

**TREATMENT ACCESSIBILITY DURING COVID-19: INDIVIDUAL AND  
TREATMENT CENTER PERSPECTIVES USING GELBERG—ANDERSEN'S  
BEHAVIORAL MODEL FOR VULNERABLE POPULATIONS**

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## **DEDICATION**

This dissertation is dedicated to those who taught me about addiction, those who fought for recovery against all obstacles, and for those lost along the way.

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## **ABSTRACT**

During COVID-19, individuals who misused alcohol and other illicit substances faced dual pandemics. At the same time as COVID-19 impacted virtually all aspects of public health, substance-related overdose death rates in the United States alone reached over 100,000, making it vastly important for researchers and practitioners alike to ensure the needs of individuals who misuse substances can access needed care. Guided by Gelberg-Anderson's Behavioral Model for Vulnerable Populations, this study assesses both individual and treatment center characteristics that enabled care-seeking during COVID-19. Initial items for the survey were first informed by a systematic review of factors contributing to treatment receipt in the five years before the COVID-19 pandemic. The results of the study provide evidence for correlations that may be related to both predisposing, enabling, and need factors for treatment seeking among individuals and treatment center enabling factors that contributed to continuing to provide high levels of services during the COVID-19 shutdowns. Though the study suffers from limitations related to sample size and robust measures, this is an important first step to unlocking key factors that may contribute to both individual treatment receipt and treatment centers' abilities to meet the needs of their clients – even in times of uncertainty.

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## INTRODUCTION

Between 2019 and 2020, overdose deaths related to substance misuse rose from 70,630 individuals to 91,799 individuals (NIDA, 2023). In 2021, the number of deaths reached over 106,000 for the first time in U.S. history (NIDA, 2023). Provisional numbers from 2022 show that overdose deaths remained over 100,000 for the year, indicating that high rates of substance related mortality have continued across the nation (CDC, 2023). This time of exacerbated substance misuse coincided with the COVID-19 pandemic. During COVID-19, many treatment centers and programs had to grapple with providing care in a manner conducive to public health, minding risks related to both the pandemic and untreated substance misuse (Mark et al., 2021).

Accessing treatment for substance misuse and substance use disorders is multifaceted as this access contains both individual and treatment center characteristics. One model that can be applied to treatment seeking for this population is the Gelberg-Andersen Model for Vulnerable Populations (Gelberg et al., 2000). This model examines traditional and vulnerable predisposing, enabling, and need factors that contribute to an individual's receipt of treatment. Predisposing factors contain individual characteristics (e.g., gender, race, housing status) that may correlate with treatment receipt. Enabling factors are resources (e.g., insurance, treatment availability, types of treatment programming) that might enhance the accessibility of treatment receipt. Need factors rely on the individual's perceived need for treatment (Gelberg et al., 2000). While predisposing and need factors are almost entirely attributable to the individual, enabling factors can be expanded to apply to treatment facilities. Whether or not a treatment center is fully staffed, provide transportation, or accepts a certain type of insurance is dependent on factors from that facility, not the individual. With substance misuse rates rising, in part related to the COVID-19 pandemic (NIDA, 2022), it is important to assess what predisposing, enabling, and

need factors impacted both individuals and treatment centers during the pandemic and how those factors changed from the years immediately prior to the pandemic.

Study One is a systematic review of predisposing, enabling, and need factors that contributed to treatment receipt in the five years prior to the COVID-19 pandemic. The research question for this study was, “What factors lead to receipt of treatment for substance use?” This question remained broad to identify as many factors as possible that led to treatment receipt. The subsequent studies incorporated themes from this systematic review to assess similarities and differences in factors contributing to treatment receipt during COVID-19.

Study Two included a survey of individuals who identified as having a problem with substance misuse or being in recovery from substance misuse. The research question for this study was, “What predisposing, enabling, and need factors contributed to treatment receipt during COVID-19?” The outcome measure was dichotomous and asked if individuals accessed treatment during COVID-19. Items included in the survey were questions regarding substance misuse (e.g., types of substances used, frequency), substance use severity as measured by the Mini International Neuropsychiatric Interview, treatment utilization history, treatment utilization changes during COVID-19, mental health and health comorbidity questions, and demographic information informed by prior significant demographic variables identified in Study One.

Study Three entailed surveying managing director of substance abuse treatment facilities. The research questions for this study were: 1) “What enabling factors contributed to treatment centers continuing to provide services for individuals during COVID-19?”, and 2) “How does organizational capacity act as an enabling factor for a treatment facility's ability to provide comprehensive services during COVID-19?” The outcome measure was ordinal and asked treatment facilities if they offered more, fewer, or the same amount of services during COVID-

19. Other items in this survey included treatment center characteristics, types of services provided, special programs offered, and clients served.

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## **CHAPTER I: SYSTEMATIC REVIEW OF THE LITERATURE**

## **Abstract**

Substance misuse is a problem in the U.S., with over 18 million people over the age of 12 living with a substance use disorder (SUD). Of individuals who misuse substances or live with SUD, only 1.4% receive any services or treatments. During COVID-19, the rate of substance use and misuse grew, with 13% of Americans reporting substance use initiation or increase to cope with negative emotions and stress related to the pandemic. Guided by Gelberg-Andersen's Behavioral Model for Vulnerable Populations, this review describes what known predisposing, enabling, and need factors contributed to individuals' treatment receipt in the five years before the COVID-19 pandemic. This review is novel in that it contains treatment center characteristics that may enable treatment receipt by individuals. A total of 37 articles are included in this review. Twenty-six articles are quantitative, and 11 are qualitative. Thirty articles are related to individual factors that contribute to treatment receipt, and the remaining seven articles concern treatment center characteristics that enable treatment receipt. The findings in this review identify key information for assessment of these factors and whether or not they remained relevant to treatment receipt during COVID-19.

## **Introduction**

Substance use and misuse is a persistent problem in the United States. According to the National Survey on Drug Use and Health (NSDUH), in 2020, 21.4% of people over the age of 12 reported illicit drug use in the past year, and 18.4 million people 12 and older had a substance use disorder (SUD; SAMSHA, 2021). Of those who had a SUD in the past year, 14.9% needed specialty treatment, but only 1.4% received any services (SAMSHA, 2021). Substance use and misuse have grown during the COVID-19 pandemic, with 13% of Americans reporting substance use initiation or increase to cope with stress and negative emotions brought on by the crisis (Cziesler et al., 2020). Fatal overdoses also rose 30% during COVID-19, with the U.S. reaching 100,000 drug-related deaths for the first time in 2021 (Kiang et al., 2022). While overdose death rates grew across the U.S., the rates were highest in states with large rural populations, such as West Virginia, Kentucky, and Tennessee (Friedman & Akre, 2021).

Substance misuse is defined as any use of illegal drugs and the inappropriate use of legal substances – including alcohol, over-the-counter and prescribed medication (American Public Health Association, 2021). Substance misuse does not discriminate and can impact people with varying demographic characteristics. In the last year, 22% of males and 17% of females misused illicit substances (NCDAS, 2022). People of all ages misuse drugs, with substance misuse highest among adults between 18 and 25 (NCDAS, 2022). Despite evidence of misuse across all racial groups in the U.S., minoritized populations show disproportionately higher rates of substance misuse (SAMHSA, 2020). Drug use is also disproportionately higher in rural regions (NCDAS, 2022).

Long-term illicit substance use can have adverse outcomes. Drug use disorders are one of the leading causes of premature disease and death (Pan American Health Organization, 2021).

Those who use drugs are at greater risk of health-related consequences such as HIV, Hepatitis C, and various cancers (Khalsa et al., 2008; Kricker et al., 2013; Skeldon & Goldenberg, 2014).

These health-related concerns are attributable to risk factors related to risky behaviors and a reduced likelihood of regular doctor visits and screening, both related to substance use (Kricker et al., 2013). Beyond health-related concerns, individuals who use illicit substances can have consequences psychologically and interpersonally. Regular illicit substance use can increase psychiatric symptoms (Johnson & Kaplan, 1990), and earlier substance use can impact later psychiatric symptoms, though the inverse relationship was not found (Brook et al., 1998).

Substance misuse can be alienating, as society stigmatizes people who use substances. This stigma and discrimination have been associated with poorer mental health outcomes, as was anger resulting from discrimination experienced (Ahern et al., 2007). Substance misuse can also disrupt family systems, leading to adverse outcomes for the family (Lander et al., 2013). Illicit substance use can also have social consequences for the individual, as problematic substance use increases the likelihood of unemployment, and unemployment, in turn, increases the risk of developing a SUD (Henkel, 2011). Due to the illegality of illicit substance use, any individual who uses illicit substances has the potential to interact with the criminal justice system (White, 2016). These consequences can act as both barriers and facilitators for entering substance abuse treatment.

### **Treatment for Substance Misuse**

The National Institute on Drug Abuse defines drug treatment as treatment intended to help individuals stop drug seeking and use (NIDA, 2018a). There are many different types of treatment, and any treatment can benefit individuals who misuse substances (NIDA, 2018a).

Treatment for substance use can include both behavioral therapies (including group and

individual therapy) as well as effective medically assisted treatment (MAT) for individuals who misuse opioids (NIDA, 2018a).

The goal of substance abuse treatment extends beyond the cessation or reduction of substance use and intends to provide people with positive outcomes in their families, communities, and workplaces (NIDA, 2018b). While individual treatment outcomes vary as much as the people entering treatment, attending treatment for substance misuse has long been shown to have positive outcomes. Research has found that those who attend treatment see improvements in both a reduction in their substance use as well as strengthening other domains (McLellan et al., 1982). While in treatment, participants report gaining knowledge in relapse prevention, caring for their psychological needs, and reporting improved relationships with family and friends and self-esteem (Bergly et al., 2014). Immediately following treatment, improvement is seen in clients' legal, psychological, and familial problems (Teichner et al., 2002). For those who engage in aftercare following treatment, including groups such as Alcoholics Anonymous (A.A.) or Narcotics Anonymous (N.A.), longer-term outcomes remain positive, encouraging long-term engagement in a recovery community (Hser et al., 2003; Ouimette et al., 1998).

The outcomes of substance misuse treatment rely not only on the individual but also on the institutions providing treatment. Programs that offer longer-term treatment (e.g., greater than three months) often see longer-term sobriety rates for individuals (Simpson et al., 1997). Studies have shown that flexible programs with policies and procedures designed to meet the needs of the clients produce better outcomes for participants (Anglin & Hser, 1990). Additionally, programs with greater maturity, use treatment modalities with over ten years of evidence, and

have better counselor-to-client ratios produce better outcomes for their participants (Prendergast et al., 2000).

### **Gelberg-Andersen Behavioral Model for Vulnerable Populations**

With benefits seen from receiving treatment for illicit substance use, it is important to assess what factors lead people to decide to enter treatment. Initially developed in 1968, Andersen's Behavioral Model (ABM) is a multilevel model that examines various determinants of health that impact a person's decisions regarding help-seeking (Andersen, 1995). The ABM incorporated three major components for help-seeking: predisposing, enabling, and need factors. Predisposing factors incorporate biological demographic characteristics, social factors (e.g., education, occupation, family), and mental attitudes towards health beliefs. Enabling factors include financial and organizational factors (e.g., insurance, treatment costs, waiting times) that can both inhibit and promote someone's ability to access treatment. Finally, need factors are how individuals view their own perceived health and how that impacts the decision to seek treatment (Andersen, 1995). As Andersen expanded his model from its original iteration, he emphasized that factors outside of an individual's control can impact their treatment-seeking decision, especially as it relates to various enabling factors (Andersen, 1995).

Andersen's model has been expanded upon and applied to distinct populations. One critical expansion is the Gelberg-Andersen Behavioral Model for Vulnerable Populations (BMVP). See Figure 1 in the appendix for this chapter for a representation of this model. (All tables and figures are located in the appendix for this chapter.) This expansion of the model sought to include health service utilization and outcomes for vulnerable populations, which have less access to care due to a history of marginalization (Gelberg et al., 2000). This model initially assessed adults experiencing homelessness, and researchers paid attention to vulnerable domains

that included mental health concerns, substance use, victimization history, and competing needs that may inhibit someone from seeking healthcare (Gelberg et al., 2000). This first study found that despite many competing needs, individuals experiencing homelessness sought care if they believed in its importance (Gelberg et al., 2000).

The BMVP has continued to be used to predict health care service receipt among homeless populations, and a few studies have applied this model specifically to the receipt of substance abuse services. Research using the BMVP has shown that individuals with substance misuse and SUDs often have a high level of unmet treatment needs and more often report structural barriers to care instead of barriers in personal motivation (Kosteniuk et al., 2021). Due to the vast differences among individuals who use substances, predictors of service receipt can vary across populations. Individuals with increased odds of receiving specialty substance abuse income include non-Hispanic White or Hispanic people, who have an income of over \$5,000, and those who regularly receive care from a provider. Vulnerable domains include intravenous use and receipt of public benefits (Small, 2015). Additionally, having a diagnosed SUD and being a sexual minority were predictors of treatment receipt (Grella et al., 2009). In a study among Appalachian women who used drugs, the strongest predictors of substance abuse service receipt included intravenous drug use, having a few treatment facilities nearby (as opposed to no nearby facilities), and invalidated violence claims (Victor et al., 2018). In a study of individuals with co-occurring mental health problems and vulnerabilities, including substance disorders, vulnerable predictors such as intravenous and chronic drug use decreased the odds of mental health service receipt (Small, 2010). As individuals who use substances may also experience other vulnerable domains that can inhibit or promote treatment receipt, these domains must be

looked at in congruence with one another and through a lens that promotes interdisciplinary care (Small, 2015).

### **The Present Study**

With the increased amount of substance misuse, including overdoses and substance-related mortality, it is crucial to explore factors contributing to treatment receipt in the years prior to the COVID-19 pandemic. The present study aims to explore what factors contribute to the receipt of substance abuse treatment, as guided by the Gelberg-Anderson BMVP in the five years prior to the COVID-19 pandemic. Specifically, the review is organized around the following domains: predisposing factors (traditional and vulnerable), enabling factors (traditional and vulnerable), and need factors that contribute to treatment receipt. Health outcomes are not included in this review, as the main focus is on the health behavior of treatment seeking and enrollment. Knowing both what factors and barriers to treatment exist can assist both researchers and practitioners in engaging individuals in care, reducing harms related to substance use, and ultimately work to reduce deaths. This knowledge is especially crucial during the continuation of the pandemic and in the critical years immediately following.

### **Methods**

A systematic review was conducted and completed in November 2021 to characterize the state of knowledge regarding predisposing, enabling, and need factors that impact individuals' receipt of treatment for substance misuse. Before initiating the search process, the author reviewed literature on the Gelberg-Anderson Behavioral Model for Vulnerable Populations and consulted with the University librarian regarding the proper procedures for systematic reviews, inclusion and exclusion criteria, choosing the best search terms, and appropriate databases to best meet the goals of the study.

## **Eligibility Criteria**

This review included articles reporting on studies of individuals seeking treatment for substance use and substance misuse; the review did not limit the search to individuals with diagnosed SUD. This review only included English-language articles from the past five years to better understand the immediate years prior to the COVID-19 pandemic, and included articles could only contain and examine data from the past ten years. Only peer-reviewed literature was included. Though gray literature surrounding treatment-seeking is available, it is important to see specific studies that examined factors and correlations for treatment-seeking. This study includes both quantitative and qualitative literature. Quantitative literature can statistically examine individual and community differences and factors that lead an individual to seek treatment. In contrast, qualitative literature can give insight into individuals' perceptions and motivations for seeking treatment – all of which can be influenced by predisposing, enabling, and need factors. This review excluded other systematic review articles; however, these reviews were screened for additional articles that met inclusion criteria.

This study included only articles with a sample of adults 18 and older and only included articles that examined treatment within the United States. This aids in consistency as children and youth may have different external motivations for treatment (e.g., parents), and other countries have differing laws regarding substance use legality and access to insurance. Any articles containing only information on alcohol use, cannabis use, tobacco use, problematic gambling, and other behavioral addictions were excluded to focus specifically on illicit substances. This was due to the overall legality of these substances nationwide. However, if articles included both alcohol and illicit substance use, they were included for further exploration. This review also excluded articles if they were related to substance abuse treatment

(but not treatment-seeking), substance use treatment outcomes, relapse prevention, and scale validation.

This review's outcome variable was *factors that contribute to treatment-seeking*.

Treatment-seeking included all types of substance use treatment (e.g., medically assisted treatment (MAT), detoxification, 12-step programs, intensive outpatient, residential treatment) and mental health treatments (e.g., meeting with a counselor, inpatient hospitalization, seeing a psychiatrist, medication management) if the population was adults with substance misuse.

Primary care for health concerns and emergency room visits were excluded as types of treatment-seeking. Substance abuse care is outside of the scope of practice for many primary care units, with recommendations for primary care physicians including brief screening and referral to specialty substance use treatment (Shapiro et al., 2013).

## **Databases**

The search was conducted using databases related to the disciplines of the social sciences. The databases searched were PubMed, CINAHL, Academic Search Complete, PsychInfo, Social Work Abstracts, COCHRANE Library, and SCOPUS.

## **Search Terms**

To explore the research question, "What factors lead to receipt of treatment for substance use," search terms were purposefully broad to generate articles for screening. To further narrow the search to maximize relevant articles, the searches included only titles and abstracts. The final terms used in the searches of all databases were as follows: ("substance use" OR "substance abuse" OR "substance misuse" OR "substance use disorder" OR "drug use" OR "drug abuse") AND ("help-seeking behaviors" OR "treatment-seeking behaviors" OR "help-seeking factors" OR "treatment-seeking factors").

## **Data Extraction**

The author created a database to log extracted variables which included the following information: authors, year, title, population studied, type of treatment assessed, geographic setting, the primary purpose of study, data source, collection, sample size, sampling, and main findings.

## **Results**

Figure 2 contains the PRISMA flow diagram. A total of 1,415 articles were considered after duplicates were removed and new articles were added in from the elimination of systematic reviews. A total of 37 articles were included in the study, with 26 quantitative articles and 11 qualitative articles. Of the 37 articles, 30 focused more specifically on individual factors that can impact receipt of substance abuse or other specialty treatment. The other seven focused on factors related to treatment. Eleven articles were qualitative, exploring themes from individuals and facilities regarding barriers and facilitators to treatment. Of the quantitative articles, seven studies used primary data. Eight specifically used NSDUH data, and two used information from the National Epidemiologic Survey on Alcohol and Related Conditions-III (NESARC-III). Other methods included electronic health record (EHR) data, Medicaid data, Veteran's Administration (V.A.) data, and other nationally available data sources.

Of the included studies, 23 (62.2%) included individuals who were experiencing any substance misuse or substance use disorders. This included problematic alcohol use and/or illicit drug use, and their respective disorders. Three studies only examined illicit drug use or drug use disorders, and one included only individuals who reported intravenous drug use. Seven studies contained only participants with opioid misuse or were diagnosed with opioid use disorder, and two additional studies included participants with opioid use disorder – with or without co-

occurring alcohol use disorder. Finally, one study only included participants diagnosed with a stimulant use disorder. For the outcome variable of treatment seeking, 31 included studies (83.8%) examined any substance abuse treatment seeking – though the locations (e.g., specialty facility, hospital, V.A.) varied. Three studies examined only MAT treatment seeking, one examined MAT and behavioral health treatment seeking, and one examined detox treatment seeking (with follow up appointments). One study examined 12-step treatment seeking exclusively.

The majority of the included studies had mainly White participants. Five studies did not report racial demographics, and two studies had a sample of only individuals from minority races. Of the studies that included racial demographics (n=32), 59.23% of participants were non-Hispanic, White and 41.33% belonged to a minoritized racial or ethnic population. Thirty-four included studies reported percentages for genders included in their samples, and five studies included only female participants. Forty-five percent of participants included in these studies were male. Age was measured in different ways throughout the studies. As age is categorized in national surveys (e.g., NSDUH, NESARC-III), many studies did not have a scale variable for age. Nine studies did not report age as a demographic (though many continued to use it as a control variable). For the studies that reported age as a categorical variable (n=11), the percentage of participants over 35 was 58.9%. One study reported age categorically but used 30 as the cut-off instead of five, and this study had a sample that was 84.6% over 30. One study only used a sample of individuals over 50. Finally, of the studies that measured age as a scale variable (n=15), the mean age was 34.48. Taken together, these results indicate that the majority of participants in the included studies were close to 35.

Table 1 contains all quantitative results, and Table 2 contains all qualitative results. Both tables can be found in the Appendix.

## **Traditional Predisposing Factors**

### *Age*

Seventeen studies examined age as an independent variable or covariate predicting treatment receipt. Eleven articles found the impact of age on substance abuse treatment receipt to be significant. Many studies categorized their age variable to compare different age groups' receipt of treatment. In assessing how religiosity impacts receipt of substance abuse treatment, the authors found that those in the 26–34-year-old age group were more likely to receive treatment than any other age group (Baptiste-Roberts et al., 2020). Similarly, research found this age group to have the highest treatment attendance among adults who misused opioids and other drugs in the past year (Choi et al., 2019; Mauro et al., 2020). Pinedo (2019) found that participants over 26 (compared to those 18 to 25) were more likely to have engaged in past-year substance use treatment when controlling for race. Other studies found that those between 45 and 65 were more likely to attend follow-up treatment after receiving care at a safety net hospital and that those between 35 and 49 were also more likely to use treatment services (Crable et al., 2022; Satre et al., 2020). Similarly, in a sample of Latino/a participants with SUD, researchers found that those between 35 and 49 were more likely to attend substance use services for treatment, while those over 50 were more likely to attend mental health services (Pinedo, 2020). In comparing individuals over 50 who use substances, those between 50 and 64 were more likely to engage in mental health and specialty substance abuse treatments, suggesting age may have a curvilinear relationship to entering treatment (Kwon et al., 2019). Finally, of the articles that left age as a continuous variable, two found that those who were older were more likely to enter

treatment (Wolfe et al., 2021; Ober et al., 2018), though one found that younger participants were more likely to enter treatment following detox (Timko et al., 2016).

### ***Race and Ethnicity***

Fifteen studies examine the impact of race and ethnicity on treatment utilization, and ten studies found statistically significant relationships between race and treatment usage. One study qualitatively explored the relationship of race and ethnicity on treatment receipt. In included studies, White individuals were more likely to utilize any form of treatment for substance use compared to minoritized populations. White participants were more likely to engage in both inpatient and outpatient services for substance use treatment at safety-net hospitals (e.g., hospitals that provide services for people without insurance), as well as engage in behavioral therapy for treatment of their substance use (Crable et al., 2022; Ober et al., 2018). Six months after insurance enrollment, White participants were more likely to have utilized both substance use and psychiatric treatment when compared to minoritized participants (Satre et al., 2020). In a study of individuals living with opioid use disorder, minoritized populations had a higher likelihood of never attempting to enroll in substance use treatment (Lieblinger et al., 2016). Similarly, non-Hispanic Black individuals were less likely to enroll in past-year substance use treatment services (Baptiste-Roberts et al., 2020).

Contrary to the findings of these studies, one study examining veterans' treatment receipt found that, following detox, Black veterans were more likely to enter treatment, while White veterans were more likely to keep their follow-up appointments but not enter treatment (Timko et al., 2016). One study examined differences in treatment receipt among several races and found no differences in substance use treatment receipt (Haeny et al., 2021). However, the researchers did find differences in the types of services used. Black individuals were more likely to use 12-

step programs and specialty substance abuse services when compared to Latino/a and Asian individuals (Haeny et al., 2021). However, both Black and White individuals were less likely to use outpatient treatment services (Haeny et al., 2021). Another study found that while Black, White, and Latino/a individuals had no differences in the perceived need for treatment, Black and Latino/a individuals were less likely to receive past-year treatment (Pinedo, 2019). A separate study found that White and Black individuals were more likely to enter treatment in the past year compared to Latino/a individuals (Pinedo & Villatoro, 2020). In a study comparing adults who misused opioids, compared to all other races, Asian and Pacific Islander individuals were less likely to have past-year treatment (Choi et al., 2019). For adults with opioid use disorder, Asian, Native American, and Multiracial individuals were the least likely to attend treatment than White, Black, and Latino/a individuals (Choi et al., 2019).

Only one qualitative study explored racial differences in treatment-seeking. This study sought to answer some of the questions raised by the quantitative research, specifically looking at the differences in why White, Black, and Latino/a participants did or did not enter substance use treatment (Pinedo et al., 2018). Reasons that Latino/a participants gave specifically for not seeking treatment included a lack of treatment efficacy and a lack of cultural knowledge by treatment centers (Pinedo et al., 2018) indicating that treatment centers overall may lack inclusion for minoritized populations.

### ***Gender***

Sixteen studies examined gender as an independent variable or covariate to treatment-seeking, and seven studies found gender to have a significant impact. Most studies examined gender as a binary variable between males and females. Most studies found that females were more likely to enter treatment. Females were more likely to discuss their substance use with their

primary care physician, leading to referrals to treatment (Mauro et al., 2020). Females were also more likely to enter both behavioral therapy and MAT for opioid use disorder (Ober et al., 2018). In looking at individuals who received services at a safety net hospital, females were more likely to engage in substance use and mental health services (Crable et al., 2022). In some studies, types of treatment did vary among males and females. In a sample of veterans, males were more likely to enter detox, but females were more likely to follow up with their aftercare appointment and attend treatment (Timko et al., 2016). Among older adults, males with substance use problems were more likely to use specialty substance use services, while females were more likely to use mental health services (Kwon et al., 2019).

Despite most studies examining gender as a binary variable, two studies looked at gender minority status and the impact of being transgender on treatment receipt. In a study looking at individuals who identified as a gender or sexual minority (GSM), researchers found that the stigma related to GSM interacted with substance use stigma, leading to a greater intention to seek help (Benz et al., 2019). Another study found similar results. Individuals who experienced moderate to high and high transgender-related discrimination were more likely to engage in substance use treatment (Wolfe et al., 2021). However, this was not the same across all gender identities. Transmasculine individuals were less likely to seek substance use treatment than transfeminine individuals (Wolfe et al., 2021).

### ***Education***

Eleven studies examined the impact of education on substance use treatment receipt, and six found education to be a significant predictor. Overall, those who have greater than a high school education were more likely to attend treatment. Among adults who misused opioids, those with a college degree had higher levels of past-year treatment attendance (Choi et al., 2019).

Among adults with likely opioid or alcohol use disorder, engaging in either behavioral therapy or MAT was associated with having greater than a high school education (Ober et al., 2018). Individuals with some college attainment were more likely to discuss substance use with their provider to begin the steps of initiating treatment (Mauro et al., 2020). For Latino/a individuals with SUD, those who attended college were more likely to engage in mental health treatment compared to those without a college education (Pinedo, 2020). Of adults over 50, those who were higher educated were more likely to attend mental health treatment than specialty substance use treatment for their problematic substance use (Kwon et al., 2019). Contrary to the above findings, one study found that those who did not complete high school were most likely to have used substance use services in the past year than those with a college education (Baptiste-Roberts et al., 2020). Similarly, those with some college and a high school diploma were more likely to attend past-year treatment compared to college graduates, though the association was lower for those who had not completed high school (Baptiste-Roberts et al., 2020).

### ***Employment***

Nine studies assessed if employment impacts treatment receipt, and six found significant results. Results were partially mixed. For any substance abuse treatment attendance in the past year, individuals who were unemployed and employed part-time were more likely to engage in treatment than those who were employed full time (Baptiste-Roberts et al., 2020). Compared to being unemployed and employed full-time, being employed part-time was a predictor of discussing substance use with a provider, leading to treatment initiation (Mauro et al., 2020). For participants seeking MAT, being employed was a significant predictor of attendance (Ober et al., 2018). In a study comparing various races' receipt of treatment, White participants were more likely to state that fear of losing their job was a reason for not attending treatment than

minoritized populations (Haeny et al., 2021). However, in another study that controlled for differences among racial groups in treatment receipt, researchers found that employed individuals were less likely to engage in past-year treatment compared to those who were unemployed (Pinedo, 2019). In a study of Latino/a participants with SUD, employed participants were less likely to attend past-year mental health treatment for their substance use (Pinedo, 2020).

### ***Marital Status***

Seven studies assess the impact of marital status on treatment receipt, and four found marriage to be a statistically significant predictor of whether or not an individual seeks treatment. Overwhelmingly, married people were less likely to attend any substance use treatment. This was true for individuals who used any illicit drugs in the past year (Baptiste-Roberts et al., 2021) and for individuals who used opioids in the past year (Choi et al., 2019). Older, married adults who used substances were also less likely to receive treatment (Kwon et al., 2019). Contrary to the above results discussing any substance abuse treatment, those seeking MAT were more likely to engage in those services if they were married (Ober et al., 2018).

### ***Religion***

Three studies examined the impact of religion, and one found religious beliefs to have a significant impact on treatment receipt. Baptiste-Roberts et al. (2020) found that those who stated their religious beliefs were important to them were 1.56 times more likely to have engaged in past-year substance abuse treatment. There was no association between the importance and influence of religious beliefs on perceived need for treatment.

### ***Veteran Status***

While three studies examined veterans as the sample, only one study assessed if veteran status impacted receipt of substance use treatment. Compared to non-veterans, veterans were more likely to attend self-help groups, seek help from a professional, and attend outpatient or other types of substance abuse treatment (Boden & Hoggatt, 2018). Even though veterans receive treatment at a higher rate, this study found that still a low number of veterans seek treatment.

## **Vulnerable Predisposing Factors**

### ***Substance Use Diagnosis and Problem Severity***

Twelve studies examine different aspects related to substance use problem severity (e.g., drug of choice, substance use diagnosis, intravenous drug use) and their impact on treatment receipt, and all studies found significant results. Two studies examine the theme of substance use problem severity qualitatively. Regarding substance use diagnosis among individuals with SUD, those with opioid use disorder specifically were more likely to engage in mental health and substance use treatment services (Crable et al., 2022). Opioid use disorder, as opposed to misuse of opioids, was associated with both past-year and lifetime treatment receipt and perceived need for treatment (Choi et al., 2019). One study found that for individuals with an opioid use disorder, those with another SUD were more likely to enroll in intensive treatment services but less likely to enroll in MAT than those with only opioid use disorder (O'Brien et al., 2020). In a study of individuals with alcohol and opioid use disorders, those who reported more consequences from their substance use were more likely to engage in behavioral therapy, while those who used heroin and had heroin use disorder specifically were more likely to engage in MAT (Ober et al., 2018). In a pooled collection from the NSDUH, researchers found that when controlling for race, greater problem severity led to greater past-year receipt of treatment and

specialty treatment for SUD (Pinedo, 2019). Similarly, in a study of Latino/a participants with SUD who completed the NSDUH, researchers found that those with greater indicated problem severity from their substance use were more likely to have engaged in past-year substance abuse treatment (Pinedo, 2020). For stimulant users, having greater perceived severity of substance use problems also led to greater self-help group attendance (Hatch-Maillette et al., 2016).

In looking beyond diagnosis to other indicators of problem severity, studies found that those with a history of overdose were more likely to attempt to enroll in treatment, though they were also more likely to be unsuccessful in their enrollment (Liebling et al., 2016). Overdose was also a theme that arose in a qualitative study of women's motivations for seeking treatment (Rhodes et al., 2018). Researchers noted that women considered overdoses a "rock bottom" event that acted as a motivator to seek and engage in treatment. In a qualitative study of MAT participants in Alaska, participants noted that withdrawal symptoms experienced from heavy and regular opioid use were barriers to starting treatment (Hewell et al., 2017). Intravenous drug use also predicted past engagement in treatment (Victor et al., 2018), and individuals who reported greater problem severity associated with their substance use had an increased perceived need for treatment (Pinedo & Villatoro, 2020). In a study examining self-help attendance and participation among stimulant users, researchers found that while drug of choice did not impact participation in self-help groups, those who used cocaine were more likely to attend these groups more frequently than individuals who used different stimulants.

### ***Comorbidity of Other Health and Mental Health Concerns***

Eleven studies examined the impacts of comorbid health and mental health concerns on the receipt of substance use treatment, and eight studies found a significant impact. One qualitative study discussed the theme of health and mental health impacting decisions to go to

treatment. Most studies found that declining health and increased mental health symptomology impacted decisions to seek substance abuse treatment. For Latino/a participants with SUD, higher levels of psychiatric distress led to a greater likelihood of seeking mental health treatment for the care of both mental health and substance use (Pinedo, 2020). The most common treatment was mental health medication rather than specialty substance use treatment. Among those with past-year SUDs, mental health distress was also associated with a greater perceived need for treatment in the past year (Pinedo & Villatoro, 2020). One study found differences in mental health diagnoses associated with enrolling, attempting to enroll, and never enrolling in substance use treatment, though the diagnoses were excluded from the final predictor model due to problems with multicollinearity among the variables (Liebling et al., 2016). Among individuals who had newly enrolled in an insurance plan, those with psychiatric comorbidities were more likely to use mental health and substance abuse treatment services (Satre et al., 2020).

Similarly, among those with past-year opioid misuse, higher World Health Organization Disability Assessment Schedule (WHODAS) scores were associated with a greater perceived need for treatment and greater treatment receipt (Choi et al., 2019). Interestingly, for those with opioid use disorder, higher WHODAS scores were only associated with greater perceived need for treatment, not treatment receipt itself (Choi et al., 2019). Another study found that those in fair or poor health compared to those who reported good and excellent health were more likely to discuss their substance use with their provider, leading to referral for treatment (Mauro et al., 2020). Among veterans, those with fewer medical conditions and comorbidities were more likely to enter detox and follow up with their aftercare appointments and substance abuse treatment referrals (Timko et al., 2016).

One study looked at the impact of physical and mental health on receipt of different types of treatment in a sample of older adults. Compared to individuals with no comorbidities, those with physical and mental health concerns were more likely to engage in mental health treatment and co-occurring treatments (Kwon et al., 2019). Those with only behavioral health concerns (and no physical health concerns) were more likely to engage in substance use treatment only. The impact of these health concerns interacted with poverty status in this sample. Those living in poverty with behavioral health concerns and physical health concerns are still more likely to enroll in co-occurring treatment. Those living in poverty with only behavioral health concerns were more likely to enroll in substance use treatment, while those living in poverty with only physical health concerns were more likely to engage in mental health treatment (Kwon et al., 2019).

Finally, one study that engaged in qualitative interviews with women in treatment found mental health and physical health declines to be "rock bottom" events that women considered motivators for their ultimate decision to seek treatment (Rhodes et al., 2018). They reported that their mental and physical health declines impacted their perceptions of self, leading to a desire to seek treatment. Women also reported suicidal ideation and attempts as a reason for seeking treatment (Rhodes et al., 2018).

### ***Criminal History and Legal Involvement***

Six studies explored the relationship between criminal history and legal involvement on treatment receipt, and four found a significant relationship. Additionally, two qualitative studies explored the theme of past legal involvement and how it impacted treatment decisions. Most studies found that criminal history positively impacted treatment receipt. People who used substances in the past year and had an arrest were more likely to discuss their substance use with

their medical provider, potentially prompting referral to treatment (Mauro et al., 2020). Among individuals who misused opioids, individuals with a prior arrest were at a reduced risk of never enrolling in treatment (Liebling et al., 2016), and those with an arrest in the past year were also more likely to have engaged in treatment in the past-year (Choi et al., 2019). One study of individuals who misused alcohol and or opioids found the opposite. Ever being arrested for substance use was not associated with an increase in behavioral therapy or MAT treatment initiation; however, those arrested in the past 90 days had lower odds of engaging in behavioral therapy (Ober et al., 2018). There were no differences in 90-day arrest status and engagement in outpatient MAT (Ober et al., 2018).

Two studies explored the impact of criminal history qualitatively. Among people with opioid use disorder who lived in rural northern New Mexico, some male participants reported purposefully engaging in low-level drug crimes to engage in diversion units that provided MAT (Scorsone et al., 2020). They reported that they would not have been able to receive access to the treatment without this jail diversion. Mothers enrolled in substance abuse treatment reported that resolving their legal concerns was a primary factor for their enrollment (Villegas et al., 2016).

### ***Homelessness***

Three studies examined the impact of homelessness on treatment receipt, and all three found a relationship. One qualitative study found homelessness to be a theme in motivating factors for treatment. Among veterans, Cox et al. (2017) found no differences in newly, episodically, and chronically homeless individuals' receipt of outpatient mental health services for their substance use. However, there were significant differences in inpatient service use for substance use, with chronically homeless individuals being more likely to receive inpatient treatment than those who were newly homeless. Similarly, among veterans entering detox,

homelessness was associated with both veterans entering detox and entering residential treatment following detox (Timko et al., 2016). In a qualitative study among women in residential treatment, homelessness was identified as a "rock bottom" event that acted as a precipitating factor for entering treatment (Rhodes et al., 2018). Results were different for those who were homeless and seeking outpatient services. For outpatient behavioral therapy and MAT for individuals with opioid and alcohol use disorder, homelessness was associated with lower odds of initiating treatment (Ober et al., 2018).

### ***Victimization***

Only two studies examined the impact of past victimization (e.g., physical abuse, emotional abuse, intimate partner violence) and its impact on substance abuse treatment receipt. The results from these studies were mixed. While Victor et al. (2018) examined physical abuse and emotional abuse experience among Appalachian women who used illicit substances, they did not find that the history of abuse itself was associated with treatment receipt. However, individuals with invalidated violent abuse claims (where others did not believe the individual's history of abuse) were over two times more likely to have engaged in past substance abuse treatment (Victor et al., 2018). For transgender adults, intimate partner violence was associated with a higher likelihood of entering substance abuse treatment (Wolfe et al., 2021).

### **Traditional Enabling Factors**

#### ***Insurance Status***

Twelve studies assessed the impact of insurance on treatment receipt, and ten found a significant impact. Lack of insurance was cited as a top reason for substance misuse, reporting needing treatment but not attending treatment (Haeny et al., 2021; Choi et al., 2019). Individuals with opioid use disorder who did not have insurance had lower odds of receiving treatment in the

past year (Choi et al., 2019). When controlling for race, individuals with insurance were more likely to have attended specialty substance abuse treatment in the past year (Pinedo, 2019). For older adults who used illicit substances, those with insurance were more likely to engage in both physical and mental health services compared to those without insurance; however, there were no differences for behavioral health service use alone (Kwon et al., 2019). This was also true in a sample of Latino/a participants with SUD. Those with insurance were more likely to attend past-year mental health treatment for their substance use but not specialty substance use treatment (Pinedo, 2020). Among people who received care for substance use at a safety net hospital, those with Medicare were more likely to engage in services than individuals with commercial insurance (Crable et al., 2022). Similarly, people with public insurance, compared to those with private insurance, were more likely to report their substance use to a doctor, leading to referrals to treatment (Mauro et al., 2020). For those newly enrolled in private insurance in Northern California, deductibles may impact individuals with substance misuse decisions to seek care. While there were no differences for seeking substance use treatment specifically, people without a deductible were more likely to engage in psychiatric care for treatment (Satre et al., 2020).

Two studies examined the impact of Medicaid expansion on decisions to seek treatment and treatment receipt. People who inject drugs that live in Medicaid expansion states are more likely to be insured and have their healthcare needs met (Lewis et al., 2018). Additionally, they were more likely to engage in drug treatment programs. The final model of this study input a dichotomous insured or uninsured question as a covariate and found that differences in substance use treatment no longer remained, highlighting that insurance status impacts seeking treatment (Lewis et al., 2018). An additional study found that more people who live in with a SUD had

access to insurance following Medicaid expansion (Saloner et al., 2017). Treatment rates increased slightly in these states, and Medicaid shifted to be the primary payor source.

### ***Household Income***

Ten studies examined the impact of income and poverty on treatment receipt, with five studies finding statistically significant results. Having a lower income or living in poverty led to a greater likelihood of receiving treatment. In a study of Latino/a participants, compared to individuals who made less than \$20,000 per year, those who made between \$20,000 and \$49,999 were less likely to have attended mental health treatment for their SUD (Pinedo, 2020). Similarly, in a study controlling for differences among races, individuals with SUD who made over \$20,000 were less likely to attend past-year specialty substance abuse treatment (Pinedo, 2019). For young adults who misused prescription opioids participants who made between \$501 and \$1,500 a month were less likely to both attempt to enroll and successfully enroll in treatment than those making less than \$500 a month (Liebling et al., 2016). Older adults who were living in poverty were more likely to use both physical and mental health services, as well as behavioral health services for the treatment of their SUD (Kwon et al., 2019). Choi and colleagues (2019) found that those who lived at two times below the poverty level had higher past-year treatment rates than those who lived at or just below poverty. However, those who lived at the poverty level were more likely to perceive a need for treatment (Choi et al., 2019).

### ***Treatment Cost***

One study examined the cost of treatment as an enabling factor for treatment enrollment and receipt. Additionally, two qualitative studies discussed the theme of treatment cost and its impact on treatment. Both among adults living with opioid misuse or opioid use disorder, found that cost was one of the top reasons for not attending treatment (Choi et al., 2019). The

qualitative studies found similar themes. Among individuals with opioid use disorder in the Southwest hoping to initiate or maintain MAT, participants cited cost as one of the main inhibitors to care (Scorsone et al., 2020). In a survey of rural treatment facilities' stakeholders (e.g., staff and participants), cost was cited as one of the most considerable barriers to receiving treatment (Browne et al., 2016).

### ***Rurality***

Six studies looked specifically at the population of where a person lived and its impact on receipt of substance use treatment. No studies found significant results between urbanicity and rurality and treatment enrollment.

### **Vulnerable Enabling Factors**

#### ***Availability and Accessibility of Treatment***

One study examined the impact of treatment accessibility and availability on receipt of substance use services, and they found that more treatment facilities located in the area were positively associated with past treatment utilization (Victor et al., 2018). In three qualitative studies, participants discussed the themes of accessibility and availability of treatment and their impact on treatment receipt. Participants in rural New Mexico noted that long wait times were a substantial barrier to receiving MAT services (Scorsone et al., 2020). In Alaska, people on MAT noted that policies that led to lower availability were systemic factors that contributed to the lack of treatment attendance (Hewell et al., 2017). Similarly, in qualitative interviews among treatment workers and participants in the rural South, service availability is one of the largest noted barriers to service receipt (Browne et al., 2016). Participants noted that not all types of treatment (e.g., inpatient or residential services) were available, especially in rural areas.

#### ***Transportation to Treatment***

Two studies assessed transportation as a factor for treatment receipt, with one finding no significant impact. Two studies had the theme of transportation arise qualitatively. In comparing a mobile referral system to traditional referrals, estimates indicated that referral from the mobile care unit was associated with an increase in following up with services compared to traditional referral services (Stewart et al., 2021). Even though this mobile service was provided at intake only, these higher rates of continuing service were seen among the mobile group when controlling for baseline differences. In a study of treatment facilities in the rural South, researchers found that stakeholders and clients alike noted transportation to treatment as one of the largest barriers to care (Browne et al., 2016). Similarly, for those in rural New Mexico, the travel times to the MAT facility were one of the leading barriers to initiating treatment (Scorsone et al., 2020).

#### ***Attitudes Towards Care (Perceived Benefits and Barriers)***

One study examined specific perceived barriers and benefits to treatment attendance and found a statistically significant result. Two studies examined the impact of attitudes towards care qualitatively. In examining individuals who used stimulants' relationship to self-help groups, researchers found that those who say a benefit to treatment attendance led to greater involvement in self-help activities, while those who perceived more barriers were less involved in self-help activities (Hatch-Maillette et al., 2016). Qualitatively, researchers found that ambivalence and fear impacted treatment receipt. In a study of rural Appalachian, perinatal women in MAT services, women reported that ambivalence towards treatment led to a reluctance to initiate treatment (Ostrach & Leiner, 2019). Some ambivalence was related to familial and community attitudes and fear of what others would think of their MAT enrollment. Similarly, in a study of

people in rural New Mexico who sought MAT, participants reported that fear of side effects was a barrier to receiving treatment (Scorsone et al., 2020).

