men versus women. Another study by Evan et al. (2015) noted that gender was a factor in reducing mortality risk based on a treatment plan. Men had reduced mortality when the focus was placed on employment and medical problems with interventions to reduce overdose risk. Women had more success with attending to the concurrent use of sympathomimetics and other opioids (Evan et al., 2015). Women have a higher rate of adverse effects to naltrexone therapy than men (Herbeck et al., 2016). Buprenorphine has been found to be more effective in treating women than men. Despite an equal need for opioid addiction treatment interventions between the sexes, and existing literature reporting sex and gender differences in response to such treatment, there remains a dearth of studies addressing these differences. It is known that out-of-treatment females use opioids more often, spend more

money on drugs, and earn more illegal income than those not in treatment programs (Koons et al., 2018).

Psychological and Psychosocial Factors

Quality of Life

Quality of life (QoL) is an elusive concept that can be approached at various levels of generality, ranging from the assessment of societal or community well-being to the specific evaluation of the circumstances of individuals or groups (Kaplan & Ries, 2007). The concept of quality of life encompasses how an individual evaluates the "goodness" of numerous aspects of life. These evaluations include an individual's emotional responses to life events, temperament, sense of life fulfillment and satisfaction, and satisfaction with work and personal relationships (Theofilou, 2013). In the rehabilitation literature, the concept of quality of life (QoL) as a psychosocial construct, process, measure, goal, and outcome has gained significant popularity over the past 35 years. As both a target and a process–outcome indicator, QoL has become one of the most prominent and central concepts in rehabilitation (Stebnicki & Marini, 2012).

Substance use disorders are a significant public health concern that is characterized by maladaptive patterns of substance use that result in clinically severe impairment or distress and can impact physical or psychological functioning, social relationships, employment, and other areas of life (Ciobanu et al., 2020). Concerning mental disorders, there has been a recent and growing interest in research on the relationships between QoL or health-related quality of life (HRQoL) and the coping strategies employed by patients with chronic disorders, particularly depression, and schizophrenia. Health-related quality of life (HRQOL) is an individual's or

group's perceived physical and mental health over time (U.S. Department of Health & Human Services, 2021). The role of coping strategies in HRQoL is of interest in the field of addiction, as a treatment for substance dependence aims not only to promote abstinence or significant reductions in substance use but also to improve the patient's quality of life (Ciobanu et al., 2020).

According to Teoh Bing Fei (2016), patients with substance use and psychiatric disorders have a significantly lower quality of life than patients with either diagnosis alone. Concerning the effects of psychiatric disorders on treatment outcomes and psychosocial functioning in OUD populations, the research findings are inconsistent. According to some studies, psychiatric comorbidity in patients with OUD is associated with poorer treatment outcomes, such as higher risks for relapse to opioid use and non-adherence to pharmacotherapy, poorer psychosocial or physical health status, and lower quality of life (Cacciola et al., 2001; Carpentier et al., 2009; Litz & Leslie, 2017; Zhu et al., 2021). Additionally, patients on methadone maintenance therapy exhibited a correlation between mental comorbidity and lower quality of life, with the severity of psychiatric disorders being associated with a lower quality of life. Psychiatric comorbidity continues to be a significant contributor to low quality of life, even though other factors such as physical problems, may partially explain the differences in quality of life (Teoh Bing Fei et al., 2016). Many more adults with opioid use disorder (OUD) suffer more modest, albeit serious, impairments of quality of life and functional capacity that has received considerably less attention from the popular media and academic literature (Rhee & Rosenheck, 2019). The evaluation of policy efforts to address the current opioid crisis has focused on reducing the risk of overdose and death, which fortunately affect a relatively small number of people, whereas treatment trials have emphasized abstinence or several days of drug use, which are both

significant indicators of disease severity (Rhee & Rosenheck, 2019). However, abstinence from opioids is not the only relevant outcome of treatment for opioid use disorder (Bray et al., 2017).

A far greater proportion of the OUD population suffers from more serious impairments affecting their health-related quality of life (HRQoL) and their ability to work impairments that are less visible to the media and perhaps more difficult to assess, but whose improvement may represent the ultimate objective of both policy and clinical intervention. Adults with current OUD were approximately half as likely to be employed as those without a history of OUD. However, it appears that adults with a history of OUD have recovered to the point where they no longer differ from those who have never experienced OUD. This demonstrates that a degree of recovery is possible, particularly in terms of social and/or economic participation (Rhee & Rosenheck, 2019).

Happiness is an important topic in the research on well-being and QoL since it has been linked to mental and physical health, lifespan, and mortality (Burns & Crisp, 2022). Happiness is also associated with and precedes a variety of successful life outcomes and behaviors that facilitate life success in a variety of domains, including employment opportunities, community involvement, and social relationships. In contrast to mental distress, which focuses on dysfunction, happiness emphasizes the prevalence of pleasant over negative experiences and overall life satisfaction (Burns & Crisp, 2022). According to Onal et al. (2022), poor quality of life is characterized by reduced life satisfaction among individuals. Extensive empirical research has investigated the relationship between life satisfaction and self-perception of health (Bobinac et al. 2010; Garrido et al., 2013; Graham et al. 2011; Bo¨ckerman et al. 2011). Given that life satisfaction is a more comprehensive concept than self-perceived health, the prevalent empirical

approach considers life satisfaction the outcome variable and self-perceived health the independent variable. Studies adopting this approach have revealed that those individuals with better (poorer) self-perceived health report higher (lower) levels of satisfaction with life (Garrido et al., 2013). Due to numerous studies on the relationship between quality of life and life satisfaction, the researcher will not include quality of life as a variable in this study.

Life Satisfaction

Life satisfaction (LS) is becoming an increasingly crucial aspect of subjective well-being (El-Genady & Wahab, 2020). As the primary indicator of subjective individual well-being, life satisfaction is also a general evaluation of a person's quality of life based on their own criteria (Yi, Liang, Rui, 2016). Previous research has demonstrated a close relationship between life satisfaction and social support. There is a direct correlation between subjective life satisfaction and social support (Cui & Yao 2012; Feng & Wan 2016; Ma & Wang, 2013). LS does not concentrate on a specific moment in time or particular aspects of life, such as employment or health. Nonetheless, LS substantially impacts health and happiness, and a higher LS is associated with a longer life expectancy, greater disease tolerance, and fewer mental disorders (El-Genady & Wahab, 2020). Moreover, according to a recent study on poverty and psychosocial issues, income poverty will have health and psychosocial effects on middle-aged and older adults by 2021 (Cheung & Chou, 2019; Hajek & Konig, 2021; Lee & Chou, 2019). The Satisfaction With Life Scale (SWLS) created by Pavot and Diener (1993), was utilized in this research along with the Beck Depression Scale of 890 individuals. Poverty was related to life satisfaction, positive affect, social isolation, and optimism (Hajek & Konig, 2021).

Cudjoe et al. (2020) and Menec et al. (2019) found a correlation between beginning income poverty, social isolation, and pessimistic outlooks. They also identified depression symptoms, loneliness, social isolation, and individual well-being as psychosocial factors. Moreover, the researchers emphasized the significance of avoiding "social isolation and loss of optimism" (Hajek & Konig, 2021, p. 911). Low self-reported LS is not only associated with poor health, but also with an increased risk of suicide, including drug-related deaths. Opioid-dependent individuals seeking treatment have an LS that is considerably lower than the general population (Gaulen et al., 2022). Indeed, LS is recognized as a crucial criterion for assessing the mental health of drug users and has garnered much scientific interest (Cao & Zhou, 2021). Zullig et al. (2001) examined the relationship between substance use practices and perceived global LS in a sample of 5,033 high school students. They discovered that these behaviors are adversely connected with global LS and that sociodemographic characteristics such as gender, marital status, and race have a substantial impact on global LS in drug users. Similar findings were found in an earlier work by Clifford et al. (1991). In a recent study, Moschion and Powdthavee (2017) investigated the link between LS and drug usage in further depth. They argued that a decline in LS may precede the use of illegal substances, whereas the use of illegal drugs during the past six months may reduce LS at the present time. In numerous population groups, including the elderly (Gow et al., 2007), prison officers (Onyishi et al., 2012), undergraduate students (Kong et al., 2015), and individuals with substance use disorder, social support (SS) have been shown to be an important predictor of LS (Cao & Liang, 2017). SS typically involves emotional or material support and aid from all sectors of society, including parents, family, and friends (Cao & Zhou, 2021; Hyde et al., 2011; Zhang et al., 2017).

Physical and mental health consequences have been associated with SS (Cao & Zhou, 2021; Sarason, 2013). Previous research, (Wang et al., 2018), has also studied the processes (e.g., the mediating and moderating effects of specific factors) underlying the relationship between SS and LS. Social support is a crucial and effective psychological resource that enables individuals to manage stress and negative emotions. Researchers discovered that people who received help from family, friends, or professionals reported greater happiness and life satisfaction. For example, Kong and You (2013) investigated the mediating effect of loneliness and self-esteem on the relationship between social support and LS in post-adolescent youth, establishing a comprehensive mediation effects model. Kong et al. (2013) investigated the moderating influence of SS and subjective well-being in this situation in greater detail. Numerous studies (Cao & Zhou, 2021; Kong et al., 2013; Sarason, 2013; Wu et al., 2017) have examined the effect of SS on LS; however, the majority of these studies have focused on normal population groups (non-user groups) and not on individuals with substance use disorder.

Resilience

Resilience is defined as the capacity of an individual to retain physical and mental health in the face of adversity, such as trauma, tragedy, threat, and other substantial stressors (Connor & Davidson, 2003). The definitions of resilience are generally based on two concepts; adversity and positive adaptions which conceptualize individuals' capacity to bounce back when exposed to ranges of misfortunes. Recent studies tend to define resilience, beyond the scope of a trait, as a dynamic psychological process that is susceptible to demographic factors including population, time, and place (Brennan, 2008; Hayter & Dorstyn, 2014; Richards et al., 2016) and tend to promote other psychological traits such as affect balance, self-esteem, and perceived social support (Yang et al., 2020). Resilience enhances one's self-confidence, hence facilitating

support-seeking behavior and utilization of the support system in bad conditions (Rathinam & Ezhumalai, 2021). Resilience enables individuals to consider their personal and social resilience to withstand crises to relapse of substance abuse.

A relapse may be avoided if an intervention focuses on increasing resilience and emphasizes the individual's strengths and resources to help the individual overcome obstacles. There is considerable research (Braverman, 2001; Johnson & Wiechelt, 2004; Meschke & Patterson, 2003; Moe et al, 2007; Rudzinski et. al, 2017) examining recovery from substance use disorder as a form of resilience; however, there are few studies that address resilience in substance use disorder in depth (Rathinam & Ezhumalai, 2021). Previous research has demonstrated that resilience is positively correlated with both LS (Shi, Wang, Bian, and Wang, 2015) and SS (Cao & Zhou, 2021; Wilks & Croom, 2008). Because SS is associated with resilience and both resilience and SS are predictors of LS, it is important to evaluate the potential mediating effects of resilience on the association between SS and LS in order to improve our understanding of the mental health of individuals with substance use disorder. Wu et al. (2017) examined the mediating effect of resiliency on the association between SS and health-related quality of life among Chinese rural elders residing in nursing homes. This precedent influenced the current investigation. In addition, according to Cole et al. (2015), resilience has been shown to improve mental health. Resilience could potentially help people with substance use disorders maintain their physical and mental health in the face of adversity (Cao & Zhou, 2021). These findings provide important insight into the role of resilience in the association between SS and LS (Cao & Zhou, 2021).

