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# Improving Patient Outcomes in Substance Use Disorder Through Behavioral Therapy in Depression Development and Impacts of Social Determinants of Health During and After Substance Use Treatment

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IMPROVING PATIENT OUTCOMES IN SUBSTANCE USE DISORDER THROUGH  
BEHAVIORAL THERAPY IN DEPRESSION DEVELOPMENT AND  
IMPACTS OF SOCIAL DETERMINANTS OF HEALTH DURING  
AND AFTER SUBSTANCE USE TREATMENT

by

Jerry Armstrong and Chyanne Napp

A Doctoral Project  
Submitted to the Graduate School,  
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and the School of Leadership and Advanced Nursing Practice  
at The University of Southern Mississippi  
in Partial Fulfillment of the Requirements  
for the Degree of Doctor of Nursing Practice

Approved by:

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## ABSTRACT

Substance Use Disorder (SUD) is a growing problem in the United States (U.S.) and worldwide and relapse is a common occurrence among those facing SUD. Limited scholarly research has been published addressing evidence-based treatment improvement strategies. This study focused on improving SUD treatment through the incorporation of depression tracking from admission to and discharge from inpatient treatment, as well as the incorporation of social determinants of health education during treatment, with an evaluation of relapse rates 30-days after inpatient treatment discharge. Results indicated a significant improvement in depression scores from admission to discharge. Results also revealed improved knowledge regarding social determinants of health and their impact on SUD and recovery, as well as an increased willingness to allow case management involvement in care. Due to lack of response and inability to contact participants 30-days post-treatment release, relapse rates were not well defined.

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## DEDICATION

This work is dedicated to Minnie G. Carr, Audrey N. Carr, and Robert A. Carr whose love for me was partially reflected through the instillation of a love for learning. I am confident the time that was spent investing in my literary education at a very early age has been the single most important factor in my educational success. I will not let this opportunity pass without thanking God for guiding me and holding me up through every step of this journey. Many days I am sure I was operating only by his strength. I would like to thank my parents for their love, support, and encouragement throughout these last two years. This support has been invaluable to me during this time. Finally, I would like to thank my DNP project partner Ryan and his family. To Misty and the family, thank you for your kindness, grace, and understanding during this process, your sacrifices have not gone unnoticed. Ryan, you have challenged me to reach my highest academic potential and I am grateful to call you a friend.

-Chyanne

I would first and foremost like to thank God. I have been given more chances than I deserve and can only presume He has a bigger purpose for me. The experiences He has brought me through prepared me for where I am at this moment starting this journey in helping others. To my wife, Misty, and our four children. Thank you for sticking by my side through everything and all that you have sacrificed to get us here. You all continually inspire and motivate me to push forward and to continually strive to be a better human being. You all are the reason for these last few years and I love you all so much! To my partner, Chyanne, thank you! You have been such a pleasure to work with, challenging me, motivating me, and picking me up when I needed it. I could not have

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- Ryan

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## LIST OF ABBREVIATIONS

<i>AA</i>	Alcoholics Anonymous
<i>AACN</i>	American Association of Colleges of Nursing
<i>AHC HRSN</i>	The Accountable Health Communities Health-Related Social Needs Screening Tool
<i>ANEW</i>	Advanced Nursing Education Workforce
<i>APA</i>	American Psychological Association
<i>CBT</i>	Cognitive Behavioral Therapy
<i>CDC</i>	Centers for Disease Control and Prevention
<i>CINAHL</i>	Cumulative Index to Nursing and Allied Health Literature
<i>CMS</i>	U.S. Centers for Medicare and Medicaid Services
<i>DNP</i>	Doctor of Nursing Practice
<i>GED</i>	General Education Development
<i>HIPAA</i>	Health Insurance Portability and Accountability Act
<i>HIV</i>	Human Immunodeficiency Virus
<i>IQ</i>	Intelligence Quotient
<i>IRB</i>	Institutional Review Board
<i>MBI</i>	Mindfulness-Based Intervention
<i>MBRP</i>	Mindfulness-Based Relapse Prevention
<i>MHL</i>	Mental Health Literacy
<i>NCCB</i>	Newark Community Collaborative Board
<i>NIDA</i>	National Institute on Drug Abuse
<i>PHQ-9</i>	Patient Health Questionnaire

<i>PSUD</i>	Polysubstance Use Disorder
<i>SAMHSA</i>	Substance Abuse and Mental Health Services Administration
<i>SDH</i>	Social Determinants of Health
<i>SPSS</i>	Statistical Package for Social Sciences
<i>SUD</i>	Substance Use Disorder
<i>U.S.</i>	United States
<i>USM</i>	The University of Southern Mississippi
<i>WHO</i>	World Health Organization

## CHAPTER I - INTRODUCTION

### Background

The Substance Abuse and Mental Health Services Administration (SAMHSA) of the U.S. Department of Health and Human Services reported that in 2017, 19.7 million American adults suffered from substance abuse disorders (SUD), with one out of every eight adults using more than one substance. In the same year, addiction cost the U.S. more than \$740 billion in healthcare expenses, crime-related costs, and workplace productivity (Substance Abuse and Mental Health Services Administration [SAMHSA], 2018). Addiction is treatable with a multi-therapeutic approach which may include medication, behavioral therapies such as mindfulness-based relapse prevention (MBRP) and cognitive behavioral therapy (CBT), the use of 12-step programs, and staff and peer support networks. A significant majority of those in SUD treatment achieve sobriety and progress through the inpatient recovery process successfully because of inpatient resources that help overcome mental, physical, and emotional barriers.

Patients with SUD often experience increased rates of depression in early recovery. These increased rates of depression are likely related to the acknowledgment of personal changes that must be implemented during and following SUD treatment. Aside from the autonomic change in brain chemistry after addiction has ceased, the individual must also make cognitive changes to maintain sobriety. Necessary changes may include but are not limited to, a newfound ability to identify healthy social activities and circles which lead to parting with friends in active addiction, the loss of a primary coping mechanism through the use of substance or substances of choice, and a lifestyle modification focused on avoiding triggers of substance use whenever possible. The

combination of these factors can contribute to diminished moods and feelings and in turn, increased rates of depression which are known to be a significant deterrent to recovery. Bowen et al. (2014) stated that a negative affect is mainly associated with cravings and relapse. Evidence suggests relapse prevention therapy reduces postintervention substance use and facilitates a positive shift in mood for the depressed patient with SUD.

During inpatient treatment, the patient experiences the benefits of a controlled environment which holistically addresses needs. Once patients are released from treatment, many are faced with returning to environments unsuitable for continuing sobriety. The suitability of an individual patient's recovery environment is significantly impacted by their social determinants of health (SDH). Healthy People 2030 notes SDH to include economic stability, social and community context, education access and quality, neighborhood and built environment, and specific to this Doctor of Nursing Practice (DNP) project, health literacy (Healthy People, 2020). Individuals with the highest risk for relapse are those with low socioeconomic statuses, as poverty impacts all aspects of life.

Those considered to have a low socioeconomic status are at a higher risk for relapse because they often reside in more populated areas with higher poverty rates, crime rates, and easier access to substances than peers with higher socioeconomic statuses. Historically, those living in impoverished regions have decreased access to health care, specifically mental health care, and lack economical resources such as transportation and office visit co-pays required for follow-up care. For those living in high-risk neighborhoods, adequate and positive social support could be critical in relapse prevention. Unfortunately, healthy support systems are rarely found in these societal



contexts. Those with low socioeconomic statuses are more likely to associate with others who both abuse substances and have additional underlying psychiatric illnesses (Karriker-Jaffe et al., 2020). Most individuals with low socioeconomic statuses also have below-standard educational levels, including low health literacy levels, which further increases relapse risks. (McClellan, 2017). Insufficient health literacy education, the return to environments that provide access to drugs and alcohol, and post-treatment return to milieus which are located in impoverished areas, filled with unhealthy social circles, high-risk activities, and little to no social or emotional support regarding sobriety are SDH factors that increase the likelihood of substance use relapse.

Research has identified poor SDH to be a risk factor for SUD relapse. Yet, scholars have failed to identify provider interventions that adequately prepare the patient to cope with and improve poor SDH effectively. Currently, sobriety for the SUD population largely depends on community-based programs that offer relapse prevention support. However, in many areas, community-based relapse prevention programs are scarce or non-existent. Providing patient education regarding the impact of SDH on relapse, encouraging patients to create a plan to mitigate these impacts, and offering available community resources, before discharge from inpatient rehabilitation could aid in relapse prevention and decrease relapse rates.

### Significance

SUD is a growing issue in the U.S. (National Institute on Drug Abuse [NIDA], 2020). Overall costs exceed \$600 billion each year, and the combined financial and societal costs produce a significant burden that impacts all people. Societal losses are rooted in decreased productivity of substance users, the impact of unplanned pregnancies,

tax dollars spent within the criminal justice system, the poor overall health of the substance user, and in some cases, death. Removal of the parent from the home, whether voluntary or mandated, increases the need for foster care system utilization.

Homelessness is a common occurrence with SUD, and as a result, homeless shelters inherit an increased burden. Customers pay more for both goods and services due to declines in productivity and delayed industrial growth. Health insurance premiums are raised for all individuals, and taxes are increased to supplement funding for community health care (NIDA, 2018). As a remedy, providers and researchers must create inventive and effective ways to improve SUD treatment to facilitate an improved recovery process that is more sustainable and returns the individual to society with optimal productivity.

Depression in early recovery is a challenge for both patients and staff in inpatient treatment settings and can be a significant barrier to a successful recovery. Clarke et al. (2020) noted that those with SUD have greater difficulty identifying and understanding their emotions and, as a result, use different strategies than their non-addicted peers to achieve emotional regulation. With this knowledge, those providing substance use treatment must identify emotional factors in early recovery which contribute to treatment failure. Suppose behavioral therapy reduces the anxiety associated with the tasks that lie ahead on a path of successful recovery from SUD. Should this be the case, the individual would become less likely to experience defeated feelings that lead to depression and relapse in the early recovery period.

While genetics and biological brain makeup contribute to an individual's predisposition toward addiction, SDH have just as significant, or more of an impact, than genetics and biology. Often, though not all times, those consumed by addiction are

exposed to poorer health determinants than their non-addicted counterparts (El-Sadek et al., 2018). As a result, many in the recovering population lose sight of sobriety in the post-treatment phase due to stressors such as lack of food, adequate housing, transportation, and decreased access to continuing recovery care services. SUD treatment providers must be aware of the SDH applicable to the individual patient and provide education and resources to alleviate these concerns. Doing so promotes the personal productivity of the substance user, improved family, social, and community relationships, a decreased financial burden on the healthcare system, and an overall healthier population.

#### Problem Description and PICOT

Individuals with SUD face various mental, emotional, and physical challenges during treatment and face additional obstacles in maintaining sobriety after treatment discharge. Causes of these challenges can be attributed to the development of depression during treatment, continuing after release from treatment, and the impact of SDH upon re-entry to society without the controlled environment treatment provides. SUD treatment centers have not traditionally addressed these developing and continuing issues, yet their impact affects the success or failure of treatment and likely increases relapse probability. Education that addresses developing depression during SUD treatment and the impact of SDH on continuing sobriety post-discharge provides additional tools to be utilized by the individual with SUD to prevent the return to substance use. To improve outcomes, the writers pose the following question. Among patients recovering from substance use disorder, what is the impact of behavioral therapy on depression and the impact of education regarding SDH, when compared to the current educational resources provided

to those in recovery, on rates of relapse within 30 days of discharge from residential treatment?

### Needs Assessment

The chosen DNP project facility was a mental health facility located in central Mississippi, which provides mental health and addiction services to Mississippi residents in Copiah, Lincoln, Madison, Rankin, and Simpson counties. As of 2019, the facility served over 18,000 people in these areas with inpatient, outpatient, and mobile crisis intervention services for citizens with SUD, mental illness, and intellectual disabilities (Smith, 2019). Because this facility accepts private insurance, Medicaid, and Medicare, patients seeking services from the facility had various socioeconomic statuses, educational statuses, and social standings.

Upon speaking with facility coordinators, depression prevalence upon admission was discussed. Per the clinical coordinator and drug and alcohol program coordinator, the facility did administer a PHQ-9 on admission, but depression screening was not a mandatory protocol for SUD treatment entry. Individuals may have been screened for depression on admission, but the lack of subsequent re-administrations of the PHQ-9 did not allow for the evaluation of progress or regression of depressive symptomology throughout treatment. Considering that individuals living with SUD are more susceptible to developing depression in early recovery, a need for depression monitoring in all patients receiving treatment for SUD was identified, as was a need for provider education and patient awareness surrounding depression screening. Providing education to the individual receiving treatment increases patient identification of depressive symptomology that may otherwise go unrecognized. Provider recognition of signs of

depression during early recovery warrants the need for re-administration of the PHQ-9 and a modified treatment plan that focuses on mitigating these feelings.

At the time of the inquiry, the facility was administering an SDH screening during inpatient treatment to assess the needs of each patient. After meeting with the clinical coordinator and drug and alcohol coordinator, no evidence of patient awareness or education surrounding SDH was identified. As a result, the need for patient education and awareness regarding SDH for those with SUD in the central Mississippi region was identified as a priority health need.

Patient awareness and education of the impact of SDH is a new upstream thinking process. As such, the facility did not utilize an educational tool for the SDH. As a result, it was determined that an educational policy was a priority need for both patients and facilities, as healthcare reform has focused on reimbursement based on improved patient outcomes. An additional need for more integrated case management work with local, state, and federal leaders focused on maximizing the utilization of community resources was subsequently discovered through the initial investigation.

### Synthesis of the Evidence

A comprehensive literature review was completed using The University of Southern Mississippi online library and Google Scholar. Literature dated between 2016 and 2021 was reviewed, and peer-reviewed articles were retrieved from the following databases, APAPsych info, APAPsych articles, BioMed, CINAHL, and MEDLINE. Topics searched were the impact of depression on early SUD recovery, the impact of CBT and MBRP during SUD recovery on the development and management of depression, the impact of patient education on depression during SUD treatment, the

impact of SDH on SUD recovery, the impact of SDH patient education during and after SUD recovery, impact of SDH on those with chronic mental illness, and the impact of health literacy on outcomes for those with mental health concerns.

Of note, no literary findings were located surrounding the impact of SDH education within the SUD population. The scarce literature that was located through approved databases evaluating the impact of SDH on SUD recovery and mental health was found to be linear and cohesive. The authors share no opposing viewpoints, and all concur that like physical health, SDH has a significant impact on mental health, as does health literacy. The following paragraphs explore findings from current literature and identify existing research gaps regarding depression and psychotherapies during SUD inpatient treatment.