### ***Treatment Center Characteristics***

Two studies examined treatment facility characteristics and their impact on treatment receipt. Two qualitative studies had treatment characteristic themes arise. In a study of veteran's SUD service usage, Timko et al. (2016) found that the facility characteristic associated with clients leaving detox and entering treatment was having fewer counselor positions open, meaning that the facility was more adequately staffed. Another study examined patient-centered care variables and their impact on treatment receipt. Researchers found that the patient-centered care variables such as regular treatment team meetings to discuss client progress and therapeutic interactions between clients and staff were associated with greater utilization (Park et al., 2020). Facilities having residential services available was also associated with greater treatment utilization (Park et al., 2020).

Browne and colleagues (2016) had several themes regarding facility characteristics in their qualitative study of stakeholders and clients of treatment facilities in the rural South. They found that integrated services were a motivator for treatment with clients noting that having multiple needs met in one facility reduced barriers to seeking care. Flexible service hours (such as offering services in the evening) provided clients with the opportunity to maintain employment and seek treatment, thus lowering barriers to care. Finally, clients and stakeholders alike noted that outdated technology was a barrier to seeking services, with many hoping for internet connections to maximize time teleconferencing for client care (Browne et al., 2016). Similarly, for participants in Alaska on MAT, they noted specific treatment structure as a facilitator for treatment. Participants noted that having a stricter structure when starting treatment

was beneficial for beginning and maintaining services; however, in later treatment, they desired autonomy (Hewell et al., 2017). Similar to the Park and colleagues' study (2020), participants noted that when they felt their therapists had unconditional positive regard for them, they were more likely to feel compassion and continue with recommended care (Hewell et al., 2017).

### ***Cultural Sensitivity***

Three qualitative studies discussed how a lack of diversity and knowledge among treatment centers can prevent client enrollment. Latino/a individuals seeking treatment noted that a lack of cultural knowledge and differing goals (e.g., not wanting to be fully abstinent from substances) were barriers to engaging in treatment facilities (Pinedo et al., 2018). In a study of mothers in a Native American tribal community, participants noted that cultural sensitivity and honoring traditional healing methods were motivators for seeking treatment (Schultz et al., 2018). In a study of service providers to the immigrant and refugee community in the Midwestern U.S., providers noted that cultural differences play a large part in individuals choosing not to seek treatment (Kagotho et al., 2020). Beyond cultural sensitivity, providers also noted that fear of contact with the immigration system was a large reason many participants did not seek help for their substance use (Kagotho et al., 2020).

### ***Family and Children***

Family support and involvement in decisions to seek treatment were discussed qualitatively in eight articles, and one article examined family support quantitatively. This quantitative study found that compared to all other races, Asian, Pacific Islander, and Native Hawaiian individuals were less likely to seek treatment due to fear of what family and friends would think (Haeny et al., 2021). All other studies had the themes of family arise throughout the qualitative interviews. In examining decisions to seek MAT in Alaska, participants noted that

family support often allowed them to seek the care and treatment they needed – even when other barriers arose (Hewell et al., 2017). In a study of women who used drugs and engaged in street-level prostitution, participants noted that family could be an encouragement and motivator for treatment and a hindrance. Participants stated that when family members are also in the cycle of addiction, they are less likely to seek help (Murnan & Ferber, 2021). However, when family members were encouraging, women again felt empowered to get the help they need. Similarly, women in a Native American Tribe in the Pacific Northwest noted that motherhood was a motivator for seeking treatment (Shultz et al., 2018). However, when women did seek treatment for substance use, they risked being accused of abandonment, especially if their family and friends continued to use substances.

Mothers in substance abuse recovery often note their children and families as primary factors for seeking treatment (Villegas et al., 2016). While this can be a strong motivator, other studies have noted that even when the desire to attend treatment was there, arranging for childcare and its cost hindered seeking care (Murnan & Ferber, 2021). This was also found in a large study of focus groups throughout the Southeast. Women reported that wanting to be a better parent was a strong motivator for treatment; however, the time away from children inhibited them from seeking treatment (Seay et al., 2017). Mother-child treatment programs were appealing to many members of the focus groups, but these programs often had long wait times that served as a barrier to treatment (Seay et al., 2017). While this study did contain both male and female participants, of 136 quotes about family and parenting, only one quote came from a male participant (Seay et al., 2017).

Another hindrance for mothers seeking treatment included fear of social service involvement. Women attending MAT services through their OBGYN in Appalachia noted that

fear of involving child protective services was the main barrier to starting care (Ostrach & Leiner, 2019). For mothers already involved in the child welfare system, that involvement was considered a "rock bottom" event that ultimately led to seeking treatment (Rhodes et al., 2018). Others noted that child protective services involvement led to the referral for treatment, and without that referral, treatment receipt would have been more difficult (Seay et al., 2017).

### ***Stigma***

Nine studies examined the impact of stigma on treatment-seeking, and seven found a significant impact. Four studies also had the theme of stigma arise qualitatively. Results were partially mixed, with some studies finding stigma to be a motivator for treatment and others finding it to be a barrier. In a study of young adults with problematic substance use, researchers found that help-seeking and stigma were highly correlated, and help-seeking was an indirect effect of fear of stigma (Benz et al., 2021). Above substance use severity and perceived stigma, internalized stigma was a motivator for treatment-seeking (Benz et al., 2021). In addition to stigma associated with substance use, the same study looked at the experiences of stigma related to gender and sexual minority status and its impact on help-seeking. Stigma related to substance use and gender and sexual minority status was associated with greater past help-seeking intentions (Benz et al., 2019). Past discrimination related to substance use was related to a reduced risk of never enrolling in treatment (Liebling et al., 2016). Higher rates of self-stigma were associated with initiating behavioral therapy and MAT among individuals who misused opioids (Ober et al., 2018). For those who had a history of intimate partner violence, stigma from the community related to their invalidated abuse claims was a factor associated with treatment-seeking and receipt (Victor et al., 2018).

In contrast to the above results, Haeny and colleagues (2021) found that in comparing different races' receipt of substance use treatment, Asians, Pacific Islanders, and Native Hawaiians were more likely than other racial groups to report fear of what others might think in seeking treatment, acting as a barrier to services. In all qualitative studies that discussed stigma, participants viewed it as a barrier to care. Individuals in a rural community reported that their tight-knit communities often led to people knowing each other's problems. This led to stigma surrounding treatment receipt as many participants feared people finding out they were abusing substances and needed treatment (Browne et al., 2016). In a study of immigrant communities, researchers found that a fear of cultural stigma was the main reason people did not seek treatment (Kagotho et al., 2020). Similarly, individuals who used opioids were fearful to start MAT services as they felt others might judge their seeking treatment and the type of treatment they were using (Scorsone et al., 2020, Hewell et al., 2017). This fear of stigma was one of the main barriers to seeking MAT.

### ***Treatment Experience and Health Literacy***

Three studies examined variables related to knowledge of substance abuse services, including treatment experience and health literacy, and found significant results. One study had the theme of health literacy arise qualitatively. Among opioid users, past communication with a health professional regarding substance use and past treatment experiences were associated with higher odds of initiating both MAT and behavioral therapy (Ober et al., 2018). For veterans who entered detox, past treatment experience led to a greater likelihood of enrolling in treatment following detox completion (Timko et al., 2016). For individuals who misused stimulants, frequently attending self-help groups was associated with continued attendance and engagement (such as speaking at the meetings; Hatch-Mailette et al., 2016). Finally, in a qualitative study

with people in Alaska on MAT, researchers found that a lack of knowledge of healthcare options, including lower health literacy was a barrier to seeking services (Hewell et al., 2017).

## **Need Factors**

### ***Perceived Need for Treatment***

Perceived need for treatment was the only need factor examined in these studies on treatment-seeking factors. Four studies assessed perceived treatment need and its impact on treatment receipt. All studies found that perceiving a need for treatment was associated with greater past treatment attendance. In a study of White, Black, and Latino/a participants who met the criteria for past-year SUD on the NSDUH, researchers found no differences in perceived need for treatment among races, and needing treatment was a factor in obtaining treatment in the past year (Pinedo, 2019). Overall, 18% of people say a perceived need for treatment in the past year, but Black and Latino/a participants used treatment less regardless of perceived need (Pinedo & Villatoro, 2020). Among Latino/a NSDUH participants, researchers found that only 5% of Latino/as perceived a need for treatment in the past year, which was again associated with mental health and substance use specific treatment-seeking for substance use (Pinedo, 2020). Finally, among individuals with opioid misuse and opioid use disorder, not being ready to stop using, and therefore not perceiving a need for intervention, was cited as a top reason for not seeking treatment (Ober et al., 2018).

## **Discussion**

Studies varied considerably in what they examined regarding their specific populations, which corresponds with previous literature that highlights the vast differences among individuals who use substances (NCDAS, 2022; SAMHSA, 2020). Few factors in all domains – both traditional and vulnerable – directly impact treatment receipt. Where several studies found

significant results in predicting factors, others found no significance, pointing to a need to examine more intersectionality and the impact of mediating and moderating variables on receipt of substance use services. With rates of substance misuse and substance use related death rising during COVID-19 (Kiang et al., 2022), it is important to examine all aspects of treatment-seeking decisions. This includes the intersections of personal factors that lead to treatment seeking, as well as community level factors that can be barriers and facilitators. Even if an individual has a strong personal desire and family support for engaging in substance abuse treatment, not knowing where to go or having to drive far to the nearest services will likely impact their ability to receive the desired treatment.

While few predisposing traditional domains were consistent throughout studies all studies, there was consistent evidence of barriers to care for minoritized populations. White participants were more likely to engage in mental health and substance use services than minoritized populations (Crable et al., 2022; Ober et al., 2018; Satre et al., 2020). When it came to attempting to enroll in services, minoritized populations had a higher risk of never attempting to enroll in treatment (Lieblinger et al., 2016), pointing to potential structural barriers that occur for individuals who misuse substances that belong to minority races. Minoritized populations may fear what family and friends think about their treatment enrollment (Haeny et al., 2021). They also experience a greater lack of diversity and cultural inclusion within treatment centers. Latina/o participants specifically report a lack of cultural knowledge and language barriers as reasons for not seeking and entering substance use treatment (Pinedo et al., 2018). For treatment to be effective for different races and ethnicities, it must include traditional cultural methods as part of the integrated treatment (Schultz et al., 2018). This is especially true for immigrants and refugees, where study findings indicate that they may fear interactions with law enforcement and

immigration services, leading to reluctance to receive help and support for their substance use (Kagotho et al., 2020).

Gender was another area that remained relatively consistent across studies. Of the studies that found significant differences between genders in receiving services, females were more likely to enter treatment (Mauro et al., 2020; Ober et al., 2018). When examining other factors that led to treatment receipt among females, it becomes clear that women may experience different pressures for receiving treatment, such as vulnerable factors like victimization (Victor et al., 2018) and commitments to family, including involvement with child protective services (Villegas et al., 2016; Seay et al., 2017). As strongly as children could motivate receiving care, the lack of support upon entering treatment could be a barrier. For some women, leaving home and their community to receive treatment was seen as abandonment to family (Shultz et al., 2018). This was especially true for women if their partners or other family members continued to use substances (Shultz et al., 2018; Murnan & Ferber, 2021). Similarly, married women were less likely to attend any treatment (Baptiste-Roberts et al., 2021; Choi et al., 2019; Kwon et al., 2019). Again, this could point to substance use within families and should warrant relevant interventions and outreach methods that specifically target families. No studies included differences among individuals who identify as part of the LGBTQ+ population. Future research should include sexual minority status as a factor, as individuals who are LGBTQ+ may experience differing motivation factors and barriers when seeking treatment.

The impact of age on treatment receipt varied across studies. For those studies that did find significance, individuals who are in the 26-49 range of young and middle adulthood have a greater likelihood of past treatment receipt (Baptiste-Roberts et al., 2020; Choi et al., 2019; Mauro et al., 2020; Pinedo, 2019; Crable et al., 2022; Satre et al., 2020; Pinedo, 2020). This

finding aligns with recent NSDUH data that notes individuals between 18-25 are the groups with the highest need for substance abuse services but are less likely to receive care (SAMHSA, 2021). There are other factors when we explore age that must be explored simultaneously. First, those substance use diagnoses and greater substance use problem severity were significant vulnerable factors that contributed to the receipt of treatment. Younger adults who use substances may not have had as much interaction with a physician, as doctor's appointments are often not a priority for individuals in this age group (Boodman, 2018). They also may not yet recognize the dangers of regular substance use, as peers may normalize substance use, and their brains are still developing and prone to engaging in more risky behaviors (Chadi et al., 2018).

Employment was another area where results were again mixed. This area was also lacking in the exploration of intersectionality. First, types of treatment need to be evaluated when we look at employment's effect on treatment-seeking. Residential treatment is a full-time commitment, and even outpatient programs might not be conducive to various working schedules. Overwhelmingly, those who were employed full-time were less likely to seek treatment, and those who were unemployed or worked part-time were more likely to engage in treatment (Pinedo, 2019; Pinedo, 2020; Baptiste-Roberts et al., 2020). These findings could be attributed to losing employment as a "rock-bottom" event – a theme in qualitative studies (Rhodes et al., 2018). It could also be related to the time commitments required by substance abuse treatment, which pose a potential structural barrier. In examining facilitators for treatment, qualitative research found that when treatment centers maintained flexible hours, which allowed clients to maintain full-time employment, both clients and stakeholders alike viewed this as a positive motivator for treatment (Browne et al., 2016).

In examining enabling traditional domains, several structural barriers to care arose. Insurance status, treatment cost, and household income overlapped for individuals seeking treatment. Lack of insurance was associated as a top reason for individuals not seeking past-year substance use treatment (Haeny et al., 2021; Choi et al., 2019), and individuals with insurance were more likely to attend past-year treatment, even when controlling for race and age (Pinedo, 2019; Pinedo, 2020; Kwon et al., 2019). Interestingly, those on tax-payer-funded insurance (e.g., Medicaid and Medicare) were more likely to seek treatment and report their substance use concerns to a doctor, enabling their care for services (Crable et al., 2022; Mauro et al., 2020). When states chose to expand Medicaid during the beginning of the Affordable Care Act, individuals with substance misuse were more likely to have their needs met, engage in treatment programs (including MAT), and overall, treatment rates in these states increased with Medicaid being the primary payor (Lewis et al., 2018; Saloner et al., 2017). Employers in the U.S. almost solely fund private insurance (Health Care Service Corporation, 2022). Some of the same reasons people may be hesitant to leave full-time employment to attend treatment could also be reasons for not seeking treatment. People might not be able to take time off of work to receive care, but they may also fear retaliation. Even though the Health Information Portability and Accountability Act (HIPAA) protects substance use diagnoses from disclosure, individuals may still fear disclosure of their diagnoses and fear job loss and other consequences from their choice to seek treatment, as HIPAA permits the disclosure of certain protected health information for the purposes of payment (SAMHSA, 2022a).

Without insurance, people seeking treatment often have to look for grant-funded programs or incur the cost of treatment. Out of pocket residential substance abuse treatment in the U.S. can cost, on average, anywhere between \$14,000 and \$30,000 for a 30-day program,

while out-of-pocket outpatient costs can be up to \$500 per session (Miller & Thomas, 2022). While few studies examined treatment costs' impact on the decision to seek care, the one that did found it was one of the top reasons cited for not seeking care (Choi et al., 2019). Similarly, in qualitative studies, the cost of treatment was cited as the biggest barrier (Scorsone et al., 2020; Browne et al., 2016). In light of this, it is surprising that having a lower income or living in poverty were found to be a predictor of treatment-seeking (Pinedo, 2019; Pinedo, 2020; Liebling et al., 2016; Kwon et al., 2019; Choi et al., 2019). This could again relate to losing employment being considered a rock-bottom event, as was seen when those without employment were more likely to seek treatment. It also could be related to grant mechanisms available for those who live at or below poverty. The Substance Abuse Prevention and Treatment Block Grant provides substance treatment for those without other ability to pay for services (SAMHSA, 2022b). While the number of facilities that provide these services is limited, if someone has access to one, not having to incur additional debt associated with treatment could act as a potential motivator.

From the results of the above studies, it becomes clear that even traditional domains can differently impact those living with substance misuse regarding their decisions to seek treatment. However, vulnerable domains, both concerning personal and structural barriers, can have sizeable impacts on someone's decision to seek treatment for substance misuse, with many vulnerable domains acting as motivators for treatment-seeking. The first individual factor to examine regarding substance abuse treatment-seeking is substance use severity. Compared to those who reported misuse of substances but did not receive a diagnosis, those diagnosed with SUD were overall more likely to enter treatment in the past year (Crable et al., 2022, O'Brien et al., 2020; Ober et al., 2018). This is not entirely surprising as part of the diagnostic criteria for SUD centers around the dependence and consequences (e.g., continued use despite it causing

physical or psychological harm, failure to fulfill obligations) the use has created in a person's life (APA, 2013), and these consequences can be motivators for treatment (Rhodes et al., 2018). Other indicators of severity, such as overdose and intravenous use, also led individuals to be more likely to engage in treatment (Liebling et al., 2016; Victor et al., 2018). Potentially higher health risks related to substance misuse could act as motivating factors. Finally, a person's perception of their substance misuse and how harmful it was to them could also be a motivator (Pinedo, 2019; Pinedo, 2020; Hatch-Maillette et al., 2016). Even if these individuals scored lower on severity domains, the perceptions of how substance misuse impacts them are something that needs to be continually assessed when regarding treatment motivation.

Comorbidity of other health and mental health concerns also contributes to a person's perceived problem severity and treatment-seeking. Those with comorbid mental health concerns and greater mental health distress were more likely to seek treatment for their substance misuse, including through a mental health service provider (Pinedo & Villatoro, 2020; Satre et al., 2020). Causal relationships between substance use and mental health are often unknown; however, mental illness can contribute to substance misuse and the development of SUDs, and SUDs can contribute to various mental illnesses (NIMH, 2021). This relationship makes it constructive to treat the co-occurring concerns at the same time for a more holistic approach to care (NIMH, 2021), and it is essential to identify individuals with mental illness entering treatment to avoid symptom exacerbation upon discontinuation of substance use as well as risk factors for potentially exiting treatment against staff advice (Timko et al., 2008; Brown et al., 1999). It was similarly found that individuals with comorbid health concerns were more likely to seek treatment (Choi et al., 2019; Timko et al., 2016; Mauro et al., 2020). This could, in part, be related to those with existing medical conditions having greater trust in their doctors (Baker et

al., 2009), and health concerns were motivators to speak with a primary provider regarding substance use and subsequent referral to treatment (Mauro et al., 2020). This could also be related to substance use exacerbating medical symptoms, as those with SUD are often at greater risk for developing medical disorders (Dickey et al., 2002). Ultimately, individuals living with SUD often see declining health as a precipitating event that triggers the desire to enter and engage in treatment (Rhodes et al., 2018).

With higher rates of treatment admission for those with higher substance use severity and more comorbidities, it is expected that those who have past treatment attendance and greater health literacy are more likely to engage in treatment services. Speaking with a doctor about past substance use led to a greater likelihood of engaging in multiple forms of outpatient therapy (Ober et al., 2018). Completing a detoxification program prior to entering a treatment also gave individuals greater confidence upon continuing treatment (Timko et al., 2016). Lacking knowledge of healthcare and what types of treatment are available can have consequences that include not attempting to enroll in needed substance misuse treatment (Hewell et al., 2017).

In addition to personal factors, like substance use severity and comorbidities, societal vulnerabilities may encourage or dissuade someone from seeking and entering treatment for substance misuse. Whether new, episodic, or chronic, homelessness is a motivator for inpatient substance use treatment (Cox et al., 2017; Timko et al., 2016), but not outpatient treatment (Ober et al., 2018). Typically, inpatient treatment provides a safe, supportive environment for someone to receive treatment without wondering where they will find shelter (Addiction Center, 2022). Inpatient centers also have discharge planners who may assist someone in finding long-term living arrangements, such as sober halfway housing (Addiction Center, 2022). While outpatient centers may have assistance with care management as well, if someone is experiencing

homelessness, they will have the added task of navigating transportation to and from treatment regularly, which can be difficult as many experiencing homelessness will prioritize their physiological needs of shelter, food, and water (Zerger, 2002).

Overall, criminal history and legal involvement were motivators for treatment receipt (Liebling et al., 2016; Choi et al., 2019; Ober et al., 2018). For some, treatment may be a recommendation from the judicial system and could even be a part of a person's sentencing, as there have been pushes to integrate substance use treatment within the criminal justice system (Marlowe, 2003). With illicit substance use being illegal in the U.S., anyone who misuses substances or has a SUD can face legal consequences (Craddock et al., 1997), and up to 85% of the current prison population meet the criteria for SUD (NIDA, 2020). In a qualitative study in rural New Mexico, some participants reported purposefully engaging in low-level drug-related crimes to be able to participate in the diversion program (Scorsone et al., 2020). The long waiting times at the treatment facility were motivators specifically for some participants to seek interaction with the judicial system to receive recommended care.

Victimization history and stigma were two vulnerable factors that acted as motivators for treatment. Individuals who experienced intimate partner violence and physical abuse were more likely to engage in treatment (Victor et al., 2018; Wolfe et al., 2021). This could again be for similar reasons to why individuals experiencing homelessness entered treatment – to have an additional measure of safety and security while receiving recommended care for their substance misuse. For some women, the motivating factor related to victimization was not being believed by others that they were experiencing abuse (Victor et al., 2018). Disbelief from others is an area that needs further exploration – as it could be that women felt their substance misuse is what led them not to be believed when telling others about their abuse. Similarly, stigma was sometimes a

motivator for treatment-seeking, especially the fear of stigma and internalized stigma (Benz et al., 2021). Components of intersectionality exist when examining stigma's effect. For minoritized and immigrant populations, researchers found that fearing what others might think about their treatment was a barrier to receiving care (Haeny et al., 2021; Kathogo et al., 2020). For individuals in rural areas, participants were often fearful that entering treatment would lead to greater gossip, as there was a greater sense that everyone in the community knew everyone's "business" (Browne et al., 2016). As we know stigma's effect on treatment seeking, this again would be another important area of research for individuals who are part of the LGBTQ+ population.

When examining vulnerabilities regarding entering treatment, we must look at treatment center characteristics themselves. While insurance and cost are traditional domains that act as barriers and enablers for treatment, other treatment characteristics may provide additional barriers or motivation for treatment. No studies included in this review found rurality to have any significant impact. However, other aspects of treatment centers, some of which are more prevalent in rural areas, acted as potential barriers. Having a higher number of treatment centers in the area was associated with treatment utilization (Victor et al., 2018). Rural areas have fewer available treatment centers, leading to longer wait times (Scorsone et al., 2020; Hewell et al., 2017; Browne et al., 2016). In the future, when examining the impact of rurality on treatment receipt, researchers must include the density of available treatment centers and what type of treatment those locations provide. Another barrier to treatment is transportation. Transportation to and from further distances may demotivate someone from engaging in care (Browne et al., 2016; Victor et al., 2018). With rural areas having fewer available facilities overall, there may be longer travel times to and from the treatment centers.

Additional treatment center characteristics acting as motivators for utilization include providing evidence-based care and varieties of care to meet the differing needs of all individuals. A facility being adequately staffed was positively associated with treatment receipt (Timko et al., 2016). Patient-centered care, which included behaviors like regular treatment team meetings, therapeutic interactions with all staff, and unconditional positive regard from therapists, was also associated with greater utilization (Park et al., 2020; Hewell et al., 2017). Many service participants appreciated when treatment centers structured the early days of treatment but provided flexibility when meeting some of their treatment goals (Hewell et al., 2017). Clients and other stakeholders also responded positively to treatment centers having different types of care (Browne et al., 2016). This included having a residential program and flexible hours for their outpatient services (Park et al., 2020; Browne et al., 2016).

When discussing all factors leading a person to seek treatment, research cannot exclude the person's perspective – which includes a perceived need for treatment. All studies included in this review that researched the perceived need for treatment's impact on treatment receipt found significance (Pinedo, 2019; Pinedo and Villatoro, 2020; Pinedo, 2020; Ober et al., 2018). Many treatment centers use the concept of "readiness to change" as a foundation to guide interventions, with research noting that intentions and motivation play essential roles in someone's decision to seek treatment (DiClemente, 1999; Cox et al., 2009). However, in conjunction with other factors, perceiving a need for treatment may not always be enough to ensure the person who wants treatment for their substance misuse receives the treatment they desire.

### **Strengths and Limitations of Included Literature**

There are many strengths to the included literature. First, many of the included quantitative studies used national datasets, leading to a robust sample randomly selected from the

population. This aids in the generalizability of many of the included factors and barriers that individuals may encounter when seeking treatment. Second, these studies often had large samples, as many pooled data over multiple years. This meant that there was a vast opportunity for assessing diversity within the sample, and various elements of diversity could be discussed in the literature. There was also great diversity in locations. With many national data sets and other research also including various states, the included literature gives a variety of information from across the United States. For the qualitative data, a major strength was the inclusion of differing stakeholders. Many studies included perspectives from clients of treatment facilities, staff who worked there, community members, and board members. This provides a more holistic picture of what various individuals see as key motivators and limitations to treatment. Another strength was that all qualitative studies included at least two coders, with many using a team of coders to ensure the accuracy of the transcribed themes.

Even with many strengths in the included literature, there are several limitations. First, few randomized controlled trials were included, and those did not necessarily use the random assignment to answer the specific research question. While randomization also leads to greater generalizability, it is not necessarily the most appropriate research methodology when wanting to examine specific factors leading to substance use treatment. Second, there is the risk of bias for the qualitative studies and studies that did not use data from a national dataset. Many studies that used primary data used self-selection and snowball sampling, which introduces bias into the study. Third, substance use is often a measure of self-report. For the studies that used data from SAMHSA and other national sources, it is possible that substance use went underreported due to the varying stigma that exists surrounding substance use. Fourth, very few studies examined intersectionality between some predisposing factors and enabling factors. Certain demographic

variables may moderate individuals' enabling factors (as well as other predisposing factors) regardless of whether or not they are traditional or vulnerable factors, and more needs to be explored regarding those moderators. Fifth, few studies included information on treatment centers themselves. While some literature pointed to treatment center characteristics, like adequate staffing and providing multiple services, having relevance to motivation for treatment, no studies examined the organizational capacity of these facilities.

Finally, of the included studies, very few included triangulation of the data. There was only one mixed methods studies identified, indicating a dearth in available literature where the quantitative studies identified significant factors, and qualitative studies then provided information from participants' perspectives. What is statistically significant may vary from what participants identify as the biggest facilitators and barriers to entering treatment. Besides a couple of qualitative studies, research also did not include variable information from treatment centers and stakeholders in the recovery community. These studies were often separated, with many examining individual factors and a few others looking at external factors, like insurance status. No included studies considered both individual perceptions and agency and treatment center perceptions of barriers and motivators for entering substance use treatment.

### **Limitations of the Current Review**

This systematic review has limitations. First, it only included articles from the last five years and only allowed data from the last ten. While this was important to observe differing factors leading to treatment immediately before COVID-19, several other factors and barriers may have been excluded. Second, this review included no studies where alcohol or cannabis was the primary substance examined. While this was due to the differing legalities of these substances compared to illicit substances, the information provided could have given additional

factors and barriers to treatment-seeking. Third, it only included articles in the U.S., leading to an absence of factors contributing to treatment receipt worldwide. Individual factors from these studies may have contributed to knowledge in this review. However, the systemic factors (e.g., insurance, treatment wait times) would have looked vastly different in various countries. Fourth, this study included all types of treatment-seeking, including treatment-seeking in self-help groups such as A.A. and N.A and through mental health services. Self-help groups, mental health services, and substance use specific services may attract differing individuals with different needs, leading to different factors and barriers to treatment-seeking. Finally, this review only considered peer-reviewed studies, limiting potentially relevant information from other government reports.

### **Implications for Future Research and Practice**

This review has several implications for future research and practice. First, future research should consider the vast intersectionalities for individuals seeking treatment. For example, while experiencing homelessness was a motivator for treatment attendance for some, it is unknown whether race, gender, or family influence impacted people differently. Those who misuse substances or live with SUD vary as greatly as the general population, and research must examine predisposing and enabling factors through the lens of intersectionality. Second, research should examine the organizational capacity of substance use treatment centers and assess how capable they are of meeting clients' needs. Without examining what is occurring related to treatment facilities, it puts all of the onerous of treatment admission on the individual seeking treatment. This is problematic as there may be many individuals who personally want to enter treatment but are met with organizational and systematic barriers that dissuade them from doing so.

Research needs to explore how to strengthen community supports and treatment centers to continue to meet the needs of individuals with SUD during times of crisis and when it is not feasible to have a building open. This will have direct implications for practice. During COVID-19, many treatment centers closed (Mark et al., 2021). Simultaneously, the U.S. saw over 100,000 deaths related to opioid overdoses for the first time (Kiang et al., 2022). The COVID-19 pandemic is still occurring, and epidemiologists have not ruled out the possibility of future global pandemics (Penn, 2021). It is important to provide research and knowledge to strengthen our recovery communities and the treatment centers in those communities to prevent future drug-related deaths. Treatment facilities may have to close their doors temporarily for numerous catastrophic events outside of pandemics. Climate change has exacerbated natural disasters such as forest fires and tornadoes. This can directly impact mental health as well as the structures that provide services, as many must close during these natural events (Cianconi et al., 2020). Knowing how to strengthen treatment centers to continue to provide care when buildings may have to close has the potential to prevent deaths. Providing clear guidance to people seeking treatment on where to go for support when buildings are closed will help them to get the care they desire.

This research also has vast policy implications. Through this systematic review, it was seen that statewide policy choices, such as choosing to expand Medicaid, impacted treatment-seeking. The cost of treatment also had a significant impact. Federal, state, and local regulations can influence these areas. Each year, Congress sets the budget for Block Grant funding, which provides treatment for those without insurance or the ability to pay for services (NASADAD, 2018). Knowing what areas need support to improve access to services can provide our government with specific goals and areas to enhance treatment efficacy. This systematic review

also noted that a perceived need for treatment was one of the key motivators for treatment-seeking and treatment acceptance. The inverse of this indicates that not every person who misuses substances or has a SUD will perceive a need for treatment. This can have implications for other policies, such as harm reduction policies. Harm reduction is not a new concept, but due to the morality and stigma placed upon individuals who use substances, it has yet to be widely accepted within the U.S. (Lieberman & Davis, 2020). Many view harm reduction in contrast to treatment; however, both substance use treatment and harm reduction have the goal of meeting the needs of the individual (Marlatt, 1996). In conjunction with each other and with input from individuals who use illicit substances, combining harm reduction and treatment has the potential to prevent substance use-related deaths.

### **Conclusion**

This systematic review of the literature provides a comprehensive look at aspects that enabled or inhibited someone's substance abuse treatment acceptance in the years immediately prior to COVID-19. Gelberg-Andersen's BMVP was used and noted throughout this review are factors, whether traditional or vulnerable, that can have different barriers and motivators for attending treatment. People who misuse illicit substances or live with a substance use disorder are at higher risk of disenfranchisement, and without treatment and support, they potentially experience greater unwanted consequences from their substance misuse. With more people using substances related to COVID-19, we must intervene and ensure that people who want to access treatment can do so.

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## Appendix

### Population Characteristics

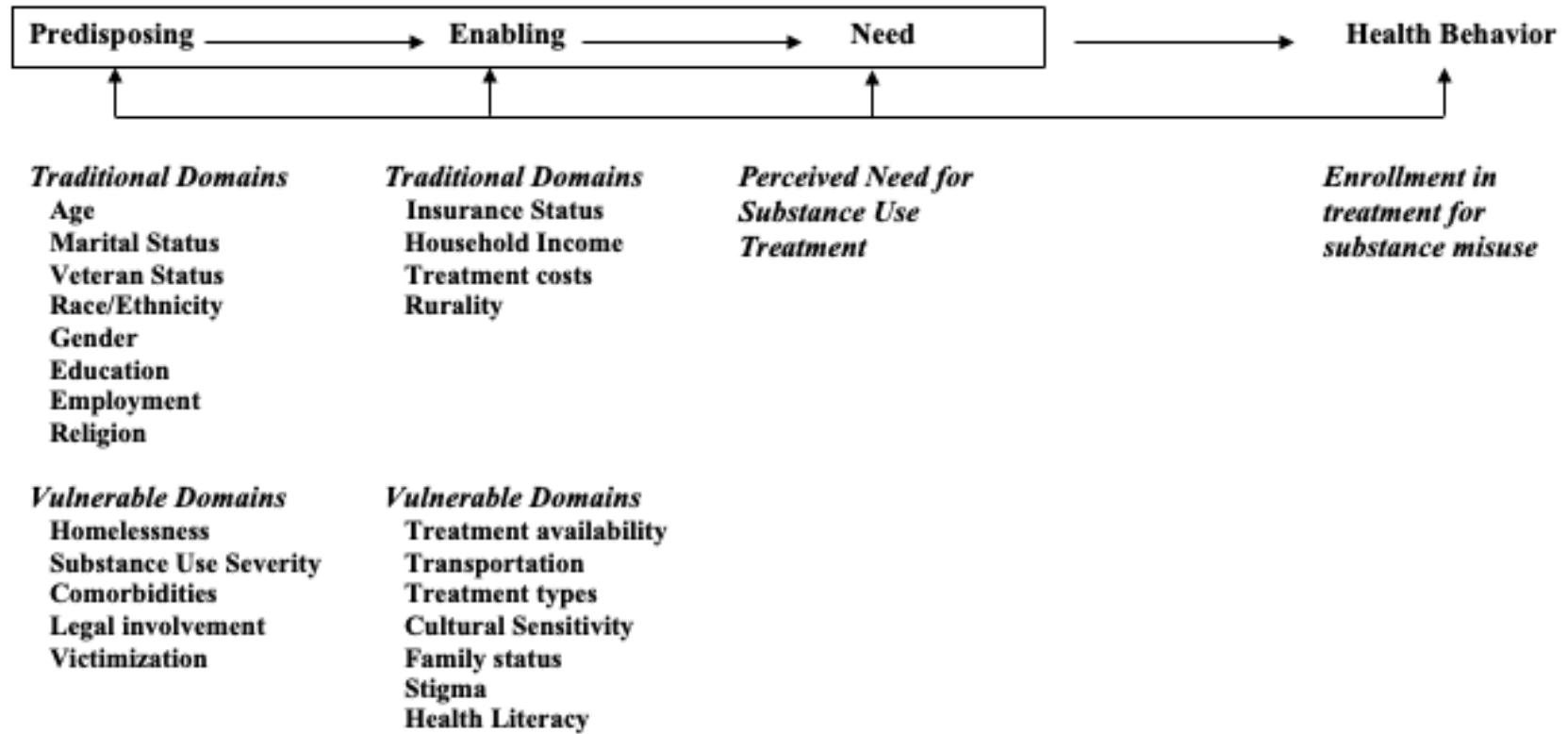


Figure 1. Gelberg-Andersen Model for Vulnerable Populations: Included Domains.

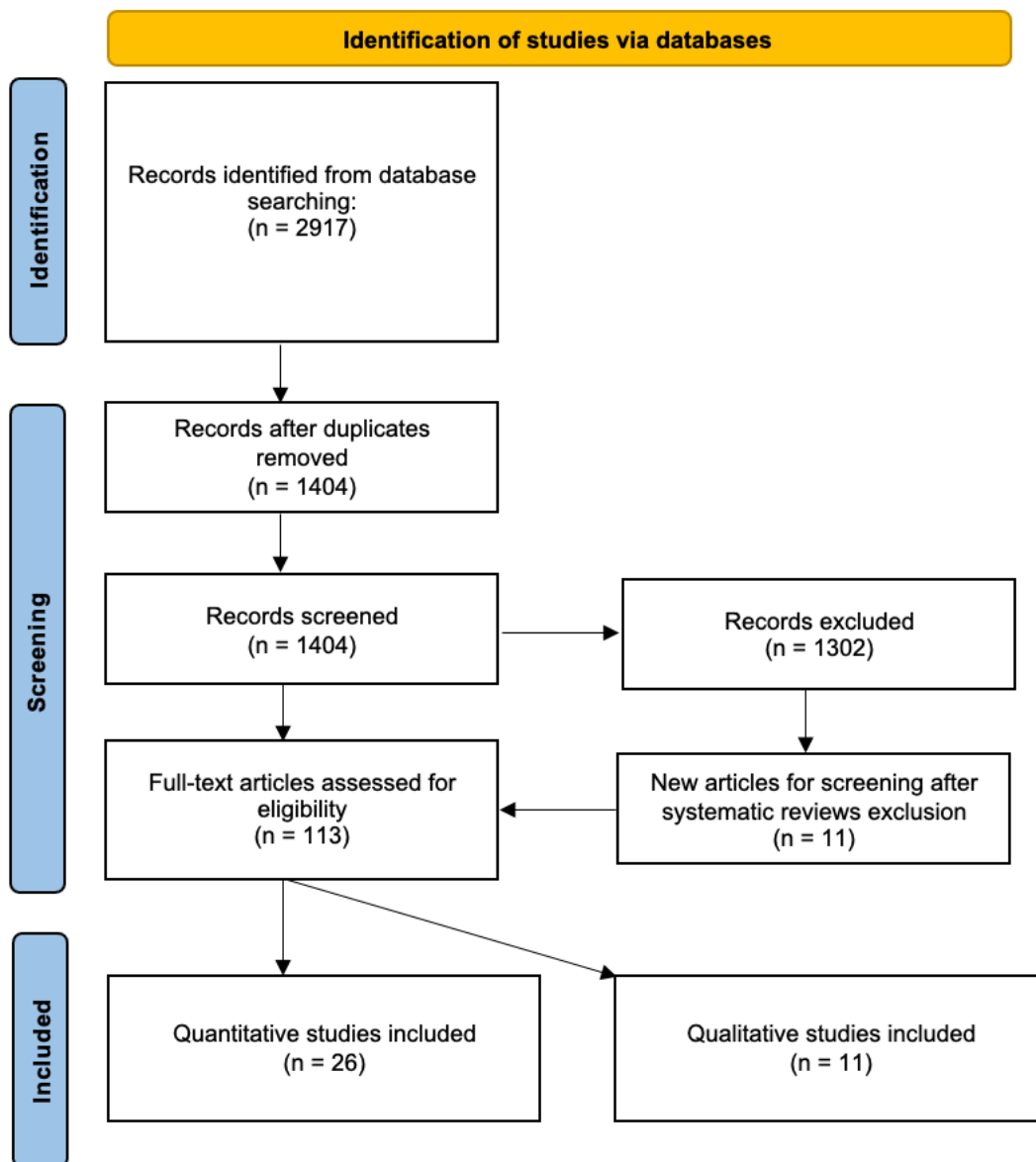


Figure 2. *PRISMA Flow Diagram.*

Table 1. *Systematic Review Quantitative Study Results.*

|                                           | Sample population and size                                                                                | Purpose of study                                                                                                                       | Outcome variables                                                                           | BMVP factors assessed                                                                                                                                                       | Main findings                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-------------------------------------------|-----------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Baptiste-Roberts et al., 2020, Nationwide | NSDUH 2013 data; Individuals over 18 who ever used illicit substances (n=20,219)                          | Assess how religiosity impacts perceived need for substance use treatment and receipt of substance use treatment in the last 12 months | Perceived need for treatment in the last 12 months; treatment receipt in the last 12 months | Religious beliefs, importance of religious beliefs to decision making, gender, age, race, education, marital status, employment, poverty status, and total household income | Those who stated religious beliefs were important were over 1.56x more likely to engage in past year treatment. Those in the 26-34 age group were also more likely to engage in treatment compared to other age groups. Non-Hispanic Blacks were less likely to receive treatment. Married individuals were less likely to receive treatment. Those with less than a college degree were more likely to receive treatment, as were those who were unemployed. |
| Benz et al., 2019, Nationwide             | Self-selection of a non-clinical sample of 18–24-year-olds who endorsed problematic substance use (n=171) | Examine the impact of both substance use stigma and gender and sexual minority (GSM) stigma on help seeking intentions                 | Help seeking intentions; past help seeking                                                  | Substance use stigma, fear of stigma, gender identity, sexual minority status, GSM stigma, substance use severity                                                           | GSM participants have lower help seeking intentions compared to non-GSM participants. Stigma (both related to substance use and GSM) predicted intention to seek help - and more stigma was associated with more help seeking intentions.                                                                                                                                                                                                                     |

*Table 1 Continued.*

| Author/year/<br>geographic<br>setting   | Sample population and<br>size                                                                                           | Purpose of study                                                                                                      | Outcome variables                                  | BMVP factors<br>assessed                                           | Main findings                                                                                                                                                                                                                                                                                                                                                             |
|-----------------------------------------|-------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|----------------------------------------------------|--------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Benz et al., 2021,<br>Nationwide        | Self-selection of a non-<br>clinical sample of 18–24-<br>year-olds who endorsed<br>problematic substance use<br>(n=171) | Examine how<br>substance-related<br>stigma and fear of<br>stigma impact health<br>seeking behaviors and<br>intentions | Help seeking<br>intentions; past help<br>seeking   | Substance use stigma,<br>fear of stigma,<br>substance use severity | Help-seeking and stigma<br>were significantly<br>correlated. Internalized<br>stigma was associated with<br>help seeking behaviors<br>through the indirect effects<br>of fear of stigma and<br>anticipated stigma. There<br>was no direct effect of<br>internalized stigma on help<br>seeking behaviors. Severity<br>of substance use remained<br>a significant covariate. |
| Boden & Hoggatt,<br>2018,<br>Nationwide | NESARC III data; all adults<br>over 18 who provided<br>information on veteran status<br>(n=36,301)                      | Assess differences<br>between veterans and<br>nonveterans in<br>treatment seeking for<br>substance use                | Treatment utilization<br>and health<br>functioning | Veteran status, SUD<br>vs. no SUD                                  | Veterans were more likely<br>to attend self-help groups,<br>seek help from a<br>professional, and attend<br>outpatient or other types of<br>treatment than non-<br>veterans.                                                                                                                                                                                              |

*Table 1 Continued.*

| Author/year/<br>geographic<br>setting                                     | Sample population and<br>size                                                                                                                            | Purpose of study                                                                                                                                    | Outcome variables                                                                                                                                                        | BMVP factors<br>assessed                                                                          | Main findings                                                                                                                                                                                                                                                                                                                                                     |
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| Cox et al., 2017,<br>Seattle/Puget<br>Sound, WA                           | Primary data, RCT of<br>veterans experiencing<br>homelessness who initiated<br>care for SUD through the VA<br>(n=181)                                    | Assess prior year<br>healthcare utilization<br>among veterans who<br>participated in an RCT<br>of intensive<br>addiction/housing case<br>management | Past year treatment<br>receipt                                                                                                                                           | Homelessness<br>categories (newly<br>homeless, episodically<br>homeless, chronically<br>homeless) | No statistically significant<br>results were found on<br>outpatient treatment<br>utilization between new,<br>episodically, and<br>chronically homeless<br>individuals. However<br>chronically homeless<br>individuals were more<br>likely to utilize residential<br>SUD treatment.                                                                                |
| Crable et al., 2022;<br>Undisclosed Safety<br>Net Hospital in the<br>U.S. | Electronic health record data<br>(EHR) of adults over 18 who<br>used safety net hospital<br>services in 2013,<br>retrospective cohort study<br>(n=7,341) | Understand long term<br>treatment seeking<br>behaviors for<br>individuals with SUD                                                                  | Service type:<br>Disengaged from<br>services, utilization<br>of substance use<br>services, mental<br>health services,<br>primary care, or<br>other specialty<br>services | Sex, age,<br>race/ethnicity,<br>insurance status, drug<br>of choice                               | Females, individuals<br>between 45-64, white<br>participants, those with<br>OUD were more likely to<br>engage in SUD services<br>and mental health services.<br>Those with Medicare were<br>more likely to engage in<br>services than those with<br>commercial insurance.<br>After four years,<br>individuals were more<br>likely to continue with OP<br>than IP. |