Numerous research has demonstrated the correlation between resilience and perceived social support. The majority of research examines the impact of perceived social support on resilience,

indicating that those with strong perceived social support have a higher level of resilience. (Howard & Hughes, 2012; Mo et al., 2014; Wilks & Spivey, 2010; Yang et al., 2020). A small number of researchers have investigated how resilient individuals expand their social networks and acquire support from the existing network. For example, Sexton et al. (2010) found that resilient individuals are more likely to share their ideas and locate sympathetic friends, which are the most important elements for alleviating psychological stresses. Furthermore, perceived social support has been identified with the role of maintaining physical and mental well-being. Notably, studies have found that people with high perceived social support are reported with a higher level of life satisfaction (Kong & You, 2013; Paterson & Hakim-Larson, 2012), whereas some studies suggest that perceived social support has a negative association with perceived stress (Reeve et al., 2013; Su et al., 2013). Based on the present observations, the authors hypothesized that perceived social support is the third mediator of the study (Yang et al., 2020). According to Cao and Zhou (2021), there is a lack of literature that simultaneously examines the relationships between all three variables in drug users. Particularly, the mechanisms linking resilience with the other two variables (i.e., perceived social support and perceived stress) have not been studied in substance abuse disorder patients.

Although the literature on resilience in individuals with SUDs is limited – in part due to inconsistencies in the operationalization of resilience (i.e., resilience as a trait, outcome, or process) (Rudzinski et al., 2017) – several studies have produced intriguing findings (Ingram and Price, 2010; Martinez et al., 202; Windle et al., 2011). In a large study conducted primarily with African Americans from low-income communities, individuals with greater resilience and a history of childhood abuse and/or other trauma were found to engage in less dangerous alcohol and illicit drug use over the course of their lives (Martinez et al. 2021; Wingo et al., 2014).

Individuals who were exposed to childhood abuse or other traumatic experiences appeared to have a reduced risk of substance abuse (Wang et al., 2021). Studies have shown that resiliency provides psychological protection against adverse events (Bonanno, 2004; Masten et al., 1990; US Department of Health and Human Services, 2016; Woods, 2017). Social connections, religiosity, toughness, and personal competence are associated with psychological resilience. Positive childhood or adolescent experiences may enhance personal strengths and competencies that aid in the remission of mental disorders in adulthood. Resilience may also protect adolescents from the dangers of substance abuse. Religiosity, as an aspect of resilience, has the 'buffer' effect (a process in which a psychosocial resource reduces the impact of life stress on psychological well-being) of increasing adolescents' resilience to substance use (Wang et al., 2021; Wills et al., 2003).

In recent decades, there has been an increase in the number of studies examining the relationship between spirituality/religion (S/R) and health, with the majority finding positive results (Lucchetti and Lucchetti, 2014). A previous study discovered that S/R is typically associated with improved mental health, including lower levels of depression, anxiety, stress, suicidal ideation, and drug use (Schwalm, Zandavalli, de Castro Filho, & Lucchetti, 2022). According to some authors (Manning, 2013; Smith et al., 2012; Vieira, 2010), spirituality is one of the fundamental characteristics that predict resilience, along with a number of others that relate to both dimensions, such as optimism and purpose. Manning (2013) described spirituality as "a path to resilience" in a study that included older women. Furthermore, according to Koenig's (2009) review correlating S/R and mental health, S/R confers resilience.

Another study investigating the relationship between resilience and mental health problems in a sample of methadone-maintained patients found that greater resilience was independently associated with fewer depressive and anxious symptoms (Jiao et al., 2017; Martinez et al., 2021). In addition to these protective effects on psychiatric symptoms, resilience appears to be associated with the efficacy of treatment interventions. In the aforementioned study, McGuire et al. (2018), found PTSD symptoms decreased in patients with greater resilience, which the authors hypothesized was associated with greater cognitive flexibility, allowing patients to better comprehend and integrate their traumatic experiences. Resilience may also facilitate the use of more adaptive coping strategies, such as social support, thereby reducing the need for patients to self-medicate with illicit drugs and alcohol (Martinez et al., 2021; McGuire et al., 2018). A recent study by McDonnell et al. (2018) found evidence that resilience may serve as a compensatory strategy for coping with Early Maladaptive Schema (EMS); a pervasive and dysfunctional psychological pattern developed in childhood that defines an individual's understanding of themselves and their relationships. Polydrug users with opioid use disorder (OUD) had higher EMS, emotional dysregulation, maladaptive coping, and lower resilience when compared to healthy controls (Mc Donnell et al., 2018). Higher levels of emotional dysregulation, maladaptive coping, and EMS were found to be negatively associated with resilience (Martinez et al., 2021).

Self-Esteem

Self-esteem is defined as the individual's evaluation of self-worth (Rizwan & Ahmad, 2015). Self-esteem is affected both by our ideas about how we are measuring up to our own standards (primarily internal) and by our ability to control our sense of self in interactions with others (primarily external). Both processes have significant effects on how we feel about

ourselves. People with high self-esteem have a positive opinion of themselves and are generally content with who they are (Bordens & Horowitz, 2008). People typically possess positive, well-grounded, and secure feelings of self-worth (Kernis, 2000). Also, people are more capable of making new friends, communicating about themselves, offering emotional support to others, and resolving interpersonal conflicts (Buhrmester et al., 1988).

People with low self-esteem, however, frequently experience feelings of failure, incompetence, and worthlessness. Low self-esteem increases the likelihood of experiencing feelings of weakness, helplessness, hopelessness, fear, vulnerability, fragility, incompleteness, and inadequacy (Bordens & Horowitz, 2008). Low self-esteem can cause patients or others to hate and reject themselves, which can be expressed directly or indirectly (Stuart & Sundeen, 1987). In the past few decades, research on self-esteem deficits and their debilitating effects among psychiatric patients has increased (Rizwan & Ahmad, 2015). The research on low self-esteem and its paralyzing effects in psychiatric populations has already revealed a great deal about this phenomenon (Rizwan & Ahmad, 2015). According to O'Brien et al. (2006), low self-esteem is either a diagnostic criterion or an associated feature of nearly two dozen mental disorders in the DSM-V (2013) in patients with psychiatric disorders or mental illnesses. Multiple psychiatric disorders, including major depressive disorders, dysthymic disorder, anxiety disorders, eating disorders, sexual dysfunction, personality disorders (Leary & MacDonald, 2003), schizophrenia (Lysaker et al., 2007; Gureje et al., 2004), obsessive-compulsive disorder (Fava et al., 1996; Stumpf & Parker, 2000), and opioid dependence disorder (Frances & Franklin, 1988) in young adults are associated with low self-esteem. Several researchers have also indicated low self-esteem to be one of the factors associated with suicidal behavior in drug dependence disorders. Wilke (2004) found a significant correlation in the expected direction

between self-esteem and abstinence, while gender had no effect. On the other hand, those with lower levels of self-esteem, regardless of abstinence or continued use, were found to have an almost identical likelihood of suicidal ideation, regardless of their substance use status (Rizwan & Ahmad, 2010).

Previous studies have demonstrated the long-term, positive effects of self-esteem on both abstinence and major life problems following treatment (Ferrari et al. 2012; May et al., 2015; Richter et al. 1991). Additionally, higher levels of self-esteem are related to other positive individual coping resources, such as hope and self-regulation, and have been shown to reflect self-liking, competence, and self-confidence in a recovery population (Porcaro et al., 2021). The significance and implications of this fundamental importance of self-esteem in the course of various disorders continue to attract the interest of researchers. The relative impact of self-esteem and psychiatric disorders on one another is also the subject of controversy (Rizwan & Ahmad, 2015). Others argue that there is a vicious cycle between low self-esteem and psychiatric disorders. Some researchers, (Khanam, Rizwan, & Bilal, 2008; Silverstone & Salsali, 2003; Steinhausen, 2005) argue that low self-esteem makes individuals susceptible to psychiatric disorders, while others contend that psychiatric disorders lower one's self-esteem (Rizwan & Ahmad, 2015).

Stigma is typically defined as a trait that is profoundly discrediting and reduces the bearer to a tainted, devalued person (Dar et al., 2020). For millions of people with mental disorders, stigma remains the most significant barrier to a better life. Stigma can affect whether individuals with mental disorders seek treatment and adhere to it, as well as their self-esteem and social adjustment. Even though individuals avoid the label of mental illness, stigma creates a barrier to

help-seeking. Self-stigma is the hostility that individuals with mental disorder feel toward themselves (Dar et al., 2020). Stigmatization related to substance use disorder is present in many forms and misconceptions (Abbas & Iqbal, 2018). One of the misconceptions associated with stigmatization is that persons with substance use disorder are perceived as criminals rather than as persons having a chronic mental disease. Another misperception about people having substance use disorder is that they take drugs intentionally and they do not want to control their drug-taking behavior. Individuals with SUDs are viewed as having self-inflicted the disorder, which leads to hostility, punishment, and avoidance of relationships (Abbas & Iqbal, 2018).

Stigma also has a significant impact on the mental health and self-esteem of individuals with substance use disorder (Abbas & Iqbal, 2018). The literature demonstrates a strong relationship between substance use disorder, stigma, and self-esteem. Livingston et al. (2012), Link et al. (2001), and Verhaeghe et al. (2008) have found that stigmatization in substance use disorder is associated with lower self-esteem. In their research, MacArthur and MacArthur (2004) found a significant negative correlation between low self-esteem and substance use disorder. In addition, Livingston and Boyd (2010) noted that stigma affects the hope, self-esteem, and self-efficacy of individuals with substance use disorder. Other research findings also indicate that stigma associated with mental disorder and substance abuse is a significant factor in low self-esteem (Abbas & Iqbal, 2018; Crocker & Quinn, 2003; Rosenfield, 1997). Self-stigma is also believed to contribute to low self-esteem, feelings of shame, and worthlessness associated with substance use disorder. Self-stigma or internalized stigma is associated with poor physical and mental health, delayed treatment seeking, and poor quality of life in individuals with substance use disorders (Dar et al., 2020). Crocker and Quinn (2003); Rosenfield (1997) have also found that when people with mental disorders, particularly those with substance use disorders, are stigmatized and

discriminated against, they internalize these negative societal attitudes which can negatively impact their self-esteem, self-worth, and self-importance (Abbas & Iqbal, 2018).

Hope

A positive outlook on the future has been conceptualized as hope, which consists of two cognitive constructs: pathways thinking and agency thinking (Reddon, & Ivers, 2022). Pathways thinking refers to an individual's ability to identify pathways and contingency pathways to reach the desired goal. Agency thinking reflects one's perceived capacity or motivational energy to use these pathways to reach a desired goal of recovery. A previous systematic review identified hope as a critical component of a conceptual framework for personal recovery. Other researchers have found that hope is an important source of personal recovery capital for preventing negative affective symptoms (such as anxiety and depression) during substance abuse recovery (Leamy et al., 2011; May et al., 2015). In addition, both hope-pathway and hope-agency domains have been associated with enhanced impulse control among individuals recovering from alcohol and substance dependence (Ferrari et al., 2012; Reddon & Ivers, 2022).

Although the development of hope has been identified as a crucial process in addiction recovery, the evaluation of interventions to enhance hope within the context of addiction is limited. Only three studies have investigated the relationship between measures of hope and substance use or relapse rates, with inconclusive findings (Irving et al., 1998; Mathis et al., 2009; Mohammadpoorasl et al., 2012). According to Porcaro et al. (2021), higher levels of hope are associated with positive outcomes, such as higher levels of life satisfaction, optimism, and well-being. Hope is linked to successful abstinence and a better quality of life according to previous research on recovery (Irving et al.,1998). High levels of hope in recovery are also associated with

preparedness for situational threats, the ability to generate a larger number of strategies to achieve goals, and the use of more adaptive strategies to combat recovery threats (Porcaro et al., 2021). As the use of unregulated substances such as opioids continues to rise in a variety of settings, it will be important to evaluate how sources of personal recovery capital, such as hope, influence substance use behaviors in order to promote recovery among those with opioid dependence (Reddon, & Ivers, 2022). Due to numerous studies on the relationship between hope and self-esteem, the researcher will not include hope as a variable in this study.