#### *Impact of Depression on Early Recovery*

An extensive literature search indicates mental and emotional distress significantly affects SUD and recovery from substance use. A literature search yielded 18,980 articles; 25 articles were relevant to this topic, five of which were considered highly pertinent to this topic. Roos et al. (2020) stated that individuals living with SUD exhibited increased responsiveness to stress when compared to persons without SUD. Stress is a consistent predictor of substance use, and effective interventions to increase awareness and actions concerning emotional stability supports healthy recovery for individuals living with SUD. Persistent feelings of depression and stress are key factors that can serve as triggering events toward relapse and contribute to a vicious cycle within addiction treatment (Roos et al., 2020).

Kang et al. (2019) support the idea that negative emotions and SUD have a direct relationship. Individuals with negative emotions are more likely to develop SUD, and individuals who abuse substances are more likely to exhibit increased emotional distress when compared to other individuals that do not misuse substances. In individuals that exhibit increased levels of damaging emotions, these emotions predict the development of SUD and the likelihood of relapse (Kang et al., 2019).

Erga et al. (2021) state that SUD is a distressing disorder that often results in significant losses psychologically, socially, and physically. Polysubstance use disorder (PSUD) is a common finding in SUD treatment with a higher prevalence of comorbid mental disorders, which is associated with poor outcomes. Studies found that most participants showed decreased emotional distress within three months of abstinence from substances. Individuals who exhibit elevated levels of negative emotions may be at an increased risk of substance use or relapse. As a result, these individuals should be observed closely and screened early for signs of psychological distress (Erga et al., 2021).

Dingle et al. (2018) state that individuals living with SUD experience difficulties with emotional regulation. Adults with SUD often use substances to cope with emotional distress, yet emotional distress is the primary factor that contributes to relapse following treatment. These factors reveal the importance of identifying and addressing emotional distress within individuals treated for SUD, as depression and SUD exacerbate one another. These emotional awareness and regulation difficulties provide a highly credible means of treatment focus (Dingle et al., 2018).

Clarke et al. (2020) state that holistic wellness interventions are a potential treatment focus that demonstrates beneficial outcomes regarding relapse. Holistic

wellness addresses multiple factors in psychological and emotional awareness and places emphasis on a higher quality of life by reducing complications of mental and physical problems. Individuals who can promote wellness and recognize and regulate their emotions are more likely to avoid a relapse in substance use (Clarke et al., 2020).

Studies revealed that participants living with substance abuse show increased psychological distress and difficulty with emotional regulation (Dingle et al., 2018; Roos et al., 2020). Referenced studies have found mental anguish and negative emotions predict the development of SUD and are major contributing factors to relapse (Dingle et al., 2018; Erga et al., 2021; Kang et al., 2019). Widespread attention and improvement concerning emotional and physical well-being show promise in SUD treatment (Clarke et al., 2020).

#### *CBT and MBRP*

The literature review identified 2,853 articles on CBT and MBRP and was narrowed to 24 articles. Breuninger et al. (2020) explored integrating the concept of Alcoholics Anonymous (AA) and CBT simultaneously. AA utilizes thought processes that are similar to the thought approaches used in CBT. The most common theme is of identifying and changing harmful feelings and behaviors. Relapse prevention is a manualized CBT treatment approach that can be adapted to address multiple issues, including but not limited to SUD, depression, and a combination of both. CBT is particularly effective in recognizing and shifting negative thoughts and behaviors that precipitate drinking. CBT interventions also introduce skills that promote relaxation, positive coping, and stress reduction (Breuninger et al., 2020).



Carroll and Kiluk (2017) state that mindfulness-based practices enrich traditional CBT by minimizing emotional reactivity through increasing recognition of thoughts and feelings that may serve as triggering events for substance use. Mindfulness focuses on increased recognition and acceptance of harmful feelings, particularly present moment experiences, to reduce the impact these feelings may have on emotional regulation. In doing so, individuals have an increased capacity to manage triggers and decrease addictive behavior. CBT is particularly known for its durability, often showing more significant improvements among individuals after treatment has ceased. Despite the efficacy of CBT, these methods were found to be amongst some of the least used. Barriers to implementation include the cost of training, a lack of qualified providers, and a high turnover among practitioners. Computer-based CBT programs have been developed as a possible means to reduce implementation barriers, provide greater patient access, and evolve with technology (Carroll & Kiluk, 2017).

Wilson et al. (2017) state that mindfulness raises awareness and promotes acceptance of experiences in real-time. Since introducing mindfulness-based practices, the concept has undergone continuous growth and expansion into various focused methods. Though there is continued expansion and presence of mindfulness-based interventions (MBI), a lack of agreement on best practices remains. MBIs have been shown to provide significant results in the treatment of addictive behaviors. MBIs assist individuals in reducing reactivity to difficult situations, encourage practicing mindfulness, and are suggested to correct neurobiological functioning. Despite significant results in treatment outcomes, issues remain surrounding MBI implementation (Wilson et al., 2017).

Kang et al. (2019) report CBT and MBIs effectively regulate emotions and show a significant decrease in emotional distress compared to similar interventions. MBIs not only contain portions of CBT but are constructed methods derived from CBT. These treatment methods moderate emotional outcomes and provide valuable tools for regulating emotions (Kang et al., 2019).

Studies agree that mindfulness is built upon the foundation of CBT and is effective in managing emotions. Mindfulness focuses on recognizing and accepting present moment experiences and promotes positive coping (Breuninger et al., 2020; Carroll & Kiluk, 2017; Kang et al., 2019; Wilson et al., 2017). Although these practices show significant results compared to other treatments, barriers to implementation are apparent (Carroll & Kiluk, 2017; Wilson et al., 2017). Carroll and Kiluk, (2017) convey that CBT is particularly noted to express sustainability, often showing significant improvements long after therapy has concluded.

#### *Impact of Patient Education on Depression in Early Recovery*

A literature search on the impact of patient education on depression in early recovery with CBT and MBRP interventions yielded 13,662 articles, which were narrowed to 15 relevant articles. Anxiety and depression, which can persist up to two years into SUD recovery, are commonly occurring disorders in early recovery. Most individuals living with SUD are or were polydrug addicted. Many theories have been explored to explain the correlation between SUD and mental illness. Possible explanations suggest substance use is an attempt to relieve psychological problems. Individuals with co-occurring disorders often experience poorer treatment outcomes (Mohamed et al., 2020).

Levitt et al. (2021) declare that substance misuse is a global concern with deadly impacts that constitute more than \$740 billion per year and are often accompanied by other co-occurring psychiatric conditions. Empirical evidence reveals that as much as 60% of people living with SUD experience co-occurring disorders, with depression being the most common occurring diagnosis. High rates of co-occurring disorders present significant challenges in addiction treatment. A SUD diagnosis can increase false-positive depression and anxiety screening scores, requiring the adjustment of these scores (Levitt et al., 2021).

Mindfulness-based practices place a strong emphasis on accepting maladaptive feelings that often serve as triggering events to relapse. In this context, individuals increase their ability to distance themselves from those feelings and redirect the behaviors positively to disturb the sequence of relapse. MBRP has been shown to reduce cravings and provide long-term benefits to mental health (Zinzow et al., 2020).

Roos et al. (2020) state that anxiety is a consistent predictor of substance use and cravings. Depression can complicate the cycle of addiction by increasing the urge to relieve negative emotions, thus creating an additional complexity to the likelihood of relapse. Depression can include a wide range of symptoms that may intensify the urge individuals feel about returning to drug use to alleviate depressive symptoms. Given that CBT interventions teach skills that promote coping, CBT may be more effective in assisting individuals in addressing these difficulties compared to treatment lacking CBT (Roos et al., 2020).

Mindfulness is described as “the awareness that arises from paying attention on purpose” (Sancho et al., 2018, p. 2) and the ability to recognize the situation as it is,

rather than distract oneself from it. Individuals participating in MBRP reported a decrease in emotional distress and less frequent alcohol and drug use when compared to traditional treatment. Participants undergoing MBRP also showed a reduction in the overall stress response when compared to CBT. Treatments such as MBRP effectively improve mood and decrease addiction symptoms (Sancho et al., 2018).

Cavicchioli et al. (2018) reported the observed inconsistencies in varying studies, despite existing improvements. Yet the reduction in depressive symptoms related to mindfulness practices appeared more effective in certain clinical aspects. These aspects included MBIs used in treating co-occurring SUD and psychiatric disorders, studying mixed samples of populations rather than similar populations, and delivering MBIs in group settings (Cavicchioli, 2018).

One crucial factor to consider when delivering MBRP is the timing of delivery. Typically, MBRP is delivered in a group setting after an individual has been discharged from inpatient treatment, serving as a continuance of care that reinforces practices learned in therapy. Roos (2018) observed a lack of evidence indicating that MBRP is effective when provided in early recovery from SUD. In this study, MBRP was supplied in a rolling fashion throughout intensive inpatient treatment. MBRP was shown to improve mental health symptoms when delivered in this manner. Further considerations surfaced that warranted further research. The vital factor in this regard is that individuals were still in a controlled setting and had not yet returned to the typical stressors of daily life. A need for future research was identified in that participants should be re-assessed several months following discharge from inpatient treatment to evaluate the effectiveness of the timing of delivery (Roos, 2018).

Depression and anxiety are commonly occurring comorbid disorders in SUD treatment and present significant challenges (Levitt et al., 2021; Mohamed et al., 2020; Roos et al., 2020). MBIs have shown to be an effective means of reducing stress and depression that reduce cravings and contribute to more favorable outcomes (Cavicchioli et al., 2018; Roos et al., 2018; Roos et al., 2020; Sancho et al., 2020; Zinzow et al., 2020). Inconsistencies in delivery are shown to be more effective when used to treat co-occurring disorders, are carried out in mixed populations, and delivered in a group setting (Cavicchioli et al., 2018). Roos (2018) explored the delivery timing in which MBRP was provided in early recovery, in a rolling fashion, rather than in an aftercare setting.

#### *Impact of SDH on SUD Recovery*

The consensus of literary findings indicates SDH has a significant impact on the occurrence of substance misuse, SUD, and SUD relapse. A total of 16,880 articles were located during the systematic literature review. Of these articles, 22 were found to apply to this DNP project. Minorities and those with low socioeconomic statuses experience more unfavorable and long-term health outcomes related to SDH. These groups, who commonly reside in disenfranchised areas, experience decreased access to health care, particularly mental health care. Unsurprisingly, these areas provide greater access to substances, have higher poverty rates, increased crime rates, increased rates of unstable housing, higher unemployment rates, higher rates of food insecurity, and higher rates of chronic illnesses such as Hepatitis C and HIV (Allen et al., 2014; Centers for Disease Control and Prevention [CDC], 2021; Windsor et al., 2018).

Afcar et al. (2017) identify five major causes of SUD relapse. The causes include individual factors such as family and social support, marital status, family factors

including a family history of addiction, death or divorce of parents, and family discrimination. Occupational factors such as employment status, job failure and dissatisfaction, occupational exposure to opioids, and spending an increased amount of time at or driving to their job contribute to SUD relapse. Additional economic causes include poverty, wealth, bankruptcy, and the availability of cheap and easily available opioids (Afcar et al., 2017; Javed et al., 2020).

#### *Impact of Education Relating to SDH During and After Recovery*

From the 17,104 articles found, none were relevant to the purpose of this DNP project. The integration of SDH into mental health is a developing concept for providers. Educational provision is lacking for both patients and providers alike. The articles reviewed for this topic maintain a focus on provider education toward the impact of SDH on mental health in general terms with no specific emphasis on SUD. No literary evidence was located on the effects of patient education on SDH during and after SUD treatment. In January 2021, The Centers for Medicare and Medicaid Services (CMS) released a guiding suggestion to state health officials to transition from fee-for-service care models to value-based care models designed to address SDH needs when providing care (U.S. Centers for Medicare & Medicaid Services [CMS], 2021). This suggested shift is an indication that reimbursement will ultimately change based on the facility's ability to address the SDH of the patients they serve. The discovered gap in evidence and literature on SDH patient education supports the need for and helps to provide the foundation of this DNP project, with a secondary goal of increasing CMS compliance and decreasing costs.

### *Impact of SDH on Chronic Mental Illness*

The literature review identified 18,085 articles on the impact of SDH on chronic mental illness. These articles were narrowed to a total of 33. Evidence findings suggest social, political, economic, and cultural factors contribute to an individual's socioeconomic standing. This societal standing often dictates access to food, housing, transportation, social support, and environmental conditions, all impacting the development and exacerbation of mental illness (Gil-Rivas et al., 2019). Those living with any mental illness are more likely to be uninsured, have a low educational level, be unemployed, live in poverty, and receive government assistance.

Furthermore, the risk of developing mental illness is increased by exposure to poverty, violence, natural disasters, wars, social unrest, and unequal access to education, employment, food, and housing (Gil-Rivas et al., 2019; Walker & Druss, 2017). SDH also have physical implications which can precipitate mental illness. A longstanding lack of financial and social resources triggers physical sympathetic nervous system responses, leading to excessive pro-inflammatory cytokines. When continued repeatedly, this response increases the allostatic load and results in a higher risk of mortality and morbidity (Simandan, 2018; Yaribeygi et al., 2017).

### *Impact of Health Literacy on Mental Health*

Mental health literacy (MHL) is identified as a person's understanding and attitudes about mental illness, treatment, and an individual's willingness and desire for treatment. The International Journal of Health Literacy expands this definition to include knowledge of mental illness prevention, recognition of mental illness development, knowledge of treatment options, self-help strategies, and mental health first aid skills to

help others in crisis (Okan et al., 2019). Although an array of factors determine an individual's health status, the impact of health literacy is not to be omitted. The World Health Organization, through the Comprehensive Mental Health Action Plan 2013-2020, advocated for health literacy to be added to the categories of SDH, noting that health literacy is more impactful on health status than income, educational attainment, employment, or race and ethnicity (Crowe et al., 2017; World Health Organization [WHO], 2016). Through the conducted systematic literature review, 46,623 articles on health literacy and mental health were located, and 81 were relevant to this study's purpose.

The relevant literature indicates that individuals with higher levels of MHL are more likely to seek and participate in treatment, have more positive attitudes toward treatment, and have more positive outcomes overall. Alternatively, those with low MHL are noted to have lower rates of identifying treatment need seeking treatment, have more negative attitudes toward treatment, and experience poorer outcomes (Crowe et al., 2017; Gallagher & Watt, 2019). Smith et al. (2018) report additional findings for those with low health literacy to be non-adherence to medication regimens, decreased healthy lifestyle behaviors, and reduced utilization of preventative health services. Additionally, persons with mental illness are at a higher risk of developing chronic health conditions and experience higher mortality rates than those without mental illness (Crowe et al., 2017). Since SUD falls in the arena of mental health, those with SUD can be positively impacted by improved MHL.