*Table 1 Continued.*

| Author/year/<br>geographic<br>setting | Sample population and<br>size                                                                         | Purpose of study                                                                                                                                                    | Outcome variables                                                                                                             | BMVP factors<br>assessed                                                                                                   | Main findings                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
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| Haeny et al., 2021,<br>Nationwide     | NESARC-III data; subset<br>sample of adults with SUD<br>or alcohol use disorder<br>(AUD)<br>(n=3,548) | Update the literature by<br>reporting if<br>racial/ethnic<br>differences exist in<br>both lifetime<br>SUD/AUD treatment<br>utilization and barriers<br>to treatment | Attending treatment<br>in the last 12<br>months; desire to<br>attend treatments in<br>the last 12 months<br>but did not do so | Race/ethnicity, age,<br>sex, income, education<br>level, insurance,<br>marital status,<br>employment, religious<br>beliefs | Black participants were<br>more likely to use 12 step<br>programs. Black and White<br>participants were more<br>likely to use outpatient<br>clinics than Latino/a<br>participants. Black adults<br>were also more likely to<br>use specialty drug<br>treatment compared to<br>Asian and Latinx. Specific<br>reasons individual said not<br>go to treatment:<br>Asian/PI/NH were more<br>likely than all other groups<br>to report they were afraid<br>of what people would<br>think. AI/AN were more<br>likely to endorse fear<br>related to hospitalization.<br>Asian/PI/NH adults were<br>more likely to endorse not<br>going to treatment because<br>of family. White adults<br>were more likely to report<br>fear of losing their job. For<br>all races, health insurance<br>not covering treatment was<br>the main structural barrier<br>listed for not attending<br>treatment. |

*Table 1 Continued.*

| Author/year/<br>geographic<br>setting | Sample population and<br>size                                 | Purpose of study                                                                                                                                                                                                                                                          | Outcome variables                                                                                            | BMVP factors<br>assessed                                                                                                                                                                                                                                      | Main findings                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
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| Kwon et al., 2019,<br>Nationwide      | NSDUH 2013 data, Included<br>only adults over 50<br>(n=6,325) | Examine the<br>relationship between<br>older adults' health and<br>their healthcare use -<br>with poverty as a<br>moderating variable.<br>Anticipate that adults<br>with substance use will<br>use more health care<br>services - but poverty<br>will moderate that role. | Treatment receipt<br>(no treatment, MH<br>treatment only, SUD<br>treatment only, co-<br>occurring treatment) | Health conditions,<br>Self-rated health,<br>WHODAS, mental<br>health, SUD, SI in the<br>past year,<br>psychological distress,<br>poverty status, age<br>(50-64, 65+), gender,<br>marital status, living<br>alone, insurance,<br>race/ethnicity,<br>education. | Older adults with health<br>problems are more likely to<br>use specialty healthcare<br>than those without health<br>problems. Older adults<br>living in poverty were<br>more likely to use co-<br>occurring treatments.<br>Individuals over 65 were<br>less likely to use specialty<br>healthcare. Males were<br>more likely to receive<br>substance use treatment<br>and females were more<br>likely to receive MH<br>treatment. Married people<br>were less likely to receive<br>substance use treatment.<br>Those with more education<br>were more likely to attend<br>mental health treatment<br>than substance use. Adults<br>with insurance were more<br>likely to receive physical<br>and mental health services<br>but not behavioral health<br>services alone. |

*Table 1 Continued.*

| Author/year/<br>geographic<br>setting     | Sample population and<br>size                                                                                                                                                              | Purpose of study                                                                                                                        | Outcome variables                                                                                                                                                                                                         | BMVP factors<br>assessed                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Main findings                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
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| Liebling et al.,<br>2016,<br>Rhode Island | Targeted canvassing and<br>internet-based recruitment<br>(leading to self-selection and<br>snowball sampling) of adults<br>18-29 who used prescription<br>opioids non-medically<br>(n=200) | Assess patient,<br>provider, and health<br>care system<br>characteristics resulting<br>in access to substance<br>use treatment services | Utilization of<br>substance use<br>services, including<br>attempts to enroll<br>and successful<br>enrollment                                                                                                              | Age, sex, ethnicity,<br>race, sexual<br>orientation,<br>educational<br>attainment,<br>employment, income,<br>geographic residence,<br>prior MH diagnosis,<br>prior accidental<br>overdose, prior heroin<br>use, prior cocaine use,<br>needle use, past<br>history of being<br>prescribed opioids,<br>feelings of<br>discrimination by<br>medical community<br>due to drug use, health<br>insurance,<br>homelessness, history<br>of arrest, perceived<br>barriers to treatment | Compared to those who<br>successfully enrolled,<br>nonwhite participants and<br>those making between<br>\$500-\$1500 were at greater<br>risk for never attempted to<br>enroll in treatment.<br>Hispanic/Latino/a<br>participants, those who had<br>experienced drug related<br>discrimination, and those<br>with a history of previous<br>incarceration had a reduced<br>risk of never enrolling.<br>Compared to those who<br>had successfully enrolled,<br>participants with accidental<br>overdose history and those<br>making between 500 and<br>1500 had higher risk of<br>attempting to enroll in<br>treatment but not being<br>successful. |
| O'Brien et al.,<br>2020,<br>Nationwide    | Secondary data analysis of<br>IBM Marketplace multi-state<br>Medicaid database for 2016<br>and 2017<br>(n=58,745)                                                                          | Examine Medicaid data<br>to assess treatment<br>utilization among<br>adults with OUD<br>(primary) and OUD<br>with co-occurring SUD      | Health services<br>related to OUD,<br>SUD, and mental<br>health; OUD<br>medication in any<br>setting: outpatient<br>mental health<br>services and<br>medication, IOP,<br>residential, detox,<br>and inpatient<br>services | OUD vs OUD/another<br>SUD, age, race, sex,<br>health plan type, metro<br>area, tobacco use<br>disorder, psychiatric<br>diagnosis                                                                                                                                                                                                                                                                                                                                              | Almost half of the sample<br>with OUD also had a co-<br>occurring additional SUD.<br>For most services, the<br>group with OUD and co-<br>occurring additional SUD<br>were more likely to use any<br>type of services - except<br>OUD medication.<br>Individuals with OUD and<br>SUD were more likely to<br>use intensive services.                                                                                                                                                                                                                                                                                                               |

*Table 1 Continued.*

| Author/year/<br>geographic<br>setting | Sample population and<br>size                                                                                                                                         | Purpose of study                                                                                                                      | Outcome variables                                                      | BMVP factors<br>assessed                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Main findings                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
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| Ober et al., 2021,<br>Los Angeles, CA | Primary data of adults with a likely opioid or alcohol use disorder (OAUD), participants recruited from a federally qualified health center by self-selection (n=392) | Assess what factors contribute to initiation of brief therapy and MAT for Opioid and Alcohol Use Disorders in a primary care setting. | Initiation of behavioral therapy for OAUD or initiation of MAT for OUD | Age in years, gender identity, race, Hispanic ethnicity, education, marital status, income, work status, homelessness, health related quality of life, internalized stigma, number of visits to primary care in the last 90 days, one session of BT initiation, OAUD diagnosis, diagnosis of dependence, recent negative consequences from OAUD, past history of talking to a professional regarding SUD, past history of self-help group attendance, Substance use related arrest, past arrest in the last 90 days | Predisposing factors associated with initiation of BT were being female, white, and having greater than a high school education. Enabling factors associated with BT were higher rates of self-stigma and receiving MAT. Being homeless was associated with lower odds of starting BT and MAT. Having more consequences from OAUD and past communication regarding SUD were associated with greater initiation of BT. Arrest in the past 90 was associated with lower odds of BT initiation. Predisposing factors associated with initiation of MAT included older age, female, and a high school education. Being married, working, having higher self-stigma, and receiving BT were associated with higher odds of receiving MAT. A heroin use disorder, having higher drug related consequences, and past help (with a profession or self-help group) had higher odds of receiving MAT. |

*Table 1 Continued.*

| Author/year/<br>geographic<br>setting | Sample population and<br>size                                                                                                                         | Purpose of study                                                                                                                                                                                                                                                             | Outcome variables                                                                                                                          | BMVP factors<br>assessed                                                                                                                                                                                                                                                                                                                                   | Main findings                                                                                                                                                                                                                                                                                                                                                                                                                               |
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| Park et al., 2020,<br>Nationwide      | Random selection of<br>treatment facilities who<br>participated in the National<br>Survey of Substance Abuse<br>Treatment Services in 2017<br>(n=657) | Examines data from a<br>nationally<br>representative sample<br>of SUD treatment<br>clinics to see the<br>associations among<br>SUD treatment clinics'<br>practice and emphasis<br>on patient centered<br>care and their patients'<br>utilization of treatment<br>and support | Service utilization:<br>percentage of SUD<br>patients who<br>received services in<br>the last fiscal year                                  | Patient-centered care<br>variables (regular<br>treatment meeting to<br>assess progress of<br>individual clients;<br>composite variable of<br>patient-centered<br>interactions),<br>Environmental factors<br>(Medicaid expansion<br>state and urbanity);<br>Organizational<br>characteristics<br>Managerial factors<br>Patient and staff<br>characteristics | Patient centered care<br>variables were significantly<br>correlated with greater<br>utilization of services -<br>including behavioral<br>therapy, routine medical<br>care, suicide prevention,<br>and HIV testing. Being a<br>residential clinic was also<br>significantly associated<br>with more behavioral<br>treatment use.                                                                                                             |
| Pinedo, 2019,<br>Nationwide           | NSDUH data 2015 to 2017 –<br>pooled, adults over 18 who<br>were Black, Latino/a, or<br>White and met criteria for<br>SUD<br>(n=12,070)                | Examine racial and<br>ethnic disparities in the<br>use of treatment<br>services following the<br>implementation of<br>ACA                                                                                                                                                    | Any SA treatment<br>past year (those who<br>answered yes were<br>then asked what type<br>of treatment),<br>perceived need for<br>treatment | Race/ethnicity, gender,<br>age, marital status,<br>employment status,<br>annual family income,<br>urbanicity, and<br>insurance                                                                                                                                                                                                                             | There were no racial<br>differences in perceived<br>need for treatment. When<br>controlling for socio-<br>demographic variables,<br>problem severity, and<br>perceived treatment needs,<br>Black and Latino<br>participants had lower odds<br>of reporting any treatment<br>in the past year when<br>compared to White<br>participants. There were no<br>differences found when the<br>control variables were not<br>included in the model. |

*Table 1 Continued.*

| Author/year/<br>geographic<br>setting      | Sample population and<br>size                                                                                                          | Purpose of study                                                                                                                               | Outcome variables                                                                                                                   | BMVP factors<br>assessed                                                                                                                                                                                                                                                                                                                                                | Main findings                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
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| Pinedo & Villatoro,<br>2020,<br>Nationwide | NSDUH data 2014 to 2017 –<br>pooled, adults over 18 who<br>were Black, Latino/a, or<br>White and met criteria for<br>SUD<br>(n=16,939) | Examine how<br>perceived treatment<br>need is associated with<br>racial and ethnic<br>disparities in substance<br>use treatment<br>utilization | Past year SUD<br>treatment, past year<br>mental treatment,<br>past year specialty<br>SUD treatment or<br>mental health<br>treatment | Past year treatment for<br>SUD, perceived need<br>for treatment,<br>race/ethnicity, age,<br>sex, marital status,<br>criminal behavior and<br>history, problem<br>severity, co-occurring<br>SUD, type of SUD<br>(alcohol only, the<br>only, illicit only,<br>alcohol and illicit<br>drug), employment<br>status, family income,<br>urbanicity, insurance,<br>survey year | Only 18% of individuals<br>with past year SUD<br>perceived a need for<br>treatment, and overall<br>White and Black<br>participants reported<br>greater treatment<br>utilization than Latino/a<br>participants. Latino/a<br>participants had lower odds<br>of perceiving a need for<br>treatment than white<br>participants. Factors<br>positively associated with<br>perceived need for<br>treatment included problem<br>severity, past year<br>symptoms of mental health<br>distress, illicit drug use<br>only, and co-occurring<br>alcohol or drug use<br>disorder. There was an<br>interaction between race<br>and ethnicity and perceived<br>treatment need. Overall,<br>Black and Latino/a<br>participants used services<br>less than white participants<br>when they did not have a<br>perceived need for<br>treatment. |

*Table 1 Continued.*

| Author/year/<br>geographic<br>setting       | Sample population and<br>size                                                                                                                                                                                   | Purpose of study                                                                                                                                                      | Outcome variables                                                                                                                             | BMVP factors<br>assessed                                                                                                                                                                             | Main findings                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
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| Sartre et al., 2020,<br>Northern California | Purposive sampling of EHR data from Kaiser Permanente of Northern California (KPNC) enrollees with a documented SUD, participants were between 18-64, and enrolled in KPNC between 1/2014 and 12/2014 (n=6,957) | Explore the consequences of healthcare reform by assessing the relationship between ACA enrollment and high deductible health care plan among individuals with an SUD | Service utilization (primary care, specialty SUD and psychiatry, Inpatient hospitalization, and ED use); aggregated number in past six months | Types of SUD, KPNC membership before SUD, chronic medical comorbidities, psychiatric comorbidities, individual deductible limits and ACA exchange mechanisms, sex, age at index date, race/ethnicity | There was evidence that the enrollment mechanism moderated associations between deductible limits and the likelihood of utilizing primary care and psychiatric treatment, when controlling for demographics and comorbidities. Those without a deductible were more likely to use psychiatric services. Individuals who had been KPNC members longer than six months before receiving a diagnosis were less likely to engage in primary care and SUD treatment. Those with psychiatric comorbidities were more likely to use all services. White patients were also more likely to use SUD and psychiatric treatment compared to minoritized populations. Patients between 35-49 were also more likely to use SUD compared to those 18-34. |

*Table 1 Continued.*

| Author/year/<br>geographic<br>setting | Sample population and<br>size                                                                              | Purpose of study                                                                                                                                                                                                     | Outcome variables                                                                              | BMVP factors<br>assessed                                                             | Main findings                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
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| Timko et al., 2016,<br>Nationwide     | Secondary EHR data from<br>VA records for individuals<br>diagnosed with OUD, AUD,<br>or both<br>(n=21,331) | Examine patient and<br>facility level<br>characteristics<br>associated with<br>detoxification<br>admittance and rates of<br>transition to treatment<br>among veterans with<br>alcohol and/or opioid<br>use disorders | Service utilization<br>(detox, follow up<br>after detox, specialty<br>treatment<br>enrollment) | Age, sex, race,<br>homelessness, clinical<br>status, and facility<br>characteristics | Of participants who<br>completed detox, 43.1%<br>attended their follow up<br>appointment one week<br>following detox<br>completion and 49.9%<br>entered treatment after<br>detox completion. Across<br>facilities, male, younger,<br>non-Hispanic white, and<br>homeless participants were<br>more likely to enter detox.<br>Those with fewer medical<br>conditions, had fewer<br>previous incidences of<br>addiction treatment, and<br>having a diagnosis in their<br>medical records were also<br>more likely to attend<br>treatment. The only<br>significant facility<br>characteristic of detox<br>entrance was having fewer<br>vacant counselor positions<br>open. Finally, successful<br>entrance into treatment<br>from detox included being<br>female, being younger,<br>Black, and homeless, and<br>having fewer comorbid<br>conditions, a history of<br>previous addiction<br>treatment, and an alcohol<br>use disorder compared to<br>an opioid use disorder. |

*Table 1 Continued.*

| Author/year/<br>geographic<br>setting                    | Sample population and<br>size                                                              | Purpose of study                                                                                      | Outcome variables                                                                                                                       | BMVP factors<br>assessed                                                                                                                                                                                                                                                      | Main findings                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
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| Wolfe et al., 2021,<br>Massachusetts and<br>Rhode Island | Transgender adults over 18<br>with residency in MA or RI,<br>purposive sampling<br>(n=600) | Explore gaps in the<br>literature related to<br>substance use<br>outcomes among<br>transgender adults | Substance use in the<br>past 12 months,<br>History of a<br>substance use<br>diagnosis, lifetime<br>substance abuse<br>treatment history | Gender (trans<br>masculine, and trans<br>feminine - cross<br>tabulated into sex and<br>gender identity), age,<br>race and ethnicity,<br>educational<br>attainment,<br>employment, income,<br>survey mode,<br>discrimination,<br>childhood physical or<br>sexual abuse and IPV | Related to the substance<br>use treatment outcome,<br>moderate to high<br>transgender related<br>discrimination scores were<br>associated with receiving<br>treatment. Age was also<br>associated with treatment<br>receipt, with older<br>individuals being more<br>likely to have had past<br>treatment. Those who were<br>transmasculine were less<br>likely to enter treatment.<br>Those who had<br>experienced IPV were<br>more likely to enter<br>treatment. |

Table 2. *Systematic Review Qualitative Study Results.*

| Author/year/<br>geographic<br>setting  | Sample population and<br>size                                                                                                                          | Purpose of study                                                                                                                     | Outcome variables                                                                                                                             | BMVP factors<br>assessed                                                        | Main findings                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
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| Browne et al.,<br>2016,<br>Rural South | Convenience sampling from<br>eight substance abuse<br>treatment facilities; included<br>interviews and focus groups<br>from key stakeholders<br>(n=80) | Qualitatively explore<br>barriers to substance<br>use treatment in the<br>rural South from<br>stakeholder and client<br>perspectives | Perceived strengths,<br>barriers, and<br>weaknesses of<br>treatment agency<br>(including barriers to<br>accessing the<br>program or services) | Service availability,<br>cost, technology,<br>access, transportation,<br>stigma | The major findings that<br>arose regarding treatment<br>barriers and facilitators<br>included service<br>availability, technology,<br>cost, and stigma. Both<br>clients and stakeholders<br>noted that service<br>availability is a major<br>barrier to treatment access.<br>Many rural communities<br>lacked specific types of SA<br>treatment (like inpatient).<br>Lack of availability led to<br>gaps in care and time.<br>Transportation to treatment<br>as well as cost was a<br>barrier for substance use<br>services in rural areas.<br>Stigma in rural<br>communities (such as<br>people knowing each other<br>and their business), was<br>also a barrier to seeking<br>treatment. |

*Table 2 Continued.*

| Author/year/<br>geographic<br>setting | Sample population and<br>size                                                                                                                                                                                                                                             | Purpose of study                                                                                                                                                                                         | Outcome variables                                                                       | BMVP factors<br>assessed                                                                                                            | Main findings                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
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| Hewell et al., 2017,<br>Alaska        | Interviews with individuals<br>18 and older who lived in<br>Alaska, who met the lifetime<br>criteria for OUD and had<br>been impacted by MAT (e.g.,<br>received services, denied<br>services, encountered<br>barriers to services, or did<br>not seek services)<br>(n=11) | Understand the<br>subjective treatment<br>seeking process of<br>individuals with OUD<br>who would benefit<br>from MAT to impact<br>policy and protocols<br>that impact the lives of<br>these individuals | Processes - both<br>systemic and<br>individual - related<br>to seeking MAT<br>treatment | Family, social support,<br>perceived health,<br>withdrawal symptoms,<br>cost, availability,<br>perceived stigma,<br>health literacy | Individual factors that<br>contributed to individuals<br>seeking MAT treatment<br>included attitudes, beliefs,<br>values, and motivations<br>around the treatment.<br>Participants who perceived<br>addiction as a biological<br>disease were likely to view<br>positively receiving<br>medication. Withdrawal<br>was listed as a barrier to<br>seeking MAT treatment<br>and continuing to use<br>opioids. Systemic factors<br>included social support,<br>family, public policy,<br>treatment availability, and<br>culture. How others felt<br>about MAT and fearing<br>judgment was a hinderance<br>to treatment seeking. Lack<br>of resources, including<br>health literacy and finances<br>were barriers to MAT. |

*Table 2 Continued.*

| Author/year/<br>geographic<br>setting                                        | Sample population and<br>size                                                                                                                                                                                     | Purpose of study                                                                                                                                      | Outcome variables                                                                                                                                                                                         | BMVP factors<br>assessed                                                        | Main findings                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Murnan & Ferber,<br>2021,<br>Large, urban<br>Midwest U.S. city               | Snowball sampling of omen<br>engaged in street-level<br>prostitution who are at least<br>18, have one biological child,<br>report of past year substance<br>misuse and past three years<br>prostitution<br>(n=15) | Assess the influences<br>of family members,<br>romantic partners, and<br>children on women's<br>substance use treatment<br>decisions and<br>behaviors | Treatment seeking<br>behaviors                                                                                                                                                                            | Family history of<br>substance use,<br>supportive family,<br>children           | Many women in the sample<br>came from families of origin<br>who used substance use, so<br>treatment seeking was<br>viewed as living a separate<br>life. If romantic partners are<br>in the cycle of addiction -<br>women are less likely to<br>receive help. However, when<br>family members are<br>encouraging, they can be a<br>big support. Children are<br>often motivating factors for<br>treatment, however, finding<br>childcare for time in<br>treatment can be a barrier. |
| Ostrach & Lerner,<br>2019,<br>Rural Central<br>Appalachian North<br>Carolina | Purposive sampling from an<br>OBGYN office containing<br>interviews with perinatal<br>women in a rural area using<br>MAT services<br>(n=27)                                                                       | Better understand how<br>perinatal women in an<br>MAT program<br>perceived their<br>experience of obtaining<br>medication treatment                   | What people<br>appreciated about<br>the program, what<br>was hard about it,<br>what barriers to<br>treatment they<br>perceived in<br>pregnancy, whether<br>the program helped<br>them meet their<br>goals | Attitudes towards care,<br>fear, ambivalence,<br>social services<br>involvement | Women reported obstacles to<br>accessing care, and<br>ambivalence towards<br>initiating treatment. This<br>ambivalence was related to<br>judgment, stigma, and<br>negative consequences of<br>MAT. Reluctance in some<br>cases was connected to their<br>social and familial groups<br>attitude towards MAT. Many<br>feared initially starting<br>treatment due to social<br>services scrutiny and<br>involvement.                                                                 |

*Table 2 Continued.*

| Author/year/<br>geographic<br>setting             | Sample population and<br>size                                                                                                                                     | Purpose of study                                                                                                                                                                   | Outcome variables                                                       | BMVP factors<br>assessed                                                                                                 | Main findings                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|---------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Rhodes et al., 2018,<br>Central North<br>Carolina | Semi-structured interviews<br>collected with purposive<br>sampling of women over 18<br>currently in treatment for<br>SUD<br>(n=30)                                | Discover pathways for<br>which women report<br>entering substance<br>abuse treatment<br>programs                                                                                   | "Turning points" and<br>theme that led<br>women to seek<br>treatment    | Homelessness,<br>overdose, attempted<br>suicide, mental and<br>physical health<br>comorbidities, child<br>welfare system | Three themes arose from the<br>data: rock-bottom events<br>that led to treatment, feeling<br>sick and tired in both mental<br>and physical health, and<br>changing perceptions of<br>self. For rock-bottom<br>events, women reported<br>interaction with child<br>welfare, attempted suicide<br>or SI, strained relationship,<br>homelessness, and overdose<br>as motivating factors for<br>treatment. Women also<br>reported substance use not<br>being compatible with their<br>goals as a reason for seeking<br>formal help. |
| Schultz et al., 2018,<br>Pacific Northwest        | Community based<br>participator action research<br>with American Indian,<br>Alaska Native, or First<br>Nations women currently<br>living on tribal land<br>(n=33) | Explore maternal<br>substance misuse in a<br>tribal community and<br>investigate related<br>barriers to care and<br>how being a mother<br>impacted decisions to<br>seek treatment. | Experiences<br>regarding substance<br>abuse treatment and<br>motivation | Family, community                                                                                                        | These surrounding<br>traditional healing in<br>recovery, community<br>specific challenges to<br>recovery, and the motivating<br>role of motherhood arose.<br>Traditional healing was seen<br>as valuable pathways to<br>recovery. Cultural traditions<br>within treatment were<br>valuable to pursuing<br>treatment. Unique<br>challenges to treatment<br>seeking included being<br>accused of abandonment by<br>their family. Motherhood<br>was a motivator.                                                                   |

*Table 2 Continued.*

| Author/year/<br>geographic<br>setting            | Sample population and<br>size                                                                                | Purpose of study                                                                                                      | Outcome variables                                             | BMVP factors<br>assessed | Main findings                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|--------------------------------------------------|--------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|--------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Seay et al., 2017,<br>Southeastern U.S.<br>state | Nine focus groups with<br>current and former clients of<br>eight different treatment<br>facilities<br>(n=45) | Assess how clients<br>view parenting as a<br>motivator or inhibitor<br>to engaging in<br>substance abuse<br>treatment | Motivation and<br>inhibitor to<br>substance abuse<br>recovery | Family, child services   | Parenting was the third<br>most common theme<br>following program strengths<br>and weaknesses. Parenting<br>was determined to be a<br>motivator for treatment<br>initiation and two subthemes<br>arose - child protective<br>services involvement and<br>the desire to be a better<br>parent. Over 9 participants<br>stated that CPS involvement<br>led to the referral. and<br>motivation for substance<br>abuse treatment. Other<br>parents reported children<br>were the main motivation<br>for treatment reporting that<br>they want to receive<br>treatment to be better<br>parents to their children.<br>Similarly - treatment's<br>requirement of time away<br>from children was<br>sometimes an inhibitor to<br>treatment seeking. Mother-<br>child treatment programs<br>were appealing to many<br>mothers in the focus groups.<br>However, long wait times<br>for these programs often had<br>a demotivating effect. |

*Table 2 Continued.*

| Author/year/<br>geographic<br>setting         | Sample population and<br>size                                                                                                                   | Purpose of study                                                                                                                                                                                       | Outcome variables                                                                                                                         | BMVP factors<br>assessed | Main findings                                                                                                                                                                                                                                                                                                                                                                                                                            |
|-----------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Villegas et al.,<br>2016,<br>Southern Florida | Semi-structured interviews<br>with mothers over 18 who<br>were currently or recently<br>(within 3 years) enrolled in<br>substance use treatment | Assess women's<br>perspectives on access<br>to family-based<br>interventions, including<br>motivators for<br>recovery, challenges to<br>recovery, and attitudes<br>towards involving<br>family members | Motivators for<br>recovery, challenges<br>to recovery, and<br>attitudes towards<br>involving family<br>members in the<br>recovery process | Family, legal            | Motivators for recovery<br>included family, wanting to<br>better themselves, and<br>wanting to resolve legal<br>problems (including lost<br>custody of children).<br>Challenges for recovery<br>included negative family<br>events, difficulty coping<br>with stress and conflicts,<br>and environments that<br>expected continued drug<br>use. Most women responded<br>positively to involving<br>family in their treatment<br>process. |

## **CHAPTER II: INDIVIDUALS' ACCESS OF TREATMENT AND RECOVERY SUPPORT ACCESSIBILITY DURING COVID-19**

## **Abstract**

During COVID-19, substance misuse increased around the U.S., with the number of overdose related deaths reaching over 100,000 for the first time. Treatment seeking among individuals who misuse substances can be a complex process, with many factors contributing to treatment receipt. Guided by Gelberg-Andersen's Behavioral Model for Vulnerable Populations, this research seeks to establish predisposing, enabling, and need factors that contributed to treatment receipt during COVID-19 and assess if those factors were similar to those seen in the five years prior to the COVID-19 pandemic. A total of 201 individuals were included in the survey. While no predisposing factors predicted treatment receipt during COVID-19, variations were seen in enabling and need factors. Perceiving a need for treatment and having reliable transportation to treatment were predictors of treatment receipt during COVID-19. Additional enabling factors that contributed to treatment receipt were history of past treatment and differing types of recovery supports. More research is needed on individual differences in perception of need that lead to treatment seeking.

## **Introduction**

Substance misuse and addiction remain consistent problems in the U.S. According to the National Survey on Drug Use and Health (NSDUH), in 2021, over 40 million Americans over the age of 18 met the criteria for a substance use disorder in the past year (SUD; SAMHSA, 2023a). A troubling aspect of substance misuse is the lack of access to treatment. Of individuals living with a past year SUD, 4.5% reported needing or wanting treatment (SAMHSA, 2023a). However, only 1.9% reported receiving services for their substance use disorder at any location.

COVID-19 exacerbated problems related to substance misuse. Fatal overdose rates rose over 30% during COVID-19, with the U.S. crossing over 100,000 overdose-related deaths for the first time in 2021 (Kiang et al., 2022). Close to one-third of all Americans reported an increase in alcohol use during COVID-19, and of individuals who used illicit substances, 30% reported an increase in their use (Agovino, 2021). Over 50% of U.S. adults reported that the COVID-19 outbreak negatively impacted their mental health, including substance use as a maladaptive coping mechanism (Avena et al., 2021). Relapse for individuals with a history of substance misuse was not uncommon as recovery supports were limited (Dubey et al., 2020). Research has found that loneliness and isolation are often higher in people who misuse and abuse illicit drugs (Hosseini et al., 2014). COVID-19 also exacerbated periods of isolation. Individuals usually turn to social support during times of crisis; however, this was not always feasible with lockdowns and prolonged periods of isolation to promote public health (Saltzman et al., 2020).

During this time when treatment centers and self-help supports (e.g., Alcoholics Anonymous (AA) or Narcotics Anonymous (NA)) were not as accessible, both policymakers and treatment service providers had to develop innovative ways to adapt treatment during times of closures. The federal government removed the X-Wavier, which was a waiver from the that

required both training and in-person visits for doctors to be able to prescribe medically assisted treatment (MAT), such as buprenorphine. During the pandemic, MAT could be prescribed online (Spetz et al., 2022). Treatment centers, even those that were primarily residential programs, shifted programming online to maintain social distance (Pagano et al., 2021). Similar movements occurred in self-help groups. In May 2020, AA released a message that their goal was to be “physically distanced but digitally connected.” The goal was for individuals in the U.S. to shift to online support group meetings, to continue the message of recovery (AA, 2020). Seeking treatment and recovery support does not happen based on individual need alone. While an individual may want care, various enabling factors may prevent them from accessing it. It is crucial to examine individual perceptions contributing to treatment-seeking and receipt during COVID-19. This research seeks to answer the following question: What predisposing, enabling, and need factors contributed to help-seeking during COVID-19?

### **Help Seeking for Substance Misuse**

Treatment for substance misuse is a broad term encompassing many different options depending on individual need and is often based on assessment of level of care needs. Treatment centers often operate on “least restrictive measures” meaning that a person will be assessed for an appropriate level of care to their substance use diagnosis or severity (Hensold et al., 2006). The American Society of Addiction Medicine (ASAM) Criteria is the most widely used instrument to determine levels of care, and assesses individuals on six dimensions (ASAM, 2023). These six dimensions include withdrawal potential, medical comorbidities, mental health comorbidities, readiness to change, relapse potential, and living environment. More restrictive settings can include inpatient settings (e.g., hospitals and detox facilities) and residential settings (ASAM, 2023). Less restrictive settings can include outpatient treatment (including intensive

outpatient, partial hospitalization, and individual therapy), as well as medically assisted therapy (ASAM, 2023). Early intervention is the lowest level, and can include education and referral to supportive self-help services. Any supportive self-help groups, including AA and NA, help people receive care and support for substance misuse. A recent Cochrane systematic review found AA/NA self-help interventions to be as effective as traditional treatment modalities in promoting long-term recovery for those who engaged with them, indicating that this type of self-help treatment seeking should not be excluded from an examination of treatment seeking as a whole (Kelly et al., 2020). Studies examining treatment seeking as a whole often include both professional help and self-help groups (Kessler et al., 2001; SAMHSA, 2022a).

Differing factors can contribute to help-seeking for substance misuse; due to the complexity and variation of individuals who misuse substances, some of those factors should be explored individually. Research shows that while many individuals who identify as having a problem with substance misuse will seek treatment, they often do not seek treatment until ten years or more after the onset of symptoms (Kessler et al., 2001). Studies also show that motivation to engage in treatment does not always equate to readiness (Groshkova, 2010). Additionally, little is known about who seeks what type of treatment. Individuals with alcohol use disorder are more likely to engage in mental health treatment than specialized substance use treatment (Edlund et al., 2012). This relationship could be related to the interaction between substance use disorders and mental health diagnoses, but it could also indicate potential biases and stigma around treatment for substance misuse (Kacha-Ochana et al., 2022). Regardless of the type of treatment, treatment seeking remains an important concept in substance misuse studies as it can lead to better health and social outcomes for individuals who misuse substances (Hubbard et al., 2003).

## **Gelberg-Andersen's Behavioral Model for Vulnerable Populations: Individual Factors**

Developed in 1968, Andersen's Behavioral Model (ABM) examines various determinants of health that impact a person's decisions regarding help-seeking and medical care (Andersen, 1995). In 2000 it was expanded to create the Behavioral Model for Vulnerable Populations (BMVP), as the original model may insufficiently explain health services utilization in otherwise vulnerable communities (e.g., individuals experiencing homelessness; Gelberg et al., 2000). This model focuses on competing needs that may inhibit someone from seeking healthcare. The original ABM incorporates three major components for help-seeking: predisposing, need, and enabling factors (Andersen, 1995). The BMVP expands upon this model by incorporating traditional and vulnerable domains. Traditional predisposing domains include demographics (e.g., age, gender, marital status), health beliefs, and social structures (e.g., ethnicity, education, employment). The vulnerable predisposing domains include social structures such as country of origin and immigration status, sexual orientation, and childhood characteristics (e.g., homelessness, mobility, mental illness, psychological resources, and substance abuse). Traditional enabling factors include resources like insurance, income, social support, region, and residence. In contrast, vulnerable enabling factors include competing needs, the ability to navigate the behavioral healthcare system, transportation, and available social service resources. Need factors for both domains center on perceived health and evaluated health. The purpose of this model is to explain health behaviors and practices – which can include treatment-seeking and adherence to care (Gelberg et al., 2000). The model also helps to predict related health outcomes, such as satisfaction with care, which follows health behavior.

### ***Predisposing Factors***

Research using the BMVP for vulnerable populations identifies several predisposing, need, and enabling factors that contribute to the receipt of substance use care. Predictors of service receipt can vary greatly across populations. For traditional individual predisposing individual factors, the following impact service receipt: being over 25 (Baptiste-Roberts et al., Choi et al., 2019; Mauro et al., 2020; Pinedo, 2019), being White (Crable et al., 2022; Ober et al., 2018), being female (Mauro et al., 2020; Ober et al., 2018; Crable et al., 2022), having more than a high school education (Choi et al., 2019; Ober et al., 2018; Pinedo, 2020); being unemployed or employed part-time (Baptiste-Roberts et al., 2020; Mauro et al., 2020); and being single (Baptiste-Roberts et al., 2020; Choi et al., 2019; Kwon et al., 2019). For vulnerable predisposing individual factors, the following correlate with past substance use treatment receipt: having a substance use diagnosis (Crable et al., 2022; Choi et al., 2019; O'Brien et al., 2020), having greater substance use severity (Pinedo, 2019; Pinedo, 2020); having other health or mental health comorbidities (Pinedo, 2020; Pinedo & Villatoro, 2020; Satre et al., 2020, Choi et al., 2019), and having a past criminal history or legal involvement (Mauro et al., 2020; Liebling et al., 2016; Choi et al., 2019). Currently experiencing homelessness was associated with higher rates of inpatient treatment-seeking (Cox et al., 2017; Timko et al., 2016) but not with treatment-seeking for outpatient services (Ober et al., 2018).

### ***Enabling Factors***

Past research found that enabling factors for substance use treatment include traditional and vulnerable domains. For traditional enabling factors, researchers have found income correlate with treatment receipt, with those who had a lower income or lived in poverty having a greater likelihood of treatment receipt (Pinedo, 2020; Pinedo, 2019; Liebling et al., 2016; Kwon

et al., 2019). Researchers found that attitudes towards care, family, children, stigma, past treatment experience, and health literacy predict treatment-seeking and receipt for individuals enabling vulnerable domains. Those who saw a benefit to substance use treatment were more likely to enroll and continue with treatment (Hatch-Maillette et al., 2016).

Family and children often have a dynamic effect on treatment-seeking. Those with family members who also used illicit substances were less likely to seek and enroll in treatment (Haeny et al., 2021). In qualitative studies, many noted that they were often motivated to seek care to be better parents to their children (Villegas et al., 2016); however, arranging childcare, time away from children, and fear of interaction with the child welfare system were often barriers (Murnan & Ferber, 2021; Seay et al., 2017; Ostrach & Lerner, 2019). Stigma's impact on treatment receipt was also mixed. Many studies found that treatment-seeking and higher feelings of stigma correlated (Benz et al., 2021; Benz et al., 2019; Liebling et al., 2016). However, in analyzing minoritized populations, Asian, Pacific Islander, or Native American individuals were more likely than other racial groups to report fear of what others might think regarding their treatment-seeking, acting as a barrier to services (Haeny et al., 2021). Finally, past treatment experience and greater health literacy were associated with higher odds of treatment initiation (Ober et al., 2018; Timko et al., 2016; Hatch-Maillette et al., 2016).

### ***Need Factors***

Finally, for individual need factors, a perceived need for substance abuse treatment was associated with treatment receipt (Pinedo, 2019; Pinedo, 2020; Pinedo & Villatoro, 2020; Ober et al., 2018). Only 1.4% of those who perceived a need for treatment were able to access it (SAMHSA, 2021a), so it is important to examine how treatment and sober support need translated to treatment receipt during COVID-19.

## **The Current Study**

Guided by Gelberg-Andersen's BMVP, this study analyzes the individual barriers and factors contributing to treatment receipt during the COVID-19 pandemic. While research shows that substance use increased during the pandemic, little is known about factors that led to treatment seeking during COVID-19. Emerging research shows that treatment admissions were down during COVID-19 (Mark et al., 2021). With the small numbers of people who perceive a need for treatment able to access care, research must consider how all predisposing, enabling, and need factors – traditional and vulnerable – predict treatment utilization. Knowledge of these factors is especially vital as COVID-19 exacerbated substance misuse among both the general population and those who already lived with substance misuse and substance use disorders. This research seeks to fill in gaps in the literature regarding predisposing, enabling, and need factors that contributed to treatment receipt during COVID-19. This study addresses the following hypotheses related to treatment receipt during COVID-19:

*Hypothesis one: Higher comorbidity and substance use severity (as a predisposing domain) will contribute to treatment utilization during COVID-19.*

*Hypothesis two: Greater knowledge of and access to treatment centers and 12-step meetings in the area (as an enabling domain) will contribute to treatment utilization during COVID-19.*

*Hypothesis three: Perceiving a need for treatment in the past year (as a need domain) will be associated with treatment utilization during COVID-19.*

## **Methods**

This study included individuals in the U.S. over 18 who self-identified as having a problem with alcohol or illicit substance misuse. The University of Tennessee's Institutional Review Board approved all procedures (UTK IRB-22-07103-XM).

### **Study Design**

This study was cross-sectional in design and utilized a single-session online survey distributed through the University of Tennessee Qualtrics platform.

### **Sampling Strategy**

All participants self-selected into the study, and sampling was virtual to maximize the study's reach and variability of the participants. Participants in the study self-identified as either being in recovery from alcohol or other illicit substances or currently having a problem with the misuse of alcohol or other illicit substances. The first wave of recruitment was completed through social media groups and took place between September 2022 and January 2023. Posts were made in public and private Facebook and Reddit communities focused on recovery from substance misuse and support for individuals who currently report misusing alcohol or other drugs. After a community was identified, the group's moderators were contacted with information about the study, and permission to post was received before doing so. As many of these groups were private, it was important to have the support of the group leader before engaging in the community. The study was posted in a total of five Reddit groups, with group sizes ranging from 3,500 members to 199,000 members, and in a total of 23 Facebook groups, with the size of the groups ranging from around 700 members to 96,000 members. Additionally, snowball sampling was utilized as the researcher posted the ad publicly on Facebook. This ad was able to be shared across personal Facebook pages.

The second wave of recruitment was completed using the Centiment recruitment agency. Centiment recruits panel members across various social media websites. These panel members are anonymous but assigned a case ID for ease of data collection. When panel members have a survey that matches their demographic information, it is “pushed” to their phones through an app. The survey's pricing varies depending on the responses, and participants know the price they will be paid before they agree to take the survey (Centiment, n.d.).

### ***Research Ethics***

Participants agreed to informed consent before any data collection began. Once participants reviewed the informed consent document, they electronically agreed to proceed with the survey via a forced-response question. Participants could decline to participate or withdraw from the study without penalty. Throughout the survey, participants could click a link at the top of the survey that displayed a resource document. This resource document included national hotline numbers, online guidance for finding a 12-step meeting, and a guide on where to find specialty substance abuse treatment in their areas.

This study was anonymous, meaning no identifying information was attached to the participants' survey answers. Depending on their recruitment method and their signed informed consent, participants could either enter a raffle to win one of ten \$25 Amazon gift cards, or they were paid through the recruitment company. For those who entered the raffle, their email addresses were collected separately from survey answers to maintain anonymity. Participants could also agree to follow-up research. Contact information for those who agreed to follow up was also collected separately to protect respondents' confidentiality.

### ***Sample Power***

The target sample size for this study was 153. This number was generated using G\*Power for logistic regression. Prior research has found that an odd's ratio of 1.68 is equivalent to a Cohen's  $d$  of 0.2, indicating the ability to see small effects (Chen et al., 2020). The power for this study was set at 0.80 with an alpha of 0.05. To account for missing and incomplete data, oversampling occurred for a target sample size of 200.

### ***Sampling Challenges***

All sampling was intended to be completed through social media recruitment. Through social media recruitment, a total of 993 individuals consented to participate. Of those, 993, a total of 710 met the eligibility criteria, and 630 completed the survey. All of Qualtrics's fraud detection, bot prevention, and duplicate response prevention were enabled for this research. Qualtrics assigns a fraudulent score to each participant, and scores of 30 or greater can be considered fraudulent (Qualtrics, 2023). Similarly, "bots" are determined by a reCAPTCHA mechanism embedded in the survey. The reCAPTCHA scores range from 0 to 1, and a reCAPTCHA score of less than 0.5 indicates that the response is likely a bot (Qualtrics, 2023). Qualtrics IP address tracking and other mechanisms identified likely duplicate respondents. Even if the respondent is not connected to their IP address, the system analyzes all IPs that interact with the survey to assess the IP quality (Qualtrics, 2023).

Of the 630 complete survey responses, Qualtrics determined 398 as duplicate, fraudulent, or "bot" responses. A total of 232 responses were exported for further analysis. After beginning the analysis, it became clear that more fraudulent responses were included, despite the employment of Qualtrics detection mechanisms. As there were short answer questions, duplicate responses became apparent upon further analysis. The following steps were completed to

eliminate any potentially fraudulent responses. First, all who did not respond to the state question were removed from the dataset as currently residing in the U.S. was part of the eligibility criteria. Second, any responses completed in the exact second (or within seconds) were examined closely for similar answers or responses. Those that were determined to be too similar were removed from the data set. Third, any exactly duplicate fill-in-the-blank responses were all removed from the dataset. Fourth, any fill-in-the-blank responses that did not make sense in context were removed from the dataset. An example of this includes answering “water” or “3” to the question, “Please describe how your access to recovery and treatment supports changed during COVID-19?” Finally, any survey that took the respondent less than five minutes to complete was removed from the dataset, as the survey includes over 200 variables, and the average time to complete was 11 minutes.

From this examination, a total of 56 respondents recruited from social media were included in the final dataset. Due to this low number, Centiment recruitment was utilized for the next wave of recruitment. A total of 154 participants were recruited utilizing this service. The same techniques to those referenced above were used with participants recruited from Centiment. As this service has more robust validation measures, only six participants were deemed likely fraudulent upon further review, leaving 146 participants recruited from Centiment. The final sample size for this study was 204 participants.

## **Measures**

The Appendix for this study contains all measures used, including a summary table (Table 3) of the concepts measured. The following information provides details and descriptions of the measures used.

### ***Treatment Seeking During COVID-19***

The outcome measure for study one was treatment seeking. This was measured by the following question: “Have you actively sought out treatment or recovery supports (e.g., 12-step groups) during COVID-19?” This outcome was dichotomous, with “No” coded as 0 and “Yes” coded as “1.”