Depression

Depression is a common and serious medical condition that negatively impacts how a person feels, thinks, and behaves (Benazzi, 2022). An estimated 21.0 million adults in the United States experienced at least one major depressive episode; 8.4% of all U.S. adults aged 18 or older (National Institute of Health, 2020). During 2013–2016, 8.1% of American adults aged 20 and over had depression in a given 2-week period (Brody et al., 2018). Depressed mood and loss of interest or pleasure are the core symptoms of major depressive disorder (MDD), and at least one of them is required for diagnosis (DSM-5-TR, 2022). These symptoms reflect the belief that depression is primarily a mood or affective disorder. In both official schemes, the following symptoms contribute to a diagnosis of depression: appetite or weight loss or gain; insomnia or hypersomnia; agitation or retardation; loss of energy or fatigue; loss of confidence or self-esteem; worthlessness or guilt; reduced concentration or indecisiveness; thoughts of suicide or suicide attempt (DSM-5-TR, 2022). Major depressive disorder (MDD) is commonly comorbid with opioid use disorder, and is a prevalent psychiatric condition among adults in the United States (U.S.). 7.1% of Americans aged 18 and older, or 17.3 million adults, suffer from MDD disorder each year in the United States (National Institute of Mental Health, 2017). It is well-

known that major depression is common in patients with chronic pain. Particularly those suffering from severe, multifocal, long-lasting, and incapacitating pain (Paykel, 2022). (Sullivan, 2018).

Depression and pain reinforce each other, making one more likely and difficult to treat. The following is how researchers from a World Health Organization prospective study of chronic pain in primary care summarized their findings on the causal relationship between depression and pain: "... at baseline, persistent pain predicted the onset of a psychological disorder with the same strength that a baseline psychological disorder predicted the onset of persistent pain" (Gureje et al., 2001, p. 196). Depression aggravates chronic pain, which increases opioid prescriptions (Sullivan, 2018).

Hasin et al. (2018), Gold et al. (2020), Siru et al. (2009), and Katon et al. (2007) have demonstrated substantial correlations between MDD and various psychiatric diseases, including anxiety disorder, bipolar disorder, and schizophrenia. In addition, MDD relates to chronic medical disorders such as heart failure, hypertension, and brain trauma. Studies have indicated that people with MDD may have several psychiatric and chronic medical illnesses in the general population; however, less is known regarding co-morbid psychiatric and chronic medical conditions with MDD in OUD patients. Also, the likelihood of developing MDD is significantly lower for men. However, little or no research has been found regarding gender differences in the relationships between several mental and chronic illnesses and MDD in OUD patients (Nwabueze et al., 2022).

Halbert et al. (2016) found that patients with current mood disorders initiated opioids slightly more frequently (about 2% in each case) for both acute and chronic pain conditions. As a result,

clients with depression begin to use opioid medication somewhat more frequently than non-depressed patients, but they are twice as likely to progress to long-term use. Even though mood disorders had a substantial relative effect on progression to long-term opioid usage, it is crucial to emphasize that advancement rates were generally low, ranging from 5% to 11% for acute pain issues and 20% to 37% for chronic pain illnesses (Halbert et al., 2016). Clients with chronic pain and depression may use opioids to compensate for a diminished opiate receptor response to stresses (Sullivan, 2018). Individuals with depression appear to sustain opioid use at lower levels of pain intensity and higher levels of physical function than patients without depression. Long-term opioid therapy has been demonstrated to increase the risk of incident, recurring, and treatment-resistant depression in trials in which confounding by indication was rigorously controlled. Clients with depression may tend to abuse opioids because they take them to relieve insomnia and stress. Depression appears to also raise the likelihood of addiction or nonmedical use of prescription opioids in adolescents and adults. This higher prevalence of nonmedical opioid usage may be the mechanism by which depression raises the risk of opioid use disorder in patients with chronic pain (Sullivan, 2018).

In hospitals, depression has been linked to an increased risk of inpatient admissions, length of stay, and 30-day readmission risk. Similarly, patients with SUDs have increased visits to the emergency department (ED) and hospitalizations as inpatients. When co-occurring with MDD, substance use disorders are associated with increased psychiatric and other medical utilization, including hospitalizations, lengths of stay, and costs (largely attributed to increased psychiatric inpatient encounters (Vekaria et al., 2021). The existence of depression or MDD complicates the treatment of SUDs, whereas the co-occurrence of depression or MDD and SUDs exacerbates physical and mental health impairment, as well as poor treatment results, which lead to increased

morbidity, mortality, and healthcare costs (Wang et al., 2022). Patients with MDD or SUD who undergo treatment are frequent users of health care services. Individuals with MDD who receive primary care have generally more yearly healthcare visits, referrals to specialists, laboratory testing, radiologic scans, and procedures than patients without MDD (Wang et al., 2022). The researcher will not include depression as a variable in this study.

Past Psychiatric Hospitalizations/Past Overdose Hospitalizations

Clients with substance use disorders are seven times more likely to be hospitalized than the general population, and OUD hospitalizations are on the rise (Song, 2017). The rate of hospitalizations for opioid dependence or abuse averaged 13%, whereas hospitalizations due to opioid poisoning and heroin poisoning averaged 3% (Song, 2017). Hospitalization is a crucial time for engaging, treating, and supporting OUD patients. Support for these patients impacts not only OUD treatment but also hospital and outpatient care for any illness (King et al., 2022). Due to escalating rates of morbidity and mortality associated with opioid misuse, hospitalizations connected to opioids have increased significantly in the United States (US). Over 600,000 prescription opioid and heroin overdose-related hospital admissions occurred in the United States between 2000 and 2012, resulting in an increase in annual hospitalization expenses of more than $700 million (Liu et al., 2019). OUD is especially expensive to treat, as they are the most frequent users of healthcare among patients with SUDs and are more prone to require crisis and drug use-related services (Vekaria et al., 2021).

Although OUD belongs to the same group as other SUDs, a number of characteristics distinguish OUD from other SUDs in terms of specialist management and therapy (Vekaria et al., 2021). Opioid withdrawal symptoms are significantly more severe than those of other narcotics

and can lead to physical dependence within 4–8 weeks. In addition, the availability and accessibility of prescription opioids in medical practice exacerbated the opioid epidemic and facilitated non-medical heroin usage. Users who relapse on opioids face a considerably higher risk of overdose and death than those who relapse on cannabis or alcohol. The successful treatment of OUD requires individuals to be on drugs (such as buprenorphine, methadone, or long-acting injectable naltrexone), which in turn requires healthcare practitioners and clinics to be a part of this treatment "environment "(Vekaria et al., 2021).

Researchers have found that outpatient treatment following hospitalization is associated with better outcomes, such as reduced drug and alcohol use, fewer substance use problems, and lower arrest rates (Gilbert, 1988; McCarty et al., 2014; McKay, 2009; Peterson et al., 1994; Reif et al., 2014), and patients with a substance use disorder who do not receive follow-up services are at a much higher risk of being readmitted (Blodgett et al., 2014; McCarty et al., 2014; Reif et al., 2014). It has been demonstrated that veteran participation in outpatient treatment relates to a decreased two-year mortality rate. Research has found that only 49.4% of clients discharged from an inpatient substance addiction detoxification stay received follow-up mental health or substance abuse therapy within 30 days after discharge (Naeger et al., 2016). Approximately 50% of adult clients with a mental illness develop a SUD (Takamura et al., 2021). Due to this increased risk, providers may be more inclined to withhold home opioids from patients admitted to a psychiatric hospital, even if they require treatment for pain. In fact, reluctance to treat acute pain with opioids has been reported among hospitalized patients with known OUD, leading to undertreatment. Polypharmacy involving nonopioid medications may also be a problem in this population, despite not being specifically mentioned in the inpatient setting. For example, polypharmacy has been associated with the use of nonopioid adjunctive pain medications, such

as gabapentin. In addition, there is evidence that withholding opioid medications during medical hospitalizations may result in patient dissatisfaction (Takamura et al., 2021).

Smith and Mark (2014) discovered that the annual percentage of commercially insured clients who received outpatient treatment for a mental health illness or SUD within 30 days of a linked inpatient admission had continuously grown (Naeger et al., 2016). In 2012, 66.1% of patients with commercial insurance who had an inpatient stay for substance misuse received at least one outpatient visit within 30 days after discharge (Smith & Mark, 2014). A considerable proportion of patients do not obtain outpatient follow-up therapy, even though several clinical guidelines urge that individuals with a substance use disorder undergo ongoing care after an intensive inpatient treatment program. Being female, enrolled in a behavioral health carve-out plan, and having lower cost-sharing requirements for an outpatient substance abuse visit are factors linked with receiving follow-up care following a SUD detoxification hospitalization (Naeger et al., 2016). Harris et al. (2006) investigated the factors associated with months of participation in continuing care after discharge from a residential SUD treatment program. They discovered that being African American, having more SUD and psychiatric symptoms, having more recovery resources, and feeling the treatment personnel as supportive were all related to longer involvement in continuing care. The authors also discovered a positive link between prior contact with a behavioral health practitioner before the intense treatment session and engagement in continuing care. Timko et al. (2016) discovered in their study of veterans that being black, female, younger, homeless, having fewer comorbidities, and having received past addiction treatment were factors linked with follow-up and transition to addiction treatment following detoxification.

Patients hospitalized in community hospitals with opioid-related substance use disorders may require rapid inpatient detoxification to address withdrawal symptoms during hospitalization (Blanchard et al., 2021; Liebschutz et al., 2014). There are a variety of detoxification and rehabilitation methods available in both inpatient and outpatient settings. Depending on the medical complexity of the patient, detoxification, and rehabilitation in a community hospital are not necessarily superior to those in an outpatient setting (Schuckit, 2016). However, an acute hospitalization may provide an opportunity for providers to initiate treatment in patients who would not otherwise have contact with the medical system. Although an acute care hospitalization may present an intervention opportunity for patients with opioid use disorders, the majority of acute care opioid-related hospital admissions, particularly those related to short-term detoxification, are associated with inadequate or no inpatient rehabilitation programs (Blanchard et al., 2021; Velez et al., 2017).

Despite the rise in opioid-related hospitalizations since 2000, virtually little is known regarding the causes, rates, and predictors of readmission following hospitalization for opioid misuse and dependence on a national scale (Grzebinski & Dhamoon, 2021). The analysis of readmission rates permits comparisons, enhanced risk assessments, and evaluations of care quality. Existing research has examined trends in admissions for opiate misuse and dependence over the past several years in terms of mortality rates and other factors. Other studies have evaluated readmission rates for opioid misuse and dependency, however, none of these studies have examined a countrywide cohort of all patients, including non-post-operative cohorts, and investigated all probable reasons for readmission (Chan et al., 2004; Choi et al., 2011; Crispo et al., 2019; Gupta et al., 2018; McNeil et al., 2014; Moreno et al., 2019; Schranz et al., 2019). Cauley et al. (2017), Chen et al. (2018), and Cochran et al. (2014) have indicated common

comorbidities with opioid misuse and predictors of worse outcomes; however, data on predictors from non-survey national databases have not been collected. There are insufficient national data on the characteristics, rates, and causes of readmission following hospitalizations related to opioids (Grzebinski & Dhamoon, 2021). As indicated by the rising legislative emphasis on minimizing opioid-related prescription overdoses, dependence, and death, it is essential to better know the utilization and implications of opioid-related treatments during hospitalization (Blanchard et al., 2021).