## Tools of Measurement

The three measurement tools used in this study were the Patient Health Questionnaire (PHQ-9), The Accountable Health Communities Health-Related Social Needs Screening Tool (AHC HRSN), and specifically designed pre- and post-educational evaluation surveys, validated by faculty at The University of Southern Mississippi. The PHQ-9 (Appendix A) is a self-administered screening tool for depression assessment, diagnosis, treatment, and treatment monitoring. The validity of the PHQ-9 was established from surveys conducted in primary care and obstetrical settings and has been found to have an 88% sensitivity and specificity rate. This tool has been used to screen patients for depression across the lifespan and screen those with debilitating conditions. The PHQ-9 is cost-free for providers and is available in 30 languages (American Psychological Association [APA], 2020).

The AHC HRSN (Appendix B) is a tool developed by CMS in 2016 and was released for provider use in 2017. Although the use of the AHC HRSN is not yet standard practice, the goal of CMS is to incorporate this tool as a routine SDH screening for Medicare and Medicaid recipients over the next five years (CMS, 2017). This tool aims to screen for the social needs and the five SDH categories of patients and determine if addressing these needs decreases healthcare costs and improves patient outcomes. Each patient answers the 26-question survey, and results from the survey help providers match social needs with available community resources. For this study, the questionnaire was used to help participants identify personal SDH needs.

The pre-educational survey (See Appendix C) was designed specifically for this DNP project and indicated baseline patient knowledge about SDH and its impact on

continuing sobriety following inpatient discharge. Furthermore, the survey identified the number of patients willing to accept case management services, fostering connections to community-based aid services. The post-educational survey (See Appendix D) functioned to evaluate improved knowledge surrounding the definition of SDH and its impact on recovery and served to reveal increased patient reception to case management services if any.

Thirty days following discharge from services, participating patients received a follow-up text or phone call. Intrinsically, this communication was not a tool of measurement or method. This text or phone call functioned as a “check-in” strictly to evaluate where the individual was in the recovery process after the safety of inpatient treatment and the controlled environment had been removed. The conversation revealed one of two answers, yes, the individual had relapsed or no, the person was still in recovery.

### Theoretical Framework

Barker's Tidal Model theory of nursing was used for this DNP Project. The Tidal Model is a nursing theory developed by Phil Barker and Poppy Buchanan-Barker in the 1990s. The Tidal Model, as its name implies, uses the ocean as a metaphor. As the ocean is constantly in motion, the same is said for life, whereas people continually move and discover. An individual's lived experience is their own story and is best known by that person and they alone are best equipped to understand specific needs and identify problem-solving strategies that are best aligned with personal goals. The model's primary focus is on helping individuals recognize and develop an individualized model of discovery (Barker, 2001b).

The Tidal Model references the importance of nursing care in promoting patient and family participation in care plans. By instilling emotional and physical security, the *self-dimension* referenced in the model encourages the participant to engage with their care to construct purposeful and effective care interventions. The *others dimension* considers the individual needs, which are influenced by outside social sources such as housing, finances, occupation, and leisure (Barker, 2001b). These dimensions promote the concept of the lived experience as a narrative. The approach allows the person to tell their story as they see it, as they have experienced it, and reflects the concept that each person knows and understands their needs better than anyone else. The Tidal Model places the nurse in a position to learn from the individual and explore the recovery experience in unification with the patient.

The Tidal Model's metaphor for the ocean experience as a journey alludes to ocean travel being a journey. Often the ship may become shipwrecked and require repair. During these times, the vessel will seek safety to be rehabilitated to recover from trauma. Once the ship has been rehabilitated, the ship is prepared to re-embark on its journey of discovery (Barker, 2001b). The nurse-to-patient interaction is parallel to the ship in this scenario. Throughout the journey to recovery, the nurse actively listens and, in conjunction with the patient, identifies needs that must be met to achieve successful recovery. By focusing on the person rather than the illness, the nurse is empowered to better guide the patient through successful recovery (Barker, 2001a).

The Tidal Model is applied through six philosophical assumptions and ten commitments that were expanded upon in 2008 to provide value to the professional

practice and implementation of the Tidal Model. According to Buchanan-Barker and Barker (2008), the six assumptions include the following:

A belief in the virtue of curiosity; recognition of the power of resourcefulness, rather than focusing on problems, deficits, or weaknesses; respect for the person's wishes, rather than being paternalistic; acceptance of the paradox of crisis as an opportunity; acknowledging that all goals must belong to the person; and the virtue of pursuing elegance: the simplest possible means should be sought. (p. 95)

Buchanan-Barker and Barker (2008) further elaborate and include the ten commitments that consists of “value the voice, respect the language; develop genuine curiosity; become the apprentice; use the available toolkit; craft the step beyond; give the gift of time; reveal personal wisdom; know that change is constant; and be transparent” (pp.95-97). These assumptions and commitments provide consistency in the professional care of meeting an individual's needs and concerns. This theory was applied to SUD treatment to improve behavioral therapy, further address barriers, and improve recovery by meeting the person where they are, with the encouragement of patient and family participation.

#### Purpose of the DNP Project

This DNP project had a tri-fold focus. The first focus was to study the effects of behavioral therapy on depression that develops or intensifies during SUD treatment, then to assess the effectiveness of that therapy when applied to SUD recovery. Individuals living with SUD often face numerous challenges during early recovery, leading to the development of clinical and non-clinical depression. The writers believed the useable skills and methods gained through behavioral therapy provided by the facility served to decrease these feelings of despair. The writers further believed providing therapy in early

treatment, at the time or before the time the participant would face these feelings, would greatly improve the efficacy of therapy, and improve the success of the recovery processes.

The second DNP project focus was to study how providing SDH education improved health literacy in the SUD population and aided individual participants in devising a plan to face personal barriers to recovery by utilizing both case management services and community resources. SDH is an emerging concept for healthcare providers but is an aspect of the care process that significantly impacts overall health. CMS has recently announced consideration toward altering reimbursement rates based on how effectively SDH needs are addressed (CMS, 2021). Provider awareness about the impact of SDH on both physical and mental health has increased. Yet, patients, specifically those having SUD, are most often unaware of what SDH is and its impact on the recovery process. The writers believed that providing SDH education to those in an inpatient SUD treatment center would increase knowledge regarding the definition of SDH and its impact on recovery. The writers also believed patient education, acknowledgment of personal SDH needs and encouragement to reflect upon personal barriers to recovery before they are faced, would facilitate the creation of individual plans to help mitigate SDH hurdles through the utilization of case management services and community resources to decrease relapse rates. This second DNP project focus evaluated the impact of provided education regarding the definition of SDH and its impact on recovery (health literacy), encouragement of identification of individual SDH needs, and willingness to utilize community-based resources and case management services to aid in the recovery journey and relapse prevention.

The third and final focus of the DNP project was to evaluate the impact of depression scores and newly gained education on relapse rates 30-days post discharge from inpatient SUD treatment. The writers wished to evaluate the long-term impact of the interventions and to assess their impact outside of a controlled setting as a means to highlight the true effectiveness of the interventions. Due to the nature of the illness, the writers expected that 30-day follow-ups would be difficult to obtain.

#### Doctor of Nursing Practice Essentials

Between the years 2004 and 2006, the American Association of Colleges of Nursing (AACN) developed the requirements and scholarly foundations for the degree now known as the Doctor of Nursing Practice (DNP). To highlight the importance of the degree and emphasize the responsibility the DNP provider holds in practice, the AACN created the DNP Essentials as a guide for professional practice and expectations of the assumed responsibility of the DNP (American Association of Colleges of Nursing [AACN], 2006). The DNP Essentials applicable to this DNP project are I, II, III, VI, VII, and VIII. The description of each essential and its relation to the DNP project is found in Appendix E of this paper.

#### Summary

As discussed, both depression and SDH significantly impact SUD treatment, sobriety, and continuing sobriety. Unmanaged depressive symptomology has a significant impact on recovery outcomes, and the integration of behavioral therapy has been shown to decrease these feelings and improve outcomes. As such, located evidence supports the need to integrate these therapies into both standardized and individual SUD treatment plans. Literature and research gaps have been identified concerning patient awareness of

SDH, identifying personal SDH needs, and the impact SDH has on continuing sobriety post-discharge. DNP providers must participate in clinical scholarship and use evidence-based research methods to improve outcomes. This DNP project implemented current evidence-based practice measures focused on depression and applied these measures to various stages of treatment. Innovative research on SDH created new evidence-based practices for consideration for use in future SUD treatment plans and facilities. This research further promoted facility and provider compliance in meeting CMS recommendations.

## CHAPTER II - METHODS

### Context

The lack of literary and evidence-based publications focused on the impact of depression in early recovery and SDH for the population with SUD constituted the creation of new research on the topics and sharing of that knowledge across the mental health provider community. Nationwide SUD relapse rates indicated a need for standardized treatment approach reviews and the addition of interventions designed to improve SUD treatment outcomes. A facility needs assessment revealed the need to expand current practices of administering one PHQ-9 and SDH screening upon admission. The proposed change was to administer the PHQ-9 upon admission to and discharge from inpatient SUD treatment and provide patient education on the identification of SDH and their impact on continuing sobriety after treatment discharge. This study was designed and planned based on an individualized logic model located in Appendix F. Information in the form of baseline and discharge PHQ-9, SDH health screenings, pre- and post-health literacy tests focused on SDH, and 30-day relapse rates served as an indicator of therapeutic and educational effectiveness.

### Population and Setting

The study population included individuals over 18 diagnosed with SUD who received or were receiving treatment in an inpatient setting or a recovery care outpatient setting. SDH assessment and education were geared toward those in both the inpatient and recovery care setting, while depression interventions were specific to those in inpatient treatment. Because the alcohol and drug treatment facility utilized for the DNP project served multiple counties in Mississippi, the population was diversified across



race, gender, age, and socioeconomic status. Inclusion criteria were as follows; participants were over the age of 18 at the time of the study, had a diagnosis of SUD, and were receiving SUD treatment. Exclusion criteria were noted to be a diagnosis of cognitive developmental delay or mental retardation. The recruitment method for DNP project participation was patient notification through facility staff, and interventions were presented as an educational offering for those undergoing both inpatient treatment and recovery care services. Stakeholders included patients with SUD, the facility Clinical Coordinator, the Alcohol and Drug Services Clinical Coordinator, and ancillary facility staff.

### Interventions

To track depression scores, two PHQ-9s were administered. The first was administered at the initiation of treatment, and the second at treatment completion. The initial PHQ-9 was administered to assess baseline depression rates. The evaluation of pre-existing depression scores established a depressive symptom baseline and provided a basis for comparison to subsequent assessments. During treatment, participants were provided with behavioral therapy and were administered a PHQ-9 upon treatment completion for score comparison. The administration of surveys across the treatment course allowed the writers to track depression development and the improvement or worsening of symptoms. Thirty-day follow-ups were conducted on participants who were able to be contacted and who were willing to speak with the writers 30 days following discharge from inpatient treatment.

Data collection to assess each patient's SDH status was obtained by a pre-educational survey and the AHC HRSN tool. A 40-minute educational PowerPoint

presentation centered on SDH and how they impact continuing sobriety was conducted. An immediate post-educational survey was then completed to evaluate the effectiveness of the education and its impact on the individual patient. The influence of the teaching was re-assessed 30 days post-discharge via phone call or text message, if the patient responded, to determine the educational effect on relapse.

A demographic survey was also included with the PHQ-9 and the AHC HRSN. The survey identified defining characteristics including age, race, ethnicity, identified gender, sexual orientation, number of people in the home, total household income, primary language, current living situation, preferred language, work type, military service status, education level, and employment status (See Appendix G).

#### DNP Project Timeline

A preliminary meeting including the Clinical Coordinator, the Alcohol and Drug Services Coordinator, the two study writers, and the committee chair was held in March 2021. The Clinical Coordinator granted verbal approval in April 2021, and a written letter of support was received in July 2021. Chapters I and II were submitted to the chair and a committee member in July 2021. The study writers met with the DNP project chair and the committee member in August 2021, and the DNP project proposal, including a PowerPoint presentation, was completed in mid-August 2021. Finalized paperwork was submitted to The University of Southern Mississippi's (USM) Institutional Review Board (IRB) in October 2021, and approval was granted in November 2021.

Data collection began in January 2022. Interventions for depression were carried out in group sessions between early January-March 2022. The baseline PHQ-9 was administered for those participants with January 2022 admissions and the final screening

was administered on their discharge dates, with the latest administered being May 2022. Behavioral therapy was conducted during the treatment course, as provided by the facility. Educational interventions for SDH began in January 2022. SDH educational classes were weekly for a total of six weeks and were completed in March 2022. Pre-surveys, demographic surveys, and post-educational surveys were administered with each session, and case management received notification of expressed patient desire for services. Follow-up phone calls, texts, and chart reviews were completed by June 2022, and data were analyzed accordingly.

### Study of Intervention

Participants receiving treatment within the facility were administered pre-surveys, demographic surveys, PHQ-9s, and education upon admission into the study. The pre-survey measured knowledge, awareness, and fears about SDH's impact on recovery. Sample selection resulted from convenience sampling in which participants were targeted as a sample of patients for 30 days while receiving treatment. Individuals were later provided with education and case management services for SDH interventions and were provided behavioral therapy. A quasi-experimental research design was implemented to study the impact of the intervention among the varying groups. Quasi-experimental methods study the cause-and-effect relationship between independent and dependent variables. A similar approach was established among the participants with behavioral therapy. The post-survey measured educational effectiveness, knowledge, awareness, fears regarding SDH, and changes in care. PHQ-9 scores were followed utilizing a simple interrupted time series, while SDH evaluations were performed with the pre- and post-test questionnaires.

## Measures

Scholarly research guidelines require validated instruments for data collection. A writer-developed demographic tool was created to collect data, and PHQ-9 and SDH instruments were utilized to measure levels of depression and SDH information. The PHQ-9 has been used in multiple scientific studies and has been validated by the scientific community and the HRSN has been validated by CMS (APA, 2020; CMS, 2017). The pre- and post-surveys received validation from the USM faculty.