### ***Comorbid Conditions and Substance Use Severity***

Several questions regarding participants' comorbidities and substance use severity were posed to address the predisposing domains of hypothesis one. Comorbidities, including mental health diagnoses and declining health, motivate individuals to enter treatment (Pinedo, 2020; Pinedo & Villatoro, 2020; Satre et al., 2020; Choi et al., 2019; Mauro et al., 2020). To examine whether this association still existed during COVID-19, individuals answered questions regarding mental health and health diagnoses or symptoms. Individuals first answered whether they have ever been diagnosed with or treated for a mental health condition. The responses to this answer were dichotomous. If individuals responded “yes,” they were asked if they were currently receiving treatment for their mental health. Individuals also answered the PHQ-4. The PHQ-4 is an ultra-brief screening scale for anxiety and depression used in clinical and research settings (Kroenke et al., 2009). The composite Cronbach’s alpha value for the scale is 0.85 (Kroenke et al., 2009). Two items probed anxiety symptoms, and the remaining two items probed symptoms of depression. The responses also probed how often a person experiences the symptoms of depression and anxiety, and each answer can range from 0 (“Not at all”) to 3 (“Nearly every day”).

Two questions assessed comorbid health conditions and symptoms. The first question was a categorical item pulled from the 2019 NSDUH survey, which asked, “Please read the list and select all of the conditions that a doctor or other health care professional has ever told you that you had. Select all that apply.” This item assessed different chronic conditions that may impact the individuals’ lives (SAMHSA, 2021b). These responses were then dichotomized and viewed an individual as either having a comorbid condition (1) or not having a comorbid health condition (0). The second question asked about the individuals’ perceptions of their physical health. Previous research has found that those who rated their health “fair” or “poor” were more likely to talk to their provider about substance use and seek treatment for their substance misuse. The item used to assess personal health is the US General Health Population Self-Rating. This item asks, “In general, how would you rate your physical health?” Responses range from 1 (“Poor”) to 5 (“Excellent”). While this item is less reliable than the full PROMIS Global Health Scale, it has shown acceptability for brief assessment and research (Hays et al., 2015).

Substance use severity contributes to treatment-seeking, with those with substance use diagnoses and more significant consequences from their use being more likely to engage in treatment (Choi et al., 2019, Crable et al., 2020). To determine if this association remained during COVID-19, this study used the Mini-International Neuropsychiatric Interview (MINI) as a proxy for diagnosing substance use disorder (SUD). Psychiatrists in the U.S. and Europe developed the MINI as a brief, reliable, and structured diagnostic interview for use in clinical trials and research (Sheehan et al., 1997). The MINI continues to adapt to be compatible with the DSM-V (Harm Reduction Institute, 2022). Test/retest reliability had a .89 kappa (for current drug abuse) and .96 (for current drug dependence; Sheehan et al., 1997). To score the MINI, sum responses for a total of 1 to 11. Two or more responses coded as yes indicate a likely substance

use disorder. The scoring can be further specified in the following ways: mild (2-3 “yes” responses selected), moderate (4-5 “yes” responses selected), or severe (6 or more “yes” responses selected).

### ***Knowledge of and Access to Treatment and Recovery Support***

To address hypothesis two and enabling domains, participants were asked about their awareness of treatment supports in their area and accessibility. More treatment facilities in a person’s area lead to greater treatment utilization (Victor et al., 2018; Scorsone et al., 2020). In qualitative studies, individuals reported transportation to treatment as one of the most considerable barriers to care (Browne et al., 2016; Scorsone et al., 2020). To incorporate these factors into the current study, participants indicated the number of treatment facilities and 12-step self-help groups they know in their area. These items were measured as a scale variable. They also indicated how far the closest treatment center and self-help group are from their current residence. This answer was dichotomized into a 20-minute drive or less (0) and a 21-minute drive or longer (1). Finally, participants responded if they have reliable transportation to attend treatment or a 12-step meeting with a dichotomous “No” (0) or “Yes” (1).

### ***Treatment Need***

Finally, to address hypothesis three and assess the need domain, participants were asked if they perceived a need for treatment in the past year. Informed by treatment utilization questions on the 2019 NSDUH, participants were asked, “During COVID-19, did you need treatment or counseling for your alcohol or drug use (including recovery support)?” and “During COVID-19, were you able to get the help that you needed for your substance use or recovery?” These answers were dichotomous, with “No” coded as 0 and “Yes” coded as 1.

### *Additional Substance Use Variables*

Additional substance use variables were assessed, and statistical models included any additional substance use variables significant at the bivariate level. To qualify for this study, individuals self-identified as having a problem with alcohol or illicit substances and responded affirmatively to the following question: “Do you now, or have you ever, had a problem with misusing alcohol or other drugs? (This includes illegal drugs (e.g., heroin, cocaine, methamphetamine) and prescription medications (e.g., taking medications that were not prescribed to you or not taking the medications as prescribed).” To assess whether an individual is actively using substances, the survey asked the following question: “Do you currently have a problem with misusing alcohol or other drugs?” This was a dichotomous “yes” or “no” question. Depending on a participant’s answer, they either answered questions about their length of time in recovery (ranging from zero to six months to more than 20 years) or how often they misused substances in the past 30 days. Other substance use items informed predisposing, need, and enabling factors contributing to treatment. These items included substances used, substance of choice, and route of ingestion (e.g., oral, nasal, intravenously). The final substance use question asked the participants if they experienced a relapse on drug or alcohol misuse during COVID-19.

Informed by treatment utilization questions from NESARC-III (NIAAA, 2011), participants answered, “Have you ever in your lifetime gone anywhere or seen anyone for a reason that was related in any way to your use of alcohol or drugs or your recovery from alcohol and drug use?” Participants selected all that apply (or none of the above if applicable). Options ranged from formal treatment, such as a residential drug or alcohol program, to self-help. Participants who endorsed ever receiving care then answered what they attended in the last 12 months, with the responses auto-populated from what they previously chose.

## ***Demographics***

Below are the demographics that were collected in the research. All statistical models will include any demographic variables significant at the bivariate level.

**Age.** Age was measured as a continuous variable and used as a screening question. Participants were required to be 18 or older to be involved in the study.

**Location and Rurality.** Participants provided their current state of residence to assess how state policies may enable individuals to seek treatment. In addition to their state, participants answered, “Which of the following do you consider the area where you live to be?” They responded with rural, suburban, or urban/metro. Zip codes and census tracts guide rurality; however, their definitions can be very narrow. Rural living involves differing characteristics, including environment and culture, and a person’s perception of their environment can be equally important as the zip code itself (Daley, 2010; Bennett et al., 2019). A binary rural variable was created, comparing respondents from rural areas to those who identified as being from an urban or suburban area.

**Race and Ethnicity.** Racial differences can impact treatment utilization, with non-Hispanic, white individuals more likely to endorse any past substance use treatment receipt (Crable et al., 2022; Ober et al., 2018; Satre et al., 2020). Race and ethnicity were collected as a categorical variable, with participants able to select all that apply from the following options: Black/African American, Alaska Native/American Indian/Indigenous American, White, South Asian, East Asian, Pacific Islander, Black Hispanic/Latinx/Latina/Latino, White Hispanic/Latinx/Latina/Latino, and Other.

**Gender.** Past research found gender to impact substance use treatment utilization, with women being more likely to enter treatment than men (Mauro et al., 2020; Ober et al., 2018;

Crable et al., 2022). Participants described their gender and selected from one of the following options: agendered, man or male (cis-gendered), woman or female (cis-gendered), gender fluid, gender non-conforming/genderqueer, intersex, questioning, transgender man/male/masculine, transgender woman/female/feminine, two-spirit, or other.

**Sexual Orientation.** Sexual orientation differences have not been consistently researched regarding how they impact treatment seeking. In a study of gender and sexual minority participants, identifying as a gender or sexual minority was not associated with past help-seeking behavior (Benz et al., 2019). To further explore the association between sexual orientation and treatment-seeking, individuals chose one of the following categories: heterosexual/straight, homosexual – gay/lesbian, bisexual/pansexual/omnisexual, fluid, queer, questioning, asexual, or other.

**Education.** Previous research found education to have varying impacts on the receipt of substance use treatment. Overall, having a high school education or higher was positively associated with treatment receipt (Ober et al., 2018; Choi et al., 2019; Mauro et al., 2020). However, one study found that those who did not complete high school were more likely to attend treatment than those with a college education (Baptiste-Roberts et al., 2020). To assess education's impact on treatment receipt during COVID-19, participants categorically identified their highest level of educational attainment. Responses range from 8<sup>th</sup> grade or less to a doctoral degree.

**Employment.** Employment type impacts treatment receipt, with those employed part-time or unemployed being often more likely to engage in any past-year treatment (Mauro et al., 2020; Baptiste-Roberts et al., 2020). Participants in the study selected from one of the following categorical responses: employed (full-time), employed (part-time), homemaker, unemployed

(looking for work), unemployed (due to a health reason), going to school/full-time student, retired, receiving, or awaiting approval for disability payments, and other.

**Household Income.** In prior research, having a lower income or living in poverty correlated with a greater likelihood of receiving treatment (Liebling et al., 2016; Pinedo, 2020; Choi et al., 2019; Kwon et al., 2019). Income was measured categorically, with responses ranging from less than \$5,000 to over \$100,000 yearly.

**Insurance.** Lack of insurance is a leading barrier that stops individuals from seeking treatment (Haeny et al., 2021; Choi et al., 2019). Individuals with tax-payor-funded insurance (e.g., Medicaid or Medicare) were also more likely to seek treatment than those with private insurance (Haeny et al., 2021; Choi et al., 2019). Individuals identified whether or not they have no insurance, Medicaid, Medicare, private insurance through an employer, or other insurance.

**Living Arrangements.** Homelessness positively correlates with residential substance use treatment-seeking but negatively correlates with outpatient treatment-seeking and receipt (Timko et al., 2016; Ober et al., 2018). Individuals indicated their most common living arrangement over the past year. The answers include alone in a house or apartment that I own or rent, with roommates in a house or apartment that I own or rent, with a spouse or partner in a house or apartment that I own or rent, in someone else's house or apartment (such as a relative or friend), in a car, bus, truck, or other vehicle, in abandoned buildings, in a shelter, on the streets, halfway house, jail or prison, or other.

**Marital Status and Children.** Different family configurations impact treatment receipt. Married individuals were less likely to attend past-year treatment (Baptiste-Roberts et al., 2021; Kwon et al., 2019; Choi et al., 2019). Participants specified their marital status. Children were primary factors in treatment-seeking and wanting to achieve sobriety for children was a primary

goal for many (Villegas et al., 2016; Seay et al., 2017). Participants numerically indicated number of children and also indicated if they were currently pregnant.

**Legal History.** Prior studies have found that individuals with prior legal contact were more likely to engage in substance use treatment (Mauro et al., 2020; Liebling et al., 2016; Choi et al., 2020). Participants first answered if they had ever been arrested to assess past legal involvement. If they responded “yes,” they indicated whether they had ever been incarcerated or on probation or parole. They then answered if they were currently awaiting sentencing or on probation or parole.

### **Data Analysis**

Descriptive statistics were run on all individual demographics, substance use questions, treatment utilization questions, and primary independent variables of interest. Before beginning multivariable analyses, bivariate analyses assessed if any additional substance use variables or demographic variables impacted a person’s seeking care during COVID-19. Any significant bivariate results were input into the multivariable models. Sequential binary logistic regression analysis was run with the significant bivariate variables in all models. Whether or not an individual sought treatment and recovery support during COVID-19 were regressed on comorbidity and substance use severity, knowledge of treatment and 12-step meetings in the area, and perceived need for treatment.

### **Missing Data Analysis**

Before beginning any bivariate or multivariable analyses, multiple imputation handled missing data at the item level for the scale variables. No variables had over 1.5% missing. Twelve cases had 5.3% missing (missing one item), and one case had 10.5% missing (missing two items). No cases or variables were defined as having over 40% missingness, which indicates

substantial missingness (Jakobsen et al., 2017). Little's (1988) missing completely at random (MCAR) test provided evidence that the data used in analyses were MCAR ( $\chi^2[143] = 142.911$ ,  $p = .486$ ). Forty total datasets were imputed.

## **Outliers**

Three cases were influential outliers related to their knowledge of available treatment centers or 12-step or other sober support groups in the area. These outliers all had standardized residuals greater than two standard deviations from the mean and Cook's D values of greater than one, and they were removed from the sample, bringing the total sample size used in the equations to 201.

## **Issues of Non-normality**

All scale and count variables used in the models were assessed for distribution. All scale variables were found to be non-normally distributed. Though logistic regression does not require the assumption of normality, it is important to assess all variables to examine how they are performing. The MINI total score, the PHQ-4, the knowledge of treatment centers and 12-step or other self-help groups in the area, and participants' age all had Kolmogorov-Smirnoff significance values of  $<.001$ . Individuals in this sample scored high on both the MINI and the PHQ, with over 75% of the sample meeting the criteria for severe substance use disorder, and over 74% of the sample meeting the criteria for likely depression and anxiety. The responses for knowledge of treatment centers in an area were heavily skewed (3.07) and leptokurtic (10.48). Similarly, the responses for knowledge of 12-step or other sober support groups were skewed (3.97) and leptokurtic (16.06). These values are outside of the acceptable range of -2 to 2 for skew and -7 to 7 for kurtosis (George & Mallery, 2021). Several transformations were attempted to address non-normality and leave these variables in scale form. First, z-scores were created for

all scale variables. This did not address the issues with non-normality, and the Kolmogorov-Smirnoff tests remained significant. Second, natural log transformations (plus one, due to several zero scores within the interval variables) remained non-normally distributed. Finally, log10 transformations (plus 1, due to several zero values) remained non-normally distributed.

For these reasons, binary variables were created for all scale and count variables. This was done to avoid attenuation of correlations and give more power to those who scored low on the MINI and PHQ4 (Trafimow, 2015). As substance use severity can lead to treatment receipt, a binary variable was created to indicate individuals who likely meet the criteria for a likely severe substance use disorder (1) and individuals who do not meet MINI criteria for likely severe substance use disorder (0). For the PHQ4, a score of three or greater indicates likely depression or anxiety. A binary variable was created for those with likely depression or anxiety (1) and those that did not meet PHQ4 criteria for likely depression and anxiety (0). The count variables for knowledge of treatment centers and 12-step meetings in the area were also divided into binary variables based on the mean. The mean knowledge of treatment centers in a person's area was 3.4. Individuals who knew 3.4 treatment centers or more in their area were coded as 1, and the remaining were coded as 0. The mean knowledge of 12-step or other support groups in a person's area was 8.0. Individuals who knew eight or more 12-step or other sober support groups were coded as 1, and the remaining individuals were coded as 0. Finally, age was dichotomized into 18-25 and over 25, as individuals who are between 18-25 have previously been shown as the least likely age group to access substance abuse treatment or other recovery support services (Baptiste-Roberts et al., Choi et al., 2019; Mauro et al., 2020; Pinedo, 2019). To ensure that the binary measures did not lessen any explanation, correlations and logistic regressions were run

with the original scales. This did not improve any relationships or provide any explanatory power.

### **Multicollinearity**

Before beginning logistic regression, the primary independent variables and control variables identified were assessed for multicollinearity. Variance Inflation Factors (VIFs) were calculated to detect the presence of multicollinearity between the variables, and VIFs of greater than five are cause for concern (Menard, 2009). No variables indicated problems with multicollinearity, and all had VIF values of less than 2.

## **Results**

### **Descriptive Statistics**

#### ***Participant Demographics***

The final data set included a total of 201 participants. Table 4 contains all demographic information for the respondents. The mean age of the respondents was 45.97 ( $SD = 15.79$ ). Most (74.1%) of respondents were White. Gender was split relatively evenly, with 49.8% of participants identifying as cisgender males and 48.8% of respondents identifying as cisgender females. Most participants (85.1%) identified as heterosexual or straight, and over 40% reported being married or in a domestic partnership. The mean number of children for respondents was 1.49 ( $SD = 1.61$ ), and the range of the number of children was zero to nine. A majority of respondents (38.8%) were from the Southern U.S., and the remaining were from the West (25.9%), the Midwest (24.4%), and the Northeast (10.9%). Most respondents were from a suburban area (39.3%), though rural (33.3%) and urban respondents (26.9%) were also well represented. Most respondents (48.2%) were employed full-time or part-time, and most (72.1%) had at least some college. Fifty-eight percent of respondents reported an annual household

income of \$50,000 or more, and 86.1% reported some type of insurance. For past year living arrangements, most participants reported living with their spouse, partner, or family in a house they rented or owned (42.8%), or they reported living alone in a house or apartment they rented or owned (27.9%). Most participants (77.6%) reported no household drug use. A majority of participants (64.7%) reported any past arrest history, and 52.2% reported any past incarceration (including probation or parole). Fewer participants (10%) were currently on probation or parole or awaiting sentencing.

### ***Descriptive Statistics of Participant Substance Use Information***

Participants in the survey could either be actively misusing alcohol or other substances or identify as being in recovery from substance misuse. Table 5 contains all substance use information polled in the study. Participants were fairly evenly split, with 52.7% reporting being in recovery and 47.3% reporting currently having a problem with substance misuse. Of those in recovery, the most common amount of time in recovery was six months to one year (10.4%), followed by more than 20 years in recovery (9.0%) and zero to six months in recovery (6.5%). Of those who misused alcohol or other substances in the last year, 19.4% used daily, and the mean number of days used in the last 30 was 8.38 ( $SD = 11.94$ ). Over 46% of participants reported a relapse on alcohol or other illicit substances during COVID-19. The most common lifetime substances used were alcohol (83.6%), cannabis (60.2%), and cocaine (49.8%). The most common substances used by participants in the past year were alcohol (36.8%), cannabis (24.4%), and methamphetamine (13.4%). Similarly, alcohol was the most reported substance of choice by all participants. The average number of substances used in a participant's lifetime was 4.59 ( $SD = 3.16$ ), and the average number of substances used by participants in the past year was 1.55 ( $SD = 1.26$ ).

### ***Descriptive Statistics of Treatment Utilization***

All descriptive statistics of treatment utilization can be found in Table 6. The dependent variable for this study was, “Have you actively sought out treatment or recovery supports (e.g., 12-step groups) during COVID-19?” Over half (61.7%) of respondents reported not seeking treatment or recovery support. For the independent variable, reporting a need for treatment in the last 12 months, over half (56.2%) of the participants stated that they did not need treatment or did not know if they needed treatment. Participants were also asked about enabling factors – including knowledge of treatment and 12-step facilities in their area, reliable transportation to those groups, and the time it took to get to those places. The mean knowledge of substance use facilities in an area was 3.45 ( $SD = 5.72$ ), and the range in this sample was 0 to 33. The mean knowledge of 12-step or other self-help groups in an area was 8.02 ( $SD = 18.85$ ), and the range in this sample was 0 to 100. Over 61% of participants reported living 21 minutes or more from their nearest known treatment center; however, most participants (58.7%) reported living 21 minutes or less from their nearest known 12-step or other sober support groups. Most (83.1%) participants reported having reliable transportation to treatment and sober support groups if needed.

Participants were polled on additional treatment utilization questions. First, they were asked about life engagement in substance abuse and recovery services. The most common services utilized for substance misuse and recovery were 12-step or self-help groups (56.2%), private physicians, therapists, or psychologists (33.8%), and outpatient clinics (including intensive outpatient services; 33.3%). Over 16% of participants reported never engaging in any treatment or recovery services. Participants were then asked about their past year's engagement in services. Like lifetime usage, 12-step or self-help groups (32.3%) and private physicians,

therapists, or psychologists (19.9%) were the most commonly utilized services in the past year. However, medically assisted treatment was the third most commonly utilized service (14.9%) in the past year. For online treatment, 37.8% of participants reported using individual telehealth, and 27.4% reported using online 12-step groups during COVID-19. Over 35% of participants reported not accessing any online treatment services during COVID-19. Finally, the biggest recovery supports during COVID-19 listed were: family (64.7%), friends in recovery (39.3%), and friends not in recovery (23.9%). However, 12.4% of all participants reported no recovery supports during COVID-19.

### ***Descriptive Statistics for Substance Use Severity and Comorbidities***

The remaining independent variables of interest included substance use severity (as determined by the MINI), comorbidity questions, and the participants' general sense of self-efficacy scale. The full results are in Table 7. As the scale scores all had problems with normality, the binary variables of these scale scores are also reported. The mean MINI composite score was 7.99 ( $SD = 3.65$ ), and most (76.6%) participants met the criteria for a likely severe substance use disorder. The Cronbach's alpha for the MINI in this sample was 0.94, indicating good reliability. Most (66.2%) participants reported a mental health diagnosis, and 37.3% reported current treatment. The mean PHQ4 score was 5.51 ( $SD = 3.96$ ), and 74.1% of participants met the criteria for likely depression or anxiety. The PHQ4 for this sample had a Cronbach's alpha of 0.92, indicating good reliability. Over 70% of participants reported a health diagnosis, and the most commonly reported diagnoses were hypertension (30.3%), asthma (21.9%), and chronic bronchitis, emphysema, or chronic obstructive pulmonary disease (16.9%). For the general rating of physical health, "fair" was the most common health category and was selected by 44.3% of participants. Finally, the mean self-efficacy score was 9.62 ( $SD = 4.00$ ),

and 51.7% of participants scored at the mean or higher for general self-efficacy. The Cronbach's alpha for the self-efficacy scale was 0.88 in this sample, indicating acceptable reliability.

### **Bivariate Analysis**

Bivariate analyses assessed the relationships between the independent variables and actively seeking treatment or recovery supports during COVID-19. For hypothesis one addressing predisposing factors, the binary MINI score ( $r_{pb} = 0.14, p = 0.04, 95\% \text{ CI } [0.01, 0.28]$ ) and a prior diagnosis or treatment for a mental health concern ( $r_{pb} = 0.15, p = 0.04, 95\% \text{ CI } [0.01, 0.28]$ ) significantly correlated with receiving treatment for substance misuse or recovery during COVID-19. The PHQ4 binary variable for likely depression or anxiety ( $r_{pb} = 0.04, p = 0.53, 95\% \text{ CI } [-0.09, 0.18]$ ), being diagnosed with any chronic health condition ( $r_{pb} = 0.01, p = 0.85, 95\% \text{ CI } [-0.12, 0.15]$ ), and rating of physical health ( $r_s = 0.07, p = 0.31, 95\% \text{ CI } [-0.07, 0.21]$ ) did not significantly correlate with the outcome variable. For hypothesis two addressing enabling factors, knowing three or more treatment facilities ( $r_{pb} = 0.22, p = 0.002, 95\% \text{ CI } [0.08, 0.34]$ ) or eight or more 12-step or other sober support groups ( $r_{pb} = 0.27, p < 0.001, 95\% \text{ CI } [0.14, 0.40]$ ) in the area significantly correlated with treatment receipt. Having reliable transportation to treatment or sober support groups also approached statistical significance ( $r_{pb} = 0.14, p = 0.052, 95\% \text{ CI } [-0.002, 0.27]$ ). However, distance to treatment facilities ( $r_{pb} = -0.11, p = 0.13, 95\% \text{ CI } [-0.24, 0.03]$ ) and sober support groups ( $r_{pb} = -0.11, p = 0.12, 95\% \text{ CI } [-0.25, 0.03]$ ). For hypothesis three, addressing need factors, perceiving a need for treatment in the past year ( $r_{pb} = 0.42, p < 0.001, 95\% \text{ CI } [0.30, 0.53]$ ) significantly correlated with actively seeking treatment or recovery support during COVID-19.

Additional point biserial correlations assessed whether dichotomized demographic information and additional substance use questions significantly correlated to treatment seeking

during COVID-19. No demographic information significantly correlated with substance misuse treatment seeking. Several substance use variables significantly correlated with treatment seeking during COVID-19. For types of substances, lifetime use of fentanyl ( $r_{pb} = 0.15, p = 0.03$ , 95% CI [0.01, 0.28]), lifetime use of hallucinogens ( $r_{pb} = 0.14, p = 0.04$ , 95% CI [0.004, 0.28]), lifetime use of inhalants ( $r_{pb} = 0.22, p = 0.002$ , 95% CI [0.08, 0.34]) all significantly correlated with treatment seeking during COVID-19. No past year substances used correlated with treatment seeking. History of intravenous substance use ( $r_{pb} = 0.15, p = 0.03$ , 95% CI [0.01, 0.28]) and relapse during COVID-19 ( $r_{pb} = 0.21, p = 0.003$ , 95% CI [0.07, 0.34]) also correlated with treatment seeking. The number of lifetime services attended by an individual significantly correlated with treatment seeking during COVID-19 ( $r_{pb} = 0.42, p < 0.001$ ; 95% CI [0.30, 0.53]). Different types of sober support systems during COVID-19 also correlated with treatment seeking. Having friends in recovery ( $r_{pb} = 0.33, p < 0.001$ , 95% CI [0.20, 0.45]), a therapist ( $r_{pb} = 0.32, p < 0.001$ , 95% CI [0.20, 0.44]), an online support community ( $r_{pb} = 0.29, p < 0.001$ , 95% CI [0.15, 0.41]), a religious or spiritual community ( $r_{pb} = 0.24, p < 0.001$ , 95% CI [0.10, 0.36]), friends in 12-step groups ( $r_{pb} = 0.38, p < 0.001$ , 95% CI [0.25, 0.49]), and an employer ( $r_{pb} = 0.17, p = 0.02$ , 95% CI [0.03, 0.30]) as sober supports all significantly correlated with treatment seeking. Finally, not reporting any substance misuse or recovery support was significantly negatively correlated with treatment seeking during the pandemic ( $r_{pb} = -0.297, p < 0.001$ , 95% CI [-0.42, -0.16]).

## **Binary Logistic Regression**

### ***Base Model with Significant Bivariate Variables***

As there were numerous significant bivariate variables, all bivariate variables that were significant at the  $p < 0.01$  level were input into the multivariable base model. While variables

that are not correlated can predict outcomes in regression, correlation is the foundation for relationship. To ensure appropriate power, only the variables correlated at the bivariate  $p < 0.01$  were used. The model with all control variables is in Table 8. The overall model was significant ( $\chi^2[8] = 80.13, p < 0.001$ ). The significant predictors of treatment-seeking during COVID-19 were the sum of lifetime services, having a therapist or treatment center as a sober support, having a religious or spiritual community as a sober support, and having other 12-step members as a sober support. Individuals with more lifetime treatment attendance were 1.3 times more likely to seek treatment during COVID-19. Individuals with a therapist were 2.8 times more likely to seek treatment for substance misuse, and those with a religious or spiritual community were 2.4 times more likely to seek treatment for substance misuse. Those who endorsed having a sponsor or other 12-step group members as their sober support had 5.2 times more likely to seek treatment during COVID-19. Lifetime use of inhalants, relapse during COVID-19, and having friends in recovery were not significant predictors of treatment seeking. Engaging in online support groups approached significance for treatment seeking, with individuals who endorsed having an online community for support being 2.5 times more likely to seek treatment ( $p = 0.058$ ).

#### ***Model 1 with Significant Bivariate Variables and Substance Use Severity and Comorbidity***

Model 1 addressed hypothesis one, which states that *higher comorbidity and substance use severity (as predisposing domains) will contribute to treatment utilization during COVID-19*. As the PHQ4 binary variable, the endorsement of chronic health conditions, and the overall rating of physical health were not significant at the bivariate level, they were not included in the model. This model was run with the binary MINI score and the endorsement of being treated for a mental health concern. The results of this model are in Table 9. While the overall model was

again significant ( $\chi^2[10] = 81.46, p < 0.001$ ), it did not offer a significant improvement to the base model ( $\chi^2[2] = 1.33, p = 0.51$ ). Having a likely severe substance use diagnosis and being diagnosed or treated for a mental health condition did not significantly predict treatment seeking during COVID-19. The number of lifetime services attended ( $OR = 1.25, p = 0.004$ ), having a therapist or treatment center as sober support ( $OR = 2.57, p = 0.04$ ), having a religious or spiritual community as sober support ( $OR = 2.61, p = 0.04$ ), and having a sponsor or 12-step member as sober support ( $OR = 6.06, p = 0.01$ ) continued to significantly predict treatment seeking during COVID-19.

### ***Model 2 with Significant Bivariate Variables and Access to Treatment and Support Variables***

Model 2 addressed hypothesis two, which states that *greater knowledge of and access to treatment centers and 12-step meetings in the area (as an enabling domain) will contribute to treatment utilization during COVID-19*. As the distances to treatment and 12-step meetings did not correlate with treatment seeking in the bivariate models, they were not included in this model. Additionally, as adding the mental health and substance use, severity measures did not improve the model fit or significantly predict treatment seeking during COVID-19, knowledge of treatment and sober support groups and reliable transportation to these groups were added to the base model with only the control variables. The result of Model 2 can be found in Table 10. The overall model was again statistically significant ( $\chi^2[11] = 85.54, p < 0.001$ ) but did not offer a significant improvement on the base model ( $\chi^2[3] = 5.41, p = 0.14$ ). The binary variables for knowledge of both treatment centers and 12-step or other self-help groups in the area did not significantly predict treatment seeking during COVID-19. However, individuals reporting reliable transportation to treatment or 12-step meetings were 3.3 times more likely to seek treatment during COVID-19 ( $p = 0.04$ ). The sum of lifetime services used ( $OR = 1.27, p =$

0.003), having a therapist or treatment center as sober support ( $OR = 3.39, p = 0.01$ ), having a religious community as sober support ( $OR = 2.64, p = 0.04$ ), and having a sponsor or other 12-step members as sober supports ( $OR = 4.49, p = 0.02$ ) remained significant predictors of treatment-seeking during COVID-19.

### ***Model 3 with Significant Bivariate Variables and Reliable Transportation to Treatment / Sober Support***

To assess if only adding the variable of reliable transportation to treatment improved the model overall compared to the base model, the variables for knowledge of treatment centers and 12-step groups in the area were removed, and the model was rerun with treatment-seeking during COVID-19 regressed on reliable transportation and the initial control variables. The results of this model can be found in Table 11. The overall model was statistically significant ( $\chi^2[9] = 84.76, p < 0.001$ ), and the difference between this model and the base model was statistically significant ( $\chi^2[1] = 4.63, p = 0.03$ ). All predictors from Model 2 remained significant for Model 3.

### ***Model 4 with Significant Bivariate Variables, Reliable Transportation, and Perception of Treatment Need***

Model 4 addresses hypothesis three, which states that *perceiving a need for treatment in the past year (as a need domain) will be associated with treatment utilization during COVID-19*. Perception of treatment need was added to the regression model with the control variables and reliable transportation to treatment (Model 3). The results of this model can be found in Table 12. The overall model was statistically significant ( $\chi^2[10] = 94.07, p < 0.001$ ), and the difference between this model and the base model was statistically significant ( $\chi^2[1] = 9.30, p = 0.002$ ). Those who endorsed a need for treatment were 8.4 times more likely to report treatment-seeking

during COVID-19 ( $p = 0.003$ ). Similarly to the previous models, the sum of lifetime services attended ( $OR = 1.28, p = 0.002$ ), having a religious or spiritual community for sober support ( $OR = 2.86, p = 0.02$ ), having a sponsor or other 12-step group members as sober support ( $OR = 5.22, p = 0.01$ ), and reliable transportation to 12-step meetings or treatment ( $OR = 3.76, p = 0.04$ ) all significantly predicted treatment receipt. Having a therapist or a treatment center as sober support no longer significantly predicted treatment receipt ( $OR = 2.15, p = 0.11$ ).

***Final Model with Reliable Transportation to Treatment, Endorsement of Treatment Need, Sum of Lifetime Services, and Therapist, Religious Community, and Sponsor as Sober Supports***

Extraneous variables that remained statistically non-significant across the models were removed from the final model. A model was run with just the control variables that were consistently statistically significant. These control variables were the sum of lifetime services used for substance abuse treatment and having a therapist, religious community, or sponsor (or other 12-step group members) for sober support. The enabling factor of reporting transportation to treatment and 12-step meetings was included in the final model, as was the need factor of endorsing a need for treatment during COVID-19. The results of the final model can be found in Table 13. This overall model was statistically significant ( $\chi^2[6] = 88.18, p < 0.001$ ). All variables in this model significantly predicted treatment receipt during COVID-19. Those with a sponsor or friends in 12-step groups were 7.8 times more likely to seek treatment during COVID-19. Similarly, participants with a therapist or a religious and spiritual community were over 2.5 times more likely to seek treatment during COVID-19. Individuals who had been to more treatment services throughout their lifetime were 1.3 times more likely to seek treatment during COVID-19. Finally, those with reliable transportation to treatment and those who endorsed a need for

treatment were almost four times more likely to seek treatment during COVID-19 than individuals who did not have reliable transportation or see a need for treatment.

## **Discussion**

Treatment receipt during COVID-19 varied among individuals with substance misuse during the COVID-19 pandemic. Overall, only 38.3% of individuals in this sample received treatment for substance misuse during COVID-19. Variations were seen in enabling and need factors, with hypothesis two being partly supported and hypothesis three being supported. Hypothesis one, addressing predisposing factors, was unsupported.

### **Predisposing Factors Predicting Treatment Receipt During COVID-19**

Vulnerable predisposing factors that have previously been shown to predict treatment receipt across various populations of individuals who misuse substances include greater substance use severity and comorbidities (Craib et al., 2022; Choi et al., 2019; O'Brien et al., 2020; Pinedo, 2019; Pinedo, 2020; Satre et al., 2020). In this sample, while substance use severity and a mental health diagnosis did significantly correlate with treatment for substance misuse during COVID-19, they did not significantly predict treatment receipt. Additionally, mental health symptomology determined by the PHQ-4 and health comorbidities did not significantly correlate with or predict treatment receipt during COVID-19. Measurement problems may have contributed to the inability to determine a predictive relationship between substance use, mental health severity, and treatment seeking in this sample. The scale variables for both the MINI and the PHQ-4 were heavily skewed and not normally distributed. Their distribution was not improved by taking standardized scores or using log transformations. Due to this, they had to be used dichotomously, and overwhelmingly, the individuals in this study met the criteria for severe substance use disorder (76.6%) and likely depression or anxiety (74.1%).

Those with higher comorbidities and substance use severity are more likely to engage in substance use treatment because they are typically already more engaged with a medical service provider and can more easily receive a referral to specified substance misuse treatment through programming like Screening, Brief Intervention, and Referral to Treatment (Babor et al., 2007). It is possible that during COVID-19, individuals engaged with their medical and mental health care teams less frequently, and opportunities for referral to treatment were missed. It is also possible that with the move to telehealth, individuals were more able to hide their substance misuse from doctors and mental health professionals. While not fully known in a population of individuals who misuse substances, emerging research shows that events like family and intimate partner violence, eating disorders, and psychological distress were more hidden throughout the pandemic due to fewer interactions with care workers (Xue et al., 2020; Zipfel et al., 2022; Livingston et al., 2022; Pinto et al., 2020).

### **Enabling Factors Predicting Treatment Receipt During COVID-19**

Hypothesis two was partially supported in this sample. In the final regression model, individuals who reported reliable transportation to treatment and sober support groups were 3.7 times more likely to report treatment receipt during COVID-19. This supports Stewart and colleagues (2021) findings that even having transportation to treatment for the first session was likely to provide greater engagement in treatment overall. Lack of transportation is often cited in qualitative studies as the largest barrier to treatment utilization and engagement (Browne et al., 2016; Scorsone et al., 2020), and that remained true for this sample of individuals during COVID-19.

While knowledge of treatment centers and 12-step groups in a person's area significantly correlated with treatment receipt, they did not predict treatment receipt when controlling for

other variables in the model. This partially supports previous findings that showed that more treatment centers in a person's area positively predicted treatment receipt (Victor et al., 2018). For this sample, the ability to get to treatment or recovery programs had more of an impact than having a greater knowledge of facilities in the area. This could be attributable to a few factors. First, this sample's knowledge of treatment centers and sober support groups was heavily skewed, with many individuals knowing of no treatment and recovery supports in their area. Over 28% of individuals knew of zero treatment centers, and 21.4% only knew of one treatment center. Even knowing one treatment facility does not ensure this agency has the services an individual needs. Not all agencies provide the same services, so if an individual wants inpatient care but only has access to outpatient, they may have to travel outside their area to receive care. Similarly, over 27% of individuals did not know of any 12-step or other self-help groups in their area. It is possible that not knowing of treatment and 12-step groups had less of an impact on individuals who misused substances during COVID-19 due to the shift to online programming. Just as AA encouraged the shift to online meetings and a motto of "distanced but digitally connected," many treatment centers moved to video and telephone programming to address treatment needs during COVID-19 (Molfenter et al., 2021). In this sample, 64.2% of individuals reported accessing online programs, including individual telehealth and sober support groups.

As over 49% of this sample specifically utilized online individual or group telehealth during COVID-19, it is important to think of the potential policy and programming implications. First, government programs should consider the continued expansion of telehealth programming. At the urging of physicians and policymakers alike, the federal government permanently removed the X-Waiver for buprenorphine prescriptions, continuing the accessibility of medically assisted treatment (Williams & Field, 2022; SAMHSA, 2023b). Federally qualified health

centers and rural health clinics will remain behavioral health telemedicine providers for individuals with Medicare, and reimbursement rates remain the same for in-person and telehealth care (Health Resources and Services Administration, 2023; Harris et al., 2022). While removing the X-Waiver and expanding who can provide telehealth, there are other federal changes set to expire. This includes requiring one in person visit per year (Health Resources and Services Administration, 2023). This potentially will again limit who will access services. This study shows how important reliable transportation to treatment is in promoting treatment receipt. If an individual does not have transportation, then requiring one in person visit when the remainder of visits will be online will potentially limit their access to care. Additionally, having reliable transportation to treatment reinforces past research which states that even transporting an individual to treatment one time promotes greater continued treatment adherence (Stewart et al., 2021). While not applicable to those without insurance or those with private insurance, it is important that individuals with Medicaid know that they can be provided with free transit to all treatment services, including substance use treatment and behavioral health (CNS, 2016).

As telehealth remains part of our treatment fabric, we must consider accessibility. In 2021, President Biden approved an infrastructure bill that includes providing high-speed internet access. This will, over time, work to decrease the digital divide between rural and urban areas. As it currently stands, in rural areas, up to 30% of households may not have reliable internet access, making telehealth challenging (Pollard & Martinez, 2021). This divide is greatest and most consistent in rural Appalachia, an area highly impacted by the opioid epidemic as overdose mortality rates in this area are 61% higher than the average in the rest of the U.S. (Appalachian Regional Commission, n.d.). This area is also impacted by changes in healthcare policy, including governors in the area choosing not to expand Medicaid, leading to the closure of many

rural hospitals (Sisk, 2021). Without ensuring that individuals in these rural regions have access to stable internet for telehealth, the divide in how and where they can access treatment may expand, causing even more substance related deaths in these areas.

Along with improving access to treatment, by incorporating transportation and telehealth accessibility, we must ensure that individuals are aware of what services they can access through telehealth. Prior to the COVID-19 pandemic, only 1% of Medicare services were through telehealth. That number expanded to 32% during the height of the pandemic, and then leveled off to around 17% by 2021 (Harris et al., 2022). With both rural health and federally qualified health centers able to provide behavioral telehealth services, it is important that individuals with substance use disorders know they can access these services and know that these services are effective. Individuals who enrolled in virtual intensive outpatient programming during COVID-19 had similar outcomes to those who engaged in in-person intensive outpatient programming (Faur et al., 2021; Gliske et al., 2022). Emerging research on telehealth for substance use shows that it is as-effective as in-person modalities for retention, the therapeutic alliance, and substance use outcomes, and it is often perceived as more accessible and convenient (Mark et al., 2022).

To continue effective telehealth programs, schools, therapists, and licensing institutions should continue appropriate training on how to effectively deliver these programs. Schools providing programs in social work, counseling, and other related fields should incorporate behavioral telehealth practices into their curriculums, if they have not yet done so. Our research needs to continue to assess what evidenced-based practices are most effective for individuals who misuse substances in telehealth settings. Motivational Interviewing, an evidenced based practice often used with individuals who misuse substances can be successfully delivered in

various telehealth formats (Badowski et al., 2019; Patel et al., 2019). Continuing education should be provided to practitioners on best practices in telehealth.

Even with these changes that promote continued accessibility, it is not likely that online services will replace in-person services for every individual. There will likely be preferences to consider, as some people will continue to prefer in-person services. In a qualitative study of individuals who engaged in online substance abuse treatment during COVID-19, researchers found that poor internet access, lack of social support, and lack of access to harm reduction methods all impacted individuals' perceptions of their treatment (Hubach et al., 2021). In a post-COVID society, there will likely be both a place and a space for programs that have a more robust online focus and programs that have more of a community focus. As only 1.9% of individuals who report a need for treatment receive it (SAMHSA, 2023a), it remains crucial to grant many opportunities for varying treatment modalities to reach more individuals and prevent severe illness and death related to substance misuse.

### **Need Factors Predicting Treatment Receipt During COVID-19**

Perceiving a need for treatment statistically significantly predicted treatment receipt during COVID-19, with individuals who perceived a need for treatment being almost four times more likely to report treatment receipt, suggesting that motivation for change is critical. This supports treatment utilization literature in the years before COVID-19, as seeing a need for treatment remains a large factor for treatment receipt, regardless of other treatment factors (Pinedo, 2019; Pinedo & Villatoro, 2020; Pinedo, 2020; Ober et al., 2018). The “Stages of Change” is an oft-used scale in many substance use treatment facilities to determine someone’s readiness to engage in the treatment process (DiClemente et al., 1999). Motivation, as much as external factors, should be considered by researchers as a factor for treatment seeking. It is

important to note that in this sample, 43.8% of individuals reported needing treatment, and 38.3% actively sought treatment. In SAMHSA's national survey of individuals who misuse substances, 4.5% report needing treatment, and only 1.9% receive the treatment they need (SAMHSA, 2023a). While it was still less than half of the sample who needed and received treatment, it was a greater rate than typically seen in the population. However, this could be anticipated as the sample was self-selected as opposed to randomly selected.

### **Additional Predisposing and Enabling Factors and Their Impacts**

Significant control variables in this model included the number of past types of treatment attended and different types of recovery supports. These factors fall under enabling domains. Treatment experience and health literacy have previously enabled treatment receipt (Ober et al., 2018; Timko et al., 2016; Hatch-Mailette et al., 2016). The more someone engages in treatment and recovery support, the more comfortable they may feel seeking treatment again when they perceive a need for help. Unsurprisingly, having a therapist or a sponsor/friends in a 12-step groups were the biggest predictors of treatment receipt. These types of support are recovery focused, and often a therapist or other member of a sober support group could be a source of referrals. Peer support strongly connects to positive treatment outcomes, and many states are implementing certified peer recovery training to enhance outreach and treatment support (O'Connell et al., 2020). Similarly, engaging in a religious or spiritual community was associated with treatment receipt during COVID-19. This has been seen in prior studies, with those who engaged in a religious community being 1.56 times more likely to engage in past-year substance misuse treatment (Baptiste-Roberts et al., 2020).

Additional traditional predisposing factors were not significantly correlated with treatment seeking in this sample. Age, marital status, race and ethnicity, gender, education, and

current employment did not significantly correlate with treatment seeking during COVID-19.

This could, in part, be related to how varied these demographic factors are across studies. In the example of age, studies have found that individuals who misuse substances and are over the age of 26 are more likely to enter treatment (Baptiste-Roberts et al., 2020; Choi et al., 2019, Mauro et al., 2020, Pinedo, 2019); though some studies that examined age's impact on substance misuse treatment found no impact (Victor et al., 2018; Haeny et al., 2021). Results are similar across gender, marital status, education, and current employment. Not every study finds demographic factors to have predictive value on treatment seeking, which speaks to how varied the population of individuals who misuse substances are. Race is less varied than other demographic variables in its impact on treatment usage. Overwhelmingly, white individuals are more likely to utilize substance abuse treatment than minoritized populations (Cable et al., 2022; Ober et al., 2018; Satre et al., 2020; Liebling et al., 2016). In the current sample, the participants were 74.1% white, and even dichotomizing race into white vs. minoritized populations, there may not have been enough power to see differences.