Hospitalizations for overdose are also opportunities to intervene in the opioid epidemic by connecting patients to nonpharmacologic chronic pain treatment resources and substance abuse treatment services during and after hospitalization (Fanucchi & Lofwall, 2016; Liebschutz et al., 2014; Mosher et al., 2017). In order to inform planning and resource allocation for inpatient and post-discharge transitional care, it is essential to examine trends in the number of hospitalizations for opioid overdose in rural and urban areas (Mosher et al., 2017). It appears that nonmedical opioid use, opioid-related deaths, and opioid-related arrests are more prevalent in rural areas (Keyes et al., 2014; Rigg & Monnat, 2015). In addition, rural areas typically have less access to substance abuse treatment and chronic pain specialty services (Ellis et al., 2009; Rosenblatt et al., 2015). Increasing rural hospital closures have occurred concurrently with a rise in the use of opioids (Kaufman, 2016). This may exacerbate the impact of opioid-related hospitalizations on remaining rural hospitals and lead to an increased reliance on distant urban hospitals for the treatment and discharge of overdose patients. Residents from rural areas who are admitted or transferred to urban hospitals may face unique obstacles. Similarly, urban hospitals may struggle to link patients to substance abuse treatment services in unfamiliar rural communities during discharge planning (Mosher et al., 2017).

Health Insurance

The total cost of the opioid crisis, including direct, indirect, and lost productivity, has been rising dramatically. The total cost of OUD treatment increased from $43.2 billion in 2009 to $78.5 billion in 2013 to $471 billion in 2017 (Sun et al., 2022). OUD has been shown to increase annual healthcare costs by $14,810 compared to those without OUD, with hospitalization and rehabilitation accounting for a significant portion of this increase. Between 1994 and 2002, the cost of admissions increased by 482%. Readmissions further increase healthcare costs (Ghosh et al., 2022). A study conducted at the Massachusetts General Hospital by Moreno et al. (2019) found that nearly one-third of patients were readmitted within 90 days of their initial hospitalization. Policymakers are concerned about hospital readmission due to its high prevalence and economic and social costs. Nevertheless, identifying and managing readmission risk factors may improve the health and quality of care while reducing costs (Ghosh et al., 2022).

Medicaid covers nearly one-third of patients receiving treatment for substance use disorder (Leslie et al., 2019). Medicaid expenditures related to substance use disorders increased from 9% of total spending on substance use disorders in 1986 to 21% of total spending on substance use disorders in 2009. Medicaid accounted for 21% of the $24 billion that health insurers spent treating substance use disorders in 2009, although this amounted to less than 1% of total Medicaid expenditures. Between 2011 and 2016, Medicaid expenditures on buprenorphine, naltrexone, and naloxone (medications that block the effects of opioids and are administered in overdose situations) increased by 136%, from $394.2 million to $929.9 million. In 2014, an estimated 14.6% of OUD patients received medication therapy. According to Leslie et al. (2019), Medicaid beneficiaries have a higher prevalence of mental and substance use disorders and are at

a higher risk for OUD than the general population. Consequently, OUD has been shown to place a substantial financial burden on state Medicaid programs (Toseef et al., 2023).

Substance abuse treatment, which was segregated from general healthcare coverage, has remained largely underfunded (Datta et al., 2022). Treatment coverage has thus far been met largely through state funding or block grants from the federal government. Treatment for substance use remained outside any health insurance coverage - private or public - before the passage of the ACA (Affordable Care Act) Medicaid expansions, along with the essential health benefits (EHB) clause covering mental health and substance use, represent a significant shift from the past in expanding both access and coverage. The effects of the ACA's private health insurance and dependent coverage expansions on substance use disorder have been extensively studied. However, studies on the effects of Medicaid expansion on the treatment of opioid use disorder (OUD) are scarce and frequently based on preliminary data. Recent research, (Crispo et al., 2019; Maclean et al., 2019; Meinhofer & Witman, 2018; Neighbors et al., 2019; Sharp et al., 2018) has examined the influence of health insurance on medication-assisted treatment (MAT) for substance use disorders. The findings indicate that the number of Medicaid-reimbursed prescriptions for buprenorphine and naltrexone increased in states that expanded Medicaid, although most low-income adults continue to have limited access to affordable treatment in all states (Datta et al., 2022). The researcher will not include health insurance as a variable in this study.

Incarceration

Individuals with substance use disorders, apart from opioid-related disorders, exhibited a fivefold increase in the likelihood of being arrested and booked within the previous year

compared to those without any substance use disorders (Robertson, 2018). Moreover, individuals with prescription painkiller use disorders demonstrated a sevenfold increase in this likelihood. Conversely, individuals with heroin use disorders were found to be nineteen times more likely to experience arrest and booking, while those with both heroin and prescription painkiller use disorders exhibited a twenty-sixfold increase in this likelihood.

In the preceding year, a significant proportion of individuals diagnosed with heroin use disorders, as well as those with both prescription painkiller and heroin use disorders, had legal consequences, with over 50% being arrested and booked for criminal offenses. In contrast, only 17% of those with other substance use disorders saw such interaction with the criminal justice system. Therefore, it is imperative to implement interventions aimed at reducing the involvement of individuals with serious mental illness (SMI) in the criminal justice system. These efforts should encompass all individuals with substance use disorder, with particular emphasis on providing assistance to those with heroin use disorder as well as those with co-occurring heroin and prescription drug use disorders (Robertson, 2018). The United States has the highest incarceration rate globally, which has a negative impact on public health (Henry, 2020). Individuals who have previously been imprisoned face a heightened likelihood of experiencing fatal outcomes related to drug overdose, suicide, homicide, and cardiovascular disease. Individuals with mental health and substance use issues are disproportionately represented in the prison and jail systems of the United States. The prevalence of mental health illnesses among individuals detained in jails is as high as 60%, and only slightly lower for those incarcerated in state and federal prisons. Individuals with severe mental illness are disproportionately jailed in jails, with men comprising 15% and women comprising 31% of the incarcerated population.

Furthermore, close to 50% of those imprisoned in the United States exhibit serious substance abuse prior to their incarceration. Considering the fact that jailed individuals exhibit a significantly higher prevalence of mental health and substance use disorders, it is unsurprising that these disorders can also contribute to their imprisonment. Individuals suffering from mental health and/or substance use disorders are more prone to being apprehended by law enforcement. Recidivism has been found to be influenced by serious mental illness. Furthermore, a significant proportion of individuals detained in state prisons (33%) and federal prisons (22%) acknowledged drug use during the commission of their violation. Additionally, around 18% of incarcerated individuals committed their crimes with the intention of acquiring funds for drug-related purposes. Substance use disorders can serve as a mediator in the connection between mental health illnesses and criminal behavior. An additional element that could be significant is the occurrence of traumatic or bad events. Adverse experiences have been shown to contribute to mental health issues, substance use disorders, and violence. Moreover, jailed individuals have a higher prevalence of exposure to unfavorable experiences compared to the general population. The relationship between unfavorable events, mental health issues, and substance use disorders likely contributes to a percentage of the imprisonment rate.

Housing Insecurity

The opioid epidemic disproportionately affects people experiencing homelessness (PEH) (McLaughlin et al., 2021). PEH are more likely than their housed counterparts to abuse opioids (Doran et al., 2018; Marshall et al., 2019) and overdose (Yamamoto et al., 2019). The COVID-19 pandemic has exacerbated this overdose crisis, particularly among PEH (Centers for Disease Control and Prevention, 2020). PEH has witnessed an alarming doubling of the percentage of overdose deaths involving fentanyl. Similarly, drug-related overdose remained the leading cause

of death among PEH despite the COVID-19 pandemic and several documented severe acute respiratory syndrome coronavirus 2 (SARS-Cov-2) outbreaks that occurred early on in homeless shelters across the United States (Baggett et al., 2020; Tobolowsky et al., 2020). Similarly, homelessness increases the risk of physical and mental health conditions (Haider et al., 2020; Hser et al., 2015). However, PEH frequently faces multiple obstacles that prevent them from receiving effective care. Personal barriers like competing priorities, trauma, and medical comorbidities, practical barriers like transportation and medication security, and structural barriers like stigma, mistrust of medical institutions, and lack of health insurance coverage all contribute to poor access to ambulatory care by PEH (Davies and Wood, 2018) and the persistence of unmet health needs (Baggett et al., 2010; Kushel et al., 2006). As a result, individuals with PEH may delay seeking care and overuse acute healthcare (Davies and Wood, 2018; Kushel et al., 2006; Lin et al., 2015).

Clients with opioid use disorders are particularly vulnerable due to concurrent high levels of housing insecurity, food insecurity, and lack of primary care (London & Kory, 2020). These patients frequently visit the emergency room for medical and non-medical issues (Rose-Jacobs et al., 2019). However, financial, and time-related priorities for food and housing access may impede medical care, which is especially detrimental for pregnant women in OUD treatment (Rose-Jacobs et al., 2019). Seventy to eighty percent of pregnant women with OUD report a history of physical or sexual abuse, as well as exposure to trauma and violence. Among pregnant women with OUD, co-occurring psychiatric disorders are highly prevalent (25%–73%), with women frequently having more than one comorbid psychiatric diagnosis, including depression, anxiety, and posttraumatic stress disorder. This population also suffers from extreme housing and food insecurity, with over 60% reporting homelessness and food insecurity, and 80% having

public insurance as an indicator of poverty (Rose-Jacobs et al., 2019). According to Feder et al. (2018), Huhn and Dunn (2020), and Martin et al. (2020), women experience greater health and social vulnerabilities than men, which contributes to gender-based disparities in access to substance abuse treatment programs. In comparison to men, women earn 70 cents on the dollar and are more likely to work part-time due to childcare or other family obligations (Gharehgozli & Atal, 2020). Single female-headed households comprise the largest proportion of families living below the poverty line and are more dependent on social programs such as Medicaid and Social Security Income (Foster & Rojas, 2018; Gharehgozli & Atal, 2020; Semega et al., 2020). Although women comprise a smaller proportion of homeless individuals, they are more likely to be in poorer physical and mental health than men who are homeless. In addition, women may experience housing insecurity in more covert ways, such as living with friends or family, exchanging sex for housing, or staying in hotels (Spector et al., 2021).

For people of color and other marginalized communities, drug use is exacerbated by the social determinants of health characterized by poverty, housing instability, and a higher likelihood of incarceration, all of which contribute to reduced access to high-quality healthcare (Nordeck et al., 2021). According to Velasquez et al. (2019), previous studies have identified several factors that likely contribute to opioid and other drug and alcohol use after jail, including poverty, income from drug sales, limited family and social support for opioid and other drug and alcohol abstinence or moderation, inadequate access to mental and physical health care, and unstable housing or homelessness.

Given the substantial overlap between mental illness and substance use disorders, co-occurring diagnoses may be a risk factor for early treatment termination (Hooker et al., 2020).

The research evidence, however, is inconsistent; some studies have found no correlation between mental health and substance use disorders and treatment retention (Neumann et al., 2013). In contrast, some researchers have found that a mental health diagnosis is associated with a greater likelihood of treatment retention (Weinstein et al., 2017) whereas others have found that psychiatric comorbidity and comorbid substance use are associated with treatment noncompliance (Fareed et al., 2014). Social determinants of health, such as employment and housing status, income level, and access to healthy food and reliable transportation, may also influence treatment retention. These psychosocial needs are essential to the health and functioning of patients, particularly those with OUD. 60% to 70% of clients with OUD are unemployed, and 60% earn less than $10,000 annually (Ober et al., 2018). Between 25% and 30% of clients receiving medications for opioid use disorder (MOUD) report homelessness and/or housing instability, factors that decrease the likelihood of treatment-seeking (Li; Ober et al., 2018; Simon et al., 2017). These statistics are especially worrisome because patients with unmet psychosocial needs may have trouble adhering to treatment; however, this has not yet been thoroughly investigated in clients with OUD receiving treatment in primary care settings (Hooker et al., 2020).

CHAPTER III

METHODOLOGY

This section will describe in detail how the current study will be conceptualized and carried out. The criteria for participant selection are discussed, followed by a detailed explanation of the methods that will be utilized in this study. In addition to the components, the instrumentation and psychometric properties of the components are also covered. This section will conclude with a discussion of the rationale and identification of the independent and dependent variables included in the study, as well as the research design.