## Analysis

A quantitative analysis was conducted of the pre- and post-survey. Independent sample t-test and paired sample t-test (McNemar) were implemented to compare the means of the pre- and post-test scores, PHQ-9 scores at each interval, and pre- and post-test surveys regarding SDH education. This information was used to determine the impact of the interventions provided. Short-term outcomes included increased knowledge and awareness of the impact of SDH and effective coping mechanisms as a result of the education and the treatment provided. After data was gathered, findings were exported from Excel, and frequencies were calculated using SPSS for descriptive analysis.

## Ethical Considerations

The DNP project gained support from the facility's Clinical Coordinator, as evidenced by the letter of support found in Appendix I. The DNP project also received approval from the IRB at The University of Southern Mississippi (See Appendix I). No DNP project processes began before approval was received from IRB (Protocol Number: 21-014). In this facility, patients attend daily classes to provide them with tools and interventions to aid in recovery and continuing sobriety. The interventions carried out in

this DNP project were integrated into patient education offerings. All participants were over the age of 18 and were notified of voluntary involvement in a research study and were furthermore ensured that voluntary involvement could be withdrawn at any time. Anonymity was maintained by assigning numbers to each patient for tracking purposes. Written standard consent forms for participation were obtained (See Appendix J).

To maintain confidentiality and uphold the Health Insurance Portability and Accountability Act, better known as HIPAA laws, all consents, SDH screenings, PHQ-9s, pre- and post-surveys, and paper documents were kept in a locked box, with only the DNP project team members having access. All electronic data was stored on a password-protected device. Data collected from the DNP project will be destroyed six months after research commencement.

Little to no threat was present in providing interventions to this population. SDH screenings were utilized to identify the needs of the participants and allow for patient choice concerning involvement in the study and the utilization of case management services. Pre- and post-educational surveys were used only to assess patient knowledge and posed no risk of harm. Behavioral therapy was provided similarly by staff experienced in delivering these methods. Depression scores were measured through surveys to evaluate the effectiveness of behavioral therapy in depression outcomes and posed no recognizable threat to participants.

### Summary

The lack of research on the impact of depression in early recovery and SDH for the SUD population constituted the creation of new research regarding depression tracking and patient knowledge surrounding SDH. The proposed change was to

administer a PHQ-9 upon admission to and discharge from inpatient SUD treatment and to provide patient education on the identification of SDH and their impact on continuing sobriety after treatment discharge. The interventions of depression tracking and SDH education began in January 2022 and were concluded in March 2022, with 30-day follow-ups conducted according to discharge dates. Quantitative data analyses were conducted to compare pre and post-intervention results and participant anonymity was maintained through the use of a numerical tracking system. Collected data was stored in a locked box or on a password-protected website with only the DNP project team members having access to protected information to maintain HIPPA standards.

## CHAPTER III – RESULTS

### Demographic Data Results

The study included a total of 98 participants (Cohort two) for the SDH intervention and 62 participants (Cohort one) for the depression interventions. The following reveals the demographics of the total population (n=98) using quantitative data for both cohorts investigated in the study. Of consequence, not all who participated in the SDH education were included in depression tracking due to an inconsistency in timing between behavioral therapy intervention and discharge PHQ-9 scores, as some participants with SDH education were present in aftercare and were post-discharge from inpatient treatment up to one year. Inclusion criteria included a diagnosis of SUD and exclusion criteria were noted to be a diagnosis of cognitive developmental delay or mental retardation. Of the population undergoing SDH interventions, 62 (63%) were male, 36 (37%) were females, and no individuals identified as trans or cross-gender. Ethnicity data revealed that 75 (77%) participants identified as White or non-Latino, 19 (19%) identified as African American, three (3%) identified as more than one race, and one (1%) preferred not to identify race. Regarding educational level, three (3%) reported completing a 7<sup>th</sup>-grade education or less, 16 (16%) reported finishing some high school, 30 (31%) completed high school or obtained a GED, 25 (26%) completed some college, and 24 (24%) completed college or trade school. Income data results revealed that 34 (35%) participants earned less than \$12,000.00 per year. Fourteen (14%) earned between \$12,000-\$20,000 annually and the remaining 40 participants earned a yearly salary range between \$20,000 and \$70,000 or above. Ten participants opted out of answering this demographic question. Employment status was described as follows, 35 (36%)

participants reported being employed full time, while 48 (49%) were unemployed and another 14 (14%) reported being contract workers.

Table 1

*Demographic Data Results*

<b>Ethnicity</b>	<b>Participants (n = 98)</b>	<b>% of Cohort</b>
African American	19	19%
More than one race	3	3%
Prefer not to answer	1	1%
White	75	77%
<b>Gender</b>		
Female	36	37%
Male	62	63%
<b>Income</b>		
Under \$12,000	34	35%
\$12,000-\$20,000	14	14%
\$20,000-\$30,000	13	13%
\$30,000-\$40,000	7	7%
\$40,000-\$50,000	9	9%
\$50,000-\$60,000	2	2%
\$60,000-\$70,000	2	2%
Greater than \$70,000	7	7%
Prefer not to answer	10	10%
<b>Education</b>		
7th grade or below	3	3%
Some high school	16	16%
Completed high school or GED	30	31%
Some college	25	26%
Completed college degree or trade school	24	24%
<b>Employment</b>		
Not currently employed	48	49%
Part-time or contract	14	14%
Full-time employment	35	36%
Prefer not to answer	1	1%



## Social Determinants of Health Data

Additionally, data collection revealed that 73% of participants who were previously employed expressed confidence in their ability to return to employment and provide financially for themselves and their families, while 27 (27%) respondents reported difficulty with obtaining and keeping employment to financially sustain a household. Food insecurity was rated at 41% with respondents reporting that in the last 12 months they had worried about running out of food before they were able to purchase more. Forty-two percent of participants reported lack of transportation as being a significant barrier to obtaining medical and mental healthcare services, as well as supplies needed for daily living. Twenty-six percent of respondents reported being physically hurt by someone living in the household either rarely, sometimes, or frequently. Housing proved to have the highest stability rate among the group with 74 (78%) of 98 individuals reporting secure housing in the form of home ownership or living with family members. Homelessness proved to be the lowest reported SDH among the population at 8%.

Table 2

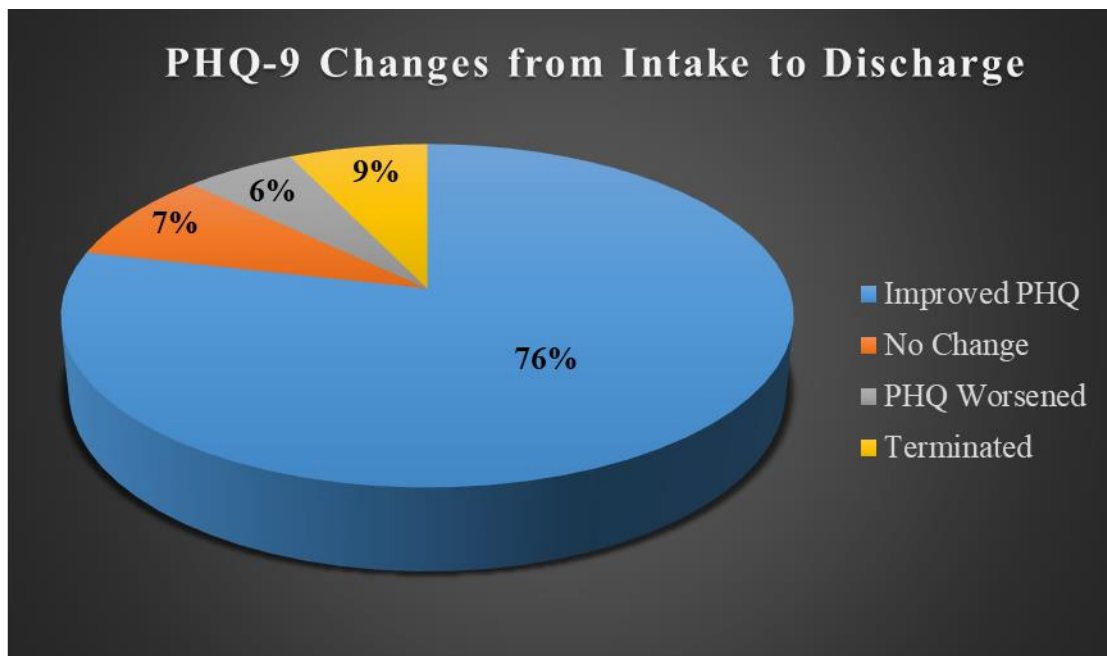
*Social Determinants of Health Data*

<b>Do you have a fear you will not be able to provide for your family after returning home from treatment?</b>	<b>Participants (n = 98)</b>	<b>% of Cohort</b>
Yes	27	27%
No	71	73%
<b>Do you have a fear of not being able to find or return to previous employment after treatment release?</b>		
Yes	24	24%
No	74	76%
<b>Within the past 12 months, you worried that your food would run out before you got money to buy more.</b>		
Sometimes true	28	29%
Often true	12	12%
Never true	58	59%
<b>In the past 12 months, has a lack of reliable transportation kept you from medical appointments, meetings, work, or from getting things needed for daily living?</b>		
Yes	41	42%
No	57	58%
<b>How often does anyone, including family and friends, physically hurt you?</b>		
Never	72	73%
Rarely	13	13%
Sometimes	9	9%
Frequently	4	4%
<b>What is your living situation today?</b>		
I have a place to live today, but I am worried about losing it in the future	15	14%
I do not have a steady place to live (I am temporarily staying with others, in a hotel, in a shelter, living outside on the street, on a beach, in a car, abandoned building, bus or train station, or in a park)	9	8%
I have a steady place to live	74	78%

## PHQ-9 Data Results

Depression scores using the PHQ-9 were evaluated upon admission to inpatient treatment and at discharge. The interventions began with 70 participants in Cohort one. Six were dropped from the study due to early discharge or self-termination of inpatient

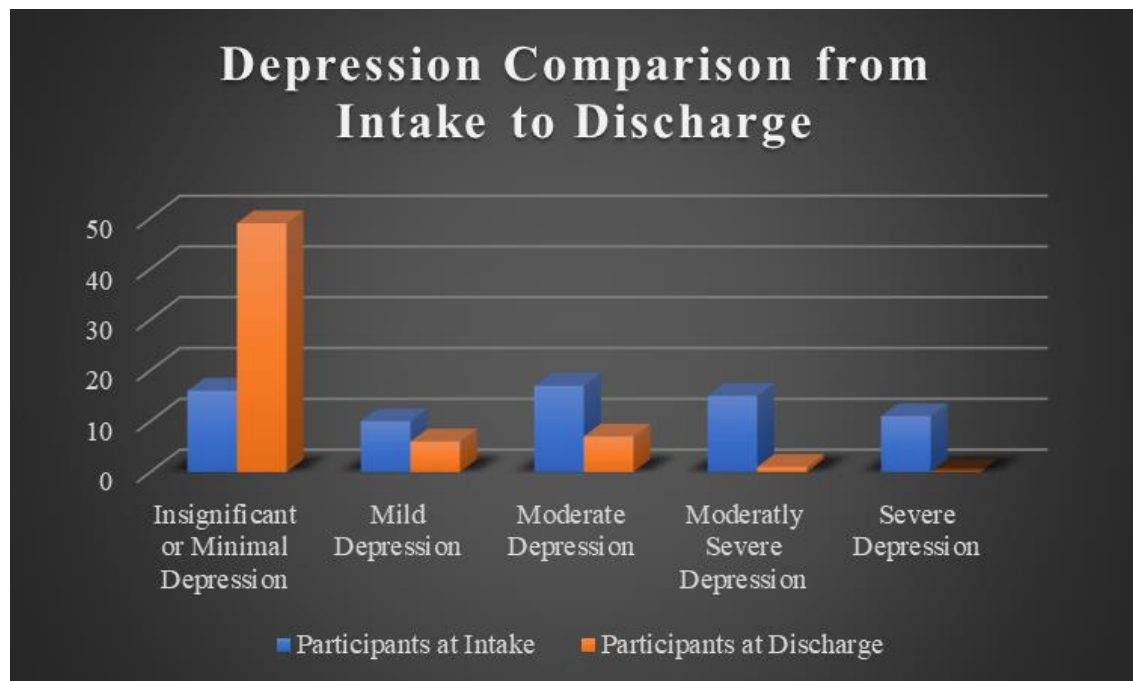
treatment and two did not report PHQ scores. Of the 62 remaining individuals, admission and discharge PHQ-9 scores were analyzed using a paired t-test. The paired samples yielded a mean of 8.370 (possible score of 0-27), and a standard deviation of 6.797, leading to a test statistic of 9.049 and a p-value <0.001, indicating a statistically significant improvement in depression scores during inpatient SUD treatment. Fifty-three (76%) participants reported an improvement in PHQ-9 scores at discharge, five (7%) participants reported no change and four (6%) reported a higher score.



*Figure 1. PHQ-9 Changes from Intake to Discharge*

Overall, the study resulted in post-intervention PHQ scores with 37 participants reporting a score of 0, indicating insignificance of any depressive symptoms; 12 participants reporting a score of one to four, indicating minimal depression; five participants reporting a score of five to nine, indicating mild depression; seven participants reporting a score of 10-14, indicating moderate depression; and one participant with a score of 15-19, indicating moderately severe depression. Zero

participants reported a post-intervention score of 20 or greater that would indicate severe depression.



*Figure 2. Depression Comparison from Intake to Discharge*

These improvements can be contributed to multiple therapies including but not limited to behavioral therapy, the benefits of a controlled environment, and a newfound feeling of physical and mental well-being which accompanies being substance free. The investigators of the study projected that communication 30-day post-discharge would be a barrier to the study. As such, of the 62 participants, 46 failed to respond to follow-up texts and calls, six had provided an inaccurate or disconnected phone, nine remained sober, and two reported relapses at the time of contact by the writers.