Similarly, vulnerable predisposing factors of unstable housing and legal involvement history did not correlate with treatment utilization during COVID-19. This again could be related to low power between the groups. Legal involvement has often been shown to be a referral source for substance abuse treatment (Mauro et al., 2020; Liebling et al., 2016; Choi et al., 2019). While the sample was split almost evenly on past legal involvement (52.2% endorsed past legal involvement), only 10% were engaged in the legal system. Unstable housing has often led to inpatient or halfway house treatment engagement (Cox et al., 2017; Timko et al., 2016; Rhodes et al., 2018). However, in this sample, only 17.4% of the sample reported unstable housing, and only 3.5% reported living in areas like on the streets, in a vehicle, or a shelter. A

larger sample size could show more nuance between the groups. Additionally, inpatient substance abuse treatments and recovery homes faced challenges related to the communal living during COVID-19 (Polcin et al., 2020). It is possible that even if people desired to seek treatment in these areas, they could not access it due to the risk of infection related to the pandemic.

Additional traditional and vulnerable enabling factors, including income, insurance, rurality, and family status, did not correlate with treatment receipt during COVID-19. Again, these factors' impact on treatment receipt consistently varies across studies. In this sample, it is possible for there not to have been enough power to see differences. Surprisingly, only 10.9% of individuals in this study did not have insurance. As having insurance access increases treatment receipt (Haeny et al., 2021; Choi et al., 2019), it is possible that there were too few individuals in this sample who did not have insurance to see the significant impacts of not having insurance. Children have typically been a motivating factor for treatment, though attending treatment and not having childcare hurts treatment receipt (Hewell et al., 2017; Villegas et al., 2016; Seay et al., 2017). This barrier may be less impacting when more online services are available.

## **Limitations**

This study is not without several limitations. First, this sample size, while large enough to see large effects, was not large enough to potentially detect smaller effects that contributed to differences in treatment receipt during COVID-19. In the future, a greater sample size could allow for more subtle effects that impact treatment receipt to be seen. Second, recruitment occurred through online groups related to substance misuse and recruitment services. Solely online recruitment potentially limits individuals who are less engaged in online groups related to substance misuse, as well as those who do not have access to the internet. Though this study was exploratory, using different methods, including flyering in community areas, could have allowed

for greater respondent variation. Third, the participants of this study did not accurately represent the population of individuals who misuse substances. This sample contained a high number of individuals who met the criteria for a severe substance use disorder, even if they reported being in recovery from substance misuse. Individuals can misuse substances without meeting the criteria for a severe substance use disorder, and this sample was heavily skewed. Fourth, the various issues with recruitment and the stringent methods used to analyze whether or not the respondent was real could have allowed valuable data to get excluded from this study. If the participants, especially those recruited from social media, had unintelligible short-answer responses, they were almost always deleted. These fill-in-the-blank responses were some of the strongest ways to verify that the respondent was real and not a bot or duplicate. However, it is more critical to the integrity of this study to eliminate potentially real responses than allow for fraudulent responses to be entered. Fifth, scale variables in this model were not normally distributed and could not be transformed to be normally distributed. They, therefore, had to be dichotomized, limiting the variability of responses. Dichotomous measures are less robust than scale variables, and transforming these variables into “yes or no” type responses do not have as much nuance as scales. Finally, the timing of this study is a limitation. Recruitment occurred between September 2022 and February 2023. Vaccines became available to the general population in March of 2021 (AJMC, 2021), and after that time, severe illness rates fell (Suthar et al., 2022). Social isolation ended in many parts of the country, and individuals were more able to engage with each other (Kirby & Sloane, 2021). By the time recruitment began for this study, COVID-19 was a regular part of everyday life. Individual perceptions of their treatment receipt could have been colored by how they perceive their treatment access now when life is less impacted by the pandemic.

## **Conclusion**

This study examined individual predisposing, enabling, and need factors contributing to treatment receipt during COVID-19. The factors chosen in this study were guided by factors that impacted treatment receipt in the five years prior to the start of the COVID-19 pandemic. While no predisposing factors in this study predicted treatment receipt, enabling factors, such as reliable transportation to treatment and treatment literacy, and need factors did predict treatment receipt. Future research on this topic should continue, with more attention paid to treatment need and the mechanisms for perceiving a need for treatment. The knowledge base would benefit from knowing who seeks what type of treatment. Substance misuse is a problem that impacts many Americans, and knowing why people perceive a need and then seek treatment can be vital. However, the types of treatment vary widely, and an individual who might seek treatment from a 12-step program may have differing motivations than an individual who seeks treatment from a more restrictive setting, like a residential program. Predisposing and enabling factors vary across studies. Where one study might find something like age or gender to significantly predict treatment need, a second might find no statistically significant impacts. The varying impact of predisposing demographic factors speaks to the nature of substance misuse. The National Institute on Drug Abuse (2020) reports that people of all ages and differing demographic characteristics are impacted by substance misuse.

Accessing and desiring treatment remains a complex topic. More research is needed on what drives people to want to access treatment. This study contains a sample of heavy users, with over 70% meeting the criteria for a severe substance use disorder. All participants endorsed having a “problem” with substance misuse to enter the study. However, the number of people who both saw a need for treatment and sought out treatment remained under half. The question

of what care and treatment look like for these individuals must broaden. For those that do not want to access treatment but continue to heavily use substances – researchers, practitioners, and policymakers must come together to keep these individuals safe and alive. Self-determination is a concept that argues that individuals are capable and qualified to make decisions about their own lives and their care (Akbar, 2019). For some individuals, that care may not be a need for treatment. The focus in working with individuals who misuse substances can be twofold. First, treatment for those who desire it should be more accessible. Some areas rose to this challenge during COVID-19 by enabling online programming, including prescriptions for MAT (Williams & Field, 2022). Second, policies and programs should help those who do not desire treatment reduce their risk of disease and death. SAMHSA noted that harm reduction methods are more vital than ever before, as deaths related to overdose rose 29% in 2021 (SAMHSA, 2022b). Between September 2021 and September 2022, deaths related to overdose remained over 100,000 and once again increased by 1.2% (CDC, 2023). Our goals for preventing death must include the goals of the individuals who misuse substances. That may include access to harm reduction methods like safe injection sites and clean needle exchanges. If we meet individuals with substance misuse and substance use disorders where they are, we open the doors for more accessibility, understanding, and, ultimately, compassion.

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## Appendix

### Full Survey for Individuals on Substance Use

#### Substance Use Measures

##### Screening Questions

1. Do you now, or have you ever, had a problem with misusing alcohol or other drugs?  
(This includes illegal drugs (e.g., heroin, cocaine, methamphetamine) and prescription medications (e.g., taking medications that were not prescribed to you or not taking the medications as prescribed).  
[0] No\*  
[1] Yes  
*\*If no is selected, the survey will exit.*
2. How old are you?  
[17 or younger] \*  
[18-100]  
*\*If 17 or younger is selected, the survey will exit.*
3. Do you currently live in the U.S.?  
[0] No\*  
[1] Yes  
*\*If no is selected, the survey will exit.*

##### Additional Substance Use Questions

4. Do you *currently* have a problem with misusing alcohol or other drugs?  
[0] No\*  
[1] Yes\*  
*\*If no is selected, go to 3a. If yes is selected, go to 3b and 3c.*
- 4a. How long have you been in recovery (e.g., abstinent, clean, or sober) from substance misuse?  
[0] 0-6 months  
[1] 6 months to 1 year  
[2] 1 year to 18 months  
[3] 18 months to 2 years  
[4] 2 or more years  
[5] 3 or more years  
[6] 4 or more years  
[7] 5 or more years  
[8] More than 5 years but less than 10 years  
[9] More than 10 years  
[10] More than 15 years  
[11] More than 20 years
- 4b. How often have you misused alcohol or drugs in the past year?  
[0] Once a month or less  
[1] 2-3 days per month  
[2] 1-2 days per week  
[3] 3-4 days per week

- [4] 5-6 days per week  
 [5] Daily
- 4c. How often have you misused alcohol or drugs in the past 30 days?  
 [0 days – 30 days]
5. Which substances have you *ever* used to get high, to feel elated, to get a buzz, or to change your mood? Select all that apply.
- [1] Alcohol  
 [2] Stimulants (ex: amphetamines, speed, Ritalin, Adderall, Vyvanse, diet pills) \*  
 [3] Methamphetamine (ex: crank, crystal) \*  
 [4] Cocaine (including crack) \*  
 [5] Opioids (ex: oxycontin, oxycodone, hydrocodone, Vicodin, morphine, fentanyl, codeine, etc.) \*  
 [6] Heroin\*  
 [7] Hallucinogens or dissociative drugs (ex: LSD, acid, mescaline, PCP, mushrooms, ecstasy, ketamine)  
 [8] Inhalants (ex: “glue,” nitrous oxide (“laughing gas”), poppers)  
 [9] Sedatives or hypnotics (ex: valium, Xanax, Librium, Ativan, GHB, “roofies”)  
 [10] Cannabis (ex: marijuana, THC, pot, weed)  
 [11] Other: (Please specify)
- \*If any of the above are selected, ask 4a.*
- 5a. Which substances do you currently use to get high, to feel elated, to get a buzz, or to change your mood? Select all that apply
- [1] Alcohol  
 [2] Stimulants (ex: amphetamines, speed, Ritalin, Adderall, Vyvanse, diet pills) \*  
 [3] Methamphetamine (ex: crank, crystal) \*  
 [4] Cocaine (including crack) \*  
 [5] Opioids (ex: oxycontin, oxycodone, hydrocodone, Vicodin, morphine, fentanyl, codeine, etc.) \*  
 [6] Heroin\*  
 [7] Hallucinogens or dissociative drugs (ex: LSD, acid, mescaline, PCP, mushrooms, ecstasy, ketamine)  
 [8] Inhalants (ex: “glue,” nitrous oxide (“laughing gas”), poppers)  
 [9] Sedatives or hypnotics (ex: valium, Xanax, Librium, Ativan, GHB, “roofies”)  
 [10] Cannabis (ex: marijuana, THC, pot, weed)  
 [11] Other: (Please specify)
- \*If any of the above are selected, ask 4b*
- 5b. How do you typically use [X] substance? Selected all that apply
- [1] Orally (e.g., by mouth)  
 [2] Nasally (e.g., snorting)  
 [3] Smoking  
 [4] Intravenously (e.g., IV, shooting)  
 [5] Other: Please describe [Text Entry]
- 5c. What is your substance of choice? [Answers are auto populated from those selected in question 3]

6. Did you experience a relapse on drug or alcohol use during COVID-19?  
[0] No  
[1] Yes

MINI Neuropsychiatric Interview (7.0.2) – Used as a proxy for substance use diagnosis and diagnostic severity (e.g., mild, moderate, severe). Substance use disorder screen will be shown to only participants who report any substance use in the past year.

Adapted MINI – Substance Use Disorder (Combining diagnostics for alcohol and drugs)

Instructions: Consider your use of alcohol or drugs in the past 12 months.

7. During the times when you used substances, did you end up using more of the alcohol or drug(s) than you planned when you started?  
[0] No  
[1] Yes
8. Did you repeatedly want to reduce or control your substance use? Did you try to cut down or control your substance use, but failed?  
[0] No  
[1] Yes
9. On the days that you used more substances, did you spend substantial time obtaining alcohol or drugs, using it, or recovering from its effect?  
[0] No  
[1] Yes
10. Did you crave or have a strong desire or urge to use alcohol or drugs?  
[0] No  
[1] Yes
11. Did you spend less time meeting your responsibilities at work, at school, or at home because of your repeated substance use?  
[0] No  
[1] Yes
12. If your substance use caused problems with your family or other people, did you still keep using?  
[0] No  
[1] Yes
13. Did you use the alcohol or drugs more than once in any situation where you or others were physically at risk? For example: driving a car, riding a motorbike, using machinery, boating, etc.?  
[0] No  
[1] Yes
14. Did you continue to use substances even though it was clear that the alcohol or drugs had caused or worsened psychological or physical problems?  
[0] No  
[1] Yes
15. Did you reduce or give up important work, social, or recreational activities because of your substance use?  
[0] No

- [1] Yes
16. Did you need to use alcohol or drugs a lot more in order to get the same effect that you got when you first starting using it or did you get much less effect with continued use of the same amount?
- [0] No
- [1] Yes
17. When you cut down on heavy or prolonged substance use, did you have any of the following withdrawal symptoms? Select all that apply.
- [1] Increased sweating or increased heart rate
- [2] Hand tremors or shakes
- [3] Trouble sleeping
- [4] Nausea or vomiting
- [5] Hearing or seeing things that other people could not hear or see
- [6] Having sensations in your skin for no apparent reason (e.g., skin crawls)
- [7] Agitation
- [8] Anxiety or nervousness
- [9] Seizures
- [10] Feeling depressed
- [11] Muscle aches
- [12] Runny nose or tear eyes
- [13] Goosebumps or hair standing up
- [14] Sweating
- [15] Diarrhea
- [16] Yawning
- [17] Hot flashes
- [18] Fatigue
- [19] Vivid dreams
- [20] Sleeping too much or difficulty sleeping
- [21] Appetite changes
- [22] Feeling or looking mentally slowed down
- [23] Irritability, anger, or aggression
18. Did you continue to use substances to reduce or avoid withdrawal symptoms?
- [0] No
- [1] Yes

#### Treatment Utilization Questions

19. Have you ever in your lifetime gone anywhere or seen anyone for a reason that was related in any way to your use of alcohol or drugs or your recovery from alcohol and drug use? Select all that apply.
- [1] Alcoholics Anonymous (AA), Narcotics Anonymous (NA), or any 12-step meeting
- [2] Residential drug or alcohol program (where you stayed overnight)
- [3] Drug or alcohol detox unit or clinic
- [4] Outpatient clinics (including intensive outpatient classes)
- [5] Medically assisted treatment (e.g., suboxone program, methadone maintenance, vivitrol/naltrexone)

- [6] Halfway house or therapeutic community
  - [7] Private physician, therapist, psychiatrist, psychologist, or other professional
  - [8] Emergency room (for substance use)
  - [9] A crisis center (for substance use)
  - [10] Inpatient unit of a psychiatric or general hospital or community mental health program
  - [11] Employee Assistance Program (EAP)
  - [12] Pastor, clergyman, priest, rabbi, or any other religious counselor
  - [13] Family services or another social service agency
  - [14] None of the above
- 19a. Which of the following did you attend in the last 12 months? [Answers are auto populated from those selected in question 16.]
20. During the past 12 months, did you need treatment or counseling for your alcohol or drug use (including recovery support)?
- [0] No
  - [1] Yes
  - [2] I'm not sure
21. During the last 12 months, were you able to get the help that you needed for your substance use or recovery?
- [0] No
  - [1] Yes
  - [2] I'm not sure
22. Do you currently think that you need help with your substance use?
- [0] No
  - [1] Yes
  - [2] I'm not sure
23. How many substance use treatment facilities are you aware of in the area where you live? [Numeric Entry]
24. How far is the nearest treatment center from your place of residence?
- [1] Walking distance/Less than a 5-minute drive
  - [2] 5–10-minute drive
  - [3] 11–20-minute drive
  - [4] 21–30-minute drive
  - [5] 31 minute – 1 hour drive
  - [6] Over an hour drive
25. How many NA/AA or other 12-step meetings are you aware of in the area where you live? [Numeric Entry]
26. How far is the nearest NA/AA or other 12-step meeting from your place of residence?
- [1] Walking distance/Less than a 5-minute drive
  - [2] 5–10-minute drive
  - [3] 11–20-minute drive
  - [4] 21–30-minute drive
  - [5] 31 minute – 1 hour drive
  - [6] Over an hour drive

27. If you wanted to attend treatment or go to a 12-step meeting, do you have reliable transportation to get there?
- [0] No
  - [1] Yes, personal car
  - [2] Yes, public transportation (e.g., city bus)
  - [3] Yes, other (Please specify)
28. In your own words, who/what are your biggest recovery supports? [TEXT ENTRY]
29. In your own words, what are the biggest challenges and barriers to engaging in recovery (e.g., attending treatment or 12-step meeting)? [TEXT ENTRY]

#### Treatment Utilization Questions – Changes during COVID-19

30. Did you actively seek out treatment or recovery supports (e.g., 12-step groups) during COVID-19?
- [0] No
  - [1] Yes
31. During COVID-19, did you have access to supports for your recovery or substance misuse when you needed them?
- [0] No
  - [1] Yes
32. How did your access to recovery services (e.g., NA/AA/other supports) or treatment change during COVID-19?
- [-2] I had much less access to recovery support and treatment services
  - [-1] I had less access to recovery support and treatment services
  - [0] I experienced no change in access to recovery support and treatment services
  - [1] I had more access to recovery support and treatment services
  - [2] I had much more access to recovery support and treatment services
33. Please describe how your access to recovery and treatment supports changed during COVID-19. [TEXT ENTRY]
34. Which of the following did you access during COVID-19 for support with your recovery or substance misuse?
- [1] Telehealth (e.g., seeing a therapist, doctor, or social worker through video calls, phone calls, or texts)
  - [2] Online 12-step meetings
  - [3] Online support groups (e.g., Reddit, Facebook)
  - [4] Online/telehealth outpatient treatment (e.g., group therapy treatment provided online)
35. What were your biggest supports for your recovery or sobriety goals during COVID-19?
- [1] Family
  - [2] Friends in recovery
  - [3] Friends not in recovery
  - [4] Therapists / treatment centers
  - [5] Online support groups
  - [6] Religious / spiritual community
  - [7] Sponsor / Other 12-step group members
  - [8] Employer

[9] Other: Please specify

#### Self-Efficacy – PROMIS General Self-Efficacy Short Form 4A

Instructions: For the next set of questions, please read each sentence and rate your level of confidence in managing various situations, problems, and events.

36. I can manage to solve difficult problems if I try hard enough.

[0] I am not at all confident

[1] I am a little confident

[2] I am somewhat confident

[3] I am quite confident

[4] I am very confident

37. I am confident that I could deal efficiently with unexpected events.

[0] I am not at all confident

[1] I am a little confident

[2] I am somewhat confident

[3] I am quite confident

[4] I am very confident

38. If I am in trouble, I can think of a solution.

[0] I am not at all confident

[1] I am a little confident

[2] I am somewhat confident

[3] I am quite confident

[4] I am very confident

39. I can handle whatever comes my way.

[0] I am not at all confident

[1] I am a little confident

[2] I am somewhat confident

[3] I am quite confident

[4] I am very confident

#### Comorbidity Questions

##### Mental Health Diagnosis

40. Have you ever been diagnosed with or treated for a mental health condition?

[0] No

[1] Yes\*

*\*If yes is selected, ask 37a.*

40a. Are you currently in treatment for your mental health diagnoses?

[0] No

[1] Yes

#### PHQ-4 (Depression and Anxiety Symptoms)

PHQ-4 Instructions: Over the last two weeks, how often have you been bothered by the following problems?

41. Feeling nervous, anxious, or on edge

- [0] Not at all
  - [1] Several days
  - [2] More than half the days
  - [3] Nearly every day
42. Not being able to control or stop worrying
- [0] Not at all
  - [1] Several days
  - [2] More than half the days
  - [3] Nearly every day
43. Feeling down, depressed, or hopeless
- [0] Not at all
  - [1] Several days
  - [2] More than half the days
  - [3] Nearly every day
44. Little interest or pleasure in doing things
- [0] Not at all
  - [1] Several days
  - [2] More than half the days
  - [3] Nearly every day

#### Health (Health25) – From NSDUH Questionnaire 2019

Health Instructions: Below is a list of health conditions that you may have had during your lifetime.

45. Please read the list and select all of the conditions that a doctor or other health care professional has ever told you that you had. Select all that apply.
- [1] Any kind of heart condition or heart disease
  - [2] Diabetes (Type I, Type II, or sugar diabetes)
  - [3] Chronic bronchitis, emphysema, or chronic obstructive pulmonary disease (COPD)
  - [4] Cirrhosis of the liver
  - [5] Hepatitis B or C
  - [6] kidney disease, not including bladder infection or incontinence
  - [7] Asthma
  - [8] HIV or AIDS
  - [9] Cancer (of any kind)
  - [10] Hypertension, also called high blood pressure
  - [11] Other chronic condition (Please specify)

#### US General Health Population Self Rating (Hays et al., 2015)

46. In general, how would you rate your physical health?
- [1] Poor
  - [2] Fair
  - [3] Good
  - [4] Very Good
  - [5] Excellent

## Demographics

47. What is the state where you currently live?  
[AL-WY, including Washington, D.C.]
48. Which of the following do you consider the area where you live to be?  
[1] Rural  
[2] Suburban  
[3] Urban / Metro
49. What race do you identify with or feel closest to? (Select all that apply.)  
[1] Black / African American  
[2] Alaska Native / American Indian / Indigenous American  
[3] White  
[4] South Asian  
[5] East Asian  
[6] Pacific Islander  
[7] Black Hispanic/Latinx/Latina/Latino  
[8] White Hispanic/Latinx/Latina/Latino  
[9] Other (Please specify)
50. How do you currently describe your gender?  
[1] Agendered  
[2] Man or male (cisgendered)  
[3] Woman or female (cisgendered)  
[4] Gender fluid  
[5] Gender non-conforming or gender queer  
[6] Intersex  
[7] Questioning  
[8] Transgender man or male or masculine  
[9] Transgender woman or female or feminine  
[10] Two-spirit  
[11] Other (Please specify)
51. How do you describe your sexual orientation?  
[1] Heterosexual or straight  
[2] Homosexual – gay or lesbian  
[3] Bisexual, pansexual, or omnisexual  
[4] Fluid  
[5] Queer  
[6] Questioning  
[7] Asexual  
[8] Other (Please specify)
52. Do you experience any of the following? (Select all that apply.)  
[1] Mobility impairment  
[2] Learning disability  
[3] Sensory impairment (vision or hearing)  
[4] An impairment, disability, or disorder not listed above (Please specify)
53. What is your highest level of education?  
[1] 8<sup>th</sup> grade or less

- [2] Some high school
  - [3] High school diploma or GED
  - [4] Some college
  - [5] Technical college degree or associates degree
  - [6] Bachelor's degree
  - [7] Master's degree
  - [8] Doctoral degree
54. What is your current marital status?
- [1] Single, never married
  - [2] Married / In a domestic partnership
  - [3] Separated
  - [4] Divorced
  - [5] Widowed
55. How many children do you have?
- [0-10+]
56. Are you currently pregnant?
- [0] No
  - [1] Yes
  - [2] Not applicable
57. During the past year, where did you live or sleep most of the time?
- [1] Alone in a house or apartment that I own or rent
  - [2] With roommates in a house or apartment that I own or rent
  - [3] With a spouse or partner in a house or apartment that I own or rent
  - [4] In someone else's house or apartment (such as a relative or friend)
  - [5] In a car, bus, truck, or other vehicle
  - [6] In abandoned buildings (such as squatting or no fixed address)
  - [7] In a shelter
  - [8] On the streets (including park, bus station, highway overpass, alleys, or rooftops)
  - [9] Halfway house
  - [10] Jail or prison
  - [11] Other (Please specify)
58. How many people live in your household?
- [1-10+]
59. Does anyone you currently live with currently misuse alcohol or other drugs?
- [0] No
  - [1] Yes
  - [2] I don't know
60. Have you ever been arrested?
- [0] No
  - [1] Yes\*
- \*If yes, ask 84a*
- 60a. Have you ever been incarcerated (in jail or prison) or on probation or parole?
- [0] No
  - [1] Yes
- 61b. Are you currently awaiting sentencing or on probation or parole?

- [0] No
- [1] Yes

61. What is your current employment status?

- [1] Employed, full-time
- [2] Employed, part-time
- [3] Homemaker
- [4] Unemployed, looking for work
- [5] Unemployed, due to health-related reason
- [6] Going to school/Full time student
- [7] Retired
- [8] Receiving or awaiting approval for disability payments
- [9] Other (Please specify)

62. What is your yearly household income?

- [1] Less than \$5,000
- [2] \$5,000 - \$9,999
- [3] \$10,000 - \$14,999
- [4] \$15,000 - \$19,999
- [5] \$20,000 - \$29,999
- [6] \$30,000 - \$39,999
- [7] \$40,000 - \$49,999
- [8] \$50,000 - \$59,999
- [9] \$60,000 - \$69,999
- [10] \$70,000 - \$79,999
- [11] \$80,000 - \$89,999
- [12] \$90,000 - \$99,999
- [13] \$100,000 or above

63. Do you currently have insurance?

- [0] No
- [1] Yes, Medicaid
- [2] Yes, Medicare
- [3] Yes, Private insurance through employer
- [4] I'm not sure
- [5] Other (Please specify)

Table 3. *Summary Table of Concepts Measured.*

| Concepts Measured                                                                                                                                                                                                                                | Standardized Measure (if Applicable)                                                   | Level of Measurement |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|----------------------|
| <p>Outcome variable: Changes to recovery support and treatment access during COVID-19.</p> <ul style="list-style-type: none"> <li>Responses range from “I had much less access” to “No change in access” to “I had much more access.”</li> </ul> | N/A                                                                                    | Ordinal              |
| <p>Substance misuse</p> <ul style="list-style-type: none"> <li>Days used in the last 30 days</li> </ul>                                                                                                                                          | N/A                                                                                    | Scale                |
| <p>Substance misuse</p> <ul style="list-style-type: none"> <li>Types of substances used</li> </ul>                                                                                                                                               | N/A                                                                                    | Categorical          |
| <p>Substance misuse</p> <ul style="list-style-type: none"> <li>Substance of choice</li> </ul>                                                                                                                                                    | N/A                                                                                    | Categorical          |
| <p>Substance misuse</p> <ul style="list-style-type: none"> <li>Experienced of relapse during COVID-19</li> </ul>                                                                                                                                 | N/A                                                                                    | Dichotomous          |
| Substance misuse severity                                                                                                                                                                                                                        | MINI International Neuropsychiatric Interview for Substance Use (Sheehan et al., 1997) | Scale                |
| <p>Comorbid conditions</p> <ul style="list-style-type: none"> <li>Past and current treatment for mental health conditions</li> </ul>                                                                                                             | N/A                                                                                    | Dichotomous          |
| <p>Comorbid conditions</p> <ul style="list-style-type: none"> <li>Current anxiety and depression</li> </ul>                                                                                                                                      | PHQ-4 (Kroenke et al., 2009)                                                           | Scale                |
| <p>Comorbid conditions</p> <ul style="list-style-type: none"> <li>Chronic health concerns</li> </ul>                                                                                                                                             | Single item from 2019 NSDUH Survey (SAMHSA, 2015b)                                     | Categorical          |
| <p>Comorbid conditions</p> <ul style="list-style-type: none"> <li>Health rating</li> </ul>                                                                                                                                                       | U.S. General Health Population Self-Rating (Hayes et al., 2015)                        | Ordinal              |
| <p>Treatment utilization</p> <ul style="list-style-type: none"> <li>Past treatment received</li> </ul>                                                                                                                                           | NESARC-III and 2019 NSDUH Items                                                        | Categorical          |

*Table 3 Continued.*

| Concepts Measured                                                                                                                        | Standardized Measure (if Applicable) | Level of Measurement |
|------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|----------------------|
| Treatment accessibility <ul style="list-style-type: none"> <li>Number of known treatment centers in area</li> </ul>                      | N/A                                  | Scale                |
| Treatment accessibility <ul style="list-style-type: none"> <li>Distance to nearest known treatment center and self-help group</li> </ul> | N/A                                  | Categorical          |
| Treatment accessibility <ul style="list-style-type: none"> <li>Reliable transportation to treatment</li> </ul>                           | N/A                                  | Categorical          |
| Demographics <ul style="list-style-type: none"> <li>Age</li> </ul>                                                                       | N/A                                  | Scale                |
| Demographics <ul style="list-style-type: none"> <li>Rurality</li> </ul>                                                                  | N/A                                  | Categorical          |
| Demographics <ul style="list-style-type: none"> <li>Race and ethnicity</li> </ul>                                                        | N/A                                  | Categorical          |
| Demographics <ul style="list-style-type: none"> <li>Gender</li> </ul>                                                                    | N/A                                  | Categorical          |
| Demographics <ul style="list-style-type: none"> <li>Sexual orientation</li> </ul>                                                        | N/A                                  | Categorical          |
| Demographics <ul style="list-style-type: none"> <li>Education</li> </ul>                                                                 | N/A                                  | Categorical          |
| Demographics <ul style="list-style-type: none"> <li>Employment</li> </ul>                                                                | N/A                                  | Categorical          |
| Demographics <ul style="list-style-type: none"> <li>Household income</li> </ul>                                                          | N/A                                  | Categorical          |
| Demographics <ul style="list-style-type: none"> <li>Insurance</li> </ul>                                                                 | N/A                                  | Categorical          |
| Demographics <ul style="list-style-type: none"> <li>Living arrangements</li> </ul>                                                       | N/A                                  | Categorical          |
| Demographics <ul style="list-style-type: none"> <li>Marital status and family</li> </ul>                                                 | N/A                                  | Categorical          |
| Demographics <ul style="list-style-type: none"> <li>Legal history</li> </ul>                                                             | N/A                                  | Categorical          |

Table 4. *Demographics.*

|                                        | Total ( $n = 201$ )                              |
|----------------------------------------|--------------------------------------------------|
| Age                                    | $M = 45.97$ , $SD = 15.79$<br>Min = 19, Max = 81 |
| U.S. Census Region                     |                                                  |
| Northeast                              | 10.9% (22)                                       |
| Midwest                                | 24.4% (49)                                       |
| South                                  | 38.8% (78)                                       |
| West                                   | 25.9% (52)                                       |
| Rurality of Living Area                |                                                  |
| Urban / Metro                          | 26.9% (54)                                       |
| Suburban                               | 39.3% (79)                                       |
| Rural                                  | 33.3% (67)                                       |
| Unknown                                | 0.5% (1)                                         |
| Race and Ethnicity                     |                                                  |
| White                                  | 74.1% (149)                                      |
| Black or African American              | 8.5% (17)                                        |
| White Hispanic                         | 6.5% (13)                                        |
| Black Hispanic                         | 0.5% (1)                                         |
| Alaska Native / Native American        | 3.5% (7)                                         |
| South Asian                            | 0.5% (1)                                         |
| Multiracial                            | 5.5% (11)                                        |
| Other Race                             | 1.0% (2)                                         |
| Gender                                 |                                                  |
| Man or Male (Cisgendered)              | 49.8% (100)                                      |
| Woman or Female (Cisgendered)          | 48.8% (98)                                       |
| Agendered                              | 0.5% (1)                                         |
| Other                                  | 1.0% (2)                                         |
| Sexual Orientation                     |                                                  |
| Heterosexual or Straight               | 85.1% (171)                                      |
| Bisexual, Pansexual, or Omnisexual     | 10.0% (20)                                       |
| Homosexual – Gay or Lesbian            | 3.5% (7)                                         |
| Queer                                  | 0.5% (1)                                         |
| Unknown                                | 1.0% (2)                                         |
| Highest Level of Education             |                                                  |
| 8 <sup>th</sup> Grade or Less          | 0.5% (1)                                         |
| Some High School                       | 2.5% (5)                                         |
| High School Diploma or GED             | 24.9% (50)                                       |
| Some College                           | 35.3% (71)                                       |
| Technical College or Associates Degree | 15.9% (32)                                       |
| Bachelor's Degree                      | 14.9% (30)                                       |
| Master's Degree                        | 6.0% (12)                                        |

*Table 4 Continued.*

|                                                        | Total (n = 201) |
|--------------------------------------------------------|-----------------|
| Current Employment Status                              |                 |
| Employed, Full-Time                                    | 35.3% (71)      |
| Employed, Part-Time                                    | 12.9% (26)      |
| Homemaker                                              | 9.0% (18)       |
| Unemployed, Looking for Work                           | 6.5% (13)       |
| Unemployed, Due to Health Related Reason               | 8.5% (17)       |
| Going to School / Full Time Student                    | 2.0% (4)        |
| Retired                                                | 16.4% (33)      |
| Receiving or Awaiting Approval for Disability Payments | 8.0% (16)       |
| Other                                                  | 1.0% (2)        |
| Unknown                                                | 0.5% (1)        |
| Yearly Household Income                                |                 |
| Less than \$5,000                                      |                 |
| \$5,000 to \$9,999                                     | 7.5% (15)       |
| \$10,000 to \$19,999                                   | 3.0% (6)        |
| \$20,000 to \$29,999                                   | 11.4% (23)      |
| \$30,000 to \$39,999                                   | 14.4% (29)      |
| \$40,000 to \$49,999                                   | 16.9% (34)      |
| \$50,000 to \$59,999                                   | 10.9% (22)      |
| \$60,000 to \$69,999                                   | 8.0% (16)       |
| \$70,000 to \$79,999                                   | 6.5% (13)       |
| \$80,000 to \$89,999                                   | 4.5% (9)        |
| \$90,000 to \$99,999                                   | 4.5% (9)        |
| \$100,000 or Above                                     | 7.5% (15)       |
| Insurance Status                                       |                 |
| No Insurance                                           | 10.9% (22)      |
| Medicaid                                               | 35.8% (72)      |
| Medicare                                               | 26.4% (53)      |
| Private Insurance                                      | 19.4% (39)      |
| Other Insurance                                        | 4.5% (9)        |
| Not Sure / Unknown if Has Insurance                    | 3.0% (6)        |

Table 4 Continued.

|                                                                                        | Total (n = 201)                           |
|----------------------------------------------------------------------------------------|-------------------------------------------|
| Typical Past Year Living Arrangements                                                  |                                           |
| Alone in Personal House or Apartment (Rented or Owned)                                 | 27.9% (56)                                |
| With Roommates in Personal House or Apartment (Rented or Owned)                        | 11.9% (24)                                |
| With a Spouse or Partner or Family in Personal House or Apartment (Rented or Owned)    | 42.8% (86)                                |
| In Someone Else's House or Apartment (e.g., With a Relative or Friend)                 | 10.4% (21)                                |
| In a Car, Bus, Truck, or Other Vehicle                                                 | 2.0% (4)                                  |
| In a Shelter                                                                           | 0.5% (1)                                  |
| On the Streets (Including parks, bus stations, highway overpasses, alleys or rooftops) | 1.0% (2)                                  |
| In a Halfway House                                                                     | 2.5% (5)                                  |
| In Jail or Prison                                                                      | 1.0% (2)                                  |
| Household Drug or Alcohol Use                                                          |                                           |
| No                                                                                     | 77.6% (156)                               |
| Yes                                                                                    | 20.9% (42)                                |
| Participant Did Not Know                                                               | 1.5% (3)                                  |
| Marital Status                                                                         |                                           |
| Single, Never Married                                                                  | 26.9% (54)                                |
| Married / In a Domestic Partnership                                                    | 43.3% (87)                                |
| Separated                                                                              | 8.0% (16)                                 |
| Divorced                                                                               | 17.4% (35)                                |
| Widowed                                                                                | 3.5% (7)                                  |
| Unknown                                                                                | 1.0% (2)                                  |
| Number of Children                                                                     | $M = 1.49, SD = 1.61$<br>Min = 0, Max = 9 |
| Any Past Arrest                                                                        |                                           |
| No                                                                                     | 35.3% (71)                                |
| Yes                                                                                    | 64.7% (130)                               |
| Any Past Incarceration or Probation / Parole                                           |                                           |
| No                                                                                     | 47.8% (96)                                |
| Yes                                                                                    | 52.2% (105)                               |
| Currently Awaiting Sentencing or On Probation / Parole                                 |                                           |
| No                                                                                     | 90.0% (181)                               |
| Yes                                                                                    | 10.0% (20)                                |

Table 5. *Descriptive Statistics of Substance Use History.*

|                                                                         | Total ( <i>n</i> = 201)                                 |
|-------------------------------------------------------------------------|---------------------------------------------------------|
| Participant Reports Having Active Substance Misuse or Being in Recovery |                                                         |
| Currently has a Problem with Substance Misuse                           | 47.3% (95)                                              |
| In Recovery from Substance Misuse                                       | 52.7% (106)                                             |
| Amount of Time in Recovery                                              |                                                         |
| Not Currently in Recovery                                               | 47.3% (95)                                              |
| 0-6 Months                                                              | 6.5% (13)                                               |
| 6 Months to 1 Year                                                      | 10.4% (21)                                              |
| 1 Year to 18 Months                                                     | 2.5% (5)                                                |
| 18 Months to 2 Years                                                    | 1.0% (2)                                                |
| More than 2 Years                                                       | 4.0% (8)                                                |
| More than 3 Years                                                       | 4.5% (9)                                                |
| More than 4 Years                                                       | 1.0% (2)                                                |
| More than 5 Years                                                       | 3.5% (7)                                                |
| More than 5 Years but Less than 10 Years                                | 6.0% (12)                                               |
| More than 10 Years                                                      | 2.5% (5)                                                |
| More than 15 Years                                                      | 2.0% (3)                                                |
| More than 20 Years                                                      | 9.0% (18)                                               |
| How often have you misused alcohol or drugs in the past year?           |                                                         |
| None                                                                    | 52.7% (106)                                             |
| Once a Month or Less                                                    | 5.0% (10)                                               |
| 2-3 Days Per Month                                                      | 5.5% (11)                                               |
| 1-2 Days Per Week                                                       | 6.0% (12)                                               |
| 3-4 Days Per Week                                                       | 5.0% (10)                                               |
| 5-6 Days Per Week                                                       | 6.5% (13)                                               |
| Daily                                                                   | 19.4% (39)                                              |
| How many days have you misused alcohol or drugs in the past 30 days?    | <i>M</i> = 8.38, <i>SD</i> = 11.94<br>Min = 0, Max = 30 |
| Participant Reports a Relapse on Substance Misuse During COVID-19       |                                                         |
| No                                                                      | 52.7% (102)                                             |
| Yes                                                                     | 46.3% (93)                                              |
| Unknown                                                                 | 1.0% (2)                                                |

Table 5 Continued.

|                                                                  | Total (n = 201)                               |
|------------------------------------------------------------------|-----------------------------------------------|
| Have you ever used any of the following substances?*             |                                               |
| Alcohol                                                          | 83.6% (168)                                   |
| Stimulants                                                       | 44.8% (90)                                    |
| Methamphetamine                                                  | 40.3% (81)                                    |
| Cocaine                                                          | 49.8% (100)                                   |
| Opioids                                                          | 47.3% (95)                                    |
| Heroin                                                           | 23.9% (48)                                    |
| Fentanyl                                                         | 21.9% (44)                                    |
| Hallucinogens                                                    | 31.8% (64)                                    |
| Inhalants                                                        | 16.9% (34)                                    |
| Sedatives                                                        | 36.3% (73)                                    |
| Cannabis                                                         | 60.2% (121)                                   |
| Other                                                            | 2.5% (5)                                      |
| Average Number of Substances Used in Lifetime                    | $M = 4.59$ , $SD = 3.16$<br>Min = 1, Max = 11 |
| Have you used any of the following substances in the past year?* |                                               |
| Alcohol                                                          | 36.8% (74)                                    |
| Stimulants                                                       | 7.0% (14)                                     |
| Methamphetamine                                                  | 13.4% (27)                                    |
| Cocaine                                                          | 8.5% (17)                                     |
| Opioids                                                          | 8.5% (17)                                     |
| Heroin                                                           | 5.5% (11)                                     |
| Fentanyl                                                         | 6.0% (12)                                     |
| Hallucinogens                                                    | 2.0% (4)                                      |
| Inhalants                                                        | 2.0% (4)                                      |
| Sedatives                                                        | 4.0% (8)                                      |
| Cannabis                                                         | 24.4% (49)                                    |
| Other                                                            | 3.5% (7)                                      |
| Average Number of Substances Used in the Past Year               | $M = 1.55$ , $SD = 1.26$<br>Min = 0, Max = 9  |
| Participant's Reported Substance of Choice                       |                                               |
| Alcohol                                                          | 40.3% (81)                                    |
| Stimulants                                                       | 4.0% (8)                                      |
| Methamphetamine                                                  | 10.9% (22)                                    |
| Cocaine                                                          | 8.5% (17)                                     |
| Opioids                                                          | 11.4% (23)                                    |
| Heroin                                                           | 6.5% (13)                                     |
| Fentanyl                                                         | 3.5% (7)                                      |
| Hallucinogens                                                    | 1.0% (2)                                      |
| Inhalants                                                        | 0.5% (1)                                      |
| Sedatives                                                        | 2.5% (5)                                      |
| Cannabis                                                         | 8.5% (17)                                     |
| Other                                                            | 1.5% (3)                                      |
| Unknown                                                          | 1.0% (2)                                      |

*Table 5 Continued.*

|                                                      | Total ( <i>n</i> = 201) |
|------------------------------------------------------|-------------------------|
| Typical Routes of Ingestion for Substance of Choice* |                         |
| Oral                                                 | 58.2% (117)             |
| Nasal                                                | 20.9% (42)              |
| Smoking                                              | 30.3% (61)              |
| Intravenous                                          | 11.9% (24)              |

\*Measured with a single “Select all that apply” item

Table 6. *Descriptive Statistics of Treatment Utilization History.*

|                                                                                                                   | Total ( <i>n</i> = 201)                                |
|-------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------|
| Lifetime Engagement in Substance Abuse and Recovery Services*                                                     |                                                        |
| 12-Step or Other Self-Help Groups                                                                                 | 56.2% (113)                                            |
| Residential Drug or Alcohol Program                                                                               | 31.3% (63)                                             |
| Drug or Alcohol Detox Program                                                                                     | 28.9% (58)                                             |
| Outpatient Clinics (Including Intensive Outpatient Services)                                                      | 33.3% (67)                                             |
| Medically Assisted Treatment                                                                                      | 24.4% (49)                                             |
| Halfway House or Therapeutic Community                                                                            | 18.4% (37)                                             |
| Private Physician, Therapist, or Psychiatrist                                                                     | 33.8% (68)                                             |
| Emergency Room (for Substance Use)                                                                                | 21.4% (43)                                             |
| A Crisis Center (for Substance Use)                                                                               | 10.4% (21)                                             |
| Inpatient Program in a Psychiatric or General Hospital                                                            | 17.9% (36)                                             |
| Employee Assistance Program                                                                                       | 5.5% (11)                                              |
| Pastor, Clergy, Rabbi, or Other Religious Counselor                                                               | 12.9% (26)                                             |
| Family Services or Other Social Service Agency                                                                    | 7.5% (15)                                              |
| No Lifetime Engagement in Services                                                                                | 16.4% (33)                                             |
| Average Number of Lifetime Substance Abuse Treatment Services Attended                                            | <i>M</i> = 2.18, <i>SD</i> = 2.64<br>Min = 0, Max = 12 |
| Past Year Engagement in Substance Abuse and Recovery Services*                                                    |                                                        |
| 12-Step or Other Self-Help Groups                                                                                 | 32.3% (65)                                             |
| Residential Drug or Alcohol Program                                                                               | 9.0% (18)                                              |
| Drug or Alcohol Detox Program                                                                                     | 10.0% (20)                                             |
| Outpatient Clinics (Including Intensive Outpatient Services)                                                      | 8.5% (17)                                              |
| Medically Assisted Treatment                                                                                      | 14.9% (30)                                             |
| Halfway House or Therapeutic Community                                                                            | 5.5% (11)                                              |
| Private Physician, Therapist, or Psychiatrist                                                                     | 19.9% (40)                                             |
| Emergency Room (for Substance Use)                                                                                | 6.0% (12)                                              |
| A Crisis Center (for Substance Use)                                                                               | 2.5% (5)                                               |
| Inpatient Program in a Psychiatric or General Hospital                                                            | 4.0% (8)                                               |
| Employee Assistance Program                                                                                       | 0.5% (1)                                               |
| Pastor, Clergy, Rabbi, or Other Religious Counselor                                                               | 4.0% (8)                                               |
| Family Services or Other Social Service Agency                                                                    | 3.5% (7)                                               |
| No Past Year Engagement in Services Predicting Treatment Utilization During COVID-19                              | 15.4% (31)                                             |
| Average Number of Lifetime Substance Abuse Treatment Services Attended                                            | <i>M</i> = 1.20, <i>SD</i> = 1.49<br>Min = 0, Max = 13 |
| Have you actively sought out treatment or recovery supports (e.g., 12-step groups) during COVID-19?               |                                                        |
| No                                                                                                                | 61.7% (124)                                            |
| Yes                                                                                                               | 38.3% (77)                                             |
| During COVID-19, did you need treatment or counseling for your alcohol or drug use (including recovery supports)? |                                                        |
| No / I Don't Know                                                                                                 | 56.2% (113)                                            |
| Yes                                                                                                               | 43.8% (88)                                             |