The following research questions and hypotheses are to be explored in this study.

6. To what extent do demographic factors (multiple mental health disorder diagnoses, incarceration status, and housing insecurity) predict overdosing hospitalization?

   H_0 1: Demographic factors (multiple mental health disorder diagnoses, incarceration status, and housing insecurity) do not predict overdosing hospitalization.

   H_a 1: Demographic factors (multiple mental health disorder diagnoses, incarceration status, and housing insecurity) do predict overdosing hospitalization.

7. To what extent do demographic factors (multiple mental health disorder diagnoses, incarceration status, and housing insecurity) predict being hospitalized for mental illness reasons?

H_0 2: Demographic factors (multiple mental health disorder diagnoses, incarceration status, and housing insecurity) do not predict being hospitalized for mental illness reasons.

H_a 2: Demographic factors (multiple mental health disorder diagnoses, incarceration status, and housing insecurity) do predict being hospitalized for mental illness reasons.

8. To what extent do demographic factors (multiple mental health disorder diagnoses, incarceration status, and housing insecurity) predict self-esteem?

H_0 3: Demographic factors (multiple mental health disorder diagnoses, incarceration status, and housing insecurity) do not predict self-esteem.

H_a 3: Demographic factors (multiple mental health disorder diagnosis, incarceration status, and housing insecurity) do predict self-esteem.

9. To what extent do demographic factors (multiple mental health disorder diagnoses, incarceration status, and housing insecurity) predict resilience?

H_0 4: Demographic factors (multiple mental health disorder diagnoses, incarceration status, and housing insecurity) do not predict resilience.

H_a 4: Demographic factors (multiple mental health disorder diagnoses, incarceration status, and housing insecurity) do predict resilience.

10. To what extent do demographic factors (multiple mental health disorder diagnoses, incarceration status, and housing insecurity) predict life satisfaction?

H_0 5: Demographic factors (multiple mental health disorder diagnoses, incarceration status, and housing insecurity) do not predict life satisfaction.

H_a 5: Demographic factors (multiple mental health disorder diagnoses, incarceration status, and housing insecurity) do predict life satisfaction.

Participants

Participants will be recruited from substance abuse facilities in the U.S. using a systematic random sample. Criteria for inclusion in the current study include participants being 18 years or older, having an opioid use disorder, having one or more mental health disorders, and being currently and/or were formerly enrolled at a substance abuse treatment center. The recommended sample size for logistic regression is fifty participants per independent variable; however, for smaller studies such as this current one, a smaller sample size with 20 participants per independent variable is sufficient when evaluating which variables aren't highly related (Bujang et al., 2018). Utilizing the Gpower Analysis, with a moderate effect size ($R^2 = 0.15$) a power of 0.95 and $\alpha = 0.05$, and 3 predictors, the required sample size was 89 subjects. However, to strengthen and ensure that the data is statistically significant, the researcher will be utilizing 601 participants.

Procedure

After receiving approval from the Internal Review Board (IRB) at the University of Texas Rio Grande Valley, approximately 601 participants that are 18 years or older, with an OUD, having one or more medically diagnosed mental health disorders, currently and/or were formerly

enrolled at a substance abuse treatment center was recruited using stratified sampling. The researcher recruited participants using a digital flyer.

The objective of the digital flyer was to promote the study and to provide participants with access to the survey. Before emailing the flyer to agency directors, the researcher sent out a letter of invitation outlining the purpose of the study as well as its risks, benefits, and eligibility requirements, requesting permission to use their agency to recruit participants. Additionally, the flyer was shared on social media platforms including Instagram, Snapchat, and Facebook. The informed consent was incorporated into the survey, and completion of the survey served as confirmation of informed consent. Recruitment via social media platforms provided the researcher with access to a wide range of individuals with OUD with one or more medically diagnosed mental health disorders and reached a broader audience geographically. Participants were able to scan a QR code or directly copy and paste the Qualtrics link into their web browser to access the survey. Before beginning the survey, participants were required to acknowledge the informed consent. The informed consent included a summary of the study, its risks, benefits, and eligibility requirements.

Using Qualtrics, surveys and information regarding informed consent and incentive raffles were administered. After the initial contact with potential participants, a single reminder to complete the survey were emailed after two weeks if the researcher had not obtained enough participants. As an incentive, each participant who successfully completes the survey had the opportunity to submit an email address for the raffle at the end of the survey. The winner was contacted via email and sent a digital $25 Target gift card to be used at his/her leisure. Since the data collection has been successfully completed, the results were analyzed using Qualtrics to

IBM SPSS Version 27. Participant responses were saved to an encrypted USB drive and stored in a locked filing cabinet.

Instrumentation

Satisfaction With Life Scale (SWLS). The Satisfaction with Life Scale (SWLS) was developed to assess satisfaction with the respondent's life as a whole (Pavot & Diener, 2008). The authors initiated the development of the SWLS by generating a pool of 48 items designed to measure life satisfaction and well-being. Using factor analysis, 10 items with high loadings (0.60 or above) on a common factor interpreted as global evaluations of a person's life were identified from the original pool of items. This group of items was reduced to five items after redundancies were eliminated, with minimal impact on the alpha reliability of the scale.

The use of a 7-point Likert-style response scale provided respondents with a variety of response options. The five items are all scored in a positive direction, so the total score for the scale can be calculated by adding the five responses (Pavot & Diener, 2008). Questions are presented as follows: “The conditions of my life are excellent.” and “I am satisfied with my life.” The range of possible scores is therefore between 5 and 35, with 20 representing the neutral point on the scale. Scores between 5 and 9 indicate extreme dissatisfaction with life, whereas scores between 31 and 35 indicate extreme satisfaction with life. Scores between 21 and 25 indicate moderate satisfaction, while scores between 15 and 19 indicate moderate dissatisfaction. Other, more specific assessments, such as those for elementary school students, have been The Journal of Positive Psychology 141 developed for specific populations, such as the elderly. Subsequent research provided additional psychometric data on the SWLS after its initial development. In six

studies, the coefficient alpha for the SWLS ranged from 0.79 to 0.89, indicating the scale's high internal consistency (Pavot & Diener, 2008).

The Connor-Davidson Resilience Scale (CD-RISC). The CD-RISC was developed with the following objectives in mind: to develop a valid and reliable measure of resilience, to establish reference values for resilience in the general population and in clinical samples, and to assess the modifiability of resilience in response to pharmacologic treatment in a clinical population (Connor & Davidson, 2003). The CD-RISC contains 25 items, each with a five-point Likert scale response scale: never true (0), rarely true (1), sometimes true (2), frequently true (3), and nearly always true (4). Questions are presented as follows: The rating on the scale is based on the subject's mood over the past month. The total score ranges from 0 to 100, with higher scores indicating higher levels of resilience (Connor & Davidson, 2003). With a Cronbach's α of 0.93, there is a high degree of internal consistency (Kuiper et al., 2019).

Rosenberg Self-Esteem Scale (RSE). The Rosenberg Self-Esteem Scale is a self-esteem measurement instrument (Rosenberg, 1965). Originally, the instrument was intended to measure high school students' self-esteem. The scale has also been used with numerous groups, including adults, and norms are available for a number of these groups. Questions are presented as follows: "On the whole, I am satisfied with myself." and "At times I think I am no good at all." It is believed that this 10-item scale that measures global self-worth by measuring both positive and negative feelings about the self is unidimensional. All questions utilize a four-point Likert scale ranging from strongly agree to strongly disagree.

The RSE is a Guttman scale, so scoring can be somewhat complex. Scoring is based on a system of combined ratings (Rosenberg, 1965). The sum of item ratings yields a total score

ranging from 10 to 40; higher scores indicate higher self-esteem. The RSE's coefficient of reproducibility on the Guttman scale is 0.92, indicating excellent internal consistency. Two-week test-retest reliability reveals correlations between 0.85 and 0.88, indicating excellent stability. In addition, using known groups, the RSE scale demonstrates concurrent, predictive, and construct validity. Significant correlations exist between the RSE and other self-esteem measures, including the Coopersmith Self-Esteem Inventory. Additionally, the RSE correlates in the expected direction with depression and anxiety measures (Rosenberg, 1965). Cronbach's values for the English version were 0.88 and those for the Korean version were 0.79 (Campbell-Sills & Stein, 2007).

Variable Selection and Data Analysis

This study includes five predictor/ dependent criterion variables (DV) identified as life satisfaction, resilience, self-esteem, past psychiatric hospitalizations, and past overdose hospitalizations. Life satisfaction, resilience, and self-esteem are classified as interval data. These scales were meticulously measured and tabulated. Past psychiatric hospitalizations and past overdose hospitalizations are classified as metric data. The three independent variables (IV) are multiple mental health disorder diagnoses, incarceration status, and housing insecurity. Two out of the three independent variables were dichotomously categorized as multiple mental health disorder diagnoses (Yes/No), and housing insecurity (Yes/No) which are classified as nominal data. Incarceration status is classified as metric data. Other demographic variables, such as age, race, gender, and reasons for using opioids, were utilized by the researcher to investigate frequencies and descriptive statistics, which are nominal data. Age was used as a continuous variable whereas race had different categories such as White/Caucasian, Hispanic/Latino,

Black/African American, Native American/American Indian, Asian/Pacific Islander, and Other. The variable gender was dichotomously categorized as (female/male) whereas the variable, reason for turning to opioids was categorized as injury/chronic pain, dealing with poverty, unemployment, stress, family history of substance abuse, history of severe depression/anxiety, undertaking risk-taking or thrill-seeking behavior, peer pressure, and other. Moreover, each of the three scales used in this study met the psychometric properties for testing reliability and validity. Analyses for this study were conducted using the IBM Statistical Package for the Social Sciences (SPSS) 27.

Next, preceding statistical analyses, the following general assumptions for multiple linear regression will be evaluated (a) normality, (b) absence of multicollinearity, (c) homoscedasticity, and (d) linearity for each of the major study variables. Furthermore, to avoid violation of normality, the data was assessed using a goodness of fit test such as the Kolmogorov-Smirnov test. The homoscedasticity of the data was assessed using Levene's test for equality of variances. Moreover, for each given predictor, multicollinearity was assessed by computing the variance inflation factors (VIFs) to be within acceptable ranges (Yoo et al., 2014). The linearity of data was assessed using inverse transformation (Rovai et al., 2013).

Descriptive analysis was conducted to assess the demographic variables such as age, race, gender, reasons for using opioids, multiple mental health disorder diagnoses, incarceration status, and housing insecurity. Five multiple linear regressions were conducted for the purpose of this study to examine the demographic factors, such as mental disorder diagnoses, incarceration status, and housing insecurity, that predict an increased risk of psychological issues such as life

satisfaction, resilience, self-esteem, and personal characteristics such as past psychiatric hospitalizations and past overdose hospitalizations.

Summary

As previously discussed, a brief review of the problem, research questions, and corresponding hypotheses were included. As such, participant selection, relevant demographics, and procedures for the study were outlined and defined. Instruments were described with accompanying validity and reliability figures to provide support for use in the current study. Finally, independent, and dependent variables were discussed and defined as well as statistical procedures used to answer each research question.

CHAPTER IV

DATA ANALYSIS AND RESULTS

The following section will consist of the analysis of data collected for this study as well as sample composition. The findings gathered from demographic data, and the inferential statistical analyses are presented in response to the research questions and corresponding hypotheses outlined in chapters one and three. As a reminder, the purpose of this study was to examine the factors that predict whether an increased risk of psychological issues such as life satisfaction, a lower threshold for resilience, and low self-esteem, as well as personal characteristics such as multiple mental health disorder diagnoses, past overdose hospitalizations, past psychiatric hospitalizations, housing insecurity, and incarceration status, can decrease the likelihood of recovery. A quantitative non-experimental survey-based design was used for this study. Five multiple linear regression models were implemented with the Satisfaction with Life Scale scores, Rosenburg Self-Esteem Scale scores, Connor-Davidson Resilience Scale scores, past psychiatric hospitalizations, and past overdose hospitalizations as predictors. The following are the research questions and their respective hypotheses for this research study:

11. To what extent do demographic factors (multiple mental health disorder diagnoses, incarceration status, and housing insecurity) predict overdosing hospitalization?

