Brief Mindfulness Intervention with Women in an Inpatient Substance Use Treatment Setting

Kay Colbert
kay@kaycolbert.com

Follow this and additional works at: https://repository.upenn.edu/edissertations_sp2

Recommended Citation
https://repository.upenn.edu/edissertations_sp2/145

This paper is posted at ScholarlyCommons. https://repository.upenn.edu/edissertations_sp2/145
For more information, please contact repository@pobox.upenn.edu.
Brief Mindfulness Intervention with Women in an Inpatient Substance Use Treatment Setting

Abstract

Objective: There is a critical need for effective, economical, and brief interventions for individuals who struggle with substance use disorders in inpatient treatment settings. Mindfulness-based interventions have facilitated increases in days of sobriety, decreases in number and intensity of cravings to use substances, decreases in stress, and decreases in adverse consequences related to substance use; however, there is limited research to guide such interventions in inpatient treatment settings. This pilot study explores the feasibility, acceptability, and potential benefits of teaching brief mindfulness-based practices as an ancillary treatment with a diverse population of women at an inpatient substance use treatment center.

Methods: A sample of sixty-one participants (N=61) were randomized to two conditions. Thirty participants were taught mindfulness approaches to cope with stressors of early sobriety in addition to treatment as usual and thirty-one participants were assigned to a benign control condition in addition to treatment as usual. Ten self-report instruments were administered to measure addiction severity, use of substances, trait mindfulness characteristics, psychological distress, stress, adverse consequences of substance use, posttraumatic stress disorder (PTSD), disability, quality of life, acceptability of the intervention, and other support services received. The instruments were administered at baseline, end of the intervention, and at four weeks post-discharge. Analyses were conducted for all demographic variables, equivalency of groups, effects of the novel delivery of mindfulness training, and mean differences between treatment and control groups on post-test and follow-up levels of mindfulness.

Results: Descriptive data analysis indicated the intervention had a high degree of acceptability among participants. Statistically significant differences in mindfulness traits, frequency or severity of substance use cravings, psychological distress, PTSD, and quality of life were not found; however, post hoc analyses indicated that treatment effects varied in relation to PTSD symptoms.

Conclusion and Implications: Discussion of strengths, challenges, and lessons learned in this research is provided. Future research that further examines the effectiveness of brief inpatient mindfulness training is needed.

Degree Type
Dissertation

Degree Name
Doctor of Social Work (DSW)

First Advisor
Malitta Engstrom, Ph.D.

Second Advisor
Phyllis Soloman, Ph.D.

Keywords
mindfulness, substance use, brief mindfulness intervention, inpatient, relapse prevention, addiction
Brief Mindfulness Intervention
with Women in an Inpatient Substance Use Treatment Setting

Kay Colbert, LCSW

A DISSERTATION
in
Social Work

Presented to the Faculties of the University of Pennsylvania
in
Partial Fulfillment of the Requirements for the
Degree of Doctor of Social Work

June 10, 2020

Malitta Engstrom, Ph.D.
School of Social Policy and Practice
Dissertation Chair

Phyllis Solomon, Ph.D.
School of Social Policy and Practice
Dissertation Committee Member

Sara S. Bachman, Ph.D.
Dean, School of Social Policy and Practice
Dedication

I dedicate this dissertation to the inspiring and resilient women I have met who became their own agents of change in spite of seemingly insurmountable odds.
Acknowledgements

I wish to thank my dissertation chair, Dr. Malitta Engstrom, for her steady guidance, sound advice and encouragement throughout the dissertation process. Dr. Phyllis Solomon’s wisdom and practical experience were invaluable. Much appreciation to Dr. Michelle Evans-Chase, for her statistics expertise and her enthusiasm for the research process.

Thank you to Dr. Sarah Bowen, now at Pacific University, for her inspiring addiction research, her work on Mindfulness-Based Relapse Prevention, as well as her abiding willingness to teach and help others. And thanks to Dr. Christopher Germer and Dr. Kristin Neff for teaching me Mindful Self-Compassion, and to Dr. Steve Hickman at UC San Diego for his encouragement and teachings.

Thank you to Nexus Recovery Center, especially Becca Crowell and Stacey Burns, for letting me conduct my research at their treatment center. And gratefulness to Deb Castillo, LPC-S, at Nexus for facilitating the control group.

Thank you to my cohort, the 2016 BCE (Best Cohort Ever) class, for their consistent positive energy and unwavering sense of humor.

Gratitude to Dr. Corey Roos and Dr. Melanie Masin-Moyer for being generous in the sharing of their research and findings.

Thank you to my parents, who both instilled a love of education. And to my father who imparted the importance of social justice and transforming cultural institutions over time.

Thank you to my husband Carlos Barroso, for his support and love and patience; and my children Andrew Barroso and Michael Barroso for their belief in their mother.
ABSTRACT

BRIEF MINDFULNESS INTERVENTION WITH WOMEN IN AN INPATIENT SUBSTANCE USE TREATMENT SETTING

Kay Colbert, University of Pennsylvania

Dr. Malitta Engstrom, Dissertation Chair, University of Pennsylvania

Dr. Phyllis Solomon, Committee Member, University of Pennsylvania

Objective: There is a critical need for effective, economical, and brief interventions for individuals who struggle with substance use disorders in inpatient treatment settings. Mindfulness-based interventions have facilitated increases in days of sobriety, decreases in number and intensity of cravings to use substances, decreases in stress, and decreases in adverse consequences related to substance use; however, there is limited research to guide such interventions in inpatient treatment settings. This pilot study explores the feasibility, acceptability, and potential benefits of teaching brief mindfulness-based practices as an ancillary treatment with a diverse population of women at an inpatient substance use treatment center.

Methods: A sample of sixty-one participants (N=61) were randomized to two conditions. Thirty participants were taught mindfulness approaches to cope with stressors of early sobriety in addition to treatment as usual and thirty-one participants were assigned to a benign control condition in addition to treatment as usual. Ten self-report instruments were administered to measure addiction severity, use of substances, trait mindfulness characteristics, psychological distress, stress, adverse consequences of substance use, posttraumatic stress disorder (PTSD), disability, quality of life, acceptability of the intervention, and other support services received. The instruments were administered at baseline, end of the intervention, and at four weeks post-discharge. Analyses were conducted for all demographic variables, equivalency of groups, effects of the novel delivery of mindfulness training, and mean differences between treatment and control groups on post-test and follow-up levels of mindfulness.

Results: Descriptive data analysis indicated the intervention had a high degree of acceptability among participants. Statistically significant differences in mindfulness traits, frequency or severity of substance use cravings, psychological distress, PTSD, and quality of life were not found; however, post hoc analyses indicated that treatment effects varied in relation to PTSD symptoms.

Conclusion and Implications: Discussion of strengths, challenges, and lessons learned in this research is provided. Future research that further examines the effectiveness of brief inpatient mindfulness training is needed.
Table of Contents

DEDICATION ii
ACKNOWLEDGEMENTS iii
ABSTRACT iv
LIST OF TABLES vii

CHAPTER

I  INTRODUCTION AND BACKGROUND AND SIGNIFICANCE 1
   Introduction 1
   Background and Significance 5
   Underlying Mechanisms for Mindfulness Interventions 23

HYPOTHESIS 32

II  METHODOLOGY 33
   Research Design and Methods 33
   Design 33
   Setting 35
   Recruitment Procedures and Sample 36
   CONSORT Diagram 38
      Inclusion Criteria 39
      Exclusion Criteria 40
   Baseline Composition and Characteristics of the Sample and Comparability of Groups 40
   Group Assignment and Randomization 41
   Retention, Participant Payments, Tracking Procedures 46
   Data on Participants Who Did Not Participate/Not Complete the Study 48
   The Brief Mindfulness Intervention 49
   The Control Group 52
Training of Control Personnel 53
Fidelity Assessment 53
Measures 53
  Sociodemographic and Background Information 54
  Substance Use Measures 54
  Mindfulness Measures 55
  Assessment of Mental Health and Other Concerns 56
  Treatment Evaluation Measures 58
  Open-Ended Feedback 59
  Training of Data Collectors 60
Data Analysis 60
Intervention Delivery 61
Hypothesis Testing 61
Exploratory Analysis 62
Human Subjects: Risk Reduction and Benefits 63

III RESULTS 66
Mindfulness Training 70
Hypothesis Testing 70
Intervention Acceptability 74
Open-Ended Feedback 75

IV DISCUSSION AND IMPLICATIONS 82
PTSD and Mindfulness - Potential Moderator of Change 84
Measures: Are we measuring what we think we are measuring? 86
Sample Retention 88
Treatment Duration 89
Fidelity 89
Implications for Social Work and Related Disciplines 89
Strengths/Limitations 91
Prior Research 94
Future Research 94
Conclusion 96

REFERENCES 98

APPENDICES 128
Appendix A1: Agency Commitment Letter 128
Appendix A2: NIH Certificate of Confidentiality 129
Appendix A3: Informed Consent and HIPAA Authorization Form 133
Appendix B1: Intervention Manual 141
Appendix B2: Handouts for Participants for Intervention 149
Appendix B3: Facilitator Handouts for Intervention 159
Appendix B4: Fidelity Checklist for Intervention 175
Appendix B5: Control Group Manual 176
Appendix B6: Fidelity Checklist for Control Group 181
Appendix C: Incentives and Measures for Study 182
Appendix D: Measurement Tools for Study 184
Appendix E: Codebook 211