Table 6 Continued.

|                                                                                                              | Total (n = 201)                            |
|--------------------------------------------------------------------------------------------------------------|--------------------------------------------|
| During the last 12 months, were you able to get the help that you needed for your substance use or recovery? |                                            |
| No / I Don't Know                                                                                            | 41.3% (83)                                 |
| Yes                                                                                                          | 58.7% (118)                                |
| Mean Knowledge of Substance Use Treatment Facilities in the Area                                             | M = 3.45, SD = 5.72<br>Min = 0, Max = 33   |
| Knows of Three or More Treatment Facilities in the Area                                                      |                                            |
| No                                                                                                           | 62.7% (126)                                |
| Yes                                                                                                          | 37.3% (75)                                 |
| Mean Knowledge of 12-Step or Other Self-Help Groups in the Area                                              | M = 8.02, SD = 18.85<br>Min = 0, Max = 100 |
| Knows of Eight or More Treatment Facilities in the Area                                                      |                                            |
| No                                                                                                           | 80.1% (161)                                |
| Yes                                                                                                          | 19.9% (40)                                 |
| Distance to Nearest Known Treatment Center                                                                   |                                            |
| 20 Minutes or Less                                                                                           | 36.8% (74)                                 |
| 21 Minutes or More                                                                                           | 61.2% (123)                                |
| Unknown                                                                                                      | 2.0% (4)                                   |
| Distance to Nearest Known 12-Step or Other Sober Support Group                                               |                                            |
| 20 Minutes or Less                                                                                           | 58.7% (118)                                |
| 21 Minutes or More                                                                                           | 38.8% (78)                                 |
| Unknown                                                                                                      | 2.5% (5)                                   |
| Reports Reliable Transportation to Treatment / Sober Support Group                                           |                                            |
| No                                                                                                           | 16.9% (34)                                 |
| Yes                                                                                                          | 83.1% (167)                                |
| Type of Online Services Used for Recovery Support During COVID-19*                                           |                                            |
| Individual Telehealth                                                                                        | 37.8% (76)                                 |
| Online 12-Step or Other Sober Support Groups                                                                 | 27.4% (55)                                 |
| Online Chat Groups (e.g., Facebook / Reddit)                                                                 | 26.4% (53)                                 |
| Online Group Therapy (e.g., IOP)                                                                             | 11.4% (23)                                 |
| Other Online Program                                                                                         | 5.0% (10)                                  |
| No Online Program Accessed                                                                                   | 35.8% (72)                                 |
| Biggest Recovery Supports Accessed During COVID-19*                                                          |                                            |
| Family                                                                                                       | 64.7% (130)                                |
| Friends in Recovery                                                                                          | 39.3% (79)                                 |
| Friends not in Recovery                                                                                      | 23.9% (48)                                 |
| Therapists / Treatment Centers                                                                               | 21.9% (44)                                 |
| Online Support Groups                                                                                        | 18.4% (37)                                 |
| Religious / Spiritual Community                                                                              | 21.4% (43)                                 |
| Sponsor / Other 12-Step Group Members                                                                        | 14.4% (29)                                 |
| Employer                                                                                                     | 5.5% (11)                                  |
| Other                                                                                                        | 4.5% (9)                                   |
| No Recovery Supports                                                                                         | 12.4% (25)                                 |

Table 7. *Descriptive Statistics of Substance Use Severity and Comorbidities*

|                                                                                |                                          |
|--------------------------------------------------------------------------------|------------------------------------------|
|                                                                                | Total (n = 201)                          |
| MINI Composite Score                                                           | M = 7.99, SD = 3.65<br>Min = 0, Max = 12 |
| Meets MINI Criteria for Severe Substance Use Disorder                          |                                          |
| No                                                                             | 23.4% (47)                               |
| Yes                                                                            | 76.6% (154)                              |
| Reports Mental Health Diagnosis or Treatment                                   |                                          |
| No                                                                             | 33.3% (67)                               |
| Yes                                                                            | 66.2% (133)                              |
| Unknown                                                                        | 0.5% (1)                                 |
| Reports Current Treatment For Mental Health Diagnosis                          |                                          |
| No                                                                             | 28.9% (58)                               |
| Yes                                                                            | 37.3% (75)                               |
| Not Applicable                                                                 | 33.8% (68)                               |
| PHQ4 Total Score                                                               | M = 5.51, SD = 3.96<br>Min = 0, Max = 12 |
| PHQ4 – Meets Criteria for Likely Depression or Anxiety                         |                                          |
| No                                                                             | 25.9% (52)                               |
| Yes                                                                            | 74.1% (149)                              |
| Current Health Conditions*                                                     |                                          |
| Any Kind of Heart Condition or Heart Disease                                   | 14.4% (29)                               |
| Diabetes (Type 1 or Type 2)                                                    | 14.9% (30)                               |
| Chronic Bronchitis, Emphysema, or Chronic Obstructive Pulmonary Disease (COPD) | 16.9% (34)                               |
| Cirrhosis of the Liver                                                         | 5.0% (10)                                |
| Hepatitis B or C                                                               | 11.9% (24)                               |
| Kidney Disease                                                                 | 6.5% (13)                                |
| Asthma                                                                         | 21.9% (44)                               |
| HIV or AIDS                                                                    | 1.5% (3)                                 |
| Cancer of Any Kind                                                             | 5.5% (11)                                |
| Hypertension / High Blood Pressure                                             | 30.3% (61)                               |
| Other Chronic Condition                                                        | 14.9% (30)                               |
| No Health Conditions                                                           | 28.4% (57)                               |
| General Rating of Physical Health                                              |                                          |
| Poor                                                                           | 6.0% (12)                                |
| Fair                                                                           | 44.3% (89)                               |
| Good                                                                           | 37.3% (75)                               |
| Very Good                                                                      | 10.0% (20)                               |
| Excellent                                                                      | 2.5% (5)                                 |

\*Measured with a single “Select all that apply” item

Table 8. *Model 0 with Only Control Variables Predicting Treatment Utilization During COVID-19.*

| Variable                                                                                             | <i>B</i> | <i>SE</i> | $\chi^2$ | <i>p</i> | <i>OR</i> | 95% CI        |
|------------------------------------------------------------------------------------------------------|----------|-----------|----------|----------|-----------|---------------|
| (Intercept)                                                                                          | -2.73    | 0.40      | 45.80    | <0.001   | 0.07      | [0.03, 0.14]  |
| Lifetime Use of Inhalants                                                                            | 0.44     | 0.49      | 0.79     | 0.38     | 1.54      | [0.59, 4.02]  |
| Relapse During COVID-19                                                                              | 0.59     | 0.37      | 2.51     | 0.12     | 1.80      | [0.87, 3.72]  |
| Sum of Lifetime Treatment Services Utilized                                                          | 0.24     | 0.08      | 10.49    | 0.001    | 1.27      | [1.10, 1.48]  |
| Sober Support: Friends in Recovery                                                                   | 0.59     | 0.38      | 2.37     | 0.13     | 1.80      | [0.85, 3.82]  |
| Sober Support: Therapist / Treatment Center                                                          | 1.04     | 0.45      | 5.44     | 0.02     | 2.83      | [1.18, 6.80]  |
| Sober Support: Online Groups                                                                         | 0.92     | 0.49      | 3.58     | 0.06     | 2.51      | [0.97, 6.53]  |
| Sober Support: Religious / Spiritual Community                                                       | 0.89     | 0.46      | 3.84     | 0.05     | 2.44      | [1.00, 5.95]  |
| Sober Support: 12-Step Sponsor or Other 12-Step Members                                              | 1.65     | 0.62      | 7.17     | 0.01     | 5.22      | [1.56, 17.49] |
| Overall model: $\chi^2[8] = 80.13, p < 0.001$ , Nagelkerke $R^2 = 0.45$ , -2 Log Likelihood = 185.32 |          |           |          |          |           |               |

Table 9. *Model 1 with Substance Use Severity, Comorbidity, and Control Variables Predicting Treatment Utilization During COVID-19.*

| Variable                                                                                                 | <i>B</i> | <i>SE</i> | $\chi^2$ | <i>p</i> | <i>OR</i> | 95% CI        |
|----------------------------------------------------------------------------------------------------------|----------|-----------|----------|----------|-----------|---------------|
| (Intercept)                                                                                              | -3.30    | 0.60      | 30.09    | <0.001   | 0.04      | [0.01, 0.12]  |
| Lifetime Use of Inhalants                                                                                | 0.42     | 0.48      | 0.76     | 0.38     | 1.52      | [0.59, 3.91]  |
| Relapse During COVID-19                                                                                  | 0.42     | 0.39      | 1.16     | 0.28     | 1.52      | [0.71, 3.26]  |
| Sum of Lifetime Treatment Services Utilized                                                              | 0.22     | 0.08      | 8.30     | 0.004    | 1.25      | [1.07, 1.45]  |
| Sober Support: Friends in Recovery                                                                       | 0.60     | 0.39      | 2.34     | 0.12     | 1.82      | [0.85, 3.87]  |
| Sober Support: Therapist / Treatment Center                                                              | 0.94     | 0.46      | 4.18     | 0.04     | 2.57      | [1.04, 6.35]  |
| Sober Support: Online Groups                                                                             | 0.91     | 0.49      | 3.44     | 0.06     | 2.48      | [0.95, 6.47]  |
| Sober Support: Religious / Spiritual Community                                                           | 0.96     | 0.47      | 4.21     | 0.04     | 2.61      | [1.04, 6.54]  |
| Sober Support: 12-Step Sponsor or Other 12-Step Members                                                  | 1.80     | 0.64      | 7.92     | 0.01     | 6.06      | [1.73, 21.24] |
| Binary MINI Severity Rating                                                                              | 0.48     | 0.52      | 0.86     | 0.35     | 1.62      | [0.59, 4.44]  |
| Diagnosis or Treatment of Mental Health Condition                                                        | 0.48     | 0.44      | 1.16     | 0.28     | 1.62      | [0.68, 3.87]  |
| Overall model: $\chi^2[10] = 81.46$ , $p < 0.001$ , Nagelkerke $R^2 = 0.46$ , -2 Log Likelihood = 183.17 |          |           |          |          |           |               |

Table 10. *Model 2 with Knowledge of and Access to Treatment and 12-Step Groups and Control Variables Predicting Treatment Utilization During COVID-19.*

| Variable                                                                                              | <i>B</i> | <i>SE</i> | $\chi^2$ | <i>p</i> | <i>OR</i> | 95% CI        |
|-------------------------------------------------------------------------------------------------------|----------|-----------|----------|----------|-----------|---------------|
| (Intercept)                                                                                           | -3.91    | 0.74      | 27.60    | <0.001   | 0.02      | [0.01, 0.09]  |
| Lifetime Use of Inhalants                                                                             | 0.63     | 0.51      | 1.56     | 0.21     | 1.88      | [0.70, 5.07]  |
| Relapse During COVID-19                                                                               | 0.67     | 0.38      | 3.16     | 0.08     | 1.96      | [0.93, 4.12]  |
| Sum of Lifetime Treatment Services Utilized                                                           | 0.24     | 0.08      | 8.73     | 0.003    | 1.27      | [1.08, 1.50]  |
| Sober Support: Friends in Recovery                                                                    | 0.43     | 0.41      | 1.10     | 0.29     | 1.53      | [0.69, 3.40]  |
| Sober Support: Therapist / Treatment Center                                                           | 1.22     | 0.46      | 6.92     | 0.01     | 3.39      | [1.37, 8.44]  |
| Sober Support: Online Groups                                                                          | 0.80     | 0.49      | 2.68     | 0.10     | 2.23      | [0.85, 5.83]  |
| Sober Support: Religious / Spiritual Community                                                        | 0.97     | 0.46      | 4.44     | 0.04     | 2.64      | [1.07, 6.53]  |
| Sober Support: 12-Step Sponsor or Other 12-Step Members                                               | 1.50     | 0.65      | 5.34     | 0.02     | 4.49      | [1.26, 16.04] |
| Knows of Three or More Treatment Centers in the Area                                                  | 0.08     | 0.42      | 0.04     | 0.85     | 1.08      | [0.48, 2.44]  |
| Knows of Eight or More 12-Step or Sober Support Groups in the Area                                    | 0.42     | 0.52      | 0.66     | 0.42     | 1.53      | [0.55, 4.25]  |
| Endorses Reliable Transportation to Treatment / 12-Step Groups                                        | 1.20     | 0.60      | 4.01     | 0.04     | 3.33      | [1.03, 10.84] |
| Overall model: $\chi^2[11] = 85.54, p < 0.001$ , Nagelkerke $R^2 = 0.47$ , -2 Log Likelihood = 180.07 |          |           |          |          |           |               |

Table 11. *Model 3 with Reliable Transportation and Control Variables Predicting Treatment Utilization During COVID-19.*

| Variable                                                                                             | <i>B</i> | <i>SE</i> | $\chi^2$ | <i>p</i> | <i>OR</i> | 95% CI        |
|------------------------------------------------------------------------------------------------------|----------|-----------|----------|----------|-----------|---------------|
| (Intercept)                                                                                          | -3.91    | 0.74      | 27.73    | <0.001   | 0.02      | [0.01, 0.09]  |
| Lifetime Use of Inhalants                                                                            | 0.60     | 0.50      | 1.44     | 0.23     | 1.88      | [0.68, 4.85]  |
| Relapse During COVID-19                                                                              | 0.66     | 0.38      | 3.13     | 0.08     | 1.94      | [0.93, 4.06]  |
| Sum of Lifetime Treatment Services Utilized                                                          | 0.26     | 0.08      | 11.47    | <0.001   | 1.30      | [1.12, 1.52]  |
| Sober Support: Friends in Recovery                                                                   | 0.52     | 0.39      | 1.83     | 0.18     | 1.68      | [0.79, 3.59]  |
| Sober Support: Therapist / Treatment Center                                                          | 1.16     | 0.46      | 6.33     | 0.01     | 3.19      | [1.29, 7.86]  |
| Sober Support: Online Groups                                                                         | 0.78     | 0.49      | 2.54     | 0.11     | 2.18      | [0.84, 5.71]  |
| Sober Support: Religious / Spiritual Community                                                       | 0.97     | 0.46      | 4.44     | 0.04     | 2.63      | [1.07, 6.46]  |
| Sober Support: 12-Step Sponsor or Other 12-Step Members                                              | 1.63     | 0.63      | 6.79     | 0.01     | 5.10      | [1.50, 17.39] |
| Endorses Reliable Transportation to Treatment / 12-Step Groups                                       | 1.22     | 0.60      | 4.19     | 0.04     | 3.40      | [1.05, 10.99] |
| Overall model: $\chi^2[9] = 84.77, p < 0.001$ , Nagelkerke $R^2 = 0.47$ , -2 Log Likelihood = 180.84 |          |           |          |          |           |               |

Table 12. *Model 4 with Reliable Transportation, Treatment Need, and Control Variables Predicting Treatment Utilization During COVID-19.*

| Variable                                                                                              | <i>B</i> | <i>SE</i> | $\chi^2$ | <i>p</i> | <i>OR</i> | 95% CI        |
|-------------------------------------------------------------------------------------------------------|----------|-----------|----------|----------|-----------|---------------|
| (Intercept)                                                                                           | -4.30    | 0.81      | 28.31    | <0.001   | 0.01      | [0.003, 0.07] |
| Lifetime Use of Inhalants                                                                             | 0.69     | 0.53      | 1.68     | 0.19     | 1.99      | [0.70, 5.62]  |
| Relapse During COVID-19                                                                               | 0.23     | 0.42      | 0.30     | 0.58     | 1.26      | [0.56, 2.83]  |
| Sum of Lifetime Treatment Services Utilized                                                           | 0.25     | 0.08      | 9.50     | 0.002    | 1.28      | [1.10, 1.50]  |
| Sober Support: Friends in Recovery                                                                    | 0.52     | 0.40      | 1.67     | 0.20     | 1.67      | [0.76, 3.66]  |
| Sober Support: Therapist / Treatment Center                                                           | 0.77     | 0.48      | 2.56     | 0.11     | 2.16      | [0.84, 5.34]  |
| Sober Support: Online Groups                                                                          | 0.83     | 0.51      | 2.69     | 0.10     | 2.30      | [0.85, 6.21]  |
| Sober Support: Religious / Spiritual Community                                                        | 1.05     | 0.46      | 5.13     | 0.02     | 2.86      | [1.15, 7.11]  |
| Sober Support: 12-Step Sponsor or Other 12-Step Members                                               | 1.65     | 0.67      | 6.10     | 0.01     | 5.22      | [1.41, 19.35] |
| Endorses Reliable Transportation to Treatment / 12-Step Groups                                        | 1.32     | 0.63      | 4.45     | 0.04     | 3.76      | [1.10, 12.87] |
| Endorses Treatment Need During COVID-19                                                               | 1.29     | 0.43      | 9.04     | 0.003    | 3.63      | [1.57, 8.42]  |
| Overall model: $\chi^2[10] = 94.07, p < 0.001$ , Nagelkerke $R^2 = 0.51$ , -2 Log Likelihood = 171.53 |          |           |          |          |           |               |

Table 13. *Model 5 with Reliable Transportation to Treatment, Endorsement of Treatment Need, Sum of Lifetime Services, and Therapist, Religious Community, and Sponsor as Sober Supports Predicting Treatment Utilization During COVID-19.*

| Variable                                                       | <i>B</i> | <i>SE</i> | $\chi^2$ | <i>p</i> | <i>OR</i> | 95% CI        |
|----------------------------------------------------------------|----------|-----------|----------|----------|-----------|---------------|
| (Intercept)                                                    | -3.91    | 0.72      | 29.76    | <0.001   | 0.02      | [0.01, 0.08]  |
| Sum of Lifetime Treatment Services Utilized                    | 0.28     | 0.08      | 13.30    | <0.001   | 1.33      | [1.14, 1.55]  |
| Sober Support: Therapist / Treatment Center                    | 0.94     | 0.46      | 4.10     | 0.04     | 2.57      | [1.03, 6.39]  |
| Sober Support: Religious / Spiritual Community                 | 0.99     | 0.45      | 4.79     | 0.03     | 2.69      | [1.11, 6.53]  |
| Sober Support: 12-Step Sponsor or Other 12-Step Members        | 2.06     | 0.61      | 11.35    | <0.001   | 7.84      | [2.37, 25.99] |
| Endorses Reliable Transportation to Treatment / 12-Step Groups | 1.31     | 0.57      | 5.28     | 0.02     | 3.72      | [1.12, 11.40] |
| Endorses Treatment Need During COVID-19                        | 1.37     | 0.39      | 12.34    | <0.001   | 3.95      | [1.84, 8.49]  |

Overall model:  $\chi^2[6] = 88.18, p < 0.001$ , Nagelkerke  $R^2 = 0.48$ , -2 Log Likelihood = 179.38

### **CHAPTER III: CHANGES TO TREATMENT CENTER PROGRAMMING DURING COVID-19**

## **Abstract**

During COVID-19, substance misuse increased across the U.S. population. In the normal times, admission to treatment can be a long process with individuals working to overcome barriers that may include not having transportation to treatment, lacking insurance or other ability to pay for treatment, or knowing where treatment centers and recovery supports are located. Treatment facilities were forced to navigate the dual pandemics of COVID-19 and rising substance misuse rates. Guided by enabling factors from Gelberg-Andersen's Behavioral Model for Vulnerable Populations and organizational capacity, this study seeks to ascertain what factors contributed to treatment facilities continuing to provide services during COVID-19. A total of 166 managing directors of treatment facilities responded to the survey. Treatment center characteristics that correlated with providing more services during COVID-19 were being accredited by the Joint Commission, accepting private insurance, providing partial hospitalization programming, providing intensive outpatient services, and providing outpatient services. The number of services provided by a facility, patient-centered care, and organizational capacity did not correlate with or predict whether a facility continued to provide services during COVID-19. More research is needed on agency-level factors that contribute to continuation of services even during periods of disruption to prevent further substance misuse related death and disease.

## **Introduction**

During the COVID-19 pandemic, healthcare facilities were considered essential and continued operations despite rising case numbers and health risks. Substance abuse treatment centers, often classified as healthcare and social service, were deemed essential by federal guidelines and continued operations (National Conference of State Legislatures, 2021). These treatment centers had to adapt to meet the needs of individuals living with substance use disorders and substance misuse during the pandemic. In the U.S., close to one-third of all Americans reported an increase in their alcohol use, and of those who used illicit substances, 30% reported an increase in their overall use (Agovino, 2021). During these years, substance abuse treatment centers grappled with the dual pandemic of substance misuse and COVID-19.

Admission to substance abuse treatment in the best of times can be a long and arduous process. Many attribute the lack of treatment admission to a lack of readiness to change behavior (Opsal et al., 2019). While individual readiness can be a looming factor in treatment-seeking and admission, research must not overlook treatment center characteristics as potential reasons a person does not seek treatment. Individuals cite treatment costs, lack of insurance, lack of childcare resources, and lack of transportation to treatment as key reasons for not attending or seeking treatment (Haeny et al., 2021; Choi et al., 2019; Murnan & Ferber, 2021; Browne et al., 2016; Scorsone et al., 2020). Some of these systemic factors can be attributable to treatment centers and their policies and programming. Treatment centers may choose whether or not to offer free or reduced-cost services, or they may apply for grant funding to cover the entirety of treatment costs for many individuals. Additionally, waiting lists for treatment can be long and discouraging for individuals, leading some to continue using substances (Redko et al., 2006).

Research during the pandemic shows that admissions to substance abuse treatment facilities were down during the beginning of COVID-19 (Mark et al., 2021). During this time, there were calls to engage in online programming to prevent higher rates of overdose and death (Ornell et al., 2020). To encourage continued addiction care, advocates pushed for greater access to telemedicine (Ornell et al., 2020). Many states adapted their medically assisted treatment (MAT) programs to continue to serve individuals living with opioid use disorders and potentially increase access to care (Krawczyk et al., 2020; Cantor & Laurito, 2021). Researchers and substance abuse policymakers hoped that these changes could have a permanent impact on increased treatment accessibility (Ornell et al., 2020). However, little remains known about how treatment centers implemented new strategies and if they could maintain programming, services, and admissions during COVID-19.

This study assesses institutional factors contributing to continuing to provide services during COVID-19, and how organizational capacity influenced agencies' ability to navigate the pandemic. Organizational capacity is an understudied area of substance abuse treatment centers. Organizational capacity includes everything an agency needs to meet its goals and fulfill its mission (Light, 2004). This study is novel in including an assessment of capacity, and how that capacity contributed to treatment centers' abilities to continue to provide services during reduced admissions and policy changes during COVID-19. This research seeks to answer the following research questions: 1) How did enabling factors contribute to treatment centers continuing to provide services for individuals during COVID-19? 2) How does organizational capacity act as an enabling factor for a treatment facility's ability to provide comprehensive services during COVID-19?

## **Using Enabling Factors from Gelberg-Andersen's Behavioral Model for Vulnerable Populations to Predict Treatment Receipt**

Gelberg-Andersen's Behavioral Model for Vulnerable Populations (BMVP) assesses determinates of health services utilization in vulnerable communities (Gelberg et al., 2000). Intended initially to predict receipt of primary care by individuals experiencing homelessness, it has been expanded to other vulnerable populations. There are three domains for predicting someone's treatment receipt: predisposing, enabling, and need factors. These domains are divided in the BMVP into two categories: traditional and vulnerable (Gelberg et al., 2000). All domains contributing to substance misuse treatment receipt pulled from previous research can be found in Figure 3. The domains that can be attributable to treatment center characteristics utilized in this study are in red. While predisposing and need factors center almost solely on individual characteristics, enabling factors can be expanded to include treatment-center features that either help or inhibit someone's ability to enter treatment. Enabling factors include resources like insurance, income, social support, region, residence, transportation, and the ability to navigate complex systems (Gelberg et al., 2000). While some of these factors are attributed to the individual (e.g., whether a person has insurance), they can also be applied to treatment centers. Enabling factors considered attributable, in part, to treatment facilities could be determined by the facility. If there is a facility that accepts individuals who do not have insurance, that facility is more accessible to individuals who seek treatment. If a facility provides transportation to care, that eliminates transportation costs and time barriers that may be experienced by an individual. Culturally sensitive programs enable treatment receipt by individuals; however, facilities determine what kind of programming they include.

Past research has found several traditional enabling factors attributable to treatment center characteristics that increase access to care. At an individual level, insurance and treatment costs are often the top reasons listed for not attending treatment (Haeny et al., 2021; Choi et al., 2019). Treatment centers must often accept the type of insurance and assume the responsibility of managing insurance billing. Substance abuse treatment centers also have the option to apply for and obtain grant funding to provide treatment for individuals without insurance or other ability to pay for services, which can decrease the potential cost barrier (SAMHSA, 2023). These grants are non-competitive and increase access to care, but it is the center's responsibility to apply for these services, as individuals cannot access these funds independently (SAMHSA, 2023).

Vulnerable enabling domains also impact individuals' ability to access treatment. More treatment facilities in an area are positively associated with treatment receipt (Victor et al., 2018). Not having accessible transportation to treatment is often seen as a barrier to treatment access (Browne et al., 2016; Scorsone et al., 2020). One study found that even having transportation to the first appointment, individuals were more likely to continue to engage in care (Stewart et al., 2021). Studies examining treatment center characteristics and how they impact individuals' treatment receipt found that adequately staffed facilities were positively associated with treatment engagement (Timko et al., 2016).

Notably, individuals responded that different types of treatment available in an agency (e.g., inpatient services, outpatient services, medically assisted treatment) led to greater service receipt (Browne et al., 2016). Integrated services were a motivator for treatment, as participants found that receiving care in one location benefited the continuity of care (Browne et al., 2016). Meeting multiple needs at the same facility can keep participants engaged in treatment for

extended periods. This includes providing family services. Not having childcare can greatly hinder treatment, and facilities offering childcare can assist clients in receiving care without assuming additional costs (Seay et al., 2017).

Additionally, patient-centered care in treatment centers may predict treatment receipt. Epstein and Street (2011) define patient-centered care as focusing more on the person's holistic needs than just the diagnosis given. This involves a greater focus on the patient as a "whole" person and often allows the patient determination within their care. Patient-centered care variables positively associated with treatment receipt include regular team meetings to discuss client progress and therapeutic staff interactions (Park et al., 2020).

### **Organizational Capacity as a Novel Enabling Factor**

Many past studies focus on individual factors leading to treatment receipt. This sometimes includes framing the barrier of treatment cost as someone not being able to afford treatment instead of treatment centers charging a high fee. While we do have some knowledge of organizational characteristics leading to treatment receipt, there are fewer studies on how organizational leadership and planning characteristics, namely organizational capacity, can impact treatment access.

Organizational capacity, used to assess businesses' strengths and areas for improvement, can be defined as anything necessary for an agency to meet its mission (Light, 2004). Organizational capacity can include everything an organization needs to meet its defined goals - from furniture to types of programming to staffing (Light, 2004). For this reason, it is hard to define, as the needs of every organization can vary greatly (Andersson et al., 2016). Research can also vary on what aspects of organization capacity it examines. Organizational capacity elements include vision and mission, leadership, services provided, outreach, and available

resources (De Vita & Fleming, 2001; Andersson et al., 2016). For this study, the organizational capacity domains included are 1) defined organizational identity (e.g., mission statement and goals), 2) fund development, 3) volunteers, and 4) organizational procedures (e.g., hiring staff members, outcome tracking, and strategic planning). Like treatment cost, services provided, and client-centered care, organizational capacity can strengthen the treatment center and allow the agency to continue adapting to changes and providing care.

### ***Organizational Capacity within Complex Adaptive Systems Theory***

Organizational capacity can fit within a larger Complex Adaptive Systems framework (Glor, 2007). This theory views organizations as entities comprised of smaller units that must operate harmoniously for the agency to be effective overall (Johnson et al., 1963). These complex systems cannot be reduced or separated but instead work together to help organizations continue to adapt to changes (Glor, 2007). Organizational systems include management-level and member-level aspects, which can include other critical aspects of organizations, such as the organization's culture and needs (Lin, 2004). In these complex systems, there is a concept of dynamic capabilities. This framework recognizes that organizational systems adapt to their environment and try to shape it (Teece, 2018). With organizational capacity often being a measure of how a facility can adapt to change, it is necessary to assess how capacity fits foundationally into the organizational system (Simpson & Dansereau, 2007). Organizations are best viewed as systems within the context of their environment (Walters, 2021). For the purpose of this study, substance misuse treatment facilities are viewed within the larger context of the COVID-19 pandemic. Organizational capacity is the input that allows an agency to function to meet its programming needs (Walters, 2021). Organizational identity is a key aspect of organizational capacity. It assesses the values of an organization, how the agency distinguishes

itself from others, and how it can withstand difficult changes (Albert & Whetten, 1985). Having a strongly defined organizational identity (including procedures utilized to define that identity) as an aspect of organizational capacity has allowed members of the organization's system to adapt better to change (Lin, 2004). Evaluation of organizational capacity grants a greater lens on how the system of the organization functions.

Little is known about varying aspects of the organizational capacity of substance use treatment facilities. Much research on organizational capacity focuses on one domain (e.g., program implementation) instead of capacity as a whole. Many studies examine adding additional programming within treatment facilities and how size and readiness to change as capacity domains influenced the integration of new programming. These studies found that organizational size and readiness to change were associated with more seamless integration of new programming into the treatment center as a whole (Lambert-Harris et al., 2013; Gotham et al., 2010). Other studies examined how treatment centers integrated public health services like HIV testing, finding that those with higher motivational readiness and a cohesive organizational climate as areas of capacity were more able to implement and adapt new programs (Guerrero et al., 2014). For centers wanting to add new medication as part of their standards of care, researchers found that capacity domains, including a center's age and strength of leadership, were associated with more successful implementation (Roman & Johnson, 2002). While these aspects of certain capacity domains and how they influence program implementation are fundamental to the knowledge base, it does not give a comprehensive view of where treatment facilities stand in varying organizational capacity domains and how those domains impact their current ability to serve individuals who seek care within their facilities. More research on organizational capacity using standardized measures and more comprehensive domains is

needed. Assessing agency policies as areas of capacity, such as having a defined mission and vision, volunteer management, fundraising, and organizational procedures will give a more defined picture of the agency as a whole and how it adapts to change.

### **The Current Study**

Guided by Gelberg-Andersen's BMVP and organizational capacity as an aspect of complex systems, this study analyzes the barriers and factors contributing to treatment receipt during the COVID-19 pandemic. Adding to the enabling domains of the BMVP will be information on organizational capacity and how it impacted facilities' abilities to serve clients during times of shutdown and other public health crises. Assessing substance abuse treatment cannot put the burden on the individual to seek help and then receive help when other enabling factors are in place that may facilitate or prohibit the facilitation of seeking care. This study addresses the following hypotheses on how treatment centers' ability to provide care changed during COVID-19:

*Hypothesis one: As having more types of services in one facility has been shown to enable care, providing more types of programming within one facility will be associated with fewer interruptions in care during COVID-19.*

*Hypothesis two: Greater patient-centered care practices will be associated with fewer interruptions in care during COVID-19.*

*Hypothesis three: Higher organizational capacity will be associated with fewer interruptions in care during COVID-19.*

### **Methods**

This study included a survey of representatives of treatment centers in the U.S. that provide varying services to individuals who misuse substances or live with substance use

disorders. The University of Tennessee's Institutional Review Board approved all procedures (UTK IRB-22-07111-XM). Data collection was completed between September 2022 and December 2022.

### **Study Design**

This study was cross-sectional in design and utilized a sing-session online survey distributed through the University of Tennessee Qualtrics program.

### ***Research Ethics***

Participants agreed to informed consent forms before any data collection began. Once participants reviewed the informed consent document, they electronically agreed to proceed with the survey. Participants could decline to participate or withdraw from the study without penalty.

This study was completely anonymous, meaning no identifying information was attached to the participants' survey answers. Participants could enter a raffle to win one of six \$50 Amazon gift cards. Participants' email addresses were collected separately from survey answers to enter this raffle and maintain anonymity. Participants also had the option to agree to follow-up research. Contact information for those who agreed to follow up was collected separately from survey answers to protect participants' confidentiality.

### **Sampling Strategy**

All participants self-selected into the study. Sampling was virtual to maximize the study's reach and variability of the participants. To best answer the questions of treatment center characteristics and organizational capacity, the recruitment email asked for the executive director, clinical director, or other managing director or equivalent to respond. The population size for this survey is 19,926 total facilities (SAMHSA, 2021). Specific treatment centers were identified through SAMSHA's treatment center listings, which includes all licensed facilities in

the U.S. (SAMHSA, 2022). A search of each facility occurred online, because this listing only included a physical address and phone number. This search produced email addresses for correspondence. Specific emails for executive directors (or equivalent) were mined and included if available. If a specific email was not available, the email was sent to the facility's general email. If no email address was found, the facility was not contacted. Contact occurred to a total of 3,665 treatment facilities. The 19,926 facilities included by SAMHSA include multiple locations for some facilities. To avoid nested data, only one contact was made to each facility, even if that facility operated in several areas.

### ***Sample Power***

The target sample size for this study was 66. This number was generated using G\*Power for ordinal logistic regression. Prior research has found that an odd's ratio of 3.47 is equivalent to a Cohen's d of 0.5, indicating the ability to see medium effects (Chen et al., 2010). The power for this study was set at 0.80 with an alpha of 0.05. This study is exploratory, as no known prior studies assess organizational capacity and impact on closures of treatment facilities. A modest sample size allowed for distinguishing medium effect sizes while still being achievable in garnering responses from facilities. To account for missing data and participant dropout, the goal sample size for the study was 125.

### **Measures**

The Appendix for this study contains all measures used, including a summary table of the concepts measured. Study One, a systematic review of individual and treatment center characteristics enabling treatment receipt, informed the selection of measures used throughout this study. The following information provides details and descriptions of the measures used.

### ***COVID-19 Change Questions***

The primary outcome measure used in this study are COVID-19 *changes in the number of services provided during the pandemic*. The primary outcome variable was an ordinal variable asking, “Compared to the years prior to the pandemic, did your facility offer more or less services or treatment options during COVID-19?” The possible answers were -2 (“We offered much fewer services or treatment options”), -1 (“We offered fewer services or treatment options”), 0 (“There was no change to the number of services or treatment options we offered”), 1 (“We offered more services or treatment options”), and 2 (“We offered many more services or treatment options”). This question assessed a treatment center’s ability to provide more or fewer services during this time of rampant facility shut down. Currently, no known scale exists measuring changes in service provision that occur related to a pandemic. As such, a single ordinal item was used to evaluate the differences between facilities that provided more services during COVID-19 (e.g., starting an online program) and those that provided fewer services (e.g., stopping intensive residential services during widespread instances of communicable disease).

To probe other changes during COVID-19, participants also answered about differences in clients they served between 2019 and 2021, if they served more or fewer clients, how their treatment modalities changed, and if they implemented any new types of treatment (e.g., telehealth) during COVID-19.

### ***Treatment Characteristics***

Twenty items were pulled from the 2017 National Survey of Substance Abuse Treatment Services to assess treatment center characteristics (SAMHSA, 2018). The first two questions assessed the services offered at their facility. These included a categorical list of services (e.g.,

intake, detoxification, residential) and the primary focus of those services (substance abuse only, mental health only, co-occurring, or other). Two items assessed operations of the treatment facility, with the first item assessing categorically if the facility is operated by a nonprofit, a for-profit, or a state, local, tribal, or federal government. The second item asked if the facility is located in a hospital or run by a hospital. One item assessed accreditation. Three questions probed funding – one question asked if treatment is offered to those without insurance or the ability to pay, and the following question asked if the facility receives any grant funding. The final question assessed what types of payments or insurance are accepted. Four questions assessed the types of services offered at the facility, including items on screening and evaluation, testing services (e.g., TB screening, HIV testing), discharge planning, and ancillary services (e.g., childcare, domestic violence classes, transportation assistance). Two items assessed how often certain therapeutic services are offered, and these included the percentage of clients who receive services such as individual counseling, group counseling, and family/marital counseling and how often therapeutic approaches (such as CBT, DBT, and 12-step facilitation) are used in the facility. One item assessed standard operating procedures like continuing staff education, following up with clients after discharge, and client satisfaction surveys conducted within the facility. Two items probed accessibility. Specifically, respondents answered if the facility provides treatment in languages other than English and if sign language interpretation services are provided for those who are deaf or hard of hearing. Two questions assessed the populations served at the facility, including specific groups or treatment programs for diverse groups. The final two items pulled assessed what percentage of the facilities staff maintains a license and what percentage of staff is personally in recovery from substance use.

Seven items probed treatment center characteristics that are not pulled from the 2017 National Survey of Substance Abuse Treatment Services. Four questions were asked: how long the agency has been open and serving clients, how long the current executive director has been with the agency, how long the average tenure is for the current staff, and if the agency is currently fully staffed. One question assessed how the treatment facility advertises its services to potential clients. Two items assessed the rurality and location of the treatment centers. The first item asked participants to give their state, and the second asked what they consider the area where they work to be rural, suburban, or urban/metro. These items allowed for greater insight into the region of the facilities and how the region's policies might impact the facility's functioning.

### ***Patient-Centered Care***

Twelve patient-centered care items were adapted from Park et al.'s (2020) survey of substance use treatment facilities. The first two items asked whether the agency conducts regular treatment team meetings and if clients attend those meetings when discussing their cases. The following ten items assessed patient-centered care at the individual facilities. Examples of questions on this scale include, "The quality of interaction between staff and clients is more important than getting the tasks done" and "We ask our clients which treatment options they prefer. All ten items are measured with a Likert Scale, and responses range from 1 ("Strongly Disagree") to 5 ("Strongly Agree"). All items were tallied to create a total scale score for patient-centered variables. Higher scores indicate more patient-centered care practices.

Researchers adapted this scale from two validated measures of person-centered care: the P-CAT and shared decision-making – neither of which had previously been used in substance abuse treatment settings (Park et al., 2020). Either a director or a supervisor at 657 facilities

completed the survey. The original measure reported a Cronbach's alpha value of 0.79, indicating acceptable reliability.

### ***Organizational Capacity***

Organizational capacity was measured as a single latent variable created by a composite score of 36 items. Thirty-six items assess organizational capacity and come from a recent exploratory factor analysis on a brief organizational capacity scale. This scale originated from the Knoxville Leadership Foundation and ABN, capacity builders in East Tennessee (Walters et al., 2022). This scale provides a quick and efficient way to assess organizational capacity, as many scales assessing capacity are lengthy and time-consuming. This assessment contains four subscales: organizational identity, fund development, volunteers, and organizational procedures. Three items address organizational identity, four items address fund development, three items address volunteer practices, and 26 items address organizational procedures. Organizational identity items assess who the organization is and what it does, fund development items assess fundraising practices, and volunteer items assess volunteer practices. Organizational procedures items include questions on human resources, technology, legal and compliance, program design, and leadership (Walters et al., 2022). All items are answered dichotomously, with "No" scored as 0 and "Yes" scored as 1. Items are scored in their individual subscales. Scores are tallied, and higher scores indicate greater levels of organizational identity, fundraising development, volunteer practices, and organizational procedures.

Organizational capacity and other proposed variables were measured at the treatment center level. Starting with this measurement allows for one person (e.g., a clinical or executive director) to complete the capacity assessment. Other capacity scales that include items crucial to organizational identity, like organizational culture and climate, are often best measured through

assessing inter-item correlations among multiple respondents from the same facility to avoid a bias of only receiving one perspective stemming from leadership (Institute of Behavioral Research, 2009). As this study addresses a general overview of treatment center perspectives and only allows one answer per treatment facility, this brief capacity scale provided a foundational approach to assess how organizational capacity fits in the overall BMVP as an enabling factor.

### **Data Analysis**

Descriptive statistics were run on all treatment center characteristics, COVID-19 change questions, and primary independent variables of interest. Before beginning multivariable analyses, bivariate analyses were run to assess if any treatment center characteristics impacted an agency's ability to provide services during COVID-19. Any significant bivariate results were input into the model. This was completed to ensure adequate power to run the regression models with the key variables of interest. Ordinal logistic regression was run with the significant bivariate variables in all models. Changes to services provided during COVID-19 were regressed on the sum of total services provided, patient-centered care, and organizational capacity, as well as any significant bivariate variables. The base model contained only the significant bivariate variables. Model one included the significant bivariate variables and the total number of services provided. Model two contained the significant bivariate variables and the patient-centered care variable. Model three contained the significant bivariate variables and the organizational capacity scale score.

### **Missing Data Analysis**

Before beginning any bivariate or multivariable analyses, multiple imputation was utilized to handle missing data at the item level for the scale variable. No variables had over 2% missing. Thirteen cases had 2.8% missing (missing one item), four cases had 5.6% missing

(missing two items), one case had 8.3% missing (missing three items), and one case had 22.2% missing (missing eight items). No cases or variables were defined as having over 40% missingness, which indicates substantial missingness (Jakobsen et al., 2017). Little's (1988) missing completely at random (MCAR) test provided evidence that the data used in analyses were MCAR ( $\chi^2[582] = 614.013, p = .173$ ). A total of forty imputations were used.

### **Multicollinearity**

Before beginning logistic regression, the primary independent variables and control variables identified were assessed for multicollinearity. Variance Inflation Factors (VIFs) were calculated to detect the presence of multicollinearity between the variables, and VIFs of greater than five are cause for concern (Menard, 2009). No variables indicated problems with multicollinearity, and all had VIF values of less than 2.

## **Results**

### **Descriptive Statistics**

#### ***Descriptive Statistics of Treatment Center Characteristics***

A total of 166 managing directors of various treatment centers that provide care for individuals living with substance misuse or substance use disorders responded to the survey. Table 15 contains descriptive information on treatment center characteristics. Most (59%) of respondents were in the western part of the U.S., as classified by the U.S. Census Bureau regions (U.S. Census Bureau, n.d.). Most respondents (38.6%) considered the area where they work to be an urban/metro area, while the remaining respondents identified their facility as being in a suburban area (36.1%) or a rural area (25.3%). Over 60% of facilities listed substance abuse treatment services as their primary focus, and 33.1% reported that their primary focus was a mix of mental health and substance abuse treatment services, with neither being primary. A majority

of facilities were operated as private, nonprofit organizations (53.0%), and 38.0% of facilities were operated by private, for-profit organizations. Either national or state accrediting agencies accredited over 78% of facilities. Of payment options: 86.7% of facilities reported that they offered treatment to clients without insurance who could not afford to pay for treatment, and 65.7% said they utilized federal, state, or local grants to help support their programming. Most agencies accepted cash or self-payment (83.1%), Medicaid (69.9%), or private health insurance (68.7%). Fewer agencies took no payment for treatment (34.3%), Medicare (30.7%), Tricare (e.g., federal military insurance; 25.9%), HIS/Tribal/Urban funds (13.3%), or Access to Recovery Vouchers (3.6%). The mean time an agency had been open and treating clients was 29.62 years ( $SD = 21.20$ ). The mean number of years the current executive director (or CEO or equivalent) had been with the agency was 11.68 years ( $SD = 10.17$ ). Over half (55.9%) of agencies reported that a governing agency licensed at least 51% of their staff (e.g., LCSW, LPC), and over half (63.3%) said that less than 50% of their staff identified as being personally in recovery from substance misuse. Most (59.0%) of facilities reported they were not fully staffed.