H_0 1: Demographic factors (multiple mental health disorder diagnoses, incarceration status, and housing insecurity) do not predict overdosing hospitalization.

H_a 1: Demographic factors (multiple mental health disorder diagnoses, incarceration status, and housing insecurity) do predict overdosing hospitalization.

12. To what extent do demographic factors (multiple mental health disorder diagnoses, incarceration status, and housing insecurity) predict being hospitalized for mental illness reasons?

H_0 2: Demographic factors (multiple mental health disorder diagnoses, incarceration status, and housing insecurity) do not predict being hospitalized for mental illness reasons.

H_a 2: Demographic factors (multiple mental health disorder diagnoses, incarceration status, and housing insecurity) do predict being hospitalized for mental illness reasons.

13. To what extent do demographic factors (multiple mental health disorder diagnoses, incarceration status, and housing insecurity) predict self-esteem?

H_0 3: Demographic factors (multiple mental health disorder diagnoses, incarceration status, and housing insecurity) do not predict self-esteem.

H_a 3: Demographic factors (multiple mental health disorder diagnosis, incarceration status, and housing insecurity) do predict self-esteem.

14. To what extent do demographic factors (multiple mental health disorder diagnoses, incarceration status, and housing insecurity) predict resilience?

H_0 4: Demographic factors (multiple mental health disorder diagnoses, incarceration status, and housing insecurity) do not predict resilience.

H_a 4: Demographic factors (multiple mental disorder diagnoses, incarceration status, and housing insecurity) do predict resilience.

15. To what extent do demographic factors (multiple mental health disorder diagnoses, incarceration status, and housing insecurity) predict life satisfaction?

H_0 5: Demographic factors (multiple mental health disorder diagnoses, incarceration status, and housing insecurity) do not predict life satisfaction.

H_a 5: Demographic factors (multiple mental health disorder diagnoses, incarceration status, and housing insecurity) do predict life satisfaction.

Sample Composition and Demographics

After IRB approval was granted from the University of Texas Rio Grande Valley, participants were recruited for a period of eight weeks through various social media platforms including Facebook, Instagram, and Snapchat. Digital flyers were posted in substance abuse/mental health support groups/online forums. A total of 1596 responses were received after the two-month period. After discarding incomplete surveys, the total sample size was reduced to 1216 participants for analysis. Thus, the final sample size for this study was n = 601 participants. The recommended sample size for logistic regression is fifty participants per independent variable, however for smaller studies such as the current one, a smaller sample size with 20

participants per independent variable is sufficient when evaluating which variables are highly related (Bujang et al., 2018). The final sample consisted of men and women aged 18 years or older with an OUD and one or more mental illness(es). Women represented 43.9% of the sample while men accounted for the remaining 56.1%. In terms of race, the sample was composed of Black/African Americans (2.0%), White/Caucasians (90.7%), Asian/Pacific Islanders (9.7%), Hispanics/Latinos (4.0%), Native/American Indians (2.8%), and Other (.2%) in Table 1.

Table 2

Frequencies of Participant's Demographics (Gender and Race)

		Frequency	Percent	Valid Percent	Cumulative Percent
Gender					
	Male	337	56.1	56.1	56.1
	Female	264	43.9	43.9	100.0
Race					
	White/Caucasian	545	90.7	90.7	90.7
	Other	1	.2	.2	90.8
	Native American/American Indian	17	2.8	2.8	93.7
	Hispanic/Latino	24	4.0	4.0	97.7
	Black/African American	12	2.0	2.0	99.7
	Asian/Pacific Islander	2	.3	.3	100.0

The participants were requested to provide their precise ages. As shown in Table 3, the average age was 27.10 (*SD =5.380*).

Table 3

Descriptive Statistics of Participant's Age

	N	Minimum	Maximum	Mean	Std. Deviation
Age	601	18	55	27.10	5.380
Valid N (listwise)	601				

The presence of multiple mental health disorder diagnoses was categorized into two groups, namely "yes" and "no." The data revealed that 87.5% of individuals exhibited multiple mental health disorder diagnoses, whereas 12.5% did not, as shown in Table 4. The participants were instructed to indicate their response regarding housing insecurity by choosing either "no" or "yes." The subsequent figures represent the proportions of individuals experiencing housing insecurity, with 88.0% indicating affirmative responses and 12.0% indicating negative responses, as shown in Table 5. Reasons for turning to opioids, as shown in Table 6, were categorized into nine categories which included unemployment, undertook risk taking-or thrill-seeking behavior, stress, peer pressure, injury/chronic pain, history of severe depression/anxiety, family history of substance abuse, dealing with poverty, and other. The percentages for each category of Reasons for Turning to Opioids are as follows: 1 (13.1%), 2 (8.2%), 3 (15.0%), 4 (7.2%), 5 (16.0%), 6 (18.3%),7 (11.0%), 8 (11.1%), and 9 (.2%).

Table 4

Frequencies of Multiple Mental Health Disorder Diagnoses

		Frequency	Percent	Valid Percent	Cumulative Percent
Multiple MD Dx	No	75	12.5	12.5	12.5
	Yes	526	87.5	87.5	100.0
	Total	601	100.0	100.0	

Note. MD=Mental Disorder, Dx=Diagnoses

Table 5

Frequencies of Housing Insecurity

		Frequency	Percent	Valid Percent	Cumulative Percent
Housing Insecurity	Yes	529	88.0	88.0	88.0
	No	72	12.0	12.0	100.0
	Total	601	100.0	100.0	

Table 6

Frequencies of Reasons for Turning into Opioids

		Frequency	Percent	Valid Percent	Cumulative Percent
Reasons for Turning	unemployment	79	13.1	13.1	13.1
	undertook risk-taking or thrill- seeking behavior	49	8.2	8.2	21.3
	stress	90	15.0	15.0	36.3

Table 6 cont.

into	peer pressure	43	7.2	7.2	43.4
Opioids	other	1	.2	.2	43.6
	injury/chronic pain	96	16.0	16.0	59.6
	history of severe depression/anxiety	110	18.3	18.3	77.9
	family history of substance abuse	66	11.0	11.0	88.9
	dealing with poverty	67	11.1	11.1	100.0
	Total	601	100.0	100.0	

Participants were asked to input the number of times they had been incarcerated. The following is the percentage breakdown as shown in Table 7: 0 (28.3%), 1(28.1%), 2(22.5%), 3 (9.2%), 4(8.7%) 5 (1.3%), 6 (1.0%) 7(.7%), 8(.2%), and 9(.2%). The average of participants that have been incarcerated was 1.55 (*SD* =1.497).

Table 7

Frequencies of Participant's Incarceration Status

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	170	28.3	28.3	28.3
	1	169	28.1	28.1	56.4
	2	135	22.5	22.5	78.9
	3	55	9.2	9.2	88.0
	4	52	8.7	8.7	96.7
	5	8	1.3	1.3	98.0
	6	6	1.0	1.0	99.0
	7	4	.7	.7	99.7
	8	1	.2	.2	99.8
	9	1	.2	.2	100.0
	Total	601	100.0	100.0	

Assumptions

Prior to performing any analyses, the assumptions for multiple linear regressions including linearity, homoscedasticity, normality of distribution, and multicollinearity were separately assessed. The following includes further explanation of each tested assumption including results. Linearity is established when the criterion variable has a linear relationship with the predictor variables (Field, 2013). The linear relationship was established by visual examination of each partial regression scatterplot for the five multiple linear regression models (RQ1, RQ2, RQ3, RQ4, and RQ5). Furthermore, continuous predictor variables indicated a linear relationship in the regression scatterplot for the overall self-esteem score model upon visual examination.

Normality of distribution of scores was tested by visually examining the histogram and *p-p* plots for each multiple linear regression model. Doane and Seward (2011) propose that the assessment of normality can be conducted by the utilization of two quantitative indicators of shape, namely skewness and kurtosis. When the skewness value exhibits a significant deviation from zero, it indicates that the dataset does not adhere to a normal distribution. Regarding kurtosis, the value of a standard normal distribution is approximately three (Doane & Seward, 2011). All five histograms indicated a robust correlation to the theoretical quartiles. All *p-p* plots indicated a strong tendency of the data towards a center line. All models had a normal distribution, apart from the two dependent variables, psychiatric hospitalizations and past overdose hospitalizations. Both dependent variables exhibited asymmetrical skewness, suggesting that they did not follow a normal distribution. Scatterplots for each multiple linear

regression model were used to examine the random distribution of data, satisfying the assumption of homoscedasticity of homogenous distribution across the predictor variables (Field, 2013). Finally, no outliers in the continuous predictor variables that could have affected the results were identified. Nonetheless, there were outliers within the dependent variables of psychiatric hospitalizations and past overdose hospitalizations. Multicollinearity implies that there is a strong correlation between two or more independent variables (Field, 2013). VIF was used to assess multicollinearity. A VIF value greater than 5 would be a cause for concern, while a VIF of 10 should be the maximum (Field, 2013). All VIF values in this research were below 1.186, which indicates no concern for collinearity.

When testing the assumptions for dependent variables, psychiatric hospitalizations and past overdose hospitalizations, it resulted in the normality of distribution being violated. The researcher has opted to exclude research questions one and two from the study. The rationale for this decision is grounded in the presence of a non-normal distribution and the identification of outliers in both dependent variables, past psychiatric hospitalizations, and past overdose hospitalizations.

The null hypotheses for the present study were tested with *F* distribution with an alpha/level of statistical significance that is one-half of the reporting alpha/level. That is, the null hypotheses in the present study were tested with an alpha level of .05 level (Box, 1953). In addition, *F* distributions are robust, that is, *F* distributions are virtually insensitive to departures from the assumptions of normal of distribution and homogeneity of variance in terms of the risk of commenting a Type I or alpha error (Box, 1953).

Inferential Statistics

This next section consists of data analyses for the three research questions (RQ3, RQ4, and RQ5). The analyses and respective interpretations of the findings followed the order in which they were introduced in the study. In order to address each research question and its corresponding hypothesis, it was imperative to perform a separate multiple linear regression model for each research question to examine if the independent variables (multiple mental health disorder diagnoses, housing insecurity, and incarceration status) predict the dependent variables (self-esteem, resilience, and life satisfaction). The first model examined self-esteem. The first regression model analyzed the overall self-esteem scores, while the second and third models analyzed overall resilience scores and overall life satisfaction scores.

Self-Esteem

To examine research question 3, a multiple linear regression analysis was conducted to evaluate if the predictor variables of multiple mental health disorder diagnoses, housing insecurity, and incarceration status individually or in linear combination, predicted self-esteem. The obtained multiple linear regression coefficients between self-esteem (Rosenberg Self-Esteem Scale) and the independent variable/demographic factors (i.e., multiple mental health disorder diagnoses, incarceration status, and housing insecurity) yielded a collective not significant effect (R=.065, F (3, 597) = .852, $p > .01$). Additionally, the model summary also provided an R^2 value of .004, indicating that more than 0.04% of self-esteem was predicted by this model, while less than 99.6% comes from other factors. The predictor variables in the

standardized regression coefficient/beta coefficients indicated that having multiple mental health disorder diagnoses is -.022 (t = -.504, p >.01), housing insecurity is -.065 (t = -1.520, p >.01), and incarceration status is .008 (t =.183, p > .01) were insignificant determinants of self-esteem. The data for the first model is shown in Table 8. In the present study, the null hypotheses for the multiple linear regression analysis were tested with the F distribution at the .05 level of significance.