#### Pre- and Post-Survey Results

To analyze the pre- and post-survey data of the 98 participants in Cohort two, two methods were used. The different methodologies of testing were a result of differences in

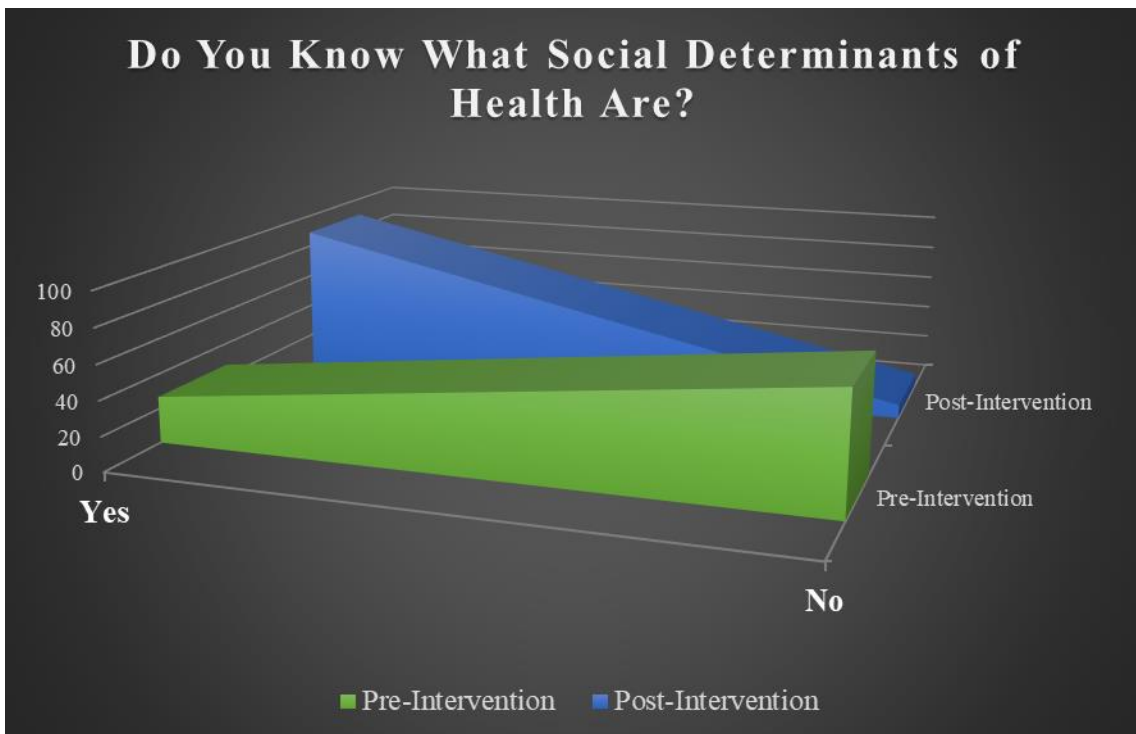
questions number 5-8 from the pre- to the post-survey questions. Questions 1-4 on the pre- and post-survey were identical. A McNemar test was used to analyze questions 1-4. Question 1 yielded a significant difference from pretest to posttest with a p-value < 0.001, indicating that participants did have an increased foundation of knowledge regarding the definition of SDH.

Table 3

*Pre- and Post-Survey Results*

<b>Do you know what Social Determinants of Health are?</b>	<b>Pre-Intervention</b>	<b>Post-Intervention</b>
Yes	27	89
No	69	8

*\*Not all participants answered all survey questions, resulting in less than 98 responses in some areas*



*Figure 3. Do You Know What Social Determinants of Health Are?*

Question 2 regarding the impact of an individual's surroundings on substance use and relapse post-education yielded a p-value of 0.0522 indicating an almost significant difference in results.

Table 4

*Question 2: Do you know how SDH Impact SUD?*

<b>Do you know where you live, shop, work, and socialize, impacts your chances of misusing drugs and alcohol?</b>	<b>Pre-Intervention</b>	<b>Post-Intervention</b>
Yes	80	90
No	15	7

Questions 3 and 4 showed no significant difference. Questions 5-8 were analyzed using Excel percentages. Ninety-one (94%) individuals reported having gained a better understanding of the impacts of SDH as a result of the provided education. Ninety-five (97%) individuals reported the education received would help them face personal challenges of recovery in their homes and community after release from inpatient treatment.

Table 5

*Subjective Impact of Education*

<b>Subjective Impact of Education</b>	<b>Yes</b>	<b>No</b>
Have you gained a better understanding of the impact of social determinants of health because of the education you were given today?	94%	6%
Will this education help prepare you to face personal challenges of recovery related to where you live, shop, work, and socialize?	97%	3%

Awareness surrounding community resources provided by the facility and willingness to have case management involved in recovery care rose from 58 (62%) to 76 (78%).



*Figure 4. Are You Willing to Have Case Management Involved in Your Care?*

Finally, the participants were asked to rate the education provided on a scale from 1-10 with 10 being the best. Fifty-seven (59%) rated the education 10, 12 (12%) rated the education at a 9, 14 (14%) rated the education at an 8, and 14 (14%) rated the education between 4 and 7.

### Summary

A synopsis of the above indicated a statistically significant improvement in depression scores using the PHQ-9 from the time of admission for inpatient SUD treatment and discharge from the program, largely as a result of psychotherapies and a controlled environment. The statistical analysis performed also revealed teaching

effectiveness regarding the goal of improved patient health literacy regarding SDH. Furthermore, the analysis revealed participants gained insight regarding the impact of SDH on continuing sobriety, leading to participants' confidence in reporting that newly gained education would aid them in facing personal challenges of recovery. Lastly, the percentage of individuals willing to have case management involved in recovery care increased. 30-day post-discharge follow-up communication failed to produce any significant findings due to the lack of response from participants. Unfortunately, only 11 of the 62 individuals remaining in the study responded to attempts at follow-up. However, of the 11 participants that responded to follow-up, 82% had remained sober at 30 days post-discharge.



## CHAPTER IV – DISCUSSION

This DNP project began with a tri-fold purpose. The first purpose was to (a) investigate the impact of behavioral therapy on depression rates before and after inpatient SUD treatment. The second purpose was to (b) determine if providing SDH education improved health literacy and if that improved health literacy aided participants in fashioning plans and utilizing resources to decrease relapse probability. The third purpose was to (c) evaluate the impact of provided therapy and education on relapse rates 30-days after discharge from inpatient SUD treatment. Overall findings suggest the interventions, in the form of screenings, therapies, and education were beneficial to the tested population. Depression scores and health literacy rates improved in much of the studied population. Due to a lack of response and an inability to contact participants 30-day post-discharge, evaluation of relapse rates was unable to be achieved on a large scale. An additional but significant finding revealed an increase in participant willingness to have in-house case managers active in inpatient care as a direct result of provided education.

### Recommendations for Future Research

When compared to physical health research, mental health research or access to mental health research findings are limited. To compound this disparity, the SUD population is more research impoverished than individuals with other mental health diagnoses. Comprehensive research is lacking regarding the importance of depression screening upon admission to inpatient treatment but is invaluable to individualized treatment planning during recovery. Recognizing and tracking depression throughout SUD treatment can lead to an increase in positive outcomes. More published research is needed to increase awareness of depression symptomology consideration overall. Interest

and research are also lacking considering the effectiveness of varying behavioral therapies received while in SUD treatment and their impact on depression scores and subsequent recovery rate. Despite the multitude of therapies can be utilized in inpatient recovery, there are little to no literary findings that reveal specific therapies that are most effective in addressing and reducing depressive symptomology which foster a decrease in relapse rates.

Upon completing a thorough literature review, a gap in the literature was discovered by the writers of this DNP project. No single scientific study was identified in any journal or database which concentrated on the impact of health literacy regarding SDH in the SUD population. Furthermore, little to no literature was discovered focusing specifically on the SUD population and any intervention related to health education. As such, more scholarly research is needed to formulate a basic understanding of the general characteristics of this population so needs can be more easily identified. The identification of needs leads to the provision of resources and the possible mitigation of barriers to recovery and continuing sobriety. While providing education, a recurring theme of conversation arose. Participants voiced discrepancies between science and reality citing that neither income nor educational level has a significant impact on the propensity to use or misuse substances. Alternatively, participants suggested the more money a person has, the more money they will spend to buy and use substances. Regarding education, participants noted the more education an individual has, the more likely they are to obtain stressful employment which can also lead to substance use or misuse. These statements indicated a common belief within the population that when individuals struggle with addiction, education, race, sex, income, and social status are of

no consequence. Innovative research is needed to investigate true SUD treatment rates from both public and private treatment facilities to authenticate or invalidate this belief. The results of the study further indicated a need for the reproduction of similar studies including complete 30-day post-discharge evaluations for result validation. The increased confidence expressed by participants related to preparedness for maintaining sobriety post-discharge due to SDH education is a strong indicator that if duplicated and validated, similar education could positively impact the chances of sobriety maintenance on a significantly larger scale.

#### Implications for Future Practice

Results of this DNP project exhibited significant improvement in both depression scores and health literacy and awareness surrounding SDH. The writers recommend that PHQ-9 screenings become standardized upon admission and at discharge within inpatient SUD treatment facilities to track depressive symptomology. Based on this study's findings, the discharge PHQ-9 should be considered an indicator of discharge readiness. Intensive therapies must continue with the addition of exploration of adverse childhood events, which often lead to post-traumatic stress disorder and are known triggers for relapse. The integration of personalized psychotherapies 1-2 times per week and access to mental health counselors and prescribers to manage emerging underlying mental health conditions after the detoxification period is complete is also advised. The writers further proposed that all staff in inpatient facilities be trained and well versed in trauma-informed care methods and modalities.

Evidence indicated many participants began the pre-survey with no concept of SDH and ended with a greater understanding of the concept of SDH and how they impact

sobriety. The writers advise the incorporation of a 1-hour class, preferably within the first two weeks of treatment, explaining the five domains of SDH and how they impact general health, mental health, and substance use and misuse. Further recommended actions include that facilitators of these classes create and promote a calm and open environment, one in which participants feel comfortable interacting with the conductor. Doing so allows the educator to not only get to know the participant as an individual, but also allows for the identification of needed resources for holistic living i.e., food, clothing, and shelter. The class should be utilized as a tool for patients to conceptualize a plan for discharge that mitigates personal barriers to recovery. Facilities providing treatment need to impart clarification to patients surrounding the definition of a case manager in each facility. Specifically, a differentiation in roles should be established between the case worker in the facility and the case workers in the legal system. Lastly, expansion in the scope of treatment is suggested to include the incorporation of an SDH screening upon admission to facilitate the recognition of personal SDH needs to assist case management in better serving the SUD population.

### Limitations

There were several limitations associated with this study. Originally, the writers planned to focus the study on one specific behavioral therapy, MBRP Therapy. Due to time constraints and the lack of certifications among the writers, the study focused on behavioral therapies provided by the hosting facility. There is difficulty determining with certainty if the reduction in PHQ-9 scores reflected behavioral therapy alone or a combination of factors. Although the study was voluntary and all instructions were explained to participants before any interventions began, all data provided was

subjective. As such, the potential for dishonesty and embellishment existed. Neither the IQ nor the literacy level of participants were tested pre-intervention. Therefore, a clear understanding of the questionnaire data was unknown. This study was conducted in a public mental health facility. Significant differences in SDH may exist between participants in private versus public treatment facilities. Various participants were provided education earlier in the treatment process as compared to those that were further along in the course of treatment. As a result, some participants' responses may have been clouded by substances. Research findings were also limited by the absence of a control group in both cohorts. Lastly, the differences in questions on the pre-and post-tests resulted in the inability to perform statistical comparison tests. Alternatively, that data was analyzed and compared using Excel.

#### Dissemination

This DNP project serves as a pilot study and the foundation for future research designed to improve treatment and quality of life for those with a diagnosis of SUD. The writers wish to use these findings to raise awareness among the medical and mental health community regarding the impact of depression and SDH and their impact on recovery from substances. Findings will be presented at The University of Southern Mississippi's DNP Scholarship Day in September 2022, the ANEW Conference in December 2022, and will be published on USM's website, Aquilla. The hosting facility will be provided with a copy of the findings and recommendations. Should they desire, a formal presentation will be provided at a time to be determined. The abstract will also be submitted to the Mississippi Nurses' Association in September for poster presentation at the annual conference in October 2022. The writers plan to continue to seek both

traditional and innovative methods of information dissemination through scholarly presentations, medical and mental health conferences, and online information sharing.

### Conclusion

SUD is a growing problem in the U.S. and worldwide (NIDA, 2020). Per the research, this problem has been compounded due to COVID-19 and is only expected to worsen as the world comprehends fully the impact of a pandemic. Healthcare providers, specifically mental health providers have a responsibility to recognize disparities in care resulting from inadequacies in evidence-based practice. This DNP project's overall theme was to identify areas of treatment improvement for the SUD population and to devise treatment strategies to return those struggling with SUD to a productive and meaningful life, prepared for the barriers of recovery they would face after discharge from inpatient treatment. Although the writers were unable to track relapse rates effectively, improved depression scores, new knowledge concerning SDH and their impact on substance use, and a newfound willingness to have case management involved in care are indicators of positive outcomes resulting from the interventions performed. The writers desire this pilot study to be the first of many innovative analyses which focus on improving the quality of life for those who are facing mental health challenges.

## APPENDIX A - Patient Health Questionnaire (PHQ-9)

### PATIENT HEALTH QUESTIONNAIRE (PHQ-9)

NAME: \_\_\_\_\_ DATE: \_\_\_\_\_

Over the last 2 weeks, how often have you been  
bothered by any of the following problems?  
(use "✓" to indicate your answer)

	Not at all	Several days	More than half the days	Nearly every day
1. Little interest or pleasure in doing things	0	1	2	3
2. Feeling down, depressed, or hopeless	0	1	2	3
3. Trouble falling or staying asleep, or sleeping too much	0	1	2	3
4. Feeling tired or having little energy	0	1	2	3
5. Poor appetite or overeating	0	1	2	3
6. Feeling bad about yourself—or that you are a failure or have let yourself or your family down	0	1	2	3
7. Trouble concentrating on things, such as reading the newspaper or watching television	0	1	2	3
8. Moving or speaking so slowly that other people could have noticed. Or the opposite—being so fidgety or restless that you have been moving around a lot more than usual	0	1	2	3
9. Thoughts that you would be better off dead, or of hurting yourself	0	1	2	3

add columns  +  +

(Healthcare professional: For interpretation of TOTAL, TOTAL:   
please refer to accompanying scoring card).

10. If you checked off any problems, how difficult have these problems made it for you to do your work, take care of things at home, or get along with other people?	Not difficult at all	_____
	Somewhat difficult	_____
	Very difficult	_____
	Extremely difficult	_____

## PHQ-9 Patient Depression Questionnaire

### For initial diagnosis:

1. Patient completes PHQ-9 Quick Depression Assessment.
2. If there are at least 4 ✓s in the shaded section (including Questions #1 and #2), consider a depressive disorder. Add score to determine severity.

### Consider Major Depressive Disorder

- if there are at least 5 ✓s in the shaded section (one of which corresponds to Question #1 or #2)

### Consider Other Depressive Disorder

- if there are 2-4 ✓s in the shaded section (one of which corresponds to Question #1 or #2)

**Note:** Since the questionnaire relies on patient self-report, all responses should be verified by the clinician, and a definitive diagnosis is made on clinical grounds taking into account how well the patient understood the questionnaire, as well as other relevant information from the patient.