LIST OF TABLES

Table 1. Descriptive Demographics of Sample and Comparability of Groups, Categorical 43
Table 2. Descriptive Demographics of Sample and Comparability of Groups, Continuous 45
Table 3. Internal Reliability of Scales with Study Sample

Table 4. Frequencies of Categorical Demographic Characteristics by Total Sample and Study Groups

Table 5. Chi Square Tests of Independence of Categorical Variables: Treatment v Control

Table 6. Mean and Standard Deviations of Continuous Variables by Total Sample and Study Group

Table 7. Multiple regression analysis of treatment effects on mindfulness at post-test

Table 8. Multiple regression analysis of treatment effects on severity of cravings at post-test

Table 9. Multiple Regression Analysis of Treatment Effects on Frequency of Cravings at Post-Test

Table 10. Multiple Regression Analysis of Treatment Effects on Stress at Post-Test

Table 11. Multiple Regression Analysis of Treatment Effects on Mood at Post-Test

Table 12. Multiple Regression Analysis of Treatment Effects on Post-Test PTSD Scores

Table 13. Multiple Regression Analysis of Pre-Test PTSD Scores on Pre-Test Mindfulness

Table 14. Multiple Regression Analysis of Treatment Effects on Mindfulness Controlling for Post-Test PTSD

Table 15. Chi Square test of Independence of Race/Ethnicity and TEI-SF Score

Table 16. Multiple Regression Analysis of Age on TEI-SF Scores

Table 17. Feedback from Control Group Post-Intervention

Table 18. Feedback from Control Group Four-Week Follow-Up

Table 19. Feedback from Intervention Group Post-Intervention

Table 20. Feedback from Intervention Group Four-Week Follow-Up
CHAPTER I

Introduction and Background and Significance

Introduction

There is a critical need for effective, economical, and brief interventions for individuals who struggle with substance use disorders (Merrill & Duncan, 2014; Roy-Byrne et al., 2014). Teaching mindfulness has shown promise as such an intervention (Bowen et al., 2009; Bowen et al., 2014; Cavanaugh et al., 2013; Mermelstein & Garske, 2014; Vinci et al., 2016; Kamboj et al., 2017; Li, Howard, Garland, McGovern, & Lazar, 2017). Addiction has a serious impact on society, both in the U.S. and globally. In 2018, an estimated 21.2 million Americans aged 12 and older needed treatment for alcohol or other drug use (SAMHSA, 2019). However, only 2.4 million (11%) received care at a specialty facility (Center for Behavioral Health Statistics & Quality, 2014; SAMHSA, 2019). Substance use costs Americans more than $600 to $700 billion each year, and addiction and risky substance use are the largest preventable and most costly health problems in the U.S. (Rasyidi, Wilkins, & Danovitch, 2012; SAMHSA, 2015; Wiegand & Babu, 2016).

The misuse of prescription drugs represents a serious threat to the nation’s health, following only marijuana, alcohol, and tobacco in prevalence, and leading to troubling increases in opioid overdoses in the past decade (SAMHSA, 2015; SAMHSA, 2019). Currently, there is an opioid overdose and pain management substance use disorder epidemic (DEA, 2015; Wiegand & Babu, 2016). Globally, over 29 million people are estimated to experience problematic drug use and only 1 in 6 receive treatment (UN World Drug Report, 2016). Worldwide, alcohol consumption was responsible for approximately 3 million deaths, or 5.3% of all deaths in 2016 (World Health Organization, 2018). The United Nations’ most recent World Drug Report...
estimates that in 2017, 35 million people had substance use disorders, and 585,000 people died as a result of drug use in 2017 (UN, 2019). According to the Institute of Medicine and National Research Council, cost-benefit ratios for early treatment and prevention programs for addictions range from 1:2 to 1:10. This translates to a $1 investment yielding $2 to $10 savings in health costs, criminal and juvenile justice costs, educational costs, and lost productivity (Etner et al., 2006; Institute of Medicine and National Research Council, 2009).

Despite the enormous personal and social consequences of substance use and the availability of effective solutions, there is still much misunderstanding about addiction, and current addiction treatment often relies on ineffective methods that are not evidence-based (Rasyidi et al., 2012). Treatment centers, at best, report success rates of approximately 30% (Frimpong, Guerro, Kong, & Kim, 2016; Slomski, 2014) and surprisingly, relatively few individuals receive evidence-based care. The Columbia University CASA Study reviewed over 7,000 publications and 5 national data sets and found that addiction treatment centers are not equipped with the knowledge, skills, or credentials needed to provide a full range of evidence-based services. Often treatment as usual comprises interventions developed in the 1950s. CASA Columbia summarizes the dearth of quality treatment options when they write, “Unlike other diseases, we do little to effectively prevent and reduce risky use [of substances] and the vast majority of people in need of addiction treatment do not receive anything that approximates evidence-based care” (2012, p.i).

As we look at successful and practical evidence-based methods for helping people who experience addiction, mindfulness-based strategies stand out as a method that shows effectiveness and has little or no adverse effects (Chiesa & Serretti, 2014; Garland et al., 2015; Zgierska et al., 2009). Even brief mindfulness training produces improvements in
decision-making (Papies, Barsalou, & Custers, 2012) and decreases in impulsivity (Dixon et al., 2019).

Mindfulness practices teach individuals to develop awareness of unskillful cognitive processes and automatic behaviors (Brewer & Garrison, 2014). With mindfulness skills, individuals learn to observe and tolerate uncomfortable emotions, thoughts, and physical sensations (referred to in substance use as ‘triggers’ and ‘cravings’) and then respond thoughtfully instead of reacting spontaneously (Bowen, Witkiewitz, & Clifasefi, 2014; Brewer & Garrison 2014; Brewer, Elwafi, & Davis, 2012; Papies, Barsalou, & Custers, 2012; Papies, Pronk, Keesman, & Barsalou, 2015; Tapper, 2018). Furthermore, mindfulness training increases emotion regulation and self-control and may reduce intensity of cravings (Penberthy et al., 2015; Witkiewitz et al, 2013; Witkiewitz et al., 2014). Mindfulness skills appear to reduce intensity, length, and number of episodes of resumed substance use (Bowen, Chawla, & Marlatt, 2010; Tang, Tang, & Posner, 2016). Further research in this area, however, is needed along with development, standardization, and refinement of methods to better evaluate treatment outcomes (Black, 2012; Chiesa & Serretti, 2014; Grant et al., 2015; Li, Howard, Garland, McGovern, & Lazar, 2017; Rösner, Willutzki, & Zgierska, 2015; Zgierska et al., 2009). For example, a number of studies have been found to have poor methodological quality (Chiesa & Serretti, 2014; Tang, Hölzel, & Posner, 2015; Khusid & Vythilingam, 2016; Zgierska et al., 2009). Many of the studies either did not track the ethnic background of the participants or they were majority Caucasian, which results in potential lack of applicability to diverse populations (Amaro, Spear, Vallejo, Conran, & Black, 2014; Amaro, 2014; K. Proulx, 2003). Amaro (2014) states that there is opportunity in this field of research to investigate the “unknown fit and efficacy among diverse populations that have
plagued most evidence-based treatment research” (p. 614). A gap in knowledge exists in the use of mindfulness-based interventions with racially and ethnically diverse low-income women with substance use disorders, especially regarding the efficacy of adapted mindfulness-based interventions for preventing treatment incompletion, decreasing recurrences of use, and increasing days of sobriety (Amaro, 2017). A recent systematic review and meta-analysis of 42 studies found mindfulness a promising intervention for substance use disorders and recommended further research to determine its effectiveness in diverse treatment settings (Li et al., 2017). Mindfulness-Based Stress Reduction, Mindfulness-Based Relapse Prevention, Mindfulness-Based Cognitive Therapy and other similar interventions are based on an eight-week protocol, which makes these programs difficult to complete with the rolling populations at most treatment centers. Consistent participation in eight-week aftercare group training is not feasible for many people, especially an inpatient population with many life stressors. Consequently, there is a need for a brief intervention to teach these skills. Some studies have adapted the MBSR program, but these were nine-week and ten-week programs. The longer programs had higher attrition rates unless attendance was mandatory (Amaro, Spear, Vallejo, Conran, & Black, 2014; Garland, Roberts-Lewis, Tronnier, Graves, Kelley, 2016). Only a few studies have examined a brief mindfulness intervention with an inpatient population (Vinci et al., 2015). The purpose of this study is to help inform development of a more effective, brief, and feasible skill-based mindfulness intervention for inpatient substance use treatment centers, and one that is acceptable to diverse populations. Therefore, among women in an inpatient substance use treatment setting, is the addition of mindfulness meditation to treatment as usual more effective in enhancing outcomes related to substance use cravings, stress and mood at end of
intervention and at four weeks post discharge than treatment as usual plus a benign condition?