Table 8

The Effect of Predictor Variables on Self-Esteem

Predictor Variables	beta	*t*	*p*
Multiple Mental Disorder Dx's	-.022	-.504	.614
Housing Insecurity	-.065	-1.520	.129
Incarceration status	.008	.183	.855

Note. Dx=Diagnoses

In conclusion, the analyses confirm predictor variables such as multiple mental health disorder diagnoses, housing insecurity, and incarceration status do not impact overall self-esteem. Therefore, the null hypothesis for research question three is not rejected validating that multiple mental disorder diagnoses, incarceration status, and housing insecurity do not predict self-esteem.

Resilience

To examine research question 4, a multiple linear regression analysis was conducted to evaluate if the predictor variables of multiple mental health disorder diagnoses, housing insecurity, and incarceration status individually or in linear combination, predicted resilience.

The obtained multiple linear regression coefficients between resilience (Connor-Davidson Resilience Scale) and the independent variable/demographic factors (i.e., multiple mental health disorder diagnoses, incarceration status, and housing insecurity) yielded a collective significant effect (R=.189, F (3, 597) = 7.385, $p < .01$). Additionally, the model summary also provided an R^2 value of .036, indicating that more than 3.6% of resilience was predicted by this model, while less than 96.4% comes from other factors. Specifically, the predictor variables in the standardized regression coefficient/beta coefficients indicated that having multiple mental health disorder diagnoses is -.127 (t = -2.933, p <.01) and incarceration status is .189 (t =4.312, $p < .01$) were significant determinants of resilience. However, housing insecurity is not a significant predictor of resilience. The data for the second model is shown in Table 9. In the present study, the null hypotheses for the multiple linear regression analysis were tested with the F distribution at the .05 level of significance.

Table 9

The Effect of Predictor Variables on Resilience

Predictor Variables	beta	*t*	*p*
Multiple Mental Disorder Dx's	-.127	-2.933	.003
Housing Insecurity	-.018	-.424	.671
Incarceration status	.189	4.312	.000

Note. Dx=Diagnoses

In conclusion, the analyses confirm predictor variables such as multiple mental disorder diagnoses and incarceration status only impact overall resilience. Therefore, the null hypothesis

for research question four is rejected validating that multiple mental health disorder diagnoses and incarceration status do predict resilience.

Life Satisfaction

To examine research question 5, a multiple linear regression analysis was conducted to evaluate if the predictor variables of multiple mental health disorder diagnoses, housing insecurity, and incarceration status individually or in linear combination, predicted life satisfaction. The obtained multiple linear regression coefficients between life satisfaction (Satisfaction With Life Scale) and the independent variable/demographic factors (i.e., multiple mental health disorder diagnoses, housing insecurity, and incarceration) yielded a collective significant effect (R=.196, F (3, 597) =7.973, $p < .01$). Additionally, the model summary also provided an R^2 value of .039, indicating that more than 3.9% of life satisfaction was predicted by this model, while less than 96.1% comes from other factors. Specifically, the predictor variables in the standardized regression coefficient/beta coefficients indicated that having multiple mental health disorder diagnoses is -.116 (t = -2.671, p <.01) and housing insecurity is -.179 (t =-4.267, $p < .01$) were significant determinants of life satisfaction. However, incarceration status was not a significant predictor of life satisfaction. The data for the third model is shown in Table 10. In the present study, the null hypotheses for the multiple linear regression analysis were tested with the F distribution at the .05 level of significance.

Table 10

The Effect of Predictor Variables on Life Satisfaction

Predictor Variables	beta	*t*	*p*
Multiple Mental Disorder Dx's	-.116	-2.671	.008
Housing Insecurity	-.179	-4.267	.001
Incarceration status	.043	.993	.321

Note. Dx=Diagnoses

In conclusion, the analyses confirm predictor variables such as multiple mental health disorder diagnoses and housing insecurity do impact overall life satisfaction. Therefore, the null hypothesis for research question five is rejected validating that multiple mental health disorder diagnoses and housing insecurity do predict life satisfaction.

Summary

The data analysis and results presented in this chapter were in response to the research questions and supporting hypotheses posed in the previous chapters. The independent variables including multiple mental health disorder diagnoses, incarceration status, and housing insecurity were hypothesized to have some degree of influence on overall resilience and life satisfaction. The Rosenberg Self-Esteem Scale (RSE) takes a measure of one's general feelings (Rosenberg, 1965), the Connor-Davidson Scale (CD-RISC) measures resilience or how well one is equipped to bounce back after stressful events, tragedy, or trauma (Connor & Davidson, 2003), while the Satisfaction with Life Scale (SWLS) was developed to assess satisfaction with the respondent's life as a whole (Pavot & Diener, 2008). Briefly, the findings indicate that specific independent variables/demographics influence resilience and life satisfaction. However, the independent variables/demographics had no significance on self-esteem.

Next, chapter five will consist of a detailed explanation of all findings yielded from the current study in addition to the limitations. The findings will be compared and contrasted against previous studies completed on this subject matter. Finally, implications for rehabilitation educators, rehabilitation counselors, students, and disability advocates will be addressed.

CHAPTER V

CONCLUSIONS AND IMPLICATIONS

This section provides a rationale and overview of the current study. It also includes the conclusions drawn from the results and relevant comparisons from previous studies within the same subject matter. Further, implications for rehabilitation professionals, students, educators, and future studies are presented and addressed. Finally, limitations are discussed for generalization and future utilization purposes.

Rationale

There has been a significant increase in Opioid Use Disorder (OUD) cases in the United States, contributing to what is commonly referred to as the opioid epidemic (Fromson, 2023). Over 10 million Americans aged 12 or older were estimated to have abused opioids in the previous year in 2021 (Fromson, 2023). The origins of the epidemic can be traced back to the late 1990s, when prescription opioids became broadly accessible. This overprescribing, in conjunction with the proliferation of illicit opioids such as heroin and synthetic opioids such as fentanyl, has contributed to the crisis. The health consequences of substance abuse are devastating. It may cause respiratory distress, infections, constipation, and hormonal imbalances. On a psychological level, OUD patients frequently experience depression, anxiety, and cognitive

impairments. It can strain relationships, disrupt employment, and lead to illicit activity. The most alarming aspect associated with OUD is the mortality rate. Opioid overdose fatalities have increased dramatically, with a significant portion attributable to potent synthetic opioids such as fentanyl. In the United States, opioid overdoses cause tens of thousands of deaths annually, making them the primary preventable cause of death (Fromson, 2023). Moreover, despite a higher risk of addiction and overdose, people who have been diagnosed with mental disorders are more likely to receive opioid prescriptions (National Institute of Health, 2022).

Individuals who experience both co-occurring opioid use disorder (OUD) and mental illness are prone to persist in the use of nonprescription opioids, face an increased risk of chronic and acute medical conditions, and encounter elevated risks of accidental and deliberate overdose, thus contributing to the escalation of opioid-related death rates. More recently, substance use disorder, particularly OUD, is now recognized as a chronic ailment influenced by psychological factors that necessitate a comprehensive treatment strategy. However, the existing care system exhibits significant fragmentation, hindering the recovery process for this vulnerable population (Bakos-Block et al., 2020). These alarming statistics lead to the research and subsequent findings conducted in the present study.

Limited research exists on the comorbidity of OUD and comorbid mental health disorders, specifically pertaining to the management of psychological issues that may impede the recovery process. Individuals with comorbid mental health disorders and opioid use disorders who have experienced a greater prevalence of past overdose hospitalizations, past psychiatric hospitalizations, housing insecurity, incarceration, and psychological issues (life satisfaction,

lower threshold for resilience, and low self-esteem) may have a much lower chance of recovering than those without a serious mental health disorder alone.

Presentation of Findings

The present study aimed to examine the demographic factors, such as a multiple mental health disorder diagnoses, incarceration status, and housing insecurity, that predict an increased risk of psychological issues such as life satisfaction, resilience, self-esteem, and personal characteristics such as past psychiatric hospitalizations and past overdose hospitalizations. The Rosenberg Self-Esteem Scale (RSE) takes a measure of one's general feelings (Rosenberg, 1965), the Connor-Davidson Scale (CD-RISC) measures resilience or how well one is equipped to bounce back after stressful events, tragedy, or trauma (Connor & Davidson, 2003), while the Satisfaction with Life Scale (SWLS) was developed to assess satisfaction with the respondent's life as a whole (Pavot & Diener, 2008).

In this study, self-esteem did not have a significant effect on multiple mental health disorder diagnoses, housing insecurity, and incarceration status. Although having multiple mental health disorder diagnoses, housing insecurity, and incarceration status were not affected by self-esteem in this study, there is evidence that self-esteem can lead to better health and social behavior and that low self-esteem is associated with a wide range of mental disorders and social problems, both internalizing and externalizing problems (such as depression, suicidal tendencies, eating disorders, and anxiety) (Mann et al., 2004). Even though self-esteem did not impact having multiple mental health disorders diagnoses, it is important to recognize that self-esteem plays a causal role in many important life outcomes. In the 1970s, results emerged linking self-esteem to

a variety of social problems, including substance abuse, unemployment, and academic underachievement (Trzesniewski et al., 2013). As a result, widespread interest in self-esteem grew. Many consider self-esteem to be a fundamental human need. Consistent with this view, individuals demonstrate a distinct preference for high self-esteem under most circumstances and, when given a choice, even prefer self-esteem boosts over other enjoyable activities (Trzesniewski et al., 2013).

The next hypothesis in this study was whether or not multiple mental health disorder diagnoses, housing insecurity, and incarceration status predict resilience. Specifically, multiple mental health disorder diagnoses and incarceration status were significant for resilience. Life adversities such as chronic illness, disability, and mental health issues are a normal part of human existence; however, resilience is what makes the difference in overcoming obstacles or experiencing traumatic events. According to Sygit-Kowalkowska et al. (2017), solitary confinement is undoubtedly a traumatic experience in which resilience can play a role in the process of overcoming the negative impact of this circumstance. Other findings suggest that imprisonment is believed to be perceived as unpleasant, and incarceration as a major life event has also been linked to illnesses associated with stress (Sandvik et al., 2015). When confronted with a crisis, it might be challenging to envision in the present moment that the ordeal would ultimately result in personal development. Resilience refers to an individual's capacity to recover from difficult circumstances and develop as a result of the experience. Recent studies indicate that previous encounters with adversity can enhance one's ability to endure present stressors. In a study conducted by Mark Seery and his colleagues (2010), a cohort of over 2,300 individuals were surveyed regarding their lifetime exposure to a series of adverse occurrences, which were categorized into seven distinct groups. The findings revealed that individuals who had a

moderate degree of hardship exhibited superior mental health, well-being, and life satisfaction over time, in contrast to both those who had a significant background of adversity and those who had no prior experience of adversity.

The final hypothesis in this study was whether or not multiple mental health disorder diagnoses, housing insecurity, and incarceration status predict life satisfaction. Multiple mental health disorder diagnoses and housing insecurity were found to be significant for life satisfaction. Higher life satisfaction is associated with a longer life expectancy, greater disease tolerance, and fewer mental disorders (Kim et al., 2023). Substance abuse and mental health disorders are less prevalent among individuals with high life satisfaction. Life satisfaction has also been linked as a diagnostic instrument for SUD treatment. As a result, investigating the potential mechanisms that increase life satisfaction among SUD patients is essential for reducing physical and psychological distress and promoting SUD rehabilitation processes (Kim et al., 2023).