Table 16 contains all descriptive statistics of counseling and clinical approaches used in the facilities. Both individual and group counseling were offered to more than 75% of clients by 74.1% and 71.7% of facilities, respectively. Family and couples counseling was less commonly offered, with 49.4% and 46.4% of facilities offering them to less than 25% of their clients. Substance abuse counseling was always offered by 78.9% of treatment centers. Relapse prevention skills and Motivational Interviewing followed substance abuse counseling and were always offered by 71.1% and 59.6% of facilities, respectively. Table 17 contains all descriptive information for the types of programming provided by facilities. Over 90% of all facilities reported serving males, females, and nonbinary individuals in their treatment programs. Only

48.8% of facilities provided treatment services in a language other than English, and only 32.5% reported providing services for individuals who are deaf or hard of hearing. Many facilities explicitly offered tailored programs to specific populations. The most common tailored programs were for clients with co-occurring mental and substance use disorders (52.4%), adult women programs (47.6%), adult men (43.4%), and criminal justice clients (38.0%).

### ***Descriptive Statistics of Covid Change Questions***

Descriptive information on the COVID-19 change questions can be found in Table 18. The primary dependent variable asked participants, “Compared to the years prior to the pandemic, did your facility offer more or less services or treatment options during COVID-19?” Results were measured on a 5-point Likert scale. Issues of non-normality were examined, and the histogram distribution and skew (-0.192) and kurtosis (-0.693) indicated an acceptable distribution (George & Mallery, 2021). Of the respondents, 30.7% reported no change in services or treatments provided during COVID-19. Similarly, 30.7% of respondents reported offering fewer or many fewer treatment options during COVID-19. Finally, 38.5% of facilities reported offering more or many more services during COVID-19. Similarly, some facilities reported pausing services during COVID-19 (40.4%). However, fewer facilities reported having to end services (13.3%). A majority (54.2%) of facilities reported serving fewer or many fewer clients during COVID-19. For those facilities that implemented new strategies or programming during COVID-19, the most common programs implemented included telehealth (94.0%), online group therapy (63.9%), and virtual screening or admissions (56.6%).

### ***Descriptive Statistics of Primary Independent Variables***

Descriptive statistics for total services offered by each facility can be found in Table 19. Treatment facilities answered if they offered clients any of the 43 specific services. Ten of those

services were related to substance abuse-specific programming, seven services were related to pre-treatment assessments, and eight services were related to testing provided. Four services were categorized as transitional services, and 14 services were considered ancillary. Centers reported an average of 4.36 total substance abuse services ( $SD = 1.99$ ). Almost all (95.8%) of facilities offered intake, assessment, or referral services. Most facilities offered outpatient programming (80.7%) and intensive outpatient programming (66.3%). Fewer facilities provided partial hospitalization programming (18.1%), detoxification (22.3%), and short-term residential treatment (29.5%). The mean number of pre-treatment services offered by facilities was 3.58 ( $SD = 1.61$ ). The most common pre-treatment services offered were screening for substance use disorders (80.7%) and comprehensive substance abuse assessment or diagnosis (81.3%). The mean count of testing services offered was 3.08 ( $SD = 2.23$ ). The most common testing services provided were drug or alcohol urine screening (91.0%) and breathalyzer or blood alcohol testing (65.7%). Transitional services were highly offered. The mean number of transitional services provided was 2.16 ( $SD = 0.79$ ). Most facilities provided discharge planning (95.2%), and 80.7% of facilities provided aftercare or continuing care. Finally, the mean count of ancillary services was 642 ( $SD = 2.95$ ). The most common ancillary services agencies provided included substance abuse education (90.4%), case management services (78.9%), mental health services (64.5%), and assistance with locating housing for clients (61.4%).

On average, treatment centers reported 19.59 total services offered ( $SD = 6.54$ ). This sum of the total services variable was utilized as an independent variable predicting changes to services offered during COVID-19. Issues of non-normality were examined, and the histogram distribution and skew (0.143) and kurtosis (-0.314) values indicated an acceptable distribution (George & Mallery, 2021).

The survey intended to use Park et al.'s (2020) Patient-Centered Care Scale to measure treatment centers' patient-centered practices. Scores for this scale can range from 10 to 50, with higher scores indicating greater patient-centered care. The mean for this score was 39.04 ( $SD = 3.22$ ). Unlike the initial alpha value in Park et al.'s original study ( $\alpha = 0.79$ ), Cronbach's alpha value for this sample was 0.47, indicating low reliability in the current sample. Consequently, a single item measuring one aspect of patient-centered care (also adapted from Park et al., 2020) was substituted as a proxy indicator of PCC in the model. This question asked, "Does your agency conduct regular meetings of all treatment providers (or a case conference) to discuss treatment planning and the progress of individual clients?" This variable is binary, with "No" coded as zero and "Yes" coded as one. A majority (91.6%) of facilities reported engaging in treatment plan discussions.

Finally, organizational capacity was measured as individual subscale variables: organizational identity, fundraising development, volunteer development, and organizational procedures (Walters et al., 2022). The mean score for the total scale was 27.74 ( $SD = 4.98$ ). The organizational identity subscale ranged from 0 to 3. The mean for this subscale was 2.59 ( $SD = 0.95$ ). The Cronbach's alpha for organizational identity was 0.92, indicating strong reliability. For the fundraising development subscale, scores could range from 0 to 4. The mean fundraising development score for this sample was 1.16 ( $SD = 1.50$ ). The Cronbach's alpha for the fundraising development subscale was 0.85, indicating acceptable reliability. The volunteer management subscale had scores that could range from 0 to 3. The mean for this subscale was 0.78 ( $SD = 1.14$ ). The Cronbach's alpha for this subscale was 0.83, indicating acceptable reliability. Finally, the organizational procedures subscale could have scores ranging from 0 to 26. The mean for this scale was 23.21 ( $SD = 3.14$ ). The Cronbach's alpha for this subscale was

0.81, indicating acceptable reliability. Issues of non-normality were examined in each subscale, and the histogram distribution and skew and kurtosis values indicated an acceptable distribution.

### **Bivariate Analysis**

Bivariate analyses assessed the relationships between the independent variables and whether a facility provided more or fewer services during COVID-19. Organizational identity ( $r_s = 0.06, p = 0.435, 95\% \text{ CI } [-0.10, 0.22]$ ), fund development ( $r_s = -0.03, p = 0.662, 95\% \text{ CI } [-0.19, 0.12]$ ), volunteer practices ( $r_s = -0.05, p = 0.528, 95\% \text{ CI } [-0.20, 0.11]$ ), organizational procedures ( $r_s = -0.13, p = 0.095, 95\% \text{ CI } [-0.28, 0.03]$ ), and the sum of total services provided at the facility ( $r_s = 0.057, p = 0.464, 95\% \text{ CI } [-0.10, 0.21]$ ) did not significantly correlate with changes to services offered during COVID-19. The single item measuring patient-centered care approached statistical significance ( $r_s = 0.148, p = 0.057, 95\% \text{ CI } [-0.24, 0.08]$ ).

Spearman's rho correlations were run to assess if any treatment center characteristics or other types of services offered significantly correlated with offering more or fewer services. These correlations indicated that an agency providing partial hospitalization services ( $r_s = 0.165, p = 0.034, 95\% \text{ CI } [0.01, 0.31]$ ), intensive outpatient services ( $r_s = 0.242, p = 0.002, 95\% \text{ CI } [0.09, 0.38]$ ), and outpatient services ( $r_s = 0.157, p = 0.043, 95\% \text{ CI } [0.00, 0.31]$ ) were all significantly correlated with offering more services during COVID-19. Additionally, a facility having accreditation by the Joint Commission ( $r_s = 0.164, p = 0.035, 95\% \text{ CI } [0.01, 0.31]$ ) and accepting private insurance ( $r_s = 0.174, p = 0.025, 95\% \text{ CI } [0.02, 0.32]$ ) were positively correlated with offering more services during COVID-19. These additional variables were input into the multivariable analyses as control variables.

### **Ordinal Logistic Regression**

#### ***Base Model with Significant Bivariate Variables***

Model 0 contains the control variables with significant bivariate correlations. The test of parallel lines indicated that the proportional odds assumption was not violated ( $\chi^2[15] = 12.37, p = 0.651$ ), and ordinal logistic regression could continue. The results of this regression can be found in Table 20. The overall model was statistically significant ( $\chi^2[5] = 15.36, p = 0.009$ ), though no control variables predicted the outcome, and the significance occurred between levels in the intercept-only model. Those who offered much fewer services, those who had no change in services provided, and those who offered more services varied significantly from the treatment centers that offered many more services.

#### ***Model One with Significant Bivariate Variables and Number of Services Provided***

Model 1 addressed hypothesis one, which states that *providing more types of programming within one facility will be associated with fewer interruptions in care during COVID-19*. The count of all services provided in an agency was added to this model. This hypothesis was not supported. The test of parallel lines indicated that the proportional odds assumption was not violated ( $\chi^2[18] = 16.15, p = 0.582$ ), and ordinal logistic regression could continue. The results of this regression can be found in Table 21. Like the base model, the overall model was statistically significant ( $\chi^2[6] = 15.67, p = 0.016$ ); however, no variables predicted those differences. Model 1 did not improve the fit relevant to Model 0 ( $\chi^2[1] = 0.31, p = 0.576$ ).

#### ***Model Two with Significant Bivariate Variables and Patient Centered Care Variable***

Model 2 addressed hypothesis two, which states that *greater patient-centered care practices will be associated with fewer interruptions in care during COVID-19*. This hypothesis was also not supported. Adding the sum of total services provided did not improve the model fit compared to the base model, so the ordinal logistic regression was run as a singular regression

instead of a sequential one. Model 2 removed the sum of total services as a predictor, only utilized the single-item patient-centered care variable along with the initial control variables, and then compared this model to the base model. Again, for this model, the test of parallel lines indicated that the proportional odds assumption was not violated ( $\chi^2[18] = 14.74, p = 0.680$ ), and the ordinal logistic regression continued. The results of this model can be found in Table 22. Similar to the prior models, this model was statistically significant overall ( $\chi^2[6] = 17.68, p = 0.007$ ); however, the intercept-only models explained the differences. Model 2 did not improve the fit relevant to Model 0 ( $\chi^2[1] = 2.32, p = 0.128$ ).

### ***Model Three with Significant Bivariate Variables and Organizational Capacity***

Model 3 addressed hypothesis three, which states that *higher organizational capacity will be associated with fewer interruptions in care during COVID-19*. This final hypothesis was also not supported. As neither Model 1 nor Model 2 significantly improved upon the base model, Model 3 was again compared to the base model. Model 3 contains the organizational capacity subscale scores as the primary independent variable with the previous control variables. Like the prior models, the test of parallel lines indicated that the proportional odds assumption was not violated ( $\chi^2[27] = 21.88, p = 0.744$ ), and the ordinal logistic regression continued. The results of the model can be found in Table 23. While the model was statistically significant ( $\chi^2[9] = 17.00, p = 0.049$ ), the only significant factors were the intercepts. Model 3 did not improve the fit relevant to Model 0 ( $\chi^2[4] = 1.64, p = 0.802$ ).

### ***Model Four with Sum of Total Services, Patient Centered Care Variable, and Organizational Capacity***

As none of the variables with bivariate significance had any predictive power, they were removed from the model to see how the primary independent variables would regress on the

outcome variable without controls. Model 4 contains just the sum of total services, patient centered care variable, and organizational capacity subscales. The test of parallel lines indicated that the proportional odds assumption was not violated ( $\chi^2[18] = 10.25, p = 0.923$ ), and the ordinal logistic regression continued. The results of this model can be found in Table 24. The model without the control variables was not statistically significant ( $\chi^2[6] = 7.23, p = 0.300$ ), and no variables significantly predicted changes in services provided.

#### ***Model Five with Only Patient-Centered Care Variable***

A final model was run with only the patient-centered care variable predicting changes to services offered during COVID-19. The test of parallel lines indicated that the proportional odds assumptions was not violated ( $\chi^2[3] = 2.14, p = 0.544$ ), and the ordinal logistic regression continued. The results of this model can be found in Table 25. This overall model approached statistical significance ( $\chi^2[1] = 3.62, p = 0.057$ ) with those who endorsed engaging in regular treatment plan meetings being 2.6 times more likely to offer more services during the COVID-19 pandemic ( $p = 0.057$ ).

### **Discussion**

COVID-19 caused changes in substance abuse treatment facilities, evidenced in descriptive statistics for the sample. Treatment centers varied on offering more or fewer services or experiencing no changes to the services offered; however, all hypothesized predictions of what might explain the change in services were unfounded. Significant differences occurred between the groups, but the predictor variables in this study could not explain them.

#### **Number of Services Provided and Continued Care During COVID-19**

Prior studies showed that providing more services was an enabling factor for treatment centers providing care for individuals seeking substance use treatment. Meeting multiple needs

in one location led to continuity of care (Browne et al., 2016; Hewell et al., 2016). In a busy world, receiving vocational counseling in the same place as substance abuse counseling or group services could reduce the barrier of traveling and paying costs to multiple facilities. In this sample of treatment centers, providing more total types of services (e.g., testing, ancillary, etc.) neither correlated with nor predicted having fewer disruptions of care during COVID-19.

There are several potential reasons that providing more types of services to clients did not have a relationship with offering more or fewer services during COVID-19. First, it is possible that facilities that offered fewer services closed during the height of the pandemic, as many facilities grappled with how to keep individuals safe from viral infection (Leonard, 2020). Offering more services allows for greater adaptation in meeting clients' needs (Browne et al., 2016). For facilities that only provided inpatient or halfway house services, there is a chance they could not move any services online and, therefore, might have experienced the closure of the facility. Facilities that closed in 2020 or 2021 would likely not be listed or reachable from SAMHSA's listing of treatment centers. Therefore, this sample may be missing critical information from facilities that did not have enough dynamic, adaptable service options and ultimately closed during COVID-19.

Second, it may not be the number of services offered but the types of services that allowed fewer disruptions in service options. A bulk of substance abuse treatment occurs through group therapy as group therapy provides many positives for the consumer, including a sense of universality and not being alone in experiences (Mogan-Lopez & Fals-Stewart, 2006). Providing intensive outpatient services (IOP), partial hospitalization services (PHP), and traditional outpatient services (OP) (all of which traditionally have group therapy components) significantly correlated with providing more services during COVID-19. While these did not significantly

predict providing more services, it is possible that providing these services could quickly shift these therapies online. Telehealth became standard in 2020 and 2021 (Shaver, 2022). IOP, PHP, and OP all have a mandated set of hours, and they can all occur on a strictly outpatient basis (even though some facilities do choose to provide housing with these programs). Some groups may have shifted entirely online, and some may have chosen to remain online as telehealth has many cost-saving implications for the facility and the individual (Shaver, 2022). Telehealth also reduces other barriers, such as transportation to treatment (Gurney et al., 2021).

Additionally, it is possible that even if agencies offered few services, it did not negate the high levels of need individuals living with substance misuse experienced during the pandemic. Substance misuse rates increased exponentially for those already using illicit substances (Abramson, 2021). Even though it was challenging, agencies that provided inpatient services successfully navigated the dual pandemics, and many avoided outbreaks and prevented closures and disruptions to care (Hanton et al., 2021; Johnson et al., 2021). As vaccines became more readily available towards the end of 2020 and the beginning of 2021, it was likely more feasible for agencies that provided inpatient care to continue providing services at comparable levels before the pandemic.

### **Patient Centered Care's Impact on Services Provided**

The second potential explanation is that facilities with higher levels of patient-centered care also did not predict experiencing fewer disruptions during COVID-19, though it continually approached significance. This variable also approached significance in the bivariate analysis. Patient-centered care has previously been seen as an enabling factor for treatment centers serving individuals with substance use disorders (Park et al., 2020). This may still be an enabling factor that led to fewer service disruptions; however, it was not adequately represented by the measures

in this sample. While the patient-centered care scale had adequate reliability in its original study (Park et al., 2020), in this sample, it had unacceptable reliability and could not be used. The scale was used in the same way as the original study; both studies had the scale answered by one senior member of a substance abuse treatment facility. This difference in reliability could have been related to sample size, as the original study had over 700 participants. In place of this scale, only one item that measured one aspect of patient-centered care was utilized. This item was binary, with 92% of the sample indicating that they did have regular treatment team meetings. This reduced variation provides little explanation on how patient-centered care impacts providing services. In the future, more robust measures of patient-centered care could indicate greater protective value in the continuation (or addition of) services during times of general disruption to services like those experienced during COVID-19.

### **Organizational Capacity and Continued Services**

Finally, higher organizational capacity scores in any subscale did not predict fewer disruptions in care during COVID-19. While these subscales showed good reliability in this sample, organizational capacity may not have predicted disruptions in service for reasons like those listed for the other two hypotheses. First, it is possible that agencies with lower capacity scores closed during the pandemic and could not access this survey. It is possible for agencies to receive a score of zero on the capacity scale, and the lowest score noted in this sample was 11, indicating that most respondents had at least moderate levels of capacity. Organizational procedures, the largest of the subscales, had an even more limited range, indicating that the agencies in this survey had well defined procedures that may have been protective factors against closures and major disruptions in services during the pandemic. Similarly, the mean organizational identity subscale was 2.59 out of a possible 3. The agencies in this sample had a

well-defined identity. This again could be a contributing factor to participation in this study. Directors that took this survey had the time and availability to take this study. This alone may indicate higher capacity as they were able to direct their attention and energy to this survey.

Organizational capacity was used as the organizational measure in this study as it demonstrates how agencies can acquire what they need to meet clients' changing needs (De Vita & Flemming, 2001). Complex systems theory notes that agencies must adapt and try to shape their environment (Teece, 2018). Agencies that could more quickly and efficiently develop policies to address COVID-19 and dramatic increases in substance misuse were potentially more likely to successfully navigate changes to operations brought about by social distancing policies (Hanton et al., 2021). As Complex Adaptive Systems Theory states, organizations have parts that work interchangeably and in harmony to make up the whole (Glor, 2007). These parts are not easily separated. While both the organizational capacity measures and the PCC scale were created to assess these items with responses from just one agency representative, it is also possible that more respondents from a single agency were needed to grasp better how an organization truly functions and what its capacity entails. It could also be possible that this response was better answered by someone in middle-level management in the agency instead of the director or operating officer. It might be easier for an executive to know what tools an agency uses to meet its goals and mission. However, if those tools are not present or readily available to staff, perceptions of organizational capacity could vary greatly.

### **Treatment Center Characteristics Correlated with Services Provided**

To explore what may have caused the differences between groups, all treatment center characteristics were analyzed on the bivariate level with the outcome variable. Only providing IOP, PHP, or OP services, accepting private insurance, and being accredited by JACHO were

related to fewer disruptions in care, though none of these variables predicted the disruptions. It is possible that with a larger sample size and increased power, more predictive value might have been seen within these variables. As previously mentioned, IOP, PHP, and OP are services efficiently moved online, potentially acting as a protective factor for facilities and enabling them not to have to pause these services. More research may point to the benefits of continuing these services in a telehealth format. While the number of services provided was not statistically significantly related to service changes during COVID-19, the types of services provided could provide greater insight and are worthy of deeper and continued investigation.

Interestingly, only accepting private insurance was correlated with fewer service disruptions. While more participants can access facilities that offer grant-funded treatment (Abraham et al., 2018), payments received from private insurance companies may have allowed agencies to continue to pay staff, even if they did offer fewer services. Knowing that private insurance potentially acted as a protective factor in continuing to provide services may have both policy and practice implications. First, it may encourage private insurance companies to increase their access to substance misuse treatment. Historically, individuals with some type of government-subsidized healthcare (e.g., Medicaid, Medicare, Tricare) receive substance abuse treatment at higher rates than those with private insurance (Bouchery et al., 2012). Private insurance companies have historically been able to restrict their access to behavioral health care (Bogusz, 2020). Knowing that private insurance enables facilities to continue to provide services could encourage policy and lawmakers to mandate the inclusion of behavioral health policies that include substance abuse treatment services into insurance coverage. Second, treatment centers often have to negotiate the fee for service with private insurance companies (Larson, 2022). They may be more willing to engage in these negotiations and expand what insurance

companies they accept if accepting private insurance benefits the number of services an agency can continue to provide.

Finally, having accreditation from The Joint Commission was positively correlated with providing more services during COVID-19. Unlike other accrediting bodies, The Joint Commission is responsible for the accreditation of hospitals and healthcare centers, with guidelines on how to keep individuals safe during COVID-19 (The Joint Commission, 2023). This resource could potentially be a protective factor allowing facilities to continue functioning during the pandemic, and it may encourage facilities to apply for this high level of accreditation, even if they are currently accredited by a smaller agency.

### **Limitations**

This study is not without several limitations. First, the sample size, while large enough to see large effects, was not large enough to potentially detect some of the smaller, subtle effects that may have been contributing to the differences in services able to be provided during COVID-19. Though this study was exploratory, utilizing different methods (including mailed surveys and phone calls to agencies who did not respond or have an online presence) to garner a large sample size could have potentially allowed for greater detection of the aspects that led to differences in the ability to provide services during COVID-19. Second, the patient-centered care scale, though used in the same manner as the original study, had unacceptable reliability, which can attenuate any relationships. This scale was unable to be used; instead, a single item measuring patient-centered care was utilized. Using a single item is not as robust a measure as using a scale and different variables for patient-centered care, restricting the range of the patient-centered care measure. Third, this study used an ordinal dependent variable that may not have captured all the nuances present in changes to services during COVID-19 and how those services

were impacted by the pandemic explicitly. It is hard to assess if these changes would have occurred with or without the presence of the pandemic. Fourth, as this study was exploratory, only one person from each agency was asked to complete the survey. This was done to avoid nested models, which often require a minimum of 50 groups and five responses from each group (Hox, 2010). With the exploratory nature of this study, engaging in nested models was not feasible but should be considered for future research. Though organizational capacity can be measured by one person from an agency (Walters & Wallis, 2021), other organizational research encourages greater participation from each facility (Mueller & Lawler, 1999).

Finally, the timing of this study is a limitation. Recruitment for this study occurred between September 2022 and December 2022. Vaccine rollouts to the general population in the US began in March of 2021 (AJMC, 2021). COVID-19 deaths peaked in June of 2021 and steadily fell following that time (Ahmad et al., 2022). Even during later peaks, COVID-19 death and severe illness rates fell with vaccinations (Suthar et al., 2022). This gave health care centers, like substance use treatment facilities, opportunities to continue to admit and serve people in even inpatient facilities with lower risk. It is possible that taking inventory of changes to services during COVID-19 at a time when it has become a part of daily life led to less remembrance of its impact during the peak times. While COVID-19 is still with us, boosters are now recommended at least two months after the last dose (CDC, 2023). Personal protective equipment, such as masks and hand sanitizer, are readily available, unlike the shortages seen in the early days of the pandemic (Cohen & van der Meulen Rodgers, 2020).

Additionally, it is also possible that facilities with less capacity to handle the strain and closures caused by COVID-19 closed in the process. While this study did see several facilities that reported providing fewer services during COVID-19, these facilities may have been the ones

that were able to recoup more quickly from those closures. This was potentially seen with the organizational capacity scale. The mean score for this scale was over 27, and scores for this scale range from 0 to 36. It is possible that the respondents had higher capacity levels than agencies that experienced greater disruptions in services. Ultimately, a longitudinal study, beginning closer to the start of COVID-19, would allow for a more thorough explanation of factors contributing to facilities' ability to continue providing services and meeting client needs.

### **Conclusion**

This study sought to examine agency-level factors contributing to the ability to provide services during COVID-19. Ultimately, the chosen dependent variables, number of services provided, patient-centered care, and organizational capacity, did not predict agencies' abilities to provide more or fewer services during COVID-19. While both the number of services provided and patient-centered care were predictors in treatment utilization in the past, for this study, they did not explain the changes seen during COVID-19. Future research on this topic should broaden and continue. This research is relevant because identifying factors that protect facilities from pausing services (or closing altogether) during times of crisis can keep facilities functioning at higher levels. There may be another pandemic where we must wait on vaccines. There could potentially be other times of crisis when substance abuse facilities must be creative in their ways of remaining open. These can include events related to climate change, including more tornadoes and hurricanes that devastate communities and destroy physical buildings.

While no predictive factors could be established in this survey, it is crucial to turn to the agencies and engage in exploratory sequential research. A starting place could be found in the significant bivariate correlations and a more robust measure of patient-centered care within substance use treatment facilities. A larger sample size may provide greater insight into how

programming, acceptance of private insurance, and accreditation impact an agency's ability to provide services. Qualitative research could help identify enabling factors contributing to continued service receipt. These themes could then be generalized and distributed to a larger range of treatment centers to determine key factors that lead to strength and continued services during COVID-19. Substance misuse and substance use disorders can be deadly, with overdose-related deaths reaching upwards of 100,000 people in 2022 (Spencer et al., 2022). Suppose we know what enables facilities to continue to provide services in extreme times (such as amid a pandemic). In that case, we can capitalize on those key aspects at any time, potentially helping treatment centers reach even more individuals and prevent higher death rates attributed to substance misuse.

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## Appendix

### Full Survey for Substance Use Treatment Centers

#### Screening Questions

1. Are you an executive, associate, clinical, or program director/officer (or other director or equivalent) at a facility that treats individuals with substance use disorders?  
[0] No\*  
[1] Yes  
1a. What is your official title? [TEXT ENTRY]
2. Does your facility provide substance use treatment services to adults over 18?  
[0] No\*  
[1] Yes  
*\*If no is selected on questions 1 or 2, the survey will exit.*

#### Treatment Center Characteristics (Adapted from the 2017 National Survey of Substance Abuse Treatment Services)

3. Which of the following substance abuse services are offered at your facility? (Select all that apply)  
[1] Intake, assessment, or referral  
[2] Detoxification  
[3] Short-term residential treatment (30 days or less)  
[4] Long-term residential treatment (More than 30 days)  
[5] Halfway House / Sober Living Services  
[6] Partial hospitalization programming (20 or more hours per week)  
[7] Intensive outpatient programming (9 or more hours per week)  
[8] Outpatient programming  
[9] Medically assisted treatment (e.g., vivitrol, suboxone, buprenorphine, naltrexone)  
[10] Other (please specify)
4. What is the primary focus of treatment at your facility?  
[1] Substance abuse treatment services  
[2] Mental health treatment services  
[3] Mix of mental health and substance abuse treatment services (neither is primary)  
[4] Other (please specify)
5. Which of the following is your facility operated by?  
[1] A private, for-profit organization  
[2] A private, non-profit organization  
[3] State government  
[4] Local, county, or community government  
[5] Tribal government  
[6] Federal government  
[7] Other  
[8] None of the above

6. Is your facility a hospital or located in / operated by a hospital?  
[0] No  
[1] Yes
7. Is your facility or program licensed, certified, or accredited to provide substance abuse treatment by any of the following organizations? (Select all that apply.)  
[1] The Joint Commission  
[2] Commission on Accreditation of Rehabilitation Facilities (CARF)  
[3] National Committee for Quality Assurance (NCQA)  
[4] Council on Accreditation (COA)  
[5] Healthcare Facilities Accreditation Program (HFAP)  
[6] Other (Please specify)  
[7] None of the above
8. Does your facility offer treatment to clients without insurance who cannot afford to pay?  
[0] No  
[1] Yes
9. Does your facility receive any funding or grants from federal, state, or local governments to support substance abuse treatment programs?  
[0] No  
[1] Yes
10. What types of client payments or insurance are accepted by your facility? (Select all that apply)  
[1] No payment necessary (such as through grant funding)  
[2] Cash or self-payment  
[3] Medicare  
[4] Medicaid  
[5] Federal military insurance (e.g., Tricare)  
[6] Private health insurance  
[7] Access to recovery (ATR vouchers)  
[8] HIS/Tribal/Urban  
[9] Other (Please specify)
11. Which of the following pre-treatment services are provided by your facility? (Select all that apply.)  
[1] Screening for substance use disorders  
[2] Screening for mental health disorders  
[3] Comprehensive substance abuse assessment or diagnosis  
[4] Comprehensive mental health assessment or diagnosis (e.g., psychological or psychiatric evaluation and testing)  
[5] Outreach to persons in the community who may need treatment  
[6] Interim services for clients when immediate admission is not possible  
[7] Other (please specify)  
[8] None of the above
12. Which of the following testing services are provided at your location?  
[1] Breathalyzer or other blood alcohol testing  
[2] Drug or alcohol urine screening  
[3] Screening for Hepatitis B  
[4] Screening for Hepatitis C

- [5] HIV testing
  - [6] STI/STD testing
  - [7] TB screening
  - [8] Other (please specify)
  - [9] None of the above
13. Which of the following transitional services are offered at your location?
- [1] Discharge planning
  - [2] Aftercare / continuing care
  - [3] Alumni outreach
  - [4] Other (please specify)
  - [5] None of the above
14. Which of the following ancillary services are offered at your location?
- [1] Case management services
  - [2] Social skills development
  - [3] Peer or mentoring support (including CPRS services)
  - [4] Childcare for clients' children
  - [5] Assistance with obtaining social services (e.g., Medicaid, WIC, SSDI)
  - [6] Employment counseling or training for clients
  - [7] Assistance in locating housing for clients
  - [8] Domestic violence – family or partner violence services
  - [9] Substance abuse education
  - [10] Transportation assistance for treatment
  - [11] Mental health services
  - [12] Residential beds for clients' children
  - [13] Self-help groups (e.g., AA, NA, Celebrate Recovery, other 12 step groups)
  - [14] Other (please specify)
  - [15] None of the above
15. For each type of counseling listed below, please indicated approximately what percentage of clients at this facility receive that type of counseling as part of their substance abuse treatment program.

| Type of Counseling           | Not Offered | Received by 25% or Less of Clients | Received by 26% to 50% of Clients | Received by 51% to 75% of Clients | Received by More than 75% of Clients |
|------------------------------|-------------|------------------------------------|-----------------------------------|-----------------------------------|--------------------------------------|
| Individual Counseling        | [0]         | [1]                                | [2]                               | [3]                               | [4]                                  |
| Group Counseling             | [0]         | [1]                                | [2]                               | [3]                               | [4]                                  |
| Family Counseling            | [0]         | [1]                                | [2]                               | [3]                               | [4]                                  |
| Marital / Couples Counseling | [0]         | [1]                                | [2]                               | [3]                               | [4]                                  |

16. For each type of clinical / therapeutic approach listed below, please mark the box that best describes how often that approach is used at this facility.

| Clinical/Therapeutic Approach                         | Never | Rarely | Sometimes | Often | Always | Not Familiar with this Approach |
|-------------------------------------------------------|-------|--------|-----------|-------|--------|---------------------------------|
| Substance abuse counseling                            | [0]   | [1]    | [2]       | [3]   | [4]    | [98]                            |
| 12-step facilitation / groups                         | [0]   | [1]    | [2]       | [3]   | [4]    | [98]                            |
| Brief intervention                                    | [0]   | [1]    | [2]       | [3]   | [4]    | [98]                            |
| Cognitive behavioral therapy                          | [0]   | [1]    | [2]       | [3]   | [4]    | [98]                            |
| Dialectical behavior therapy                          | [0]   | [1]    | [2]       | [3]   | [4]    | [98]                            |
| Contingency management / motivational incentives      | [0]   | [1]    | [2]       | [3]   | [4]    | [98]                            |
| Motivational interviewing                             | [0]   | [1]    | [2]       | [3]   | [4]    | [98]                            |
| Trauma counseling                                     | [0]   | [1]    | [2]       | [3]   | [4]    | [98]                            |
| Anger management                                      | [0]   | [1]    | [2]       | [3]   | [4]    | [98]                            |
| Matrix Model                                          | [0]   | [1]    | [2]       | [3]   | [4]    | [98]                            |
| Community reinforcement (vouchers)                    | [0]   | [1]    | [2]       | [3]   | [4]    | [98]                            |
| Rational emotive behavioral therapy (REBT)            | [0]   | [1]    | [2]       | [3]   | [4]    | [98]                            |
| Relapse prevention                                    | [0]   | [1]    | [2]       | [3]   | [4]    | [98]                            |
| Computerized substance abuse treatment / telemedicine | [0]   | [1]    | [2]       | [3]   | [4]    | [98]                            |
| Other (Please specify)                                | [0]   | [1]    | [2]       | [3]   | [4]    | [98]                            |

17. Which of the following practices are part of your facilities standard operating procedures?

- [1] Required continuing education for staff
- [2] Periodic drug testing of clients
- [3] Regularly scheduled treatment plan review with a supervisor or treatment

- team
- [4] Outcome follow-up after discharge
  - [5] Client satisfaction surveys conducted at the facility
  - [6] None of the above
18. Does your facility provide treatment services in a language other than English?
- [0] No
  - [1] Yes
19. Does your facility provide treatment in sign language for individuals who are deaf or hard of hearing?
- [0] No
  - [1] Yes
20. Which of the following categories of individuals are served at your facility? (Select all that apply)
- [1] Males, men, cisgender men
  - [2] Females, women, cisgender women
  - [3] Trans, gender nonconforming, or nonbinary individuals
21. Do you offer a treatment program or group specifically tailored to any of the clients in the below categories? (If this facility treats clients in any of these categories but does NOT have a specifically tailored program or group for them, do not mark the box for that category.)
- [1] Young adults
  - [2] Adult women
  - [3] Pregnant or postpartum women
  - [4] Adult men
  - [5] Seniors or older adults
  - [6] Lesbian, gay, bisexual, or transgender clients
  - [7] Veterans or active-duty military families
  - [8] Criminal justice clients
  - [9] Clients with co-occurring mental and substance use disorders
  - [10] Clients who have experienced sexual abuse
  - [11] Clients who have experienced intimate partner violence or domestic violence
  - [12] Clients who have experienced other types of trauma
  - [13] Other specifically tailored programs/groups (Please specify)
  - [14] No specifically tailored programs or groups are offered
22. Approximately what percentage of your staff is licensed by a governing agency? (e.g., licensed clinical social workers (LCSWs), licensed professional counselors/mental health service providers (LPC-MHSP), licensed alcohol and drug addiction counselors (LADACs), etc.)
- [Percentage slider]
23. Approximately what percentage of your staff is personally in recovery from substance misuse?
- [Percentage slider]

#### Additional Treatment Center Characteristics

24. How many years has your agency been open and serving clients? [Numeric Entry]
25. How long has the executive director been with your agency? [Numeric Entry]

26. What is the average tenure of your current staff? [Numeric Entry]
27. Is your agency currently fully staffed?
- [0] No
  - [1] Yes
- \*27a. What percentage staffed would you estimate your agency to be?
- [0-100%]
28. How do you advertise your treatment services to potential clients? (Select all that apply.)
- [1] Online ads (Google ads, Facebook ads, etc.)
  - [2] Print ads (e.g., Newspaper)
  - [3] Community flyers
  - [4] Billboards
  - [5] Other (Please specify)
29. In what state is your facility located in? Select all that apply.
- [AL-WY, including Washington D.C.]
- 29a. What is the primary state that your facility operates in? If multiple, where do your managing directors and officers work?
- [Answers auto populated from Question 29]
30. Which of the following do you consider the area where you work to be?
- [1] Rural
  - [2] Suburban
  - [3] Urban / Metro

Patient Centered Care Variables (Adapted from Park et al., 2020)

31. Does your agency conduct regular meetings of all treatment providers or a case conference to discuss treatment planning and progress of individual clients?
- [0] No
  - [1] Yes\*
- \*If yes, ask question 31a.*
- 31a. Are clients regularly invited to attend this planning meeting when their case is being discussed?
- [0] No
  - [1] Yes

Instructions: To what extent do you think the following statements correspond to your own experience in your facility? (All responses range from [1] strongly disagree to [5] strongly agree.)

32. The quality of interaction between staff and clients is more important than getting the tasks done.
33. We are free to alter work routines based on clients' preferences.
34. Clients are offered the opportunity to receive individualized services.
35. Assessment of clients' needs is undertaken very frequently.
36. We have to get some basic work one before we think about clients' specific preferences.+
37. We discuss with our clients multiple options for treating their substance use disorder.
38. Our facility prevents staff from explaining the advantages and disadvantages of treatment options to clients. +
39. We help our clients understand all information provided.
40. We ask our clients which treatment options they prefer.

41. This organization encourages joint patient-staff agreement on treatment plans.  
+ Reverse coded.

#### Organizational Capacity Questionnaire

*All answers are Yes [1] or No [0]. Higher scores indicate greater organizational capacity.*

42. All of these tasks have been accomplished for our mission: developed, written, and posted.
43. All of these tasks have been accomplished for our vision: developed, written, and posted.
44. All of these tasks have been accomplished for our values: developed, written, and posted.
45. Our organization solicits gifts from individuals.
46. Our organization solicits gifts (both monetary and in-kind) from businesses.
47. Our funding development plan includes one or more of the following: major gifts, planned giving, and/or more or the following: major gifts, planned giving and/or endowment downers.
48. Our organization conducts well-planned fundraising events that maximize return on investment.
49. Our organization has a formal process for identifying the needs for volunteers across our organization.
50. The organization has a formal process for recruiting volunteers.
51. There are formal processes in place for assessing volunteer strengths and skills.
52. Our organization engages in regular strategic planning (i.e., every year, every five years).
53. An organization-wide budget is prepared annually.
54. Our organization uses accounting software to report and record income and expenses in accordance with Generally Accepted Accounting Principles established by the Financial Accounting Foundation.
55. Processes for handling finances and money (“internal controls”) are written and followed.
56. Our organization assesses risk management issues annually (i.e., insurance, general liability).
57. The new board member process includes all of the following: invitation, nomination and orientation.
58. Board members are involved in activities of the organization beyond the board meetings (e.g. committee meetings, events, fundraising calls).
59. There is a process to evaluate executive leadership performance (paid or unpaid).
60. There is a succession plan in place for the president/executive director (paid or unpaid).
61. Our organization has a standard process for recruiting a diverse applicant pool.
62. Our organization has a standard interviewing, vetting, and hiring processes.
63. Our organization has clear job descriptions developed for each current and new position.
64. Our organization has (at minimum) an annual performance review for each employee.
65. Our organization has a formal policies and procedures manual.
66. Our organization provides regular professional development for staff (paid/unpaid).
67. Our organization maintains a regular schedule of internal compliance reviews.
68. Our organization has a whistleblower policy in place and board members and paid/unpaid staff are all made aware of the whistleblower policy.
69. Our organization has as formally written Code of Conduct and a process to ensure that all employees are apprised of and agree to adhere to the organization’s Code of Conduct.

70. When designing a new program, our organization researches other programs in the community to see if there is a need for the proposed services.
71. When designing new programs and monitoring current ones, our organization seeks out current research (i.e., best practice models).
72. For each program, our organization tracks the number of individuals served, the frequency of service, and the number of individuals completing the program or no longer in need of services (if applicable).
73. Our organization obtains consumer/client feedback about the program(s).
74. Key outcomes (changes that are expected to occur as a result of the program) are established.
75. Outcomes are demonstrated with data and stories about how the program/organization made a difference.
76. Computers are linked to a network.
77. A separate storage system is used to frequently backup all computers and networks.

#### COVID 19-Change Questions

78. Approximately how many clients did you serve in 2019?  
[Numeric Entry]
79. Approximately how many clients did you serve in 2020?  
[Numeric Entry]
80. Approximately how many clients did you serve in 2021?  
[Numeric Entry]
81. Did your facility experience any changes in services or treatment modalities during the COVID-19 pandemic?  
[0] No  
[1] Yes\*  
81a. Please describe the changes in services or treatment modalities your facility experienced during COVID-19. [TEXT ENTRY]
82. Compared to the years prior to the pandemic, did your facility offer more or less services or treatment options during COVID-19?  
[-2] We offered much fewer services or treatment options  
[-1] We offered fewer services or treatment options  
[0] We had no change in services or treatment options  
[1] We offered more services or treatment options  
[2] We offered many more services or treatment options
83. Did your facility have to pause or disrupt any services provided during COVID-19?  
[0] No  
[1] Yes  
\*If selected, answer 83a.  
83a. Which services were paused or disrupted during COVID-19? (Answers are auto populated from those selected in Question 3.)
84. Did your facility have to end any services provided during COVID-19?  
[0] No  
[1] Yes  
84a. Which services were paused or disrupted during COVID-19? (Answers are auto populated from those selected in Question 3.)

85. In general, throughout the COVID-19 pandemic, how did the number of clients served by your facility change?
- [0] The number of clients served did not change
  - [1] We served much fewer clients than usual
  - [2] We served fewer clients than usual
  - [3] We served more clients than usual
  - [4] We served many more clients than usual
86. During COVID-19, did you implement any new treatment strategies or programs? (Select all that apply.)
- [1] Telehealth (e.g., providing individual services through video calls, phone calls, or text)
  - [2] Online group therapy
  - [3] Online outreach programs
  - [4] Virtual screening / admissions
  - [5] Other (please specify)
  - [6] None of the above
87. Describe the biggest supports to your facility during the COVID-19 pandemic. [Text Entry]
88. Describe the biggest challenges your facility faced during the COVID-19 pandemic. [Text Entry]
89. Describe the biggest needs your facility experienced during the COVID-19 pandemic. [Text Entry]

#### Demographics

90. What race do you identify with or feel closest to? (Select all that apply.)
- [1] Black / African American
  - [2] Alaska Native / American Indian / Indigenous American
  - [3] White
  - [4] South Asian
  - [5] East Asian
  - [6] Pacific Islander
  - [7] Black Hispanic/Latinx/Latina/Latino
  - [8] White Hispanic/Latinx/Latina/Latino
  - [9] Other (Please specify)
91. How do you currently describe your gender?
- [1] Agendered
  - [2] Man or male (cisgendered)
  - [3] Woman or female (cisgendered)
  - [4] Gender fluid
  - [5] Gender non-conforming or gender queer
  - [6] Intersex
  - [7] Questioning
  - [8] Transgender man or male or masculine
  - [9] Transgender woman or female or feminine
  - [10] Two-spirit
  - [11] Other (Please specify)

92. What is your highest level of education?

- [1] 8th grade or less
- [2] Some high school
- [3] High school diploma or GED
- [4] Some college
- [5] Technical college degree or associates degree
- [6] Bachelor's degree
- [7] Master's degree
- [8] Doctoral degree

93. What is your yearly household income?

- [1] Less than \$5,000
- [2] \$5,000 - \$9,999
- [3] \$10,000 - \$14,999
- [4] \$15,000 - \$19,999
- [5] \$20,000 - \$29,999
- [6] \$30,000 - \$39,999
- [7] \$40,000 - \$49,999
- [8] \$50,000 - \$59,999
- [9] \$60,000 - \$69,999
- [10] \$70,000 - \$79,999
- [11] \$80,000 - \$89,999
- [12] \$90,000 - \$99,999
- [13] \$100,000 or above

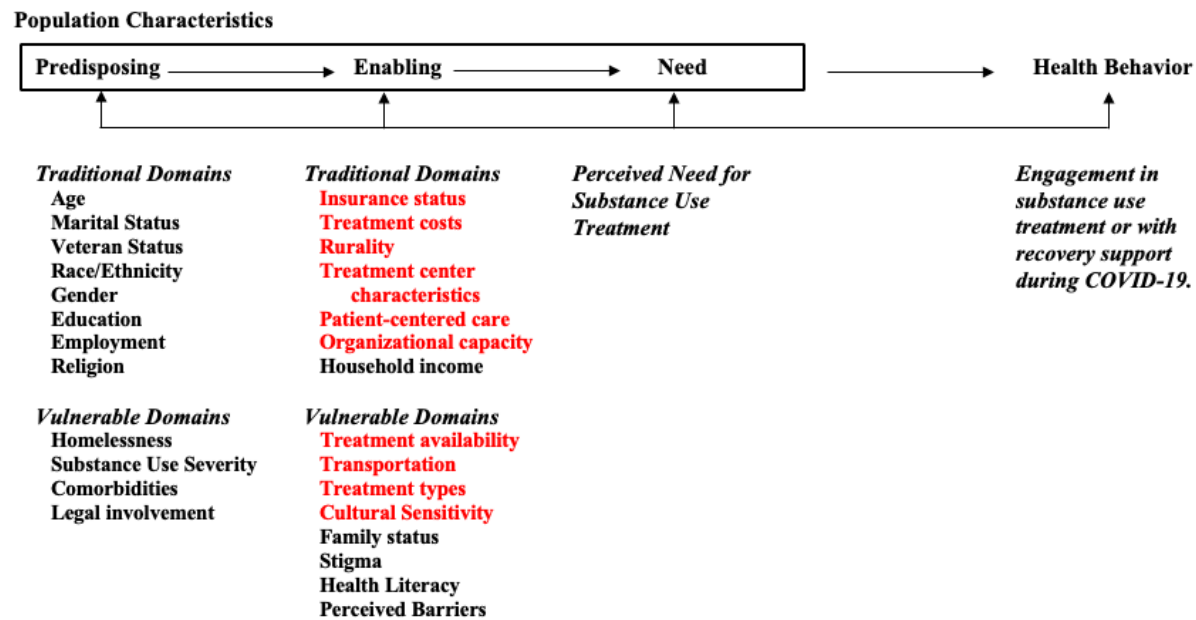


Figure 3. Domains Attributable to Treatment Receipt for Substance Misuse with Treatment Center Characteristics Bolder.