**Background and Significance**

**Overview of Addiction/Substance Use**

Seemingly since the beginning of time, humans have been fascinated with altering waking consciousness by consuming substances. Ancient cultures around the world altered moods by distilling spirits and chewing, eating, or smoking plants such as khat (Middle East) hagigat (Israel), peyote (Mexico), kava (Pacific Ocean cultures), betel (Asia), cannabis (China, Greece, Rome), and opium (Mesopotamia) (Courtwright, 2001; Crocq, 2007). Fermentation of plants, grains, juices, or honey into ethyl alcohol has existed around for thousands of years. The earliest discovered manufacture of alcohol for drinking was found in a Neolithic village in China and dates back to 7000-6600 BCE (McGovern et al., 2004). Often these substances were originally used for religious or ceremonial purposes, and sometimes for medicinal purposes, but eventually they were almost always appropriated for recreational use and overuse. There have been, over time, different assumptions made and theories constructed about why people might overuse or misemploy intoxicating substances, the nature of use and addiction, and the treatment for addiction. The Oxford English Dictionary cites “addiction” being first used to describe immoderate or compulsive consumption by William Pittis, an English political writer, in 1716 (OED, 2017).

As societies grew and cities developed, so did concerns about ordinary citizens consuming psychoactive substances, whether it was coffee, chocolate, tobacco, alcohol, or opium (Courtwright, 2001). Societies and cultures have reacted in varying ways to compulsive use of alcohol and other mood-altering substances, seeing it as a moral sin by religious institutions, a public health crisis by governments, and a psychological dysfunction by psychiatrists (Crocq, 2007). Addiction has been
theorized at various points in history to be a by-product of cultural dysfunction, sinfulness, the influence of Satan, laziness, moral failure, lack of willpower, a sign of inherited weakness, criminal behavior, mental illness, a spiritual problem, a form of self-medication, and a difficulty of self-regulation (Courtwright, 2001; Weinberg, 2013; West, 2001; McNeece & DiNitto, 2005). A multitude of behavioral, cognitive-behavioral, learning, social, biological, psychodynamic, personality, supracultural, subcultural, symbolic interactionist, normative ambivalence, structural functional, humanistic, and environmental theories have been developed to try to explain how addiction happens at both the individual and societal level, and how prevention, intervention, and recovery can be successful (Weinberg, 2013; West, 2001; McNeece & DiNitto, 2005). The prevalent modern day thinking, strongly influenced by a Western—especially American—medical and scientific community, views addiction as a disease. This idea, however, is not novel. As early as 1786, Benjamin Rush, a signer of the Declaration of Independence and a physician, described the consumption of “spirits” as producing gradual “diseases” in the human body (p. 1). He listed palsy, dropsy of the belly, liver obstruction, and madness as side effects and said that alcohol destroyed “more lives than the sword” (Rush, 1786, p. 2). (Interestingly, he excepted wine, beer, and hard cider for being wholesome.) E. M. Jellinek is considered the modern pioneer of the disease model. In 1952, he published a study of 2000 people with an alcohol use disorder (all White males) that offered a detailed scientific explanation of how people slowly become addicted to alcohol (McNeece & DiNitto, 2005; Page, 1997). Jellinek narrowed multidisciplinary research and believed that alcoholism was a medical problem that should only be treated by medical professionals (Page, 1997). In 1960, he published a book titled The Disease Concept of Alcoholism. Some critics suggest that Jellinek manipulated his research results to appeal to public opinion and funders, while cloaking his theory with a scientific mantle.
The definition of addiction may vary across history, or in distinct social or cultural contexts, but it is never neutral (Suissa, 2009).

Currently, use and overuse of alcohol and other drugs is a major public health concern with devastating personal and societal consequences, both in the United States and globally (UN World Drug Report, 2016; World Health Organization, 2014; U.S. Dept. of Health & Human Services, 2016; SAMHSA, 2019). Direct effects of substance use include lifelong struggles with addiction, significant physical and mental health issues, and death from chronic use or overdose. Indirect effects include abuse and neglect of children, increased crime and violence, increased health care costs, missed work and decrease in productivity, spread of infectious diseases, and an increase in motor vehicle collisions (U.S. Dept. of Health & Human Services, 2016; SAMHSA, 2019).

Substance use disorders and addiction are described and defined in different ways by various experts in the field. The National Institute on Drug Abuse broadly defines addiction as a “chronic, relapsing brain disease that is characterized by compulsive drug seeking and use, despite harmful consequences” (NIDA, 2012). Neuroscience and advanced scanning technology have provided a better understanding of how intoxicating substances work in the brain. The National Institute of Health defines drug addiction as “a mental illness. It is a complex brain disease characterized by compulsive, at times uncontrollable drug craving, seeking, and use despite devastating consequences—behaviors that stem from drug-induced changes in brain structure and function” (Volkow, 2010, p.1). The Diagnostic and Statistical Manual, 5th edition, uses the diagnostic terms Substance-Related and Addictive Disorders and separates them into ten separate categories of drugs (American Psychiatric Association, 2013). Another definition used in research studies is a “diagnosed, medicalized, disease process of the brain-reward circuitry
associated with the compulsive need for and use of a habit-forming substance characterized by
tolerance and pre-defined physiological symptoms upon withdrawal, which involve cycles of
relapse and remission” (Black, 2014, p. 490). Although the terms substance use, abuse, and
addiction are often used interchangeably, for the purposes of this study, actual substance use was
counted, not whether someone meets the criteria for a diagnosis of addiction. Substance use for
the purpose of this study is defined as use of any drugs, medications without a prescription or in
ways that differ from prescribed use, or alcohol. Substance use includes any use of any
substances that have psychoactive properties, such as inhalants (for example, glue, gasoline, and
other solvents). Substance use also includes use of any novel, new or synthetic substances that
have psychoactive properties but that may not be illegal (for example, variations of cathinones,
opoids, and cannabinoids). This study also made an effort to use language that, while
appropriately descriptive and precise, also reflects the worth and dignity of the person,
sometimes referred to as person first language (Broyles, et al., 2014; Miller, Forechimes, &
Zweben, 2011). Language in this study is meant to focus on the recovery process and avoid
pejorative terminology. “Having a substance use disorder” is preferred over “substance abuser”
and “resumed use or recurrence of substance use” is favored over “relapse.”

While substance use disorders negatively affect all segments of society, some
populations are at greater risk for addiction than the general population. For example, having a
psychiatric disorder puts a person at increased risk for a substance use disorder (NIDA, 2010).
Of people diagnosed with a mental illness, 29% have an alcohol or other drug use disorder
compared to 11.8% of the general population 18 years and older (SAMHSA, 2010). Having an
addictive disease also increases the likelihood of having a mental illness: 37% of people
experiencing problematic alcohol use and 53% of people experiencing problematic drug use
also have at least one serious mental illness compared to 17.6% of the general population 18 years and older. Children who grow up in homes with a parent who had an addictive disease or caregiver are at increased risk of trauma exposure and associated developmental issues, as well greater risk of developing an addiction themselves (National Child Trauma Stress Network, 2012). Most alcohol or drug use starts in adolescence. As the adolescent brain is more vulnerable to the effects of alcohol and other drugs compared to adults, early use can predict later problems with addiction and mental illness (NIDA, 2003; National Association of Children of Alcoholics, 2005). Individuals who have disabilities (other than intellectual disabilities) are at approximately two to four times increased risk for using substances (Department of Health and Human Services, 2012). Women are another at-risk population for addiction, with both increased health risks compared to men and greater likelihood of partner violence (GENACIS, 2012). Women are often forced into prostitution (or trading sex for drugs) to support their substance use, or they use substances to numb their trauma from being a sex worker, and are frequently arrested for prostitution. Children, especially young girls, often become currency to buy drugs, and are sexually exploited in the process. Drugs are used by pimps to keep control over the women they traffic (Dalla, 2002).

We also know that certain genetic differences make some ethnicities more vulnerable to the negative effects of alcohol, such as Asians of Korean, Chinese, and Japanese descent, as well as Ashkenazi Jews, Native Americans, and certain indigenous populations in South America (ICAP, 2009; McNeece & DiNitto, 2011). The elderly is a population with increasing rates of substance use as well as increased sensitivity to alcohol and other drugs due to physiological changes with aging (ICAP, 2009; SAMHSA, 2010). Although research is limited in this area, sexual minorities have higher rates of substance use, which is most likely
related to societal reactions and lack of support rather than sexual orientation or gender identity itself (Senreich, 2009). Individuals who experience trauma and PTSD have an increased risk of addiction, and people who have a substance use disorder are at increased risk of experiencing trauma caused by another person (SAMHSA N-SSATS, 2010). Individuals with a substance use history make up a substantial portion of prisoners in higher-income countries, with 51% of women and 30% of men having had problematic drug use in the year before their incarceration, which is far higher than the general population (UN World Drug Report, 2019).

There is a critical need for more effective and cost-efficient evidence-based practices to treat addiction. Dr. Ernest S. Bishop spoke to this a century ago, in a 1919 edition of the *American Journal of Public Health* when he wrote: “We have not treated our addiction sufferers with sympathetic understanding and clinical competency” (p. 487). Dr. Bishop called for immediate development of evidence-based interventions to treat this “addiction-disease” (p. 481). Almost 100 years later, these exact concerns are repeated in the 2016 publication of the U.S. Surgeon General’s Report on addiction (U.S. Dept. of Health & Human Services, 2016). The latest UN World Drug Report concluded that, “Public health responses continue to fall short. Effective treatment interventions based on scientific evidence and in line with international human rights obligations are not as available or accessible as they need to be . . .” (UN, 2019).