Housing insecurity is associated with adverse health outcomes and harmful behaviors (Cobb-Clark & Kettlewell, 2021). Cobb-Clark and Kettlewell (2021) found that people's personal resources matter as much, or more, than their demographic characteristics and family background combined in driving the impact that housing vulnerability has on their diminished mental well-being. In a study of housing quality, Evans, Kantrowitz, and Eshelman (2002) show that higher-quality housing leads to greater attachment to a home and hence higher well-being (Elkins et al., 2020). Moreover, current studies have demonstrated that individuals struggling with mental health illnesses often have a heightened sense of life satisfaction if their living circumstances are favorable/livable. For instance, Kellett et al. (2021) evaluated the quality of life and life satisfaction of 1,566 individuals with various physical, cognitive, and affective

disabilities transitioning from an institution to community living situations at six, twelve, and twenty-four-month intervals. The authors discovered that the longer these individuals with disabilities were integrated into the larger community, the greater their reported life satisfaction and quality of life. Conversely, the authors found that those participants who reported difficulties with healthcare coverage, inadequate transportation options, a lower income, and inadequate assistive technology assistance were more dissatisfied with their lives despite living in the community. However, when community resources and assistance were available, participants reported greater life satisfaction and quality of life. As such, environmental factors such as independent and secure housing for persons with mental health and/or substance issues can make a distinct difference in life satisfaction in and of themselves.

Relatedly, this interwoven interconnectedness between an individual and their environmental circumstances (i.e., housing status, food sufficiency, perceived community support) has a direct impact on an individual's mental and emotional health as well as their physical well-being. For example, substance use disorder is one of the significant contextual factors that can contribute to a broad variety of differences in a person's biological homeostasis, psychological states, relational and social boundaries, occupational performance, and cultural beliefs (Yang et al., 2020). Moreover, individuals with mental health disorders have significant difficulty meeting basic needs and paying utility bills; they frequently experience food and housing insecurity; and they are frequently over-indebted. Financial hardship can have negative effects on subjective well-being, life satisfaction, and mental health, making the high prevalence of financial hardship among those with mental health diagnoses particularly essential. In addition to addressing tangible physiological requirements, housing plays a crucial role in fulfilling an individual's psychological well-being by fostering a sense of inclusion and enhancing their

general well-being (Jiménez-Solomon et al., 2020). Consequently, possessing a stable and consistent place of residence is deemed an essential fundamental necessity (Elkins et al., 2020).

The psychological impact of negative societal attitudes toward individuals with cognitive disabilities found by Yang et al. (2020) were shame, embarrassment, loneliness, social isolation, low self-esteem, and feelings of being unworthy of affection. DiTomasso and Spinner (1997) discovered a similar psychological impact with their participants with disabilities who experienced negative attitudes from others and reported greater feelings of loneliness, anxiety, social isolation, and poor development of social skills. Similar emotions and behaviors were reported the following year by Li and Moore (1998) in their assessment of over 1,200 participants surveyed. This consistent body of research appears to culminate with recent findings of Na et al., (2022), Case and Deaton (2020), and Tilstra et al., (2021). Na et al. (2022) accessed data from the National Epidemiologic Society on Alcohol and Related Conditions Wave III studying populations with substance use disorder (SUD), suicide attempt, and each condition individually compared to those with neither condition. The authors note a dramatic increase in US mortality rates among Caucasians with no religious affiliation without a college degree due to drug overdose, suicide, and alcohol-related liver disease. Case and Deaton (2020) refer to this growing phenomenon as “deaths of despair” from living “lives of despair.” The authors note other factors including the high cost of medical care, childhood trauma and a history of psychiatric disorder, and low socioeconomic status as a main contributor to suicide and drug overdose deaths. Na and colleagues (2022) found a significant increase in SUD related deaths in this population, noting dismal living circumstances and no perception of having no hope for succeeding in life. Tilstra et al. (2021) also found a growing trend in deaths of despair due to the

opioid epidemic for those with similar demographic living circumstances. As noted earlier, there were over 107,000 deaths from opioid overdoses in the US in 2021.

Future Research Considerations

Due to the limited body of research that exists regarding this specific group of individuals who are particularly at risk, it is crucial to conduct future research in response to the heightened mortality rates resulting from self-administration of medication as a consequence of co-occurring mental disorders, physical injuries, and/or recreational purposes. According to preliminary statistics from the National Center for Health Statistics at the Centers for Disease Control and Prevention (CDC), it has been projected that there were around 100,306 deaths caused by drug overdoses in the United States throughout a 12-month period ending in April 2021. This figure represents a notable rise of 28.5% when compared to the 78,056 deaths recorded during the corresponding time in the previous year. The latest statistics reveals that the number of estimated opioid overdose fatalities rose to 75,673 over the 12-month period concluding in April 2021, representing a significant increase from the previous year's figure of 56,064. Moreover, it is imperative to have more studies to examine the psychosocial and psychological requirements for individuals with opioid use disorder and comorbid mental disorders, as they face heightened susceptibility to numerous adverse elements that can significantly impact their overall well-being. There appears to exist a reciprocal association between psychosocial factors and substance use, whereby individuals with lower socioeconomic status are more vulnerable to developing substance use disorders, and in turn, substance use disorders may contribute to socioeconomic challenges (Hooker et al., 2020). Furthermore, Hooker et al. (2020) considered that future research should investigate the correlation between continuous Medications for

Opioid Use Disorder (MOUD) treatment and the decrease in mental health symptoms, as well as the enhancement of overall quality of life, such as food security. While it is crucial to prioritize the evaluation and therapy of concurrent mental health disorders, it is also important to devote adequate focus to investigating the wider psychosocial requirements of patients initiating MOUD in primary care settings.

Further investigation and clinical consideration are also warranted in the field of opioid use disorder (OUD) on the social determinants of health that significantly impact individuals' lives. These determinants include factors such as housing and food instability, neighborhood violence, and unfavorable childhood experiences (Hooker et al., 2020). Adverse childhood experiences constitute a significant determinant for the development of both OUD and comorbid mental health disorders. Early-life trauma has the potential to impede the innate process of brain construction and development, as well as the functioning of reward processing. The disruption of the nervous system in the brain enhances the likelihood of OUD as well as the simultaneous occurrence of mental health disorders (Herzog & Schmahl, 2018). In conclusion, it is imperative for future studies to investigate these variables using diverse samples and settings, including rural environments and alternative treatment facilities like emergency departments or specialized treatment centers. Furthermore, researchers should strive to broaden the scope of outcome variables that hold significance within this population, such as interactions with the legal system, parenting abilities, and interpersonal relationships (Hooker et al., 2020).

Implications

A number of implications can be drawn from the current study. The findings could prove beneficial for informing best practices for counselors, educators, and researchers. Psychological and psychosocial factors have the potential to exert a favorable influence on our mental well-being, consequently impacting our overall health. When an individual's psychological well-being is in a state of balance, there is a greater likelihood to adopt a positive perspective on life. This study confirmed that mental health diagnoses, incarceration status, and housing insecurity impact resilience and life satisfaction.

Rehabilitation Counselors

Mental health professionals should possess the expertise necessary to assist individuals in addressing any concerns that have the potential to adversely affect their psychological well-being. Engaging in therapeutic interventions such as Cognitive Behavioral Therapy (CBT), Dialectical Behavior Therapy (DBT), and Motivational Interviewing (MI) can facilitate the comprehension of the intricate relationship between cognitive and emotional processes, thereby shedding light on their influence on our physiological well-being. Additionally, Ganz (2008) indicates that the absence of psychological health therapy hinders patients from receiving essential care. This is evidenced by their non-compliance with treatment plans, inadequate management of their disease and recovery, and lack of access to critical services, all of which pose a threat to their overall recovery process. In order to effectively treat the underlying causes and support the process of recovery, mental health counselors must extensively explore not just the psychological issues but also the psychosocial concerns of their clients.

A considerable body of research and literature has presented evidence of a noticeable discrepancy in the way psychosocial health needs are addressed in the provision of care. The aforementioned demands encompass the identification and effective handling of depression, anxiety, fear, developmental issues, disability, pain, and impairments in activities of daily living. These several aspects collectively contribute to the psychosocial well-being of clients. The presence of financial stress, insufficient or absence of health insurance, and constraints in mobility were also recognized as obstacles in addressing psychosocial health requirements. Wilson (2003) states that the ecological approach to counseling recognizes the detrimental effects that an unwelcoming environment can exert on the welfare of clients. While describing the developmental counseling and therapy paradigm, Ivey et al. (2018) highlight the influence of external stressors on intrapsychic transformations in clients. The authors provide examples of the reciprocal effect and progression of these interactions: (a) environmental or biological insult, which may result in (b) physical or emotional pain and stress, which may subsequently lead to (c) sadness or depression, which may ultimately result in (d) pain management and potentially mental disorders.

According to Ratts (2009), there is a proposition that social advocacy might be considered as the "fifth force" within the counseling profession, serving as an extension of, and complement to, the multicultural movement (p. 28). When examining the issue of social justice pertaining to individuals with substance use disorders and mental health issues, it is evident that counselors and case managers possess the ability to impact various potential disparities in healthcare, education, housing, and employment. Individuals who are afflicted with substance use disorders and mental health illnesses, particularly those who belong to minority groups, are statistically recognized as the most marginalized population in the United States (National

Organization on Disability, 2004). Counselors are required to recognize environmental disparities, as well as the effects of oppression and prejudice on clients who may experience feelings of despair and abandonment.

In particular, the researchers discovered that individuals who suffered from both a psychiatric and substance use disorder concurrently perceived greater oppression and discrimination from medical practitioners. Consequently, this was correlated positively with the severity of psychiatric disorders, self-reported overall health, and diminished levels of life satisfaction and well-being. It is imperative that counselors are ready to intervene and champion the interests of their clients in situations where they observe adverse attitudes exhibited by healthcare professionals. As such, rehabilitation educators could teach, and clinical rehabilitation counselors can practice becoming social justice advocates and add that aspect to their clinical practice.

Educators/Students

Additionally, it is essential that rehabilitation educators educate their students in multicultural counseling courses to employ a comprehensive methodology while addressing individuals struggling with opioid use disorder and mental health disorders, with the aim of promoting their journey towards recovery. For instance, the motivation of individuals to actively engage in their recovery might be influenced by their mental health. Individuals experiencing feelings of hopelessness or being overwhelmed may exhibit reduced adherence to prescribed treatments or therapeutic interventions. Contrarily, individuals may exhibit a contrasting response when experiencing a sense of hope and optimism over their potential for recovery, resulting in heightened involvement in self-care routines and rehabilitation efforts. The impact of mental health on an individual's capacity to effectively cope with pain and suffering can be significant.

Limitations

One of the initial limitations of this study pertains to its lack of generalizability to a broader population. Moreover, this research was limited to participants who were undergoing treatment at a local agency. Individuals undergoing treatment were also required to have access to the internet and a computer. Ultimately, those who were homeless and lacked access to resources, and in all likelihood requiring more treatment than the majority who were able to participate, were not able to take part. In addition, those individuals who were presently receiving treatment for mental illness in a psychiatric unit would not have had access to the survey.

Finally, the larger the sample population, the greater the likelihood of rejecting the null hypothesis. By ensuring that the sample is larger than is necessary, one can obtain results that are more accurate and representative of the entire population. However, the increase in accuracy may be negligible beyond a certain point, rendering the additional effort and expense associated with recruiting a larger number of participants (Kaplan et al., 2014).

Final statement

In conclusion, the present study emphasized the demographic factors of housing insecurity, incarceration status, and multiple mental health disorder diagnoses, all of which have an impact on psychological well-being among individuals with opioid use disorder and co-occurring mental health disorders. This study delved deeper into the significance of psychological and psychosocial elements linked to overdose, addiction, and dependence among those who are opioid-dependent and concurrently experiencing mental health issues. Given the emergence of these factors, it is vital for future research to undertake an investigation into additional variables, such as trauma/abuse, food insecurity, and health insurance, and perhaps incorporate the social and medical models of disability. Hopefully, the current study can be used to prepare students, inform counselors, and provide guidance for researchers looking to explore similar constructs and expand the knowledge base in the ever-changing field of rehabilitation counseling. The author's intention is to emphasize the importance of identifying relevant possible risk factors in order to support substance addiction counselors in their efforts to provide effective treatment and facilitate recovery for individuals in this community.

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BIOGRAPHICAL SKETCH

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