Diagnoses of Major Depressive Disorder or Other Depressive Disorder also require impairment of social, occupational, or other important areas of functioning (Question #10) and ruling out normal bereavement, a history of a Manic Episode (Bipolar Disorder), and a physical disorder, medication, or other drug as the biological cause of the depressive symptoms.

### To monitor severity over time for newly diagnosed patients or patients in current treatment for depression:

1. Patients may complete questionnaires at baseline and at regular intervals (eg, every 2 weeks) at home and bring them in at their next appointment for scoring or they may complete the questionnaire during each scheduled appointment.
2. Add up ✓s by column. For every ✓: Several days = 1 More than half the days = 2 Nearly every day = 3
3. Add together column scores to get a TOTAL score.
4. Refer to the accompanying **PHQ-9 Scoring Box** to interpret the TOTAL score.
5. Results may be included in patient files to assist you in setting up a treatment goal, determining degree of response, as well as guiding treatment intervention.

### Scoring: add up all checked boxes on PHQ-9

**For every ✓** Not at all = 0; Several days = 1;  
More than half the days = 2; Nearly every day = 3

### Interpretation of Total Score

Total Score	Depression Severity
1-4	Minimal depression
5-9	Mild depression
10-14	Moderate depression
15-19	Moderately severe depression
20-27	Severe depression

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A2662B 10-04-2005

(APA, 2020)



## APPENDIX B - AHC HRSN Screening Tool Core Questions



### AHC HRSN Screening Tool Core Questions

If someone chooses the underlined answers, they might have an unmet health-related social need.

#### Living Situation

1. What is your living situation today?<sup>3</sup>
  - ☐ I have a steady place to live
  - ☐ I have a place to live today, but I am worried about losing it in the future
  - ☐ I do not have a steady place to live (I am temporarily staying with others, in a hotel, in a shelter, living outside on the street, on a beach, in a car, abandoned building, bus or train station, or in a park)
2. Think about the place you live. Do you have problems with any of the following?<sup>4</sup>

CHOOSE ALL THAT APPLY

  - ☐ Pests such as bugs, ants, or mice
  - ☐ Mold
  - ☐ Lead paint or pipes
  - ☐ Lack of heat
  - ☐ Oven or stove not working
  - ☐ Smoke detectors missing or not working
  - ☐ Water leaks
  - ☐ None of the above

#### Food

Some people have made the following statements about their food situation. Please answer whether the statements were OFTEN, SOMETIMES, or NEVER true for you and your household in the last 12 months.<sup>5</sup>

3. Within the past 12 months, you worried that your food would run out before you got money to buy more.
  - ☐ Often true
  - ☐ Sometimes true
  - ☐ Never true

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<sup>3</sup> National Association of Community Health Centers and partners, National Association of Community Health Centers, Association of Asian Pacific Community Health Organizations, Association OPC, Institute for Alternative Futures. (2017). PRAPARE. <http://www.nachc.org/research-and-data/prapare/>

<sup>4</sup> Nuruzzaman, N., Broadwin, M., Kourouma, K., & Olson, D. P. (2015). Making the Social Determinants of Health a Routine Part of Medical Care. *Journal of Healthcare for the Poor and Underserved*, 26(2), 321-327.

<sup>5</sup> Hager, E. R., Quigg, A. M., Black, M. M., Coleman, S. M., Heeren, T., Rose-Jacobs, R., Frank, D. A. (2010). Development and Validity of a 2-Item Screen to Identify Families at Risk for Food Insecurity. *Pediatrics*, 126(1), 26-32. doi:10.1542/peds.2009-3146



4. Within the past 12 months, the food you bought just didn't last and you didn't have money to get more.
- ☐ Often true
  - ☐ Sometimes true
  - ☐ Never true

### Transportation

5. In the past 12 months, has lack of reliable transportation kept you from medical appointments, meetings, work or from getting things needed for daily living?<sup>6</sup>
- ☐ Yes
  - ☐ No

### Utilities

6. In the past 12 months has the electric, gas, oil, or water company threatened to shut off services in your home?<sup>7</sup>
- ☐ Yes
  - ☐ No
  - ☐ Already shut off

### Safety

Because violence and abuse happens to a lot of people and affects their health we are asking the following questions.<sup>8</sup>

7. How often does anyone, including family and friends, physically hurt you?
- ☐ Never (1)
  - ☐ Rarely (2)
  - ☐ Sometimes (3)
  - ☐ Fairly often (4)
  - ☐ Frequently (5)

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<sup>6</sup> National Association of Community Health Centers and Partners, National Association of Community Health Centers, Association of Asian Pacific Community Health Organizations, Association OPC, Institute for Alternative Futures. (2017). PRAPARE. <http://www.nachc.org/research-and-data/prapare/>

<sup>7</sup> Cook, J. T., Frank, D. A., Casey, P. H., Rose-Jacobs, R., Black, M. M., Chilton, M., . . . Cutts, D. B. (2008). A Brief Indicator of Household Energy Security: Associations with Food Security, Child Health, and Child Development in US Infants and Toddlers. *Pediatrics*, 122(4), 867-875. doi:10.1542/peds.2008-0286

<sup>8</sup> Sherin, K. M., Sinacore, J. M., Li, X. Q., Zitter, R. E., & Shakil, A. (1998). HITS: a Short Domestic Violence Screening Tool for Use in a Family Practice Setting. *Family Medicine*, 30(7), 508-512



**8. How often does anyone, including family and friends, insult or talk down to you?**

- ☐ Never (1)
- ☐ Rarely (2)
- ☐ Sometimes (3)
- ☐ Fairly often (4)
- ☐ Frequently (5)

**9. How often does anyone, including family and friends, threaten you with harm?**

- ☐ Never (1)
- ☐ Rarely (2)
- ☐ Sometimes (3)
- ☐ Fairly often (4)
- ☐ Frequently (5)

**10. How often does anyone, including family and friends, scream or curse at you?**

- ☐ Never (1)
- ☐ Rarely (2)
- ☐ Sometimes (3)
- ☐ Fairly often (4)
- ☐ Frequently (5)

A score of 11 or more when the numerical values for answers to questions 7-10 are added shows that the person might not be safe.



## AHC HRSN Screening Tool Supplemental Questions

### Financial Strain

11. How hard is it for you to pay for the very basics like food, housing, medical care, and heating? Would you say it is:<sup>9</sup>

- ☐ Very hard
- ☐ Somewhat hard
- ☐ Not hard at all

### Employment

12. Do you want help finding or keeping work or a job?<sup>10</sup>

- ☐ Yes, help finding work
- ☐ Yes, help keeping work
- ☐ I do not need or want help

### Family and Community Support

13. If for any reason you need help with day-to-day activities such as bathing, preparing meals, shopping, managing finances, etc., do you get the help you need?<sup>11</sup>

- ☐ I don't need any help
- ☐ I get all the help I need
- ☐ I could use a little more help
- ☐ I need a lot more help

14. How often do you feel lonely or isolated from those around you?<sup>12</sup>

- ☐ Never
- ☐ Rarely
- ☐ Sometimes
- ☐ Often
- ☐ Always

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<sup>9</sup> Hall, M. H., Matthews, K. A., Kravitz, H. M., Gold, E. B., Buysse, D. J., Bromberger, J. T., . . . Sowers, M. (2009). Race and Financial Strain are Independent Correlates of Sleep in Midlife Women: The SWAN Sleep Study. *Sleep*, 32(1), 73-82. doi:10.5665/sleep/32.1.73

<sup>10</sup> Identifying and Recommending Screening Questions for the Accountable Health Communities Model (2016, July) Technical Expert Panel discussion conducted at the U.S. Department of Health and Human Services, Centers for Medicare & Medicaid Services, Baltimore, MD.

<sup>11</sup> Kaiser Permanente. (2012, June). Medicare Total Health Assessment Questionnaire. Retrieved from [https://mydoctor.kaiserpermanente.org/ncal/images/Medicare%20Total%20Health%20Assessment%20Questionnaire\\_tcm75-487922.pdf](https://mydoctor.kaiserpermanente.org/ncal/images/Medicare%20Total%20Health%20Assessment%20Questionnaire_tcm75-487922.pdf)

<sup>12</sup> Anderson, G. Oscar and Colette E. Thayer. Loneliness and Social Connections: A National Survey of Adults 45 and Older. Washington, DC: AARP Research, September 2018. <https://doi.org/10.26419/res.00246.001>



## Education

15. Do you speak a language other than English at home?<sup>13</sup>

- ☐ Yes
- ☐ No

16. Do you want help with school or training? For example, starting or completing job training or getting a high school diploma, GED or equivalent.<sup>14</sup>

- ☐ Yes
- ☐ No

## Physical Activity

17. In the last 30 days, other than the activities you did for work, on average, how many days per week did you engage in moderate exercise (like walking fast, running, jogging, dancing, swimming, biking, or other similar activities)?<sup>15</sup>

- ☐ 0
- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5
- ☐ 6
- ☐ 7

18. On average, how many minutes did you usually spend exercising at this level on one of those days?<sup>16</sup>

- ☐ 0
- ☐ 10
- ☐ 20
- ☐ 30
- ☐ 40
- ☐ 50
- ☐ 60

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<sup>13</sup> United States, US Census Bureau. (2017). American Community Survey. Retrieved from <https://www.census.gov/programs-surveys/acs/>

<sup>14</sup> Identifying and Recommending Screening Questions for the Accountable Health Communities Model (2016, July) Technical Expert Panel discussion conducted at the U.S. Department of Health and Human Services, Centers for Medicare & Medicaid Services, Baltimore, MD.

<sup>15</sup> Coleman, K. J., Ngor, E., Reynolds, K., Quinn, V. P., Koebrick, C., Young, D. R., . . . Sallis, R. E. (2012). Initial Validation of an Exercise "Vital Sign" in Electronic Medical Records. *Medicine and Science in Sport and Exercise*, 44(11), 2071-2076. doi:10.1249/MSS.0b013e3182630ec1

<sup>16</sup> Ibid



- ☐ 90
- ☐ 120
- ☐ 150 or greater

Follow these 2 steps to decide if the person has a physical activity need:

1. Calculate ["number of days" selected] x ["number of minutes" selected] = [number of minutes of exercise per week]
2. Apply the right age threshold:
  - Under 6 years old: You can't find the physical activity need for people under 6.
  - Age 6 to 17: Less than an average of 60 minutes a day shows an HRSN.
  - Age 18 or older: Less than 150 minutes a week shows an HRSN.

## Substance Use

The next questions relate to your experience with alcohol, cigarettes, and other drugs. Some of the substances are prescribed by a doctor (like pain medications), but only count those if you have taken them for reasons or in doses other than prescribed. One question is about illicit or illegal drug use, but we only ask in order to identify community services that may be available to help you.<sup>17</sup>

**19. How many times in the past 12 months have you had 5 or more drinks in a day (males) or 4 or more drinks in a day (females)? One drink is 12 ounces of beer, 5 ounces of wine, or 1.5 ounces of 80-proof spirits.**

- ☐ Never
- ☐ Once or Twice
- ☐ Monthly
- ☐ Weekly
- ☐ Daily or Almost Daily

**20. How many times in the past 12 months have you used tobacco products (like cigarettes, cigars, snuff, chew, electronic cigarettes)?**

- ☐ Never
- ☐ Once or Twice
- ☐ Monthly
- ☐ Weekly
- ☐ Daily or Almost Daily

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<sup>17</sup> United States, U.S. Department of Health and Human Services, National Institutes of Health. (n.d.). Helping Patients Who Drink Too Much: A Clinician's Guide (2005 ed., pp. 1-34).



**21. How many times in the past year have you used prescription drugs for non-medical reasons?**

- ☐ Never
- ☐ Once or Twice
- ☐ Monthly
- ☐ Weekly
- ☐ Daily or Almost Daily

**22. How many times in the past year have you used illegal drugs?**

- ☐ Never
- ☐ Once or Twice
- ☐ Monthly
- ☐ Weekly
- ☐ Daily or Almost Daily

### **Mental Health**

**23. Over the past 2 weeks, how often have you been bothered by any of the following problems?<sup>18</sup>**

**a. Little interest or pleasure in doing things?**

- ☐ Not at all (0)
- ☐ Several days (1)
- ☐ More than half the days (2)
- ☐ Nearly every day (3)

**b. Feeling down, depressed, or hopeless?**

- ☐ Not at all (0)
- ☐ Several days (1)
- ☐ More than half the days (2)
- ☐ Nearly every day (3)

If you get 3 or more when you add the answers to questions 23a and 23b the person may have a mental health need.

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<sup>18</sup> Kroenke, K., Spitzer, R. L., & Williams, J. B. (2003). The Patient Health Questionnaire-2: validity of a two-item depression screener. Medical Care, 41(11), 1284-1292.



24. Stress means a situation in which a person feels tense, restless, nervous, or anxious, or is unable to sleep at night because his or her mind is troubled all the time. Do you feel this kind of stress these days?<sup>19</sup>

- ☐ Not at all
- ☐ A little bit
- ☐ Somewhat
- ☐ Quite a bit
- ☐ Very much

### Disabilities

25. Because of a physical, mental, or emotional condition, do you have serious difficulty concentrating, remembering, or making decisions?<sup>20</sup> (5 years old or older)

- ☐ Yes
- ☐ No

26. Because of a physical, mental, or emotional condition, do you have difficulty doing errands alone such as visiting a doctor's office or shopping?<sup>21</sup> (15 years old or older)

- ☐ Yes
- ☐ No

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<sup>19</sup> Elo, A.L., Leppänen, A., & Jahkola, A. (2003). Validity of a Single-Item Measure of Stress Symptoms. *Scandinavian Journal of Work, 29*(6), 444-451.

<sup>20</sup> United States, U.S. Department of Health and Human Services, Office of the Assistant Secretary for Planning and Evaluation (n.d.). Implementation Guidance on Data Collection Standards for Race, Ethnicity, Sex, Primary Language, and Disability Status. Retrieved from <https://aspe.hhs.gov/basic-report/hhs-implementation-guidance-data-collection-standards-race-ethnicity-sex-primary-language-and-disability-status>

<sup>21</sup> Ibid.