Treatment lengths have reduced over time, with insurance companies and state and federal funders less willing to pay for longer treatment stays. The need is greater now than ever for brief, effective evidence-based interventions for addiction. Brief interventions such as motivational enhancement and cognitive-behavioral skills training programs have generally
been found to be less effective at providing sobriety skills with heavy alcohol or drug users (Mermelstein & Garsky, 2015). Traditional substance use disorder interventions such as talk therapy, Cognitive Behavioral Therapy, the Matrix Model, 12 Step Facilitation, Family Behavioral Therapy, Community Reinforcement Approach, and Acceptance and Commitment Therapy all assume that the client will be available to participate for extended periods of time, ranging from four to sixteen weeks or more (NIDA, 2008).

**Overview of Mindfulness**

Mindfulness is defined as a receptive state of mind in which attention informed by a sensitive awareness of what is occurring in the present moment, simply observes what is taking place. Awareness specifically includes paying attention nonjudgmentally to thoughts, emotions, and physical sensations in the present moment (Kabat-Zinn, 2013). Mindfulness increases a person’s ability to be present and aware (Baer, Smith, Hopkins, Krietemeyer, & Toney, 2006). For the purposes of this study, Kabat-Zinn’s definition of mindfulness was used: “Awareness that emerges through paying attention on purpose, in the present moment, and non-judgmentally to the unfolding of experience moment by moment” (1994, p. 4). Kabat-Zinn (2003) has specified that such awareness also includes “an affectionate, compassionate quality within the attending, a sense of openhearted, friendly presence and interest” (p. 145). Mindfulness is often described as being the opposite of auto-pilot, where activities are performed but one barely notices what one is doing. It is also the opposite of monkey mind, a state where our mind is jumping from thought to thought, with reduced attention to what is actually happening in the present moment.

Mindfulness has seemingly been around since the first wandering thought. The origins of mindfulness come from multiple Eastern wisdom traditions that are thousands of
years old, such as early Vedic, Buddhist, and Vipassana practices concerning approaches to life and meditation (Shapero, Greenberg, Pedrelli, de Jong, & Desbordes, 2018; Kabat-Zinn, 2013). Some foundations of mindfulness philosophy are thought to have been started by the ancient Bon religion, the indigenous religion of Tibet (Chaoul, 2017). Mindfulness is an attentional approach that is considered the basis for almost all Buddhist meditative practices, such as in the Theravada, Zen, and Vajrayana traditions (Kabat-Zinn, 2003). Mindfulness includes meditation and meditative practices that are similar to those found in not only Buddhist, but also Hindu, Taoist, Christian, and Jewish traditions (Weick & Putnam, 2006; Hanley, Warner, & Garland, 2015). Many religious traditions have contemplative prayer, centering prayer, contemplative meditation, or periods of silent reflection, all of which have some similarities to mindfulness activities. T.W. Rhys Davids, a British scholar and translator of early Pali Buddhist texts, used the English term mindfulness as early as 1881. Davids translates the word “sati” in Pali or “smrti” in Sanskrit as “mindfulness” (Gethin, 2011). In the past 45 years, mindfulness traditions have combined with Western science and medicine, neuroscience, psychology, and cognitive-behavioral therapies to create mindfulness-based programs (MBPs), sometimes also referred to as mindfulness-based interventions (MBIs), and meditation-based therapies (Fjorback & Walach, 2012). MBPs have been informed by many theoretical frameworks and they are referred to as secular. While some of the foundations and practices were inspired by Buddhist traditions, MBPs are considered non-religious. This can cause some confusion and muddying of the waters at times, as Buddhist centers and Insight Meditation Centers frequently offer MBPs. Insight LA in Los Angeles, for example, advertises that they have both Buddhist and secular mindfulness classes and retreats. Some Buddhist practitioners criticize this approach, feeling that the
contemporary mindfulness movement has co-opted Buddhist traditions and is not honoring its roots. Developers of the MBPs have been accused of code-switching, or using Buddhist terminology only when it suits their particular audience, and of promoting ‘stealth Buddhism’ (Gunther-Brown, 2016; Purser, 2019). Others argue, on the contrary, that secular mindfulness has allowed the practice to become more accessible and benefit many more individuals around the world. In the book *Practitioner’s Guide to Ethics and Mindfulness-Based Interventions*, Compson (2017) asserts that current mindfulness is best understood in postmodern, postsecular ways and this makes it not only more available to many, but also does not impose a value system that is not universal on the client. More recently, universities such as Brown, Emory, Dartmouth, New York University, the University of Virginia, Rice, and Syracuse have established departments of Contemplative Studies, sometimes called Contemplative Science. This concentration focuses on philosophical, psychological, and scientific investigation into contemplative states of mind, including mindfulness-based practices and their applications to physical and mental health.

The first and most pivotal MBP, Mindfulness-Based Stress Reduction (MBSR), was developed by Jon Kabat-Zinn at the University of Massachusetts in 1979. MBSR is structured as an eight-week course that meets two and a half hours a week, with a retreat day between weeks six and seven. Each week’s class focuses on a different aspect of mindfulness and introduces formal practices, including mindful sitting with the breath, mindful walking, the body scan, and mindful movement. Informal practices are also taught, such as how to approach everyday tasks with present moment awareness. Home practice of these skills is encouraged and audio recordings of the meditations are available for students. Handouts and readings are provided, and there are some worksheets such as a Pleasant Events and
Unpleasant Events Log to cultivate greater awareness. Group discussion is encouraged using a process called inquiry, a technique that focuses the student on what their experience is, or was, in the moment, gently urging recognition of any thoughts, emotions, and physical sensations. Inquiry stimulates noticing, discussion about, and connecting with what is happening. While MBSR was originally developed to help people cope better with stress, it was soon used at the University of Massachusetts to help reduce chronic pain. Multiple studies over the years have demonstrated consistent and reproducible results showing clinically relevant improvement in a wide range of diagnoses, such as hypertension, heart disease, cancer, and gastrointestinal disorders, as well as for psychological problems, such as anxiety and panic (Shapero et al., 2018; Kabat-Zinn, 2003). The MBSR program and its success was the catalyst for the development of other evidence-based mindfulness programs based on the MBSR eight-week model, including Mindfulness-Based Cognitive Therapy for Depression (MBCT), Mindfulness-Based Relapse Prevention (MBRP) and Mindful Self-Compassion (MSC) (Kabat-Zinn, 2013; Seagal, Williams, & Teasdale, 2013; Bowen, Chawla, & Marlatt, 2010; Germer & Neff, 2013). Other MBPs have developed rapidly such as Mindful Eating, Mindfulness at Work, Mindfulness for Teens, Mindful and Compassionate Parenting, KORU Mindfulness (for college students) and the Kindness Curriculum (for preschoolers). MBPs are one of the fastest growing areas of behavioral interventions (Britton et al., 2018). Research on mindfulness has grown exponentially over the last 20 years. There were no academic articles published in 1980 on mindfulness, but by 2013, there were 549 articles published annually (Black, 2014). A search by this author for “mindfulness” peer-reviewed articles on The University of Pennsylvania Library website Franklin: Articles+ just for 2019 showed 8,197 results (January, 2020).
Other psychological therapies have incorporated mindfulness practices and approaches into their programs because research has demonstrated their benefits to be significant, such as Dialectical Behavior Therapy, Acceptance and Commitment Therapy, and Mindfulness-Based Cognitive Therapy (Mason & Hargreaves, 2001; Shapero et al., 2018). There has also been a proliferation within the mindfulness industry of so-called mindfulness courses, workshops, classes, and coaching offering “mindfulness-based” curriculums with often questionable degrees of research behind them: mindful clowning, harmonica playing, singing, football, and dancing, for example. A search by this author on Amazon.com for general books on mindfulness brought up over 70,000 results (January, 2020).

Although the eight-week MBSR program is considered the gold standard for MBPs, clinicians and researchers have been researching whether briefer mindfulness interventions can offer some of the same benefits (Cropley, Ussher & Charitou, 2007; Zeidan, Gordon, Merchant, & Goolkasian, 2010; Creswell, Pacilio, Lindsay, & Brown, 2013; Adhikari, Kothari, & Khadka, 2018; Ussher et al, 2014; Cebolla et al., 2016; Doll et al., 2016; Basso, McHale, Ende, Oberlin & Suzuki, 2019; Vinci et al., 2016; Call, Miron, & Orcutt, 2013; Cavanaugh et al., 2013; Economides, Martman, Bell & Sanderson, 2018; Nadler, Cordy, Stengel, Segal, & Hayden, 2017; Canby, Cameron, Calhoun, & Buchanan, 2014; Carpenter, Sanford, & Hofmann, 2018; Dixon et al., 2019). Many of these studies are randomized controlled trials, although some have small sample sizes, and not many have been replicated with the exact protocols. In spite of these limitations, the results of brief mindfulness programming are encouraging. Investigators have used interventions as short as 10 or 20 minutes and have found similar behavioral effects to
longer-term and more intense practices. In addition, the specific practices have been isolated and tested individually to measure for any positive outcomes. Doll et al. (2016) studied mindful attention to breath in 26 participants, who were asked to practice this technique for two weeks. At the end of that time, participants were scanned in a functional MRI while being stimulated with “aversive pictures” (p. 305). The study reported that negative emotions were reduced by the mindful attention to breath, even with as little as 15 minutes of practice. Another group tested a 13-minute daily guided meditation for both four and eight weeks, comparing results to a control group that listened to a general podcast for the same amount of time. It was reported that eight weeks of daily 13-minute meditation decreased negative moods, increased attention, enhanced both working and recognition memory, and reduced state anxiety (Basso, McHale, Ende, Oberlin, & Suzuki, 2019). Another intervention of four 20-minute sessions of focused attention mindfulness meditation compared to a control condition, indicated that the mindfulness training enhances cognitive control of conflict monitoring in socioemotional contexts (Quaglia et al., 2019). The body-scan practice alone was tested on 37 participants, for 25 minutes over six days, with a control group reading or listening to soothing music. Results showed that even this short-term body scan decreased reactivity and increased attention (Adhikari, Kothari, & Khadka, 2018). Another study on a mindful body scan compared an intervention of only 10 minutes with 27 people who had chronic pain to a control group that read about natural history. Participants who did the brief body scan reported significant reductions in pain-related distress (Ussher et al., 2014).