Table 14. *Summary Table of Concepts Measured.*

| Concepts Measured                                                                                                                                                                                                                                                           | Standardized Measure (if Applicable) | Level of Measurement |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|----------------------|
| <p>Outcome variable: Changes to services provided during COVID-19</p> <ul style="list-style-type: none"> <li>Responses range from “We offered much fewer services” to “There was no change in number of services we offered” to “We offered many more services.”</li> </ul> | N/A                                  | Ordinal              |
| <p>Treatment center characteristics</p> <ul style="list-style-type: none"> <li>Types of services provided</li> </ul>                                                                                                                                                        | 2017 N-SSATS Items (SAMHSA, 2018)    | Categorical          |
| <p>Treatment center characteristics</p> <ul style="list-style-type: none"> <li>Facility operations</li> </ul>                                                                                                                                                               | 2017 N-SSATS Items (SAMHSA, 2018)    | Categorical          |
| <p>Treatment center characteristics</p> <ul style="list-style-type: none"> <li>Payment options</li> </ul>                                                                                                                                                                   | 2017 N-SSATS Items (SAMHSA, 2018)    | Categorical          |
| <p>Treatment center characteristics</p> <ul style="list-style-type: none"> <li>Therapeutic approaches</li> </ul>                                                                                                                                                            | 2017 N-SSATS Items (SAMHSA, 2018)    | Categorical          |
| <p>Treatment center characteristics</p> <ul style="list-style-type: none"> <li>Standard operating procedures</li> </ul>                                                                                                                                                     | 2017 N-SSATS Items (SAMHSA, 2018)    | Categorical          |
| <p>Treatment center characteristics</p> <ul style="list-style-type: none"> <li>Populations served</li> </ul>                                                                                                                                                                | 2017 N-SSATS Items (SAMHSA, 2018)    | Categorical          |
| <p>Treatment center characteristics</p> <ul style="list-style-type: none"> <li>Staff characteristics</li> </ul>                                                                                                                                                             | 2017 N-SSATS Items (SAMHSA, 2018)    | Categorical          |
| <p>Treatment center characteristics</p> <ul style="list-style-type: none"> <li>Rurality</li> </ul>                                                                                                                                                                          | N/A                                  | Categorical          |
| <p>Treatment center characteristics</p> <ul style="list-style-type: none"> <li>Age of facility</li> </ul>                                                                                                                                                                   | N/A                                  | Scale                |

*Table 14 Continued.*

| Concepts Measured                                                                                                 | Standardized Measure (if Applicable)            | Level of Measurement |
|-------------------------------------------------------------------------------------------------------------------|-------------------------------------------------|----------------------|
| Treatment center characteristics <ul style="list-style-type: none"> <li>• Tenure of executive director</li> </ul> | N/A                                             | Scale                |
| Treatment center characteristics <ul style="list-style-type: none"> <li>• Average tenure of staff</li> </ul>      | N/A                                             | Scale                |
| Patient Centered Care                                                                                             | Park et al. (2020) Patient Centered Scale Score | Scale                |
| Organizational Capacity                                                                                           | KLF/ABN (Walters et al., 2022)                  | Scale                |
| Individual respondent demographics <ul style="list-style-type: none"> <li>• Gender</li> </ul>                     | N/A                                             | Categorical          |
| Individual respondent demographics <ul style="list-style-type: none"> <li>• Race</li> </ul>                       | N/A                                             | Categorical          |
| Individual respondent demographics <ul style="list-style-type: none"> <li>• Household income</li> </ul>           | N/A                                             | Categorical          |
| Individual respondent demographics <ul style="list-style-type: none"> <li>• Education</li> </ul>                  | N/A                                             | Categorical          |

Table 15. *Descriptive Statistics of Treatment Center Characteristics.*

|                                                                                                                                 | Total (n = 166) |
|---------------------------------------------------------------------------------------------------------------------------------|-----------------|
| U.S. Census Region of Treatment Center                                                                                          |                 |
| Northeast                                                                                                                       | 11.4% (19)      |
| Midwest                                                                                                                         | 22.9% (38)      |
| South                                                                                                                           | 30.1% (50)      |
| West                                                                                                                            | 35.5% (59)      |
| Which of the following does the respondent consider the area where they work to be?                                             |                 |
| Urban / Metro                                                                                                                   | 38.6% (64)      |
| Suburban                                                                                                                        | 36.1% (60)      |
| Rural                                                                                                                           | 25.3% (42)      |
| What is the primary focus of your treatment facility?                                                                           |                 |
| Substance Abuse Treatment Services                                                                                              | 62.7% (104)     |
| Mental Health Treatment Services                                                                                                | 1.8% (3)        |
| Mix of Mental Health and Substance Abuse Treatment Services                                                                     | 33.1% (55)      |
| Other                                                                                                                           | 2.4% (4)        |
| Which of the following is your facility operated by?                                                                            |                 |
| A Private, For-Profit Organization                                                                                              | 38.0% (63)      |
| A Private, Non-Profit Organization                                                                                              | 53.0% (88)      |
| State Government                                                                                                                | 1.2% (2)        |
| Local, County, or Community Government                                                                                          | 3.6% (6)        |
| Tribal Government                                                                                                               | 1.2% (2)        |
| Other                                                                                                                           | 3.0% (5)        |
| Is your facility accredited?                                                                                                    |                 |
| Yes                                                                                                                             | 78.9% (131)     |
| No                                                                                                                              | 21.1% (35)      |
| Does your facility offer treatment to clients without insurance who cannot afford to pay?                                       |                 |
| Yes                                                                                                                             | 86.7% (144)     |
| No                                                                                                                              | 13.3% (22)      |
| Does your facility receive any funding or grants from federal, state, or local governments to support substance abuse programs? |                 |
| Yes                                                                                                                             | 65.7% (109)     |
| No                                                                                                                              | 34.3% (57)      |
| What types of client payments or insurance are accepted by your facility? *                                                     |                 |
| No Payment Necessary                                                                                                            | 34.3% (57)      |
| Cash or Self-Payment                                                                                                            | 83.1% (138)     |
| Medicare                                                                                                                        | 30.7% (51)      |
| Medicaid                                                                                                                        | 69.9% (116)     |
| Federal military insurance (e.g., Tricare)                                                                                      | 25.9% (43)      |
| Private Health Insurance                                                                                                        | 68.7% (114)     |
| Access to Recovery (ATR Vouchers)                                                                                               | 3.6% (6)        |
| HIS / Tribal / Urban                                                                                                            | 13.3% (22)      |

Table 15 Continued.

|                                                                                                                       | Total (n = 166)         |
|-----------------------------------------------------------------------------------------------------------------------|-------------------------|
| Approximately how many years has your agency been open and serving clients?                                           | $M = 29.62, SD = 21.20$ |
| Approximately how many years has the current executive director (or CEO or equivalent) been with your agency?         | $M = 11.68, SD = 10.17$ |
| Approximately what percentage of your staff is licensed by a governing agency (e.g., LCSWs, LPC-MHSPs, LADACs, etc.)? |                         |
| 0-10%                                                                                                                 | 8.4% (14)               |
| 11-20%                                                                                                                | 12.0% (20)              |
| 21-30%                                                                                                                | 6.6% (11)               |
| 31-40%                                                                                                                | 10.2% (17)              |
| 41-50%                                                                                                                | 6.6% (11)               |
| 51-60%                                                                                                                | 7.2% (12)               |
| 61-70%                                                                                                                | 5.4% (9)                |
| 71-80%                                                                                                                | 11.4% (19)              |
| 81-90%                                                                                                                | 10.2% (17)              |
| 91-100%                                                                                                               | 21.7% (36)              |
| Approximately what percentage of your staff is personally in recovery from substance misuse?                          |                         |
| 0-10%                                                                                                                 | 15.7% (26)              |
| 11-20%                                                                                                                | 14.5% (24)              |
| 21-30%                                                                                                                | 9.0% (15)               |
| 31-40%                                                                                                                | 14.5% (24)              |
| 41-50%                                                                                                                | 9.6% (16)               |
| 51-60%                                                                                                                | 10.8% (18)              |
| 61-70%                                                                                                                | 7.2% (12)               |
| 71-80%                                                                                                                | 7.2% (12)               |
| 81-90%                                                                                                                | 5.4% (9)                |
| 91-100%                                                                                                               | 4.8% (8)                |
| Unknown / Not Answered                                                                                                | 1.2% (2)                |
| Is your agency currently fully staffed?                                                                               |                         |
| Yes                                                                                                                   | 40.4% (67)              |
| No                                                                                                                    | 59.0% (98)              |
| Unknown / Not Answered                                                                                                | 0.6% (1)                |
| How do you advertise your treatment services to potential clients? *                                                  |                         |
| Online Ads (e.g., Google, Facebook)                                                                                   | 65.7% (109)             |
| Print Ads (e.g., Newspaper)                                                                                           | 15.7% (26)              |
| Community Flyers                                                                                                      | 38.6% (64)              |
| Billboards                                                                                                            | 9.0% (15)               |
| Other                                                                                                                 | 45.8% (76)              |

\* Measured with a single “select all that apply” option.

Table 16. *Descriptive Statistics of Types of Counseling and Clinical Approaches Used in Facilities.*

|                                                                                                                                                    | Total (n = 166) |
|----------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|
| Approximately what percentage of clients at this facility receive individual counseling as part of their substance abuse treatment program?        |                 |
| Received by 25% or Less of Clients                                                                                                                 | 10.2% (17)      |
| Received by 26% to 50% of Clients                                                                                                                  | 5.4% (9)        |
| Received by 51% to 75% of Clients                                                                                                                  | 9.6% (16)       |
| Received by More than 75% of Clients                                                                                                               | 74.1% (123)     |
| Not Offered                                                                                                                                        | 0.6% (1)        |
| Approximately what percentage of clients at this facility receive group counseling as part of their substance abuse treatment program?             |                 |
| Received by 25% or Less of Clients                                                                                                                 | 5.4% (9)        |
| Received by 26% to 50% of Clients                                                                                                                  | 7.2% (12)       |
| Received by 51% to 75% of Clients                                                                                                                  | 10.8% (18)      |
| Received by More than 75% of Clients                                                                                                               | 71.7% (119)     |
| Not Offered                                                                                                                                        | 3.0% (5)        |
| Unknown / Not Answered                                                                                                                             | 1.8% (3)        |
| Approximately what percentage of clients at this facility receive family counseling as part of their substance abuse treatment program?            |                 |
| Received by 25% or Less of Clients                                                                                                                 | 49.4% (82)      |
| Received by 26% to 50% of Clients                                                                                                                  | 17.5% (29)      |
| Received by 51% to 75% of Clients                                                                                                                  | 5.4% (9)        |
| Received by More than 75% of Clients                                                                                                               | 7.8% (13)       |
| Not Offered                                                                                                                                        | 18.1% (30)      |
| Unknown / Not Answered                                                                                                                             | 1.8% (3)        |
| Approximately what percentage of clients at this facility receive marital / couples counseling as part of their substance abuse treatment program? |                 |
| Received by 25% or Less of Clients                                                                                                                 | 46.4% (77)      |
| Received by 26% to 50% of Clients                                                                                                                  | 9.0% (15)       |
| Received by 51% to 75% of Clients                                                                                                                  | 3.0% (5)        |
| Received by More than 75% of Clients                                                                                                               | 2.4% (4)        |
| Not Offered                                                                                                                                        | 36.7% (61)      |
| Unknown / Not Answered                                                                                                                             | 2.4% (4)        |

Table 16 Continued.

|                                                                                                         | Total (n = 166) |
|---------------------------------------------------------------------------------------------------------|-----------------|
| How often is the following clinical approach used at this facility:<br>Substance abuse counseling?      |                 |
| Never                                                                                                   | 0.6% (1)        |
| Rarely                                                                                                  | 0.0% (0)        |
| Sometimes                                                                                               | 1.2% (2)        |
| Often                                                                                                   | 18.7% (31)      |
| Always                                                                                                  | 78.9% (131)     |
| Unknown / Not answered                                                                                  | 0.6% (1)        |
| How often is the following clinical approach used at this facility: 12-<br>step facilitation or groups? |                 |
| Never                                                                                                   | 20.5% (34)      |
| Rarely                                                                                                  | 10.8% (18)      |
| Sometimes                                                                                               | 18.7% (31)      |
| Often                                                                                                   | 21.1% (35)      |
| Always                                                                                                  | 27.1% (45)      |
| Unknown / Not answered                                                                                  | 1.8% (3)        |
| How often is the following clinical approach used at this facility:<br>Brief intervention?              |                 |
| Never                                                                                                   | 1.8% (3)        |
| Rarely                                                                                                  | 9.0% (15)       |
| Sometimes                                                                                               | 29.5% (49)      |
| Often                                                                                                   | 36.7% (61)      |
| Always                                                                                                  | 16.9% (28)      |
| Not Familiar with this Approach                                                                         | 0.6% (1)        |
| Unknown / Not answered                                                                                  | 5.4% (9)        |
| How often is the following clinical approach used at this facility:<br>Cognitive Behavioral Therapy?    |                 |
| Never                                                                                                   | 1.8% (3)        |
| Rarely                                                                                                  | 1.2% (3)        |
| Sometimes                                                                                               | 7.2% (12)       |
| Often                                                                                                   | 44.6% (74)      |
| Always                                                                                                  | 44.0% (73)      |
| Unknown / Not answered                                                                                  | 1.2% (2)        |
| How often is the following clinical approach used at this facility:<br>Dialectical Behavioral Therapy   |                 |
| Never                                                                                                   | 9.0% (15)       |
| Rarely                                                                                                  | 13.9% (23)      |
| Sometimes                                                                                               | 27.7% (46)      |
| Often                                                                                                   | 30.7% (51)      |
| Always                                                                                                  | 15.7% (26)      |
| Unknown / Not answered                                                                                  | 3.0% (5)        |

Table 16 Continued.

|                                                                                                                          | Total (n = 166) |
|--------------------------------------------------------------------------------------------------------------------------|-----------------|
| How often is the following clinical approach used at this facility:<br>Contingency management / Motivational incentives? |                 |
| Never                                                                                                                    | 24.7% (41)      |
| Rarely                                                                                                                   | 12.7% (21)      |
| Sometimes                                                                                                                | 24.7% (41)      |
| Often                                                                                                                    | 19.9% (33)      |
| Always                                                                                                                   | 9.6% (16)       |
| Not Familiar with this Approach                                                                                          | 1.2% (2)        |
| Unknown / Not answered                                                                                                   | 7.2% (12)       |
| How often is the following clinical approach used at this facility:<br>Motivational Interviewing?                        |                 |
| Never                                                                                                                    | 1.8% (3)        |
| Rarely                                                                                                                   | 0.0% (0)        |
| Sometimes                                                                                                                | 5.4% (9)        |
| Often                                                                                                                    | 31.9% (53)      |
| Always                                                                                                                   | 59.6% (99)      |
| Not Familiar with this Approach                                                                                          | 0.6% (1)        |
| Unknown / Not answered                                                                                                   | 0.6% (1)        |
| How often is the following clinical approach used at this facility:<br>Trauma Counseling?                                |                 |
| Never                                                                                                                    | 2.4% (4)        |
| Rarely                                                                                                                   | 5.4% (9)        |
| Sometimes                                                                                                                | 22.9% (38)      |
| Often                                                                                                                    | 41.6% (69)      |
| Always                                                                                                                   | 25.9% (43)      |
| Not Familiar with this Approach                                                                                          | 0.6% (1)        |
| Unknown / Not answered                                                                                                   | 1.2% (2)        |
| How often is the following clinical approach used at this facility:<br>Anger management?                                 |                 |
| Never                                                                                                                    | 7.8% (13)       |
| Rarely                                                                                                                   | 9.6% (16)       |
| Sometimes                                                                                                                | 36.1% (60)      |
| Often                                                                                                                    | 31.3% (52)      |
| Always                                                                                                                   | 13.3% (22)      |
| Unknown / Not answered                                                                                                   | 1.8% (3)        |
| How often is the following clinical approach used at this facility:<br>Matrix Model?                                     |                 |
| Never                                                                                                                    | 26.5% (44)      |
| Rarely                                                                                                                   | 14.5% (24)      |
| Sometimes                                                                                                                | 19.9% (33)      |
| Often                                                                                                                    | 15.7% (26)      |
| Always                                                                                                                   | 12.7% (21)      |
| Not Familiar with this Approach                                                                                          | 6.0% (10)       |
| Unknown / Not answered                                                                                                   | 4.8% (8)        |

Table 16 Continued.

|                                                                                                                               | Total (n = 166) |
|-------------------------------------------------------------------------------------------------------------------------------|-----------------|
| How often is the following clinical approach used at this facility:<br>Community reinforcement (vouchers)?                    |                 |
| Never                                                                                                                         | 55.4% (92)      |
| Rarely                                                                                                                        | 15.7% (26)      |
| Sometimes                                                                                                                     | 11.4% (19)      |
| Often                                                                                                                         | 5.4% (9)        |
| Always                                                                                                                        | 0.6% (1)        |
| Not Familiar with this Approach                                                                                               | 3.0% (5)        |
| Unknown / Not answered                                                                                                        | 8.4% (14)       |
| How often is the following clinical approach used at this facility:<br>Rational emotive behavioral therapy?                   |                 |
| Never                                                                                                                         | 39.2% (65)      |
| Rarely                                                                                                                        | 15.7% (26)      |
| Sometimes                                                                                                                     | 23.5% (39)      |
| Often                                                                                                                         | 10.2% (17)      |
| Always                                                                                                                        | 6.0% (10)       |
| Not Familiar with this Approach                                                                                               | 1.2% (2)        |
| Unknown / Not answered                                                                                                        | 4.2% (7)        |
| How often is the following clinical approach used at this facility:<br>Relapse prevention?                                    |                 |
| Never                                                                                                                         | 0.0% (0)        |
| Rarely                                                                                                                        | 0.0% (0)        |
| Sometimes                                                                                                                     | 3.0% (5)        |
| Often                                                                                                                         | 19.9% (33)      |
| Always                                                                                                                        | 71.1% (118)     |
| Not Familiar with this Approach                                                                                               | 3.6% (6)        |
| Unknown / Not answered                                                                                                        | 2.4% (4)        |
| How often is the following clinical approach used at this facility:<br>Computerized substance abuse treatment / Telemedicine? |                 |
| Never                                                                                                                         | 13.3% (22)      |
| Rarely                                                                                                                        | 15.7% (26)      |
| Sometimes                                                                                                                     | 31.3% (52)      |
| Often                                                                                                                         | 23.5% (39)      |
| Always                                                                                                                        | 12.7% (21)      |
| Unknown / Not answered                                                                                                        | 3.6% (6)        |

Table 17. *Descriptive Statistics of Types of Programming Provided by Facilities.*

|                                                                                                                                | Total (n = 166)                            |
|--------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|
| Are the following categories of individuals served at your facility:<br>Males, men, cisgender men?                             |                                            |
| Yes                                                                                                                            | 95.8% (159)                                |
| No                                                                                                                             | 4.2% (7)                                   |
| Are the following categories of individuals served at your facility:<br>Females, women, cisgender women?                       |                                            |
| Yes                                                                                                                            | 93.4% (155)                                |
| No                                                                                                                             | 6.6% (11)                                  |
| Are the following categories of individuals served at your facility:<br>Trans, gender nonconforming, or nonbinary individuals? |                                            |
| Yes                                                                                                                            | 90.4% (150)                                |
| No                                                                                                                             | 9.6% (16)                                  |
| Does your facility provide treatment services in a language other<br>than English?                                             |                                            |
| Yes                                                                                                                            | 48.8% (81)                                 |
| No                                                                                                                             | 51.2% (85)                                 |
| Does your facility provide treatment in sign language for individuals<br>who are deaf or hard of hearing?                      |                                            |
| Yes                                                                                                                            | 32.5% (54)                                 |
| No                                                                                                                             | 66.9% (111)                                |
| Unknown / Not answered                                                                                                         | 0.61 (1)                                   |
| Count of specifically tailored programs / groups provided by facility<br>(Range = 0-13)                                        | $M = 3.63, SD = 3.19$<br>Min = 0, Max = 13 |
| Do you offer a treatment program or group specifically tailored to<br>any of the clients in the below categories? *            |                                            |
| Young Adults                                                                                                                   | 23.9% (39)                                 |
| Adult Women                                                                                                                    | 47.6% (79)                                 |
| Pregnant or Postpartum Women                                                                                                   | 22.9% (38)                                 |
| Adult Men                                                                                                                      | 43.4% (72)                                 |
| Seniors or Older Adults                                                                                                        | 11.4% (19)                                 |
| Lesbian, Gay, Bisexual, or Transgender Clients                                                                                 | 15.1% (25)                                 |
| Veterans or Active-Duty Military Families                                                                                      | 16.3% (27)                                 |
| Criminal Justice Clients                                                                                                       | 38.0% (63)                                 |
| Clients with Co-Occurring Mental and Substance Use Disorders                                                                   | 52.4% (87)                                 |
| Clients who have Experienced Sexual Abuse                                                                                      | 19.9% (33)                                 |
| Clients who have Experienced Intimate Partner Violence or<br>Domestic Violence                                                 | 18.7% (31)                                 |
| Clients who have Experienced Other Types of Trauma                                                                             | 35.5% (59)                                 |
| Other Specifically Tailored Programs                                                                                           | 18.7% (31)                                 |
| No Specifically Tailored Programs or Groups are Offered +                                                                      | 13.3% (22)                                 |

\* Measured with a “Select all that Apply” Option.

+ Only choice available if selected.

Table 18. *Descriptive Statistics of Treatment Changes Related to COVID-19.*

|                                                                                                                                  | Total (n = 166) |
|----------------------------------------------------------------------------------------------------------------------------------|-----------------|
| Has your facility experienced any changes in services or treatment modalities during the COVID-19 pandemic?                      |                 |
| Yes                                                                                                                              | 76.5% (127)     |
| No                                                                                                                               | 22.3% (37)      |
| Unknown / Not Answered                                                                                                           | 1.2% (2)        |
| Compared to the years prior to the pandemic, did your facility offer more or less services or treatment options during COVID-19? |                 |
| We offered much fewer services or treatment options                                                                              | 8.4% (14)       |
| We offered fewer services or treatment options                                                                                   | 22.3% (37)      |
| We had no change in number of services or treatment options                                                                      | 30.7% (51)      |
| We offered more services or treatment options                                                                                    | 31.3% (52)      |
| We offered many more services or treatment options                                                                               | 7.2% (12)       |
| Did your facility have to pause or disrupt any substance abuse services provided during COVID-19?                                |                 |
| Yes                                                                                                                              | 40.4% (67)      |
| No                                                                                                                               | 59.0% (98)      |
| Unknown / Not Answered                                                                                                           | 0.6% (1)        |
| Did your facility have to end any substance abuse services provided during COVID-19?                                             |                 |
| Yes                                                                                                                              | 13.3% (22)      |
| No                                                                                                                               | 86.7% (144)     |
| In general, throughout the COVID-19 pandemic, how did the number of clients served by your facility change?                      |                 |
| We served many fewer clients than usual.                                                                                         | 21.1% (35)      |
| We served fewer clients than usual.                                                                                              | 33.1% (55)      |
| The number of clients served did not change.                                                                                     | 21.1% (35)      |
| We served more clients than usual.                                                                                               | 19.9% (33)      |
| We served many more clients than usual.                                                                                          | 4.8% (8)        |
| During COVID-19, did you implement any new strategies or programming?*                                                           |                 |
| Telehealth                                                                                                                       | 94.0% (156)     |
| Online Group Therapy                                                                                                             | 63.9% (106)     |
| Online Outreach Programs                                                                                                         | 19.3% (32)      |
| Virtual Screening or Admissions                                                                                                  | 56.6% (94)      |
| Other                                                                                                                            | 6.6% (11)       |
| None +                                                                                                                           | 3.6% (6)        |

Table 19. *Descriptive Statistics of Primary Independent Variables.*

|                                                                                                               | Total (n = 166)                             |
|---------------------------------------------------------------------------------------------------------------|---------------------------------------------|
| Count of Total Services Offered (Range = 1-43)                                                                | $M = 19.59, SD = 6.54$<br>Min = 4, Max = 37 |
| Count of Total Substance Abuse Services Offered (Range = 1-10)                                                | $M = 4.36, SD = 1.99$<br>Min = 1, Max = 10  |
| Which of the following substance abuse services are offered at your facility? *                               |                                             |
| Intake, Assessment, Referral                                                                                  | 95.8% (159)                                 |
| Detoxification                                                                                                | 22.3% (37)                                  |
| Short-Term Residential (30 Days or Less)                                                                      | 29.5% (49)                                  |
| Long-Term Residential (More Than 30 Days)                                                                     | 33.1% (55)                                  |
| Halfway House / Sober Living Services                                                                         | 24.7% (41)                                  |
| Partial Hospitalization Programming (20 or More Hours Per Week)                                               | 18.1% (30)                                  |
| Intensive Outpatient Programming (9 or More Hours Per Week)                                                   | 66.3% (110)                                 |
| Outpatient Programming                                                                                        | 80.7% (134)                                 |
| Medically Assisted Treatment                                                                                  | 45.2% (75)                                  |
| Other                                                                                                         | 19.9% (33)                                  |
| Count of Total Pre-Treatment Services Offered (Range = 0-7)                                                   | $M = 3.58, SD = 1.61$<br>Min = 0, Max = 6   |
| Which of the following pre-treatment services are provided by your facility? *                                |                                             |
| Screening for Substance Use Disorders                                                                         | 87.3% (145)                                 |
| Screening for Mental Health Disorders                                                                         | 59.6% (99)                                  |
| Comprehensive Substance Abuse Assessment or Diagnosis                                                         | 81.3% (135)                                 |
| Comprehensive Mental Health Assessment or Diagnosis (e.g., Psychological or Psychiatric Evaluation / Testing) | 35.5% (59)                                  |
| Outreach to Persons in the Community Who May Need Treatment                                                   | 53.0% (88)                                  |
| Interim Services for Clients When Immediate Admission is Not Possible                                         | 37.3% (62)                                  |
| Other                                                                                                         | 3.6% (6)                                    |
| None of the Above +                                                                                           | 4.2% (7)                                    |
| Count of Total Testing Services Offered (Range = 0-8)                                                         | $M = 3.08, SD = 2.23$<br>Min = 0, Max = 8   |
| Which of the following testing services are provided at your location? *                                      |                                             |
| Breathalyzer or Other Blood Alcohol Testing                                                                   | 65.7% (109)                                 |
| Drug or Alcohol Urine Screening                                                                               | 91.0% (151)                                 |
| Screening for Hepatitis B                                                                                     | 27.7% (46)                                  |
| Screening for Hepatitis C                                                                                     | 31.3% (52)                                  |
| HIV Testing                                                                                                   | 29.5% (49)                                  |
| STI / STD Testing                                                                                             | 22.3% (37)                                  |
| TB Screening                                                                                                  | 37.3% (62)                                  |
| Other                                                                                                         | 3.0% (5)                                    |
| None of the Above +                                                                                           | 6.6% (11)                                   |

Table 19 Continued.

|                                                                              | Total ( <i>n</i> = 166)                                |
|------------------------------------------------------------------------------|--------------------------------------------------------|
| Count of Total Transitional Services Offered (Range = 0-4)                   | <i>M</i> = 2.16, <i>SD</i> = 0.79<br>Min = 0, Max = 4  |
| Which of the following transitional services are offered at your location? * |                                                        |
| Discharge Planning                                                           | 95.2% (158)                                            |
| Aftercare / Continuing Care                                                  | 80.7% (134)                                            |
| Alumni Outreach                                                              | 34.9% (58)                                             |
| Other                                                                        | 4.8% (8)                                               |
| None of the Above +                                                          | 1.8% (3)                                               |
| Count of Total Ancillary Services Offered (Range = 0-14)                     | <i>M</i> = 6.42, <i>SD</i> = 2.95<br>Min = 0, Max = 13 |
| Which of the following ancillary services are offered at your location? *    |                                                        |
| Case Management Services                                                     | 78.9% (131)                                            |
| Social Skills Development                                                    | 54.2% (90)                                             |
| Peer or Mentoring Support (Including CPRS Services)                          | 57.8% (96)                                             |
| Childcare for Clients' Children                                              | 7.8% (13)                                              |
| Assistance with Obtaining Social Services (e.g., Medicaid, WIC, SSDI)        | 60.8% (101)                                            |
| Employment Counseling or Training for Clients                                | 37.3% (62)                                             |
| Assistance in Locating Housing for Clients                                   | 61.4% (102)                                            |
| Domestic Violence – Family or Partner Violence Services                      | 23.5% (39)                                             |
| Substance Abuse Education                                                    | 90.4% (150)                                            |
| Transportation Assistance for Treatment                                      | 42.8% (71)                                             |
| Mental Health Services                                                       | 64.5% (107)                                            |
| Residential Beds for Clients' Children                                       | 7.8% (13)                                              |
| Self-Help Groups (e.g., AA, NA, Celebrate Recovery)                          | 47.6% (79)                                             |
| Other                                                                        | 7.2% (12)                                              |
| None of the Above +                                                          | 1.2% (2)                                               |

\* Measured with a “Select all that Apply” Option.

+ Only choice available if selected.

Table 20. *Model 0 with Only Control Variables Predicting Changes in Services Offered During COVID-19.*

| Variable                                   | <i>B</i> | <i>SE</i> | $\chi^2$ | <i>p</i> | <i>OR</i> | 95% CI          |
|--------------------------------------------|----------|-----------|----------|----------|-----------|-----------------|
| (Intercept): Offered Many Fewer Services   | -1.48    | 0.41      | 12.69    | <0.001   | 0.23      | [0.10, 0.48]    |
| (Intercept): Offered Fewer Services        | 0.18     | 0.37      | 0.23     | 0.63     | 1.19      | [0.60, 2.36]    |
| (Intercept): No Change in Services Offered | 1.57     | 0.39      | 16.29    | <0.001   | 4.80      | [2.32, 10.08]   |
| (Intercept): Offered More Services         | 3.74     | 0.48      | 59.74    | <0.001   | 42.03     | [17.18, 109.11] |
| Facility is Accredited by JACHO            | 0.46     | 0.39      | 1.38     | 0.24     | 1.59      | [0.74, 3.41]    |
| Facility Accepts Private Insurance         | 0.18     | 0.34      | 0.28     | 0.60     | 1.19      | [0.62, 2.32]    |
| Facility Provides PHP                      | 0.40     | 0.43      | 0.88     | 0.35     | 1.49      | [0.64, 3.49]    |
| Facility Provides IOP                      | 0.58     | 0.35      | 2.86     | 0.10     | 1.79      | [0.90, 3.60]    |
| Facility Provides OP                       | 0.48     | 0.41      | 1.38     | 0.24     | 1.61      | [0.75, 3.48]    |

Overall model:  $\chi^2[5] = 15.36, p = 0.009$

Table 21. *Model 1 with Sum of Total Services and Control Variables Predicting Changes in Services Offered During COVID-19.*

| Variable                                       | <i>B</i> | <i>SE</i> | $\chi^2$ | <i>p</i> | <i>OR</i> | 95% CI          |
|------------------------------------------------|----------|-----------|----------|----------|-----------|-----------------|
| (Intercept): Offered Many Fewer Services       | -1.69    | 0.56      | 9.26     | <0.01    | 0.18      | [0.60, 0.54]    |
| (Intercept): Offered Fewer Services            | -0.04    | 0.52      | 0.01     | 0.94     | 0.96      | [0.34, 2.66]    |
| (Intercept): No Change in Services Offered     | 1.36     | 0.53      | 6.50     | 0.01     | 3.89      | [1.37, 11.10]   |
| (Intercept): Offered More Services             | 3.53     | 0.60      | 34.42    | <0.001   | 34.04     | [10.68, 113.53] |
| Sum of Total Services Provided by the Facility | -0.01    | 0.02      | 0.31     | 0.58     | 0.99      | [0.94, 1.04]    |
| Facility is Accredited by JACHO                | 0.44     | 0.39      | 1.28     | 0.26     | 1.55      | [0.73, 3.35]    |
| Facility Accepts Private Insurance             | 0.18     | 0.34      | 0.29     | 0.59     | 1.20      | [0.62, 2.34]    |
| Facility Provides PHP                          | 0.44     | 0.44      | 1.02     | 0.31     | 1.56      | [0.66, 3.69]    |
| Facility Provides IOP                          | 0.65     | 0.37      | 3.06     | 0.08     | 1.91      | [0.93, 3.97]    |
| Facility Provides OP                           | 0.48     | 0.39      | 1.47     | 0.23     | 1.61      | [0.74, 3.49]    |

Overall model:  $\chi^2[6] = 15.67, p = 0.016$

Table 22. *Model 2 with Patient Centered Care Variable and Control Variables Predicting Changes in Services Offered During COVID-19.*

| Variable                                    | <i>B</i> | <i>SE</i> | $\chi^2$ | <i>p</i> | <i>OR</i> | 95% CI          |
|---------------------------------------------|----------|-----------|----------|----------|-----------|-----------------|
| (Intercept): Offered Many Fewer Services    | -0.78    | 0.60      | 1.74     | 0.19     | 0.46      | [0.14, 1.49]    |
| (Intercept): Offered Fewer Services         | 0.88     | 0.58      | 2.32     | 0.13     | 2.41      | [0.78, 7.71]    |
| (Intercept): No Change in Services Offered  | 2.29     | 0.61      | 14.57    | <0.001   | 9.87      | [3.04, 33.69]   |
| (Intercept): Offered More Services          | 4.47     | 0.68      | 44.47    | <0.001   | 87.46     | [23.71, 345.39] |
| Conducts Regular Treatment Plan Discussions | 0.82     | 0.54      | 2.47     | 0.12     | 2.27      | [0.79, 6.55]    |
| Facility is Accredited by JACHO             | 0.46     | 0.39      | 1.37     | 0.24     | 1.58      | [0.74, 3.40]    |
| Facility Accepts Private Insurance          | 0.06     | 0.34      | 0.03     | 0.86     | 1.06      | [0.54, 2.10]    |
| Facility Provides PHP                       | 0.37     | 0.43      | 0.74     | 0.39     | 1.44      | [0.62, 3.38]    |
| Facility Provides IOP                       | 0.61     | 0.35      | 3.06     | 0.08     | 1.83      | [0.92, 3.69]    |
| Facility Provides OP                        | 0.51     | 0.39      | 1.59     | 0.21     | 1.67      | [0.77, 3.64]    |

Overall model:  $\chi^2[6] = 17.68, p = 0.007$

Table 23. *Model 3 with Organizational Capacity Subscale Scores and Control Variables Predicting Changes in Services Offered During COVID-19.*

| Variable                                   | <i>B</i> | <i>SE</i> | $\chi^2$ | <i>p</i> | <i>OR</i> | 95% CI         |
|--------------------------------------------|----------|-----------|----------|----------|-----------|----------------|
| (Intercept): Offered Many Fewer Services   | -2.78    | 1.24      | 5.04     | 0.03     | 0.07      | [0.01, 0.70]   |
| (Intercept): Offered Fewer Services        | -1.12    | 1.22      | 0.85     | 0.36     | 0.38      | [0.04, 3.52]   |
| (Intercept): No Change in Services Offered | 0.29     | 1.22      | 0.05     | 0.81     | 1.54      | [0.16, 14.45]  |
| (Intercept): Offered More Services         | 2.46     | 1.24      | 3.92     | 0.05     | 13.54     | [1.33, 136.90] |
| Organizational Identity Score              | 0.12     | 0.16      | 0.79     | 0.46     | 1.11      | [0.82, 1.51]   |
| Fundraising Development Score              | 0.02     | 0.11      | 0.03     | 0.84     | 1.02      | [0.81, 1.29]   |
| Volunteer Practices Score                  | -0.03    | 0.15      | 0.00     | 0.98     | 0.99      | [0.73, 1.34]   |
| Organizational Procedures Score            | -0.07    | 0.06      | 1.70     | 0.21     | 0.94      | [0.85, 1.04]   |
| Facility is Accredited by JACHO            | 0.51     | 0.40      | 1.62     | 0.20     | 1.66      | [0.77, 3.58]   |
| Facility Accepts Private Insurance         | 0.20     | 0.34      | 0.35     | 0.55     | 1.21      | [0.62, 2.40]   |
| Facility Provides PHP                      | 0.33     | 0.44      | 0.56     | 0.44     | 1.41      | [0.60, 3.36]   |
| Facility Provides IOP                      | 0.60     | 0.35      | 2.91     | 0.09     | 1.80      | [0.89, 3.67]   |
| Facility Provides OP                       | 0.41     | 0.41      | 0.99     | 0.32     | 1.54      | [0.70, 3.36]   |

Overall model:  $\chi^2[9] = 4.96, p = 0.838$

Table 24. *Model 4 with Sum of Total Services, Patient-Centered Care Variable, and Organizational Capacity Scores Predicting Changes in Services Offered During COVID-19.*

| Variable                                   | <i>B</i> | <i>SE</i> | $\chi^2$ | <i>p</i> | <i>OR</i> | 95% CI         |
|--------------------------------------------|----------|-----------|----------|----------|-----------|----------------|
| (Intercept): Offered Many Fewer Services   | -2.32    | 1.29      | 3.32     | 0.07     | 0.11      | [0.01, 1.29]   |
| (Intercept): Offered Fewer Services        | -0.71    | 1.27      | 0.34     | 0.58     | 0.56      | [0.05, 6.22]   |
| (Intercept): No Change in Services Offered | 0.62     | 1.27      | 0.22     | 0.63     | 2.12      | [0.18, 23.68]  |
| (Intercept): Offered More Services         | 2.75     | 1.29      | 4.44     | 0.03     | 17.80     | [1.47, 213.40] |
| Sum of Total Services                      | 0.04     | 0.02      | 2.45     | 0.12     | 1.04      | [0.99, 1.08]   |
| Patient-Centered Care                      | 0.92     | 0.51      | 3.18     | 0.07     | 2.52      | [0.92, 6.97]   |
| Organizational Identity Score              | 0.16     | 0.16      | 1.37     | 0.31     | 1.17      | [0.87, 1.58]   |
| Fundraising Development Score              | -0.04    | 0.11      | 0.10     | 0.74     | 0.96      | [0.77, 1.21]   |
| Volunteer Practices Score                  | 0.04     | 0.15      | 0.09     | 0.78     | 1.04      | [0.77, 1.40]   |
| Organizational Procedures Score            | -0.08    | 0.06      | 2.14     | 0.16     | 0.93      | [0.84, 1.04]   |

Overall model:  $\chi^2[6] = 7.23, p = 0.300$

Table 25. *Model 5 with Patient-Centered Care Variable Predicting Changes in Services Offered During COVID-19.*

| Variable                                     | <i>B</i> | <i>SE</i> | $\chi^2$ | <i>p</i> | <i>OR</i> | 95% CI         |
|----------------------------------------------|----------|-----------|----------|----------|-----------|----------------|
| (Intercept): Offered Many Fewer Services     | -1.56    | 0.51      | 9.36     | <0.01    | 0.21      | [0.08, 0.56]   |
| (Intercept): Offered Fewer Services          | 0.04     | 0.47      | 0.06     | 0.94     | 1.04      | [0.41, 2.65]   |
| (Intercept): No Change in Services Offered   | 1.34     | 0.48      | 7.56     | 0.01     | 3.82      | [1.48, 10.10]  |
| (Intercept): Offered More Services           | 3.44     | 0.56      | 38.10    | <0.01    | 31.30     | [10.66, 96.05] |
| Patient-Centered Care                        | 0.94     | 0.50      | 3.63     | 0.06     | 2.57      | [0.97, 6.89]   |
| Overall model: $\chi^2[1] = 3.62, p = 0.057$ |          |           |          |          |           |                |

## CONCLUSION

COVID-19 was a challenging event for both individuals who misused alcohol and other illicit substances and treatment centers that provide care for these individuals. While there were differences in experiences among individuals who sought treatment, and treatment centers themselves, this study does not fully capture why those differences occurred. It is clear that more exploration is needed into both organizational capacity of treatment centers and why people perceive a need for treatment. However, this study does contribute important implications for future research, practice, and policy.

Future research on treatment seeking for substance misuse should incorporate why individuals perceive a need for treatment. Knowing the factors that contributed to treatment need may help researchers and practitioners alike streamline the referral and admission to treatment. Additionally, plans should be made to help transport individuals to treatment as reliable transportation was a valuable predictor in treatment receipt during COVID-19. When transportation to treatment is not possible, treatment centers must continue to provide online services. Online services can increase accessibility in care receipt, and they should continue to operate in a post-COVID-19 society. Both transportation to treatment and providing online services could, in the future, be considered an aspect of patient-centered care. Due to poor reliability in the scale measure, a binary measure of patient centered care in this research, where most facilities answered affirmatively to providing patient centered care, was utilized. Even with the weak measurement, patient-centered care approached significance in the bivariate relationship between services provided. This indicates that when we tailor programming to the needs of the clients, it can benefit both the individual seeking treatment and the facility as a whole.

This study contained a sample of treatment centers that showed strong organizational capacity. While organizational capacity did not predict offering more services during COVID-19, it should not be ignored in future research. Knowing what makes an agency strong can provide insight into how to strengthen agencies that may be struggling to establish that capacity. This could lead to specific action plans that prevent closures during future times of shutdowns and crisis – including future pandemics and events like natural disasters that may limit the availability of in person treatment.

Ultimately, substance misuse treatment should be about accessibility. Those who perceive a need for treatment are not always able to access it. If we can help both individuals and treatment facilities know the smoothest, most effective routes for entering treatment we can minimize disillusionment with the treatment seeking process. Seeking treatment is never one sided. The responsibility should not fall solely on the individual who wants treatment, nor should it fall entirely on facilities themselves, as we cannot neglect the key aspect of self-determination in treatment seeking. If future research works harmoniously with both individuals and treatment centers, it could help establish plans and guidelines that ultimately prevent disease and death related to substance misuse.

## VITA

Dorothy Wallis graduated from Belmont University with a Bachelor of Social Work degree and from Columbia University with a Master of Social Work degree. Following her MSW, she worked as a case manager for individuals living with substance use disorders and severe and persistent mental illness and as an Admissions Director in a state-funded substance misuse treatment facility. As Admissions Director, she saw individuals from across the state of Tennessee overcome numerous obstacles to enter treatment and work towards individual recovery goals. These experiences inspired her to start her Ph.D. program and engage in research to bridge the gap between those who desire to go to treatment for their substance misuse and being able to access treatment. Her other research interests include organizational structure and capacity of substance use treatment facilities, peer recovery services, and harm reduction. After graduation, she will continue her research as an Assistant Professor at Utah State University.