(CMS, 2017)



## APPENDIX C - Pre-Educational Survey

**Please answer with yes or no**

1. Do you know what Social Determinants of Health are? ☐ Yes ☐ No
2. Do you know where you live, shop, work, and socialize, impacts your chances of misusing drugs and alcohol? ☐ Yes ☐ No
3. Do you know the actions of the people around you impact your chances of using drugs and alcohol? ☐ Yes ☐ No
4. Do you have a fear that you will not be able to continue to remain sober after treatment because of the place you live, work, and socialize? ☐ Yes ☐ No
5. Do you have a fear of not being able to find or return to previous employment after treatment release? ☐ Yes ☐ No
6. Do you have a fear you will not be able to provide for your family after returning home from treatment? ☐ Yes ☐ No
7. Are you aware of any community support services available to assist you with any of these concerns? ☐ Yes ☐ No
8. Are you willing to have case management be involved in your recovery care? ☐ Yes ☐ No

## APPENDIX D - Post-Educational Survey

**Please answer with yes or no**

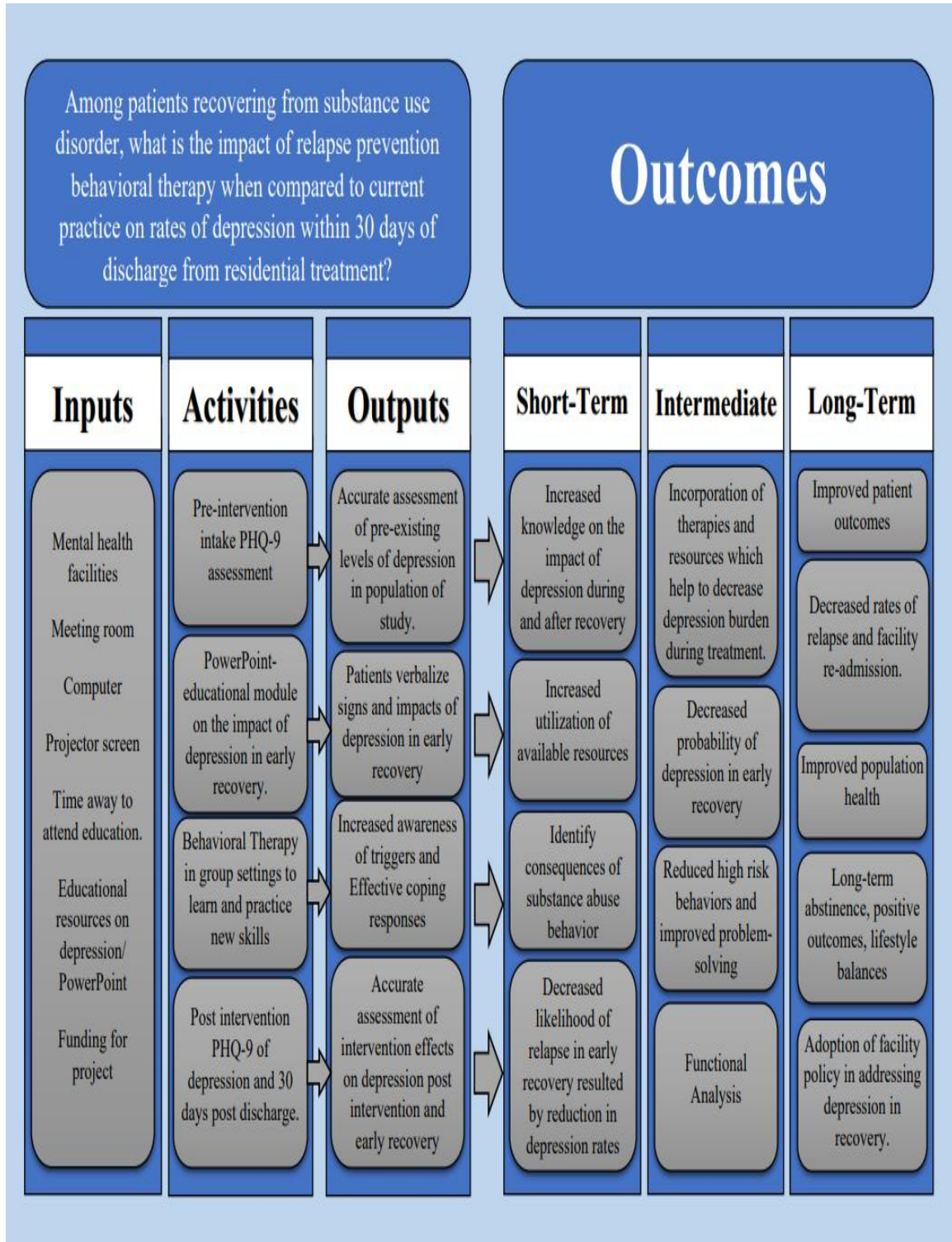
1. Do you know what social determinants of health are? ☐ Yes ☐ No
2. Do you know where you live, shop, work, and socialize, impacts your chances of misusing drugs and alcohol? ☐ Yes ☐ No
3. Do you know the actions of the people around you impact your chances of using drugs and alcohol? ☐ Yes ☐ No
4. Do you have a fear that you will not be able to continue to remain sober after treatment because of the place you live, work, and socialize? ☐ Yes ☐ No
5. Have you gained a better understanding of the impact of social determinants of health because of the education you were given today? ☐ Yes ☐ No
6. Will this education help prepare you to face personal challenges of recovery related to where you live, shop, work, and socialize? ☐ Yes ☐ No
7. Because of the education, are you now willing to allow case management services to help you with recovery support measures and community resources?  
☐ Yes ☐ No
8. Please rate the education you received today on a scale from 1-10. 1 being the worst and 10 being the best.    1   2   3   4   5   6   7   8   9   10

## APPENDIX E - DNP Essentials

<p style="text-align: center;"><b>Essential I: Scientific Underpinnings for Practice</b></p>	<p>Nursing focused on creating evidence-based practice measures to improve patient outcomes and decrease relapse rates in the population with SUD by providing education to mitigate the impact of depression, which develops during recovery, and the impact of social determinants of health post-discharge.</p>
<p style="text-align: center;"><b>Essential 2: Organizational and Systems Leadership for Quality Improvement</b></p>	<p>Used in the DNP project to understand the impact of a new patient education model and promote innovative education models regarding depression and SDH.</p>
<p style="text-align: center;"><b>Essential III: Clinical Scholarship and Analytical Methods for Evidence-Based Practice</b></p>	<p>The clinical scholarship was used during data analysis and the presentation of information. Presented information reflects the need to provide new evidence-based education to patients during SUD treatment.</p>
<p style="text-align: center;"><b>Essential IV: Information Systems/Technology and Patient Care Technology for the Improvement and Transformation of Health Care</b></p>	<p>Technology was used to create the interactive educational presentation on depression and SDH. Technology was also used (Qualtrics &amp; Microsoft Excel) to enter and analyze data and create statistical evaluations.</p>
<p style="text-align: center;"><b>Essential V: Health Care Policy for Advocacy in Health Care</b></p>	<p>The DNP project advocates for patient education on depression and SUD to create improved and sustainable outcomes regarding sobriety post-SUD treatment discharge.</p>

<p><b>Essential VI: Inter-Professional Collaboration for Improving Patient and Population Health Outcomes</b></p>	<p>The creation of patient education called for the identification of patient needs. When needs were identified, researchers collaborated with case managers and social workers to provide patients with resources. Facility managers were presented with findings and encouraged to make education a standardized component of treatment.</p>
<p><b>Essential VII: Clinical Prevention and Population Health for Improving the Nation's Health</b></p>	<p>Nursing focuses on innovative ways to prevent relapse by using upstream thinking to identify the most common causes of relapse and provide educational resources to mitigate that impact.</p>
<p><b>Essential VIII: Advanced Nursing Practice</b></p>	<p>The DNP project allows for advanced systems thinking and the use of clinical observations and judgment using an inventive comprehensive needs assessment to improve patient outcomes.</p>

## APPENDIX F - Logic Model



## APPENDIX G - Demographic Survey

**Please circle the choice that best describes you**

**1. What is your race?**

Asian   Native Hawaiian   Other Pacific Islander   Black   White  
Native American   More than one race   Prefer not to answer

**2. What is your ethnicity?**

Hispanic or Latino   Non-Hispanic or Latino   Prefer not to  
answer

**3. What is your sexual orientation?**

Heterosexual/Straight   Homosexual/Lesbian/Gay   Bisexual   Other  
Do not know   Prefer not to answer

**4. What is your gender identity?**

Male   Female   Transgender Male (female to male)  
Transgender Female (male to female)  
Other/Do not subscribe to conventional gender distinctions  
Prefer not to answer

**5. What is your total HOUSEHOLD annual income?**

Under \$12,000 \$12,000-\$20,000 \$20,000-\$30,000  
\$30,000-\$40,000 \$40,000-\$50,000 \$50,000-\$60,000  
\$60,000-\$70,000 Greater than \$70,000 Prefer not to answer

**6. What is the number of people in your household?**

\_\_\_\_\_ Prefer not to answer

**7. What is your primary language?**

English Spanish Other \_\_\_\_\_ Prefer not to answer

**8. What is your current living situation?**

Your own home Live with Family Live with a Friend  
Live in a shelter Live in a group home Currently homeless  
Prefer not to answer

**9. Are you an agricultural worker or do manual labor?**

Yes No Prefer not to answer

**10. Are you a Veteran?**

Yes

No

Prefer not to answer

**11. What is your highest level of education?**

7<sup>th</sup> grade or below

Some high school

Completed high school or GED

Some college

Completed college degrees or trade school

Postgraduate work or completion

Prefer not to answer

**12. What is your current employment status?**

Not currently employed

Part-time or contract Full-time employment

Prefer not to answer

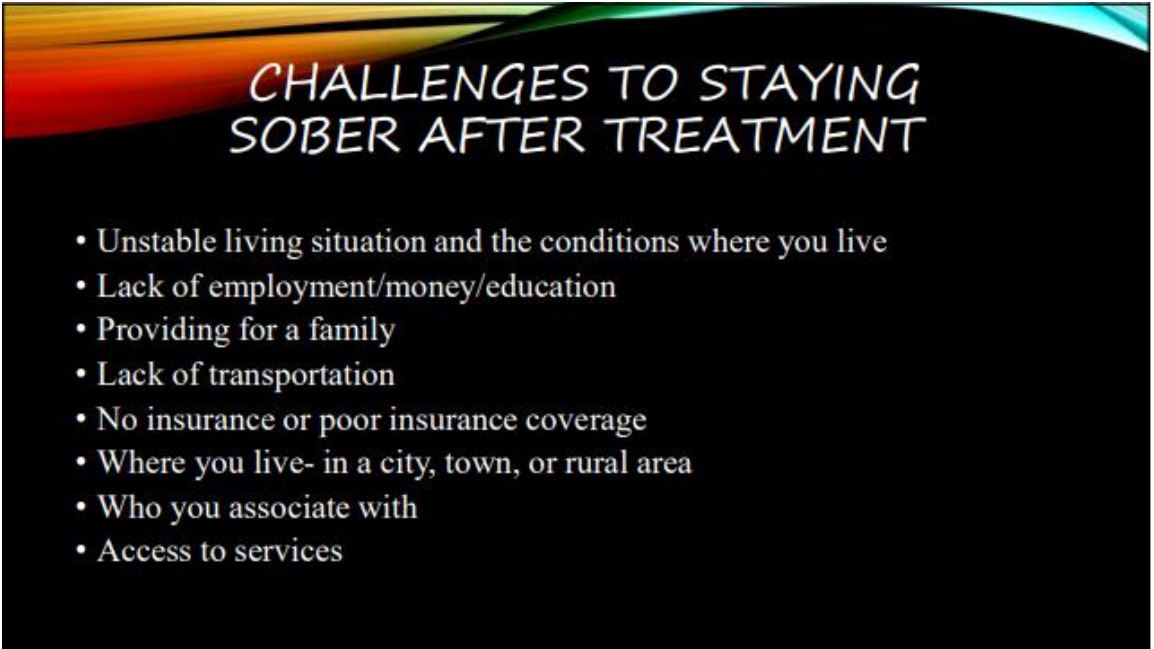




# **SOCIAL DETERMINANTS OF HEALTH**

*How they impact recovery and continuing sobriety*

*Chyanne Napp, RN-BSN*

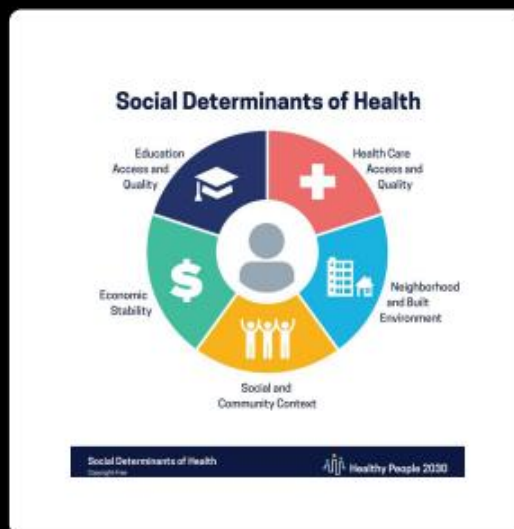


## **CHALLENGES TO STAYING SOBER AFTER TREATMENT**

- Unstable living situation and the conditions where you live
- Lack of employment/money/education
- Providing for a family
- Lack of transportation
- No insurance or poor insurance coverage
- Where you live- in a city, town, or rural area
- Who you associate with
- Access to services

## ALL THESE THINGS ARE SOCIAL DETERMINANTS OF HEALTH!

- The US Department of Health and Human Services define social determinants of health as:
  - conditions in the environments where people are born, live, learn, work, play, worship, and age that affect a wide range of health, functioning, and quality-of-life outcomes and risks (Healthy People 2030, 2021).
  - These factors have a major impact on health, including mental health/substance use, well-being, and quality of life.



SOCIAL  
DETERMINANTS  
OF HEALTH  
ARE PLACED  
INTO 5  
CATEGORIES

Healthy People 2030, U.S. Department of Health and Human Services, Office of Disease Prevention and Health Promotion.

## *ECONOMIC STABILITY*

- Factors falling under this category of social determinants of health include job opportunities, poverty, cost of living, access to adequate resources such as food security, housing stability, income inequality, and debt.
- Roughly 20% of people in Mississippi currently live below the poverty line making it difficult to obtain stable housing, food, and financially meet personal and family needs (Statistia, 2021).
- The stress of poor economic stability increases the risk of starting to use substances, developing substance use disorder, and substance use relapse after treatment.

## *ACCESS TO ADDICTION CARE SERVICES*

- Mississippi has between 20-25 agencies that provide inpatient addiction services and outpatient recovery care services. The majority of these agencies are located in populated areas such as Jackson, the Gulf Coast, Meridian, Oxford, and Tupelo (Mississippi Department of Mental Health and Addiction Services, 2019).
- Although most of the agencies offer some services in outlying areas, people who live in more rural areas, without access to public transportation, may have problems getting to them due to financial struggles, lack of transportation, and the time it takes to get there.
- These factors may prevent people from getting the services they need for recovery and recovery support and can contribute to substance use relapse.