Evidenced-based mindfulness can be learned and increased through practice and mindfulness training and is associated with positive changes in behavior and fundamental neurobiology (Carmody & Baer, 2008; Witkiewitz, Lustyk & Bowen, 2013). Multiple studies
have found clinically significant benefits from participation in MBSR specifically. The other MBPs generally have the intention of achieving some change in problematic behavior through increasing mindfulness, such as episodes of clinical depression or addictive behaviors, and they have been used successfully with a wide range of physical and psychological conditions (Carmody & Baer 2008; Davis & Hayes, 2011; Fjorback, Arendt, Ornbol, Fink, & Walach, 2011; Shapiro, Carlson, Astin, & Freedman, 2006; Vinci et al., 2016). These findings include a reduction in cortisol levels in breast cancer patients (Carlson et al., 2007) and higher immune responses in people who had flu shots (Davidson et al., 2003). Mindfulness has well-documented benefits on human health, and long-term meditators show consistent epigenetic response in genes that are linked to human diseases including neurological, psychiatric, cardiovascular, and cancer disorders (Garcia-Campayo et al., 2018). Another study found that people who exhibit higher levels of mindfulness have reduced risk-taking behaviors (Black, Sussman, Johnson, & Milam, 2012). Significantly greater telomere lengths (which may inhibit aging symptoms) were found in attendees of an intensive mindfulness retreat (Jacobs et al., 2011). Mindfulness seems to be crucial to developing emotional regulation and the ability to respond thoughtfully rather than react (Chiesa, Serretti, & Jakobsen, 2013).

Mindfulness practice is, at its core, about increasing present-moment awareness, and suspending one’s judgement. We often have a tape playing in our heads, providing commentary on everything, and quite often this is negative self-talk. Mindfulness encourages the practice of being aware in the moment of one’s physical sensations, emotions, and thoughts (Kabat-Zinn, 2013; Segal, Williams, & Teasdale, 2013). By pausing during the day and acknowledging or labeling these sensations (physical, emotions, thoughts), distress levels start to decrease. Then, with an awareness of the inbreath and outbreath, a person begins to
ground themselves, calming the limbic system and engaging the body’s parasympathetic or endogenous relaxation system, and reducing intensity of any discomfort or heightened emotions (Benson & Proctor, 2011; Papies, Barsalou, & Custers, 2012; Kazniak & Barsalou, 2013; Papies, Pronk, Keesman, & Barsalou, 2015). This pause creates a gap of time between an environmental cue or trigger and one’s eventual behavioral response. Mindful Self-Compassion (MSC) encourages that, if we are in discomfort, we add some simple self-kindness or self-compassion to this practice, the same way we might offer kindness to a friend or loved one if they were hurt or suffering. Just by acknowledging one’s distress (“Oh my, that hurts.”) the intensity of the experience is reduced (Neff, Kirkpatrick, & Rude, 2007; Neff, 2012; Germer & Neff, 2013). The protocols for this study used these methods as a basis for the intervention.

While listing the benefits of mindfulness, it should also be considered that modern mindfulness has more recently come under criticism for over-selling positive outcomes for almost everything that ails us. A 2018 review of the current state of mindfulness research by 15 respected experts states “misinformation and poor methodology associated with past studies of mindfulness may lead the public to be harmed, misled, and disappointed” (Van Dam et al., 2018, p. 1). A 2014 meta-analysis done for the Agency for Healthcare and Research Quality cautioned that stronger study designs are needed to validate the positive effects of mindfulness associated with improvement in mental health and stress-related outcomes (Goyal et al., 2014). While both papers recognize the benefits of mindfulness practice across a range of issues, they emphasize important limitations in the research, including a lack of agreement on how mindfulness is defined or measured from study to study, variability in types of controls, high risks of bias, and lack of uniformity in the frequency, duration, or type of interventions. Jon
Kabat-Zinn’s response is that, in an effort to quantify the exact elements of such interventions, it will “reduce to a clinical algorithm the complexities of the practice and nuanced delivery of mindfulness-based stress reduction...” (2003, p. 144). Further attention to some of these issues, such as defining and measuring mindfulness accurately, will be given later in this paper as these exact issues may have influenced the results of the study.

There are other criticisms of mindfulness research. Dr. Willoughby B. Britton is an Assistant Professor of Psychiatry and Human Behavior at Brown University and the Director of the Clinical and Affective Neuroscience Laboratory. Dr. Britton is a trained teacher of mindfulness and is currently conducting an NIH study titled “Dismantling Mindfulness” that is seeking to identify the specific self-regulation targets that are used in MBIs and how to increase participant engagement. Dr. Britton cautions that, as MBPs integrate many mindfulness practices, it is unclear which ones are specifically the mechanisms of any change (Britton et al., 2018). Dr. Britton is also recognized for her work studying the adverse effects of meditation practices, including mindfulness meditation. She cautions that some people can experience discomfort of varying degrees, including meditation-induced psychotic breaks, and that MBPs should be taught by individuals with mental health training who use a trauma-sensitive approach (Lindahl, Fisher, Cooper, Rosen, & Britton, 2017; Van Dam et al., 2018). It should be noted that the author of this study has extensive mental health training, considerable mindfulness training, and experience in presenting mindfulness in a trauma-sensitive way.

**Overview of Mindfulness Interventions and Substance Use Disorders**

Mindfulness-based interventions to treat substance use disorders are supported by the literature, which demonstrates their association with increased days of sobriety, decreases in number and intensity of cravings to use substances, and decreases in adverse consequences.
related to substance use (Bowen, Witkiewitz, & Clifasefi, 2014; Black, 2014; Bowen, Chawla, & Marlatt, 2010; Brewer & Garrison, 2014; Brewer, Elwafi, & Davis, 2012; Chiesa & Serretti, 2014; Tang, Tang, & Posner, 2016; Zgierska et al., 2009). A craving is defined as a strong urge, desire, or yearning for a source of release or pleasure which is fulfilled with substance use (Black, 2014). It is a desire to use a drug or other substance or a “drug-acquisitive state which motivates drug use” (Sayette et al., 2000, p. 190). Mindfulness practices teach individuals to develop awareness of unskillful cognitive processes and automatic behaviors, for example, “I can’t handle this stress, so I must to drink to feel better” (Brewer & Garrison, 2014). Mindfulness training teaches the skills to observe and sit with uncomfortable emotions, thoughts, and physical sensations as they arise (including urges, triggers, and cravings) and then respond after considering the choices available instead of reacting in the moment (Black, 2014; Bowen, Witkiewitz, & Clifasefi, 2014; Brewer & Garrison, 2014; Brewer, Elwafi, & Davis, 2012; Garland et al., 2014; Papies, Barsalou, & Custers, 2012; Papies, Pronk, Keesman, & Barsalou, 2015; Single, Bilevicius, Johnson & Keough, 2019). A meta-analysis showed “significant small-to-large effects of mindfulness treatments in reducing the frequency and severity of substance misuse, intensity of craving for psychoactive substances, and severity of stress” (Li et al., 2017, p. 62) compared with treatment as usual or alternative treatments. Mindfulness has been shown to have a modifying or controlling influence on the stimulating trigger and then on the automatic processes of using alcohol or drugs (Ostafin & Marlatt, 2008; Ostafin, Bauer, & Myxter, 2012). A trigger is an external cue that instigates a state of craving or urge to use a substance (American Society of Addiction Medicine, 2011). Mindfulness and mindfulness-based interventions act as “interposing agents of the cycle between craving and suffering associated with substance
use, misuse, and addiction processes” (Brown, 2014, p. 490). Mindfulness essentially helps individuals be less reactive, or push the “pause button” before acting (Papies, Barsalou, & Custers, 2012; Papies, Pronk, Keesman, & Barsalou, 2015). Mindfulness helps cultivate metacognitive awareness of present moment experience, which may assist individuals in not reacting to urges or stress to use substances and increase distress tolerance skills (Garland, 2014; Paz, Zvielli, Goldstein, & Bernstein, 2017).

Mindfulness-based interventions to help treat addiction have shown significant promise (Black, 2014; Bowen et al., 2104; Bowen, Chawla, & Marlatt, 2010; Single, Bilevicius, Johnson & Keough, 2019; Tang, Tang, & Posner, 2016). Individuals who experience addiction typically have urges for continued and increased substance use, poor self-control, impulsivity and compulsivity, emotional dysregulation, and increased stress reactivity (Hussong, Jones, Stein, Bausom, & Boeding, 2011). Mindfulness skills teach individuals to observe and tolerate uncomfortable emotions, thoughts, and physical sensations (such as triggers and thoughts around resuming substance use) and then respond thoughtfully instead of spontaneously (Bowen, Witkewitz, & Clifasef, 2014; Brewer & Garrison 2014; Brewer, Elwafi, & Davis, 2012; Papies, Barsalou, & Custers, 2012; Papies, Pronk, Keesman, & Barsalou, 2015). Mindfulness training increases emotion regulation and self-control and reduces intensity of cravings (Bullis, Boe, Asnaani, & Hofmann, 2014; Penberthy et al., 2015; Witkewitz et al., 2013; Witkewitz et al., 2014).

Each of the mindfulness-based programs (MBSR, MBCT, MBRP, and MSC) has been developed and subsequently tested as an eight-week series of classes, two and a half hours each week, with a half-day retreat-type experience between weeks six and seven. In these classes, the concepts of mindfulness are taught and participants learn informal and formal
mindfulness meditations and exercises. There is home practice between classes and discussion each week of the participants’ experiences within the program. As outlined above, these programs have shown significant benefits at reducing particular problematic behaviors, but the very nature of them being conducted over eight weeks make them difficult to implement in an inpatient setting. MBRP has been specifically adapted to address addictive behaviors and it seems to reduce severity and frequency of craving and resumed use after periods of sobriety (Bowen, Marlatt, & Chawla, 2010), but the chaotic and fluid nature of inpatient treatment centers for substance use disorders frequently does not allow for this program to be executed as intended and as tested in clinical research. There is some evidence that brief mindfulness training can increase healthier functioning in the areas related to substance use disorders (Creswell, Pacilio, Lindsay, & Brown, 2014; Mermelstein & Garske, 2015; Tang, Tang, & Posner, 2016; Vinci et al., 2015) and promote better general decision-making (Papies, Barsalou, & Custer, 2012). In one study, a brief mindful body scan (ten minutes) reduced intense cravings from nicotine withdrawal and decreased irritability, tension, and restlessness (Cropley, Ussher, & Charitou, 2007). Another recent study used an ultra-brief mindfulness intervention (10-12 minutes plus take-home recordings) in an outpatient setting, which was associated with lower risk of resumed use (Bloom-Foster & Mehl-Madrona, 2019). However, no brief intervention for substance use disorders has been developed and standardized and there is a need for such an intervention specifically for inpatient substance use treatment centers. A study of perceived barriers to incorporating mindfulness into substance use treatment suggested that clinicians are willing to implement such a program but do not have an available, accessible protocol to use (Edwards, Cohen, & Wupperman, 2016). In addition, many of the studies either did not track the ethnic background of participants or they were
majority Caucasian, which results in potential lack of applicability to diverse populations (K. Proulx, 2003). This study was done at a treatment center with a rolling population and an ethnically and socio-economically diverse client community. The author of this study received training to teach MBSR, MSC, MBCT, and MBRP from the University of California San Diego Medical School Center for Mindfulness.

**Underlying Mechanisms for Mindfulness Interventions**

**Neuroscience of Mindfulness**

An important addition to more recent mindfulness research is the ability to use functional magnetic resonance imaging scans (fMRI), positron emission tomography scans (PET), and electroencephalography (EEG) to view exactly what is occurring in the brain during and after mindfulness practice. An fMRI shows the location responsible for neural processes, a PET scan provides an image of how the brain functions, and an EEG records electrical activity of the cerebral cortex. Neuroscientists such as Richard Davidson, Ph.D. (The Center for Healthy Minds, University of Wisconsin-Madison) are conducting extensive research on mindfulness and meditation practices and their effects on the brain. Sara Lazar, Ph.D. is a neuroscientist at Harvard studying the impact of yoga and meditation (including mindfulness) on cognitive and behavioral functions. Both Davidson and Lazar are using scanning technology to measure activity in the brain in participants before and after mindfulness training.

Current neuroscience theory indicates that mindfulness intervention is associated with observable neural activity and functional brain changes, particularly in the areas of the brain associated with self-awareness, attentional regulation, body awareness, self-regulation, and emotional regulation (Hölzel et al., 2011; Boccia, Piccardi, & Guariglia, 2015; Sevinc et al., 2018). A systematic review and meta-analysis of 21 neuroimaging studies involving
approximately 300 participants found eight brain areas that had consistent change in meditators. These areas include the frontal polar cortex in the frontal lobes, which is associated with meta-awareness or the ability to be aware of one’s own experience; the sensory cortices and insula, which regulate exteroceptive body awareness (e.g., vision or touch) and interoceptive body awareness (e.g., heartbeat or breathing); the hippocampus, which governs memory consolidation and reconsolidation; the anterior and mid cingulate which involve self-regulation and emotional regulation; and the superior longitudinal fasciculus and corpus callosum, which regulate intra- and interhemispheric communication (Fox et al., 2013). Several neuroscientists have found an increase in gray matter in the brain, in particular in the prefrontal cortex, the area that regulates executive functioning, attention, decision making, and problem solving (Lazar et al., 2005; Hölzel et al., 2011; Lazar, Gard, Schuman-Oliver, Vago, & Ott 2011). A frequently reported finding is that mindfulness practice is associated with a diminished activation in the amygdala in response to emotional stimuli during mindful and resting states, which suggests a decrease in emotional arousal (Tang, Hölzel, & Pozner, 2015; Kral et al., 2018).

These changes may produce a restructuring of reward responses in the brain areas correlated with reduced drug use and increased positive affect (Shapiro, Carlson, Astin & Freedman, 2006; Garland, Roberts-Lewis, Tronnier, Graves, & Kelley, 2015). Enhanced self-regulation and emotional regulation seem to be associated with neuroplastic changes in the anterior cingulate cortex, insula, temporo-parietal junction, fronto-limbic network, and default mode network structures of the brain (Hölzel et al., 2011; Teper, Segal, & Inzlicht, 2013; Farb et al., 2007; Lin, Callahan, & Moser, 2018). Brief mindful attention to breath, specifically, appears to regulate aversive emotional reactions by down-regulation of the
amygdala and increasing activation of the prefrontal cortex (Doll et al., 2016; Kral et al., 2018). Brief body scans may help reduce craving states by increasing body awareness and sense of ownership of one’s body (Cropley, Ussher, & Charitou, 2007; Cebolla et al., 2016). A recent study found that brief daily mindfulness meditation decreased negative mood states, enhanced attention, improved working memory and recognition memory, and decreased state anxiety scores even in non-experienced meditators (Basso, McHale, Ende, Oberlin & Suzuki, 2019). If mindfulness strengthens the ability to regulate emotions, then teaching individuals even brief mindfulness tools may help them to respond to addiction triggers more skillfully (Wheeler, Arnkoff, & Glass, 2017). Research indicates that, by this neurological mechanism, mindfulness moderates the relationship between cravings and actual substance use (Tang, Tang, & Posner, 2016; Enkema & Bowen, 2017). This may be at least in part due to the enhanced self-regulation that mindfulness meditation can teach. This improved self-regulation may be a result of mindfulness meditation causing neuroplastic changes in the brain that result in increased attentional control, emotional regulation, and self-awareness (Tang, Hölzel, & Posner, 2015). The increased interoceptive awareness as a result of mindfulness practice may facilitate a person’s ability to understand emotional responses and process and interpret feelings more skillfully, which in turn may increase the capacity for coping with and planning ahead at the start of small cues (triggers or urges) to get intoxicated before they become overwhelming and unmanageable (Price & Hooven, 2018). The increased regional gray matter density in the brain from mindfulness practice may be associated with memory and learning, emotional regulation, self-referential processing, and the ability to take perspective (Hölzel et al., 2011). Mindfulness may also improve self-regulation by promoting executive functioning, the part of the brain that helps us with, among other things, reasoning,
problem solving, and inhibitory control. Mindfulness meditation fosters present-moment awareness and acceptance, which improves executive control (Teper, Segal, & Inzlicht, 2013). Mindfulness introduces the concept of pausing in a moment of difficulty, when we notice we are stressed, fearful, anxious, depressed, overwhelmed, or uncomfortable. In the moment, we pause, take a breath, label our thoughts, emotions, and physical sensations, perhaps identify what is causing us difficulty, and breathe. If an individual is stressed or having urges or cravings to use substances, this pause can move one’s thinking from the limbic system (the amygdala portion of the brain) to one’s front lobes (prefrontal cortex), where reasoning and executive functioning reside. Decisions can be made with less impulsivity and with more reflection (Tang, Hölzel, & Posner, 2015). Doing this repeatedly will create new neural pathways in the brain, facilitating behavioral change (Papies, Barsalou, & Custers, 2012; Kazniak & Barsalou, 2013; Papies, Pronk, Keesman, & Barsalou, 2015; Wheeler, Arnkoff, & Glass, 2017).