## EDUCATION ACCESS AND QUALITY

- A higher educational level results in better jobs that pay more and have better benefits, which give people more choice and control over the conditions in which they live and their health status.
- Lower education levels have been associated with an increased risk for both mental health concerns and the likelihood of developing substance abuse.
- Higher levels of education are beneficial to mental health by reducing the stress caused by social and economic hardship, increasing social and psychological skills, and creating more positive and supportive social circles.

## NEIGHBORHOOD AND BUILT ENVIRONMENT

- Adequate housing protects people from exposure to outdoor and social conditions, and helps to maintain privacy, stability, and control
- Overcrowded housing communities can cause poor mental health. The groups most likely to be affected are women, ethnic minority groups, and children.
- Poor neighborhood conditions are associated with declining mental health and increased drug use, especially among individuals with low incomes.
- Housing located in areas of high crime increase exposure to violence and force people to stay in isolation. This can result in depression and a return to substance use.

## SOCIAL AND COMMUNITY CONTEXT

- A person who falls on hard times will have fewer negative effects as a result of the situation if they have a strong social support network that willingly provides emotional and physical support.
- Social isolation and a lack of support networks are associated with poor mental health and increased rates of substance use.
- Family instability (divorce, loss of custody, death, etc.) disrupts social networks and can be a trigger for substance use.
- Exposure to adverse events during childhood can increase the likelihood of developing mental health conditions and substance use disorder in adulthood.

## SO, NOW THAT WE KNOW, WHAT CAN WE DO?

### Economic stability

- Live with stable friends or family members to save money after discharge.
- Seek gainful employment
- Create a budget and spending plan, making sure to allow for savings
- Take advantage of community resources and case management services

### Access to addiction care services

- Ask to be informed of care services in your area
- Create a plan to get to and from offered care services after discharge
- Let friends and family members help you if you do not have transportation

### Education access and quality

- Find an educational area of interest or a trade you would be interested in learning
- Look into enrolling in adult education classes or night school to be completed at your own pace
- Online learning is now a common and convenient option to advance education

## WHAT CAN WE DO? CONT.....

### Neighborhood and built environment

- We cannot change where we live unless we move.
- What we can do is be aware of the community we live in and take steps to avoid areas of our neighborhoods that might be high crime or allow for easy access to substances.
- Look into moving to more safer and healthy areas if possible

### Social and community context

- Create a social network consisting of people who are supportive and live healthy lifestyles.
- Avoid situations that may trigger substance use.
- Limit time on social media platforms
- Start to shift the community culture to one that is non-accepting of substance abuse.

### REMEMBER!!!!

We are more prepared to face the challenges of continuing sobriety if we are aware of what we are facing!

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## APPENDIX I - IRB Approval Letters

### Office of Research Integrity



118 COLLEGE DRIVE #5116 • HATTIESBURG, MS | 601.266.6756 | WWW.USM.EDU/ORI

#### NOTICE OF INSTITUTIONAL REVIEW BOARD ACTION

The project below has been reviewed by The University of Southern Mississippi Institutional Review Board in accordance with Federal Drug Administration regulations (21 CFR 26, 111), Department of Health and Human Services regulations (45 CFR Part 46), and University Policy to ensure:

- The risks to subjects are minimized and reasonable in relation to the anticipated benefits.
- The selection of subjects is equitable.
- Informed consent is adequate and appropriately documented.
- Where appropriate, the research plan makes adequate provisions for monitoring the data collected to ensure the safety of the subjects.
- Where appropriate, there are adequate provisions to protect the privacy of subjects and to maintain the confidentiality of all data.
- Appropriate additional safeguards have been included to protect vulnerable subjects.
- Any unanticipated, serious, or continuing problems encountered involving risks to subjects must be reported immediately. Problems should be reported to ORI via the Incident submission on InfoEd IRB.
- The period of approval is twelve months. An application for renewal must be submitted for projects exceeding twelve months.

PROTOCOL NUMBER: 21-014

PROJECT TITLE: IMPROVING PATIENT OUTCOMES IN SUBSTANCE USE DISORDER THROUGH BEHAVIORAL THERAPY IN DEPRESSION DEVELOPMENT AND IMPACTS OF SOCIAL DETERMINANTS OF HEALTH DURING AND AFTER SUBSTANCE USE TREATMENT

SCHOOL/PROGRAM School of Professional Nursing

RESEARCHERS: PI: Jerry Armstrong  
Investigators: Armstrong, Jerry~Napp, Chyanne~Jordan, Marti~

IRB COMMITTEE ACTION: Approved

CATEGORY: Expedited Category

PERIOD OF APPROVAL: 30-Nov-2021 to 29-Nov-2022

Donald Sacco, Ph.D.  
Institutional Review Board Chairperson")





**EXECUTIVE DIRECTOR**

Dave Van  
613 Marquette Road  
PO Box 88  
Brandon, MS 39043  
P - (801) 824-0342  
F - (801) 824-0348

Region 8 Mental Health Services  
613 Marquette Rd  
Brandon, MS 39042

June 17<sup>th</sup>, 2021

**COMMISSIONERS**

Steve Amos - Copiah  
Tilmon Bishop - Lincoln  
Melvin Ray - Madison  
Jason Womack - Rankin  
Clifton Reed - Simpson

**RE:** Letter of Support for Ryan Armstrong, RN BSN & Chyanne Napp,  
RN BSN

**SERVICE PROGRAMS**

Copiah County  
PO Box 728  
Hazlehurst, MS 39063

Lincoln County  
620 Hwy 51 North  
Brookhaven, MS 39601

Madison County  
PO Box 528  
Canton, MS 39046

Rankin County  
PO Box 88  
Brandon, MS 39043

Simpson County  
PO Box 578  
Mendenhall, MS 39114

Alcohol & Drug Services  
PO Box 88  
Brandon, MS

Intellectual and  
Developmental Disabilities  
PO Box 88  
Brandon, MS 39043

This letter serves as an official written document for Ryan Armstrong, RN BSN & Chyanne Napp, RN BSN, both full-time students in the Psychiatric Mental Health Nurse Practitioner- DNP program at The University of Southern Mississippi, Hattiesburg campus, granting approval to conduct their Clinical Doctoral Project "Improving Patient Outcomes in Substance Use Disorder Through Behavioral Therapy in Depression Development and Impacts of Social Determinants of Health During and After Substance Use Treatment: A Health Literacy Improvement Project" within our inpatient facilities and any subsequent locations. This letter follows an in-person meeting on the topics of interest and needs of the facility, as well as an email approval. The focuses and title of the evidenced-based project are the impact of developing depression during early recovery and the impact of improved health literacy education regarding social determinants of health, both while in active inpatient recovery, after release from inpatient rehabilitation. The sites utilized will be both inpatient at the main facility and various off-campus aftercare sites.

Both myself and the Drug and Alcohol Coordinator have discussed these topics with Ryan Armstrong, RN BSN & Chyanne Napp, RN BSN, and support and recommend the need for research on the recognition of depression in early recovery and research on the impact of social determinants of health on recovery for the populations we serve. There have also been additional research needs identified regarding attrition rates for those awaiting treatment and those research needs have been discussed. I recognize that data collection, including surveys, pre and posttests, educational modules, and chart reviews are involved. I am aware that following approval by myself, Ryan & Chyanne will seek approval from The University of Southern



Mississippi Institutional Review Board (IRB) for implementation of their Clinical Doctoral Project proposal and project. Research will start only after final approval from IRB. After that time, data collection will begin and interventions will be provided within an approximate 30-day time frame, excluding a 2 week follow up and a 4-week post intervention chart review, with the total project not exceeding 70 days. After data analysis, I understand that Ryan & Chyanne will present research findings to the leadership team here at Region 8.

I understand that patient participation in the research is completely anonymous and voluntary, and there is no offered or expected compensation for participation. Furthermore, I am cognizant that this letter of support will be included in the University of Southern Mississippi Institutional Review Board (IRB) application. Acting as the Clinical Coordinator at Region 8 Mental Health Services, I am offering this letter to the doctoral students, Ryan Armstrong, RN BSN & Chyanne Napp, RN BSN, in full support of completion of their academic endeavor, a clinical practice project, "Improving Patient Outcomes in Substance Use Disorder Through Behavioral Therapy in Depression Development and Impacts of Social Determinants of Health During and After Substance Use Treatment: A Health Literacy Improvement Project" and look forward to being presented with their findings in order to evaluate current practices and modify them should findings support the implementation of interventions which improve patient care and outcomes.

The Project Chair and instructor for Ryan and Chyanne is Marti Jordan PhD, FNP-BC Assistant Professor. Her contact information is Marti Jordan, [marti.jordan@usm.edu](mailto:marti.jordan@usm.edu) and her contact number is (601) 325-4319.

If there is any other information you should need, please do not hesitate to contact me.

Sincerely,

A handwritten signature in black ink that reads "Nena Williams LMFT". The signature is fluid and cursive, with the last name "Williams" being the most prominent part.

Nena Williams, LMFT  
Clinical Director  
Region 8 Mental Health Services

## APPENDIX J - Patient Consent



### INSTITUTIONAL REVIEW BOARD STANDARD (SIGNED) INFORMED CONSENT

STANDARD (SIGNED) INFORMED CONSENT PROCEDURES
<ul style="list-style-type: none"> <li><i>Use of this template is optional.</i> However, by federal regulations (<a href="#">45 CFR 46.116</a>), all consent documentation must address each of the required elements listed below (purpose, procedures, duration, benefits, risks, alternative procedures, confidentiality, whom to contact in case of injury, and a statement that participation is voluntary).</li> <li>Signed copies of the consent form should be provided to all participants.</li> </ul>

Last Edited July 7<sup>th</sup>, 2021

Today's date:		
<b>PROJECT INFORMATION</b>		
Project Title: IMPROVING PATIENT OUTCOMES IN SUBSTANCE USE DISORDER THROUGH BEHAVIORAL THERAPY IN DEPRESSION DEVELOPMENT AND IMPACTS OF SOCIAL DETERMINANTS OF HEALTH DURING AND AFTER SUBSTANCE USE TREATMENT		
Principal Investigator: Chyanne Napp, RN-BSN and Ryan Armstrong, RN-BSN	Phone: 601-575-3444 828-545-8689	Email: chyanne.napp@usm.edu jerry.armstrong@usm.edu
College: Nursing and Health Professionals	School and Program: School of Leadership and Advanced Nursing Practice. BSN-DNP	
<b>RESEARCH DESCRIPTION</b>		
<p><b>1. Purpose:</b> The purpose of this study is to evaluate the impact of patient education regarding social determinants of health on recovery outcomes and the impact of Behavioral Therapy on depression outcomes for those in substance use disorder treatment.</p> <p><b>2. Description of Study:</b> Participants will be given an eight-question pre-educational survey followed by a 40-45 minute educational PowerPoint presentation. After the education has been completed, participants will be asked to complete an eight-question post-educational survey to assess knowledge expansion. Education will be completed as an optional educational offering and conducted during regular education times as set forth by the facility. Participants will be evaluated for depressive symptoms utilizing the PHQ-9 depression tool upon admission into treatment to serve as a baseline score in depression. Behavioral Therapy will be provided as an intervention to participants that choose to participate in the therapy. Following the intervention, both participants that participated in therapy and those that did not will be evaluated for depression scores prior to discharge to evaluate the effect of SUD treatment and therapy on depression. Once the participants have been discharged and are involved in daily lives again, PHQ-9 scores will be evaluated one final time 30 days post-discharge to evaluate intermediate effects of Behavioral Therapy. Data collection data will be analyzed and presented in a written document to be published on the University of Southern Mississippi Research publication website Aquila. The findings will be verbally presented to facility staff and administration.</p> <p><b>3. Benefits:</b> Participants will benefit from study participation by being educated about what social determinates of health are and how they impact recovery once the participant is removed from the controlled environment inpatient treatment provides. Recognition of specific social determinants of health applicable to each participant helps shift participant focus on how these needs can be addressed before discharge and aids in creating a plan to mitigate their impact. Creating a new focus on these needs will allow for a more holistic treatment plan and aid the participant in recovery. The research will also help facilitate a connection between participant and case management services, who can provide available resources if requested.</p>		

Participants will benefit from study participation by having the emotional needs of depression recognized and addressed through Behavioral Therapy. Meeting these needs will allow for a more holistic treatment plan and aid the participant on the journey to recovery. In understanding the impact of behavioral therapy on depression, this intervention can be implemented as a regular course of treatment in substance use disorder for all participants. By decreasing instances of depression in early recovery, participants are able to exhibit increased instances of successful recovery.

**4. Risks:**

There are no known risks of harm or distress associated with this study within SDH screening and education.

Participants will be exposed to emotional risks related to exploring the causes of depression. However, there is no risk of psychological harm, only the risk of experiencing uncomfortable emotions related to the causes of depression. To mitigate these negative emotions, Behavioral Therapy is provided by facility staff.

**5. Confidentiality:**

To be able to track patients over time and maintain confidentiality, each participant will be assigned a number and will be identified by this number for all data collection purposes. All written data will be stored in a locked box with only researchers and the data analysis team having access. All electronic data will be stored on a password-protected website.

**6. Alternative Procedures:**

There will be no alternative education provided, and participation is voluntary.

**7. Participant's Assurance:**

This project and this consent form have been reviewed by USM's Institutional Review Board, which ensures that research projects involving human subjects follow federal regulations. Any questions or concerns about rights as a research participant should be directed to the Chair of the Institutional Review Board, The University of Southern Mississippi, 118 College Drive #5125, Hattiesburg, MS 39406-0001, 601-266-5997.

Any questions about this research project should be directed to the Principal Investigator using the contact information provided above.

**CONSENT TO PARTICIPATE IN RESEARCH**

**Participant's Name:** \_\_\_\_\_

I hereby consent to participate in this research project. All research procedures and their purpose were explained to me, and I had the opportunity to ask questions about both the procedures and their purpose. I received information about all expected benefits, risks, inconveniences, or discomforts, and I had the opportunity to ask questions about them. I understand my participation in the project is completely voluntary and that I may withdraw from the project at any time without penalty, prejudice, or loss of benefits. I understand the extent to which my personal information will be kept confidential. As the research proceeds, I understand that any new information that emerges and that might be relevant to my willingness to continue my participation will be provided to me.

(      )

\_\_\_\_\_  
Research Participant

\_\_\_\_\_  
Person Explaining the Study

\_\_\_\_\_  
Date

\_\_\_\_\_  
Date

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