**Grounded Cognition Theory and Metacognition and Mindfulness**

Grounded cognition theory and metacognition are relevant schema to explain how mindfulness modulates the link between motivation and behavior. Grounded cognition theory is a newer approach to looking at the links between perception, neural and cognitive processes, and eventual behavior. With origins in philosophy, cognitive linguistics, and cognitive neuropsychology, ground cognition theory research has grown in the psychology field and throughout cognitive science (Barsalou, 2010). Grounded cognition proposes that cognition is based in neural mechanisms and the sensory motor system, and is also influenced by other things such as social interaction, affect, emotion, and developmental trajectories. Since all these systems relate to each other and are interconnected, they influence cognition in complex
ways. The social and cognitive aspects of intelligence cannot be studied independently (Barsalou, 2008). Emotional and physical experiences, for example, can be produced just by thinking about a past or future event. Our mind and body recreate or simulate what has happened before or what might happen in the future, and this can influence our desires and choices (Papies, Best, Gelibter, & Barsalou, 2017). Grounded cognition theory suggests that when a person encounters a situation, they use their stored previous experiences to create a simulation of how to react and behave. The stimuli that remind the person of the original event activate bodily responses, conscious desire, and craving feelings, which all may happen so quickly that the process is out of present moment awareness (Tapper, 2018; Papies & Barsalou, 2015).

This process is sometimes referred to as situated conceptualization and describes how the emotions felt by a person in a certain circumstance create a situation-specific emotional experience that can be experienced again and again when there is a relevant cue or trigger. Once a situated conceptualization of an event is stored in the brain, it can be accessed and reactivated when a similar situation occurs, or even a partial similarity to the original event (Lebois, Wilson-Mendenhall, Simmons, Barrett, & Barsalou, 2018). Not only do thoughts about the event return, but also the emotions and physical sensations that were experienced at the time. This mechanism explains the self-reports from clients experiencing cravings or urges to resume use of substances, where they describe intense emotions and thoughts surrounding imagined drug use. In addition, these clients can describe detailed physical sensations, such as sweaty palms, butterflies in their stomach, salivation, scent memories, and even taste perception. The focus on awareness of the body in mindfulness contrasts with standard behavioral or cognitive therapies, and the resulting changes in cognitions from regular
mindfulness practice come specifically from body awareness rather than conscious thought. Grounded cognition theory is seen as an organizing framework for this mind-body interplay (Leitan & Murray, 2014).

Grounded cognition describes how the brain captures experiences that happen in memory (for example, memories of getting intoxicated) and then uses those multimodal memories of certain events (which may constitute what is sometimes referred to as cravings; Barsalou, 2008). Consumption and reward simulations (getting, consuming, and enjoying drugs) are activated by previous learning experiences (i.e., how it felt the last time they used the drug). This may then motivate a person to seek out drugs and use them. Mindfulness is a proposed mechanism for interrupting this reactive pathway. Studies done with food cravings have found that people, when shown images of food items, imagine (or simulate) picking them up and eating them and that this increases their desire or motivation to consume them. (Brunyé et al., 2013). The process with addictive substances most likely follows the same pathways. If the knowledge or memory of using an addictive drug creates urges or cravings, then mindfulness practice may help reduce those cravings or urges and the extent to which cravings lead to a behavior, that is, the eventual consumption of the substance. Researcher Kate Tapper, Ph.D. (2018) describes the impact of mindfulness using grounded cognition theory:

Applying the mindfulness technique of decentering, should help reduce the believability of these mental simulations, and in doing so reduce the extent to which they elicit desire. As such we should see immediate effects on the strength of craving episodes. Again, where these are coupled with suppression of the behavioral response, we should also eventually see reduced craving frequency, due to extinction processes (p. 104).

The decentering technique referred to by Tapper is a key strategy of mindfulness
practice and is related to metacognition. Decentering is the ability to step outside of one’s mental events and, by doing so, develop the ability to be non-judging and more objective towards oneself. One develops more deliberative responses to thoughts, increased self-regulation, and cognitive flexibility (Kessel et al., 2016; Ong, Ulmer, & Manber, 2012). Decentering creates a shift in perspective that encourages an acceptance of whatever we are experiencing in the present moment, without automatically needing to judge things as good or bad. Decentering is, therefore, interrelated to the process of metacognition, or the ability to look at one’s own thought processes and how one relates to one’s own experiences (Crane, et al., 2017). It is sometimes explained as thinking about one’s thinking, or cognition of one’s own cognition, or the mind observing itself (Norman, 2017; Tagini & Raffone, 2010). The metacognitive construct of decentering is broken up into three processes: meta-awareness, disidentification from internal experience, and lowered reactivity to thoughts (Bernstein et al., 2015), which is also found in the mindfulness construct. Meta-awareness in mindfulness is the conscious awareness of things as they occur in the moment—an awareness of thoughts, emotions, and physical sensations (Carmody, 2009). Meta-awareness encourages disidentification from internal experience and a sense of just observing objectively. This disidentification, over time, reduces automatic reactivity to thoughts and emotions (Bernstein et al., 2015). Thoughts are seen as just mental events, not necessarily a true reflection of reality (Kabat-Zinn, 2003; Segal, Williams, & Teasdale, 2013). This attitude develops the related skill of equanimity, which is the ability to observe events without aversion or attachment to them (Ong, 2012). Equanimity can be helpful in navigating discomfort caused by any triggers or cues in daily life that might cause someone to move towards using drugs (“Oh, this feeling is horrible, I must use drugs to block it out.”) Instead, the thought might be, “Oh, this feeling is
uncomfortable, but it won’t last and it won’t kill me, so I can just observe it, notice what comes up for me, and ride it out.” Mindfulness deliberately increases metacognitive awareness and understanding of one’s decision-making process. This process encourages thoughtful responses rather than impulsive reactions, which can lead to healthier and more helpful choices, such as deciding not to use substances even though there is temptation to do so.

Mindfulness appears to increase self-referential awareness, a construct related to metacognition, where the increased awareness of one’s own thought processes enhances a sense of self and the feeling that one’s actions are under one’s own control (Tagini & Raffone, 2010; Lin, Callahan, & Moser, 2018). As mindfulness heightens self-referential awareness, the ability to have flexibility in self-regulation is also increased (Siegel, 2007). The self-observational awareness (Kabat-Zinn, 2003) or reflective self-observation, including metacognition, is what reinforces the capacity to shift from habitual ways of reacting that may not be serving us well. The cognitive and neural mechanisms that underlie metacognition are a central component of mindfulness. Grounded learning and metacognition theories help explain the cognitive and affective mechanisms that contribute to addictive-type behaviors and that also help regulate these problems effectively.

**Behavioral Learning Theory and Mindfulness**

Behavioral learning theory describes how behaviors are learned and unlearned. It delineates a model of how people learn from their experience, and suggests that many of our behavioral responses are conditioned by the events in our lives—in other words, a behavior that is followed by a reinforcing consequence will strengthen that behavior (Lovell, 2010). Behavioral theories are widely used in psychology to predict or change behaviors, but they have been infrequently used to describe how mindfulness modifies behavior (Beattie, Hanoken, Salo,
Knittle, & Volanen, 2019). Behavioral learning theory is another lens that we can look through to conceptualize how mindfulness can promote behavioral change and, in particular, interrupt the cycle of craving to use addictive substances. The behavioral learning process of drug-seeking is described as “a simple response habit elicited by environmental and drug-associated stimuli” (Bickel et al., 2018, p. 7). With the start of addiction, drug-seeking is goal-directed: the drug brings pleasure and is sought out again. With chronic use, drug-seeking becomes compulsive and there is a loss of control over actions even though the subjective benefits of the drug decrease in comparison to its initial effects. Mental retrieval of negative consequences and utilization of this information is impaired and drug use becomes habitual (Hogarth, 2013). Substance use improves positive affective states and reduces negative affective states, which sets up initial positive and negative reinforcement loops, or addictive loops (Brewer, Elwafi, & Davis, 2012; Dinc & Cooper, 2015). Through recurrent use of a substance, the addictive loop can become habitual or automatic, which creates cue-induced behavior that may be outside of consciousness (Suhler & Churchland, 2009; Brewer, Elawafi, & Davis, 2012).

Mindfulness practice can help an individual alter decision making when in a heightened emotional state, potentially reducing the level of emotional arousal and helping to break the addictive loop (Dinc & Cooper, 2015). Individuals who practice mindfulness learn to monitor their thought processes and recognize unhelpful automatic thoughts, observing them instead of reacting to them. The more often mindfulness is used to unlink craving from behavior, the less reinforcement of the addictive loop and it may extinguish, causing the lessening of craving (Brewer, Elwafi, & Davis, 2012). This theory provides a framework for how mindfulness teaches participants to pause and reflect on choices and possible consequences of those choices, and then choose a different response than they habitually select (Carmody, Baer, Lykins, &
Olendzki, 2009; Treanor, 2011; Crane, et al., 2017). Over time, choosing new responses to cues creates new patterns of response. Mindfulness interrupts the seemingly automatic cycle of trigger-craving-use-suffering. An individual is triggered or cued by something, which creates the idea of using a substance, which then creates a craving to get intoxicated, which triggers the individual’s substance use, which in turn triggers the suffering associated with substance use and addiction (Black, 2014). Mindfulness teaches the skill of creating a pause or gap at the moment the environmental cue creates the idea or urge. Mindfulness encourages taking a breath, using reflection, thinking about possible choices, and choosing a balanced response (“I would like to drink but I need to be sober to help my children with their homework”). When this is repeated multiple times, an individual can create more helpful patterns of response (Black, 2012). Mindfulness, therefore, may modulate the connection between motivation and behavior, especially with an attractive stimulus such as using substances (Weick & Putnam, 2006; Papies, Pronk, Keesman, & Barsalou, 2015; Hussain, 2015).

**Hypothesis**

Among women in an inpatient substance use treatment setting, adding mindfulness-based meditation to treatment as usual will be more effective at reducing substance use cravings, reducing stress, and improving mood than a benign intervention plus treatment as usual.
CHAPTER II

Methodology

Research Design and Methods

Introduction

An experimental design was used in this study, with randomization to an experimental intervention and a control treatment as usual with a benign intervention. Ten self-report instruments were administered to measure addiction severity, use of substances, trait mindfulness characteristics, psychological distress, stress, adverse consequences of substance use, PTSD, disability, quality of life, acceptability of the intervention, and other support services received. The instruments were administered to both intervention and control groups at baseline, end of the intervention, and four weeks post-discharge. The intervention and control groups each consisted of two ninety-minute sessions delivered twice a week for two weeks. Self-report instruments measured mindfulness skills, sobriety, any cravings, and duration and severity of any resumed substance use. The researcher delivered the mindfulness intervention. Another staff member at the treatment center, not involved in the day-to-day treatment of the clients, was trained in the protocol for and conducted the control group. Detailed manuals and fidelity assessments for both the mindfulness intervention and control conditions were created and used to ensure that implementation was completed as intended. This was a pilot study, aimed at increasing knowledge about the effectiveness and implementation of a brief mindfulness-based intervention in inpatient substance use treatment settings.

Design

This study used an experimental design. There were two randomized groups: an experimental intervention group and a control condition that was treatment as usual (TAU)
with a benign intervention to control for attention and to ensure that any positive outcomes were not simply due to increased attention paid to the participants by being in the experimental group. Participants had a parallel research design, with an allocation ratio of 1:1, each person randomized to either the mindfulness intervention or benign intervention, with both receiving TAU. The experimental group received the mindfulness intervention in addition to their treatment as usual and the control group received a benign intervention in addition to their treatment as usual. Blocked randomization was used to reduce bias and attain balance in treatment groups, and to ensure an even distribution of participants to conditions throughout the study (Efird, 2011; Solomon, Cavanaugh, & Draine, 2009).

TAU consisted of the regularly scheduled counseling and groups that clients participate in at the treatment center. Each person engages in approximately 20-25 educational or therapeutic groups a week, one-on-one individual counseling a minimum of once a week, 12-step meetings, and consultation with a psychiatrist or nurse as needed. None of this treatment includes formal mindfulness training, but informal meditation exercises are taught by some of the staff members in group. Staff were requested to refrain from conducting any meditation or mindfulness instruction during the duration of the study.

The benign intervention included neutral special attention (going around the group and asking names) and a simple group activity with coloring book pages and soft music. This control intervention is appropriate because it offset any novelty or disruption effects. Introducing a new group program into the regular agency setting can stimulate extra excitement and enthusiasm (Rubin & Babbie, 2017). Just the power of suggestion could have provided improvement, not the mindfulness meditation itself. This particular design controls for the possibility that any improvements occurred because the clients that
participated in the control group felt they were getting special attention. One frequent criticism of mindfulness studies is that they often lack any comparison—that is, the intervention is often compared to no intervention—so a benign intervention made this study stronger (Brensilver, 2016; Tang, Holzer, & Posner, 2015; MacCoon et al., 2012).

The intervention and control group both consisted of ninety-minute sessions held twice a week for two weeks. This was done twice, with separate intervention and control groups each time. The exact same procedures were followed for Session 1 and Session 2. All the intervention and control groups did the pretests and posttests. Follow-ups were done at end of intervention and again at four weeks post-discharge to measure mindfulness skills, days of abstinence, cravings, and duration and severity of any resumed substance use. We also measured quality of life; PTSD; psychological distress; overall stress; adverse consequences due to substance use; impairments in work, school, and social life; acceptability of the intervention; and other support services received. We also asked for feedback on the experience at the end of the intervention and at four-week follow-up. When possible, outcome measures were completed by study participants who ended the study early or who did not attend all the classes. The study also collected data on other covariates or confounders that might have on effect on outcomes, such as education level or exposure to other treatments.

**Setting**

The study was conducted at Nexus Recovery Center, a private, not-for-profit 501(c)(3) inpatient treatment center in Dallas, Texas for women who experience alcohol or other drug addictions. The treatment center provided written permission to conduct the study there and to be identified in this dissertation. The clients are screened at intake for substance use disorders and
are not admitted if they do not meet this diagnosis. Clients are also screened for detoxification need and for any co-occurring mental health issues. Services provided by the center include mental health and SUD diagnosis and treatment, bio-psychosocial assessment, chemical dependency education and counseling, individual and group therapy, relapse prevention, random drug testing, Seeking Safety, family education, medication management, physical evaluations, prenatal and other medical care, case management, sex education, parenting classes, health and wellness activities, and 12-step meetings. Referrals to the following services are made as needed: aftercare housing, medical and dental care, domestic violence services, and follow-up psychiatric care. The residential treatment program is situated on a four-acre campus that includes residential dormitories, a cafeteria, and space for group therapy and classes. Psychoeducational classes are offered on a weekly schedule, with the vast majority of clients being able to obtain county, state, or federal funding for a 30-day stay. Women whose stays are court-ordered (or strongly suggested by their court program) may stay as long as 60 or 90 days.

The clients at this center are diverse in ethnicity, education and socio-economic status. Inpatient clients attend a variety of 90-minute group counseling sessions each day and the mindfulness intervention and control became one of these groups. The center is almost always at capacity, with approximately 150 clients and a steady stream of admissions, which provided enough participants for the study. The residents transition into a five-to eight-week intensive outpatient program at the center immediately following inpatient treatment. A benefit of using this setting was its ecological validity, that is, it approximates routine, real-world practice situations.

**Recruitment Procedures and Sample Size**

The study sample was drawn from all adult clients at the treatment center. (See Figure
1.) The sample all met the criteria for a substance use disorder and were culturally and socio-economically diverse. Some of the population also had a co-occurring mental health disorder. The sampling method was reliant on available participants, and used consecutive sampling. This was the most feasible method to study the population of adults with substance use disorders. An information session on the study was presented at a staff meeting, with counselors and tech staff able to ask questions. Recruitment took place with newer intakes after the clients had been admitted into inpatient treatment. A brief information session about the study was presented to the clients at a regularly scheduled weekly meeting of all clients and staff. Potential participants were given the opportunity to ask questions and sign up for the study if they were interested. Flyers about the study were also distributed, with information about how to sign up. The flyers and the information sessions stressed that participation was voluntary and that agreement or refusal to take part would in no way affect their services or treatment at the center or after they left.
Figure 1

CONSORT Diagram of Participant Flow through the Study

Enrollment

Assessed for eligibility (n= 71)

Excluded (n = 10)
- Not meeting inclusion criteria (n=7)
- Declined to participate (n=0)
- Unable to complete consent/pre-test (n=3)

Randomized (n = 61)

Allocated to intervention (n= 30)
- Received allocated intervention (n=27)
- Did not receive allocated intervention due to no attendance (n= 2)
- Did not complete: early discharge from treatment (n= 1)

Allocated to intervention control (n= 31)
- Received allocated intervention (n=24)
- Did not receive allocated intervention due to no attendance (n=4)
- Did not complete: early discharge from treatment (n= 3)

Post-Intervention Follow-Up

Lost to follow-up (n= 0)

Lost to follow-up: early discharge (n=1)

Analysis

Analyzed (n=26)
- Excluded: severe mental illness made follow-up data uninterpretable (n=1)

4-Week Follow-Up

Lost to follow-up: unable to contact (n=16)

Lost to follow-up: unable to contact (n=16)

Analysis

Analyzed (n=10)

Analyzed (n=8)
Participants who volunteered and signed the appropriate informed consents were assigned randomly to one of the two groups (mindfulness intervention or control). The sessions were repeated twice, with no more than 16 per group, to ensure there were sufficient participants for analysis. The control group was n=30 and the control group was n=31, for a total of N=61. There were several reasons to restrict each group to 16 participants. First and most importantly, the State of Texas’ Department of State Health Services mandates that therapeutic substance use treatment groups be capped to no more than 16 participants. Capping each class to 16 participants also aligned with the Department’s required ratio of 1 staff person (in this case, the facilitator) to every 16 participants. Finally, this number was practically manageable for one facilitator. The same facilitator led each intervention group to eliminate personal variations from presenters.

Attrition is a threat to completing any study and can result in selection bias, which can decrease the statistical power of the study (McGregor, Parker, LeBlanc, & King, 2010). For an 8-week MBRP pilot effectiveness study, the attrition rate was 39% during the study and 43% at eight-week follow-up (Bowen et al., 2009). Actual attrition in this study was 16.4%.

**Inclusion Criteria.** Inclusion criteria were all the adult women at the center who met criteria for substance use disorder (SUD), were 18 years of age and older, and understood and spoke English. The SUD diagnosis is determined at intake by the inpatient treatment center staff using DSM-5 criteria and accepted SUD screening measures. Nexus Recovery Center accepts pregnant women, and although they were not the specific target population for this study, any pregnant women would have been included if they otherwise qualified. However, none of the participants reported being pregnant at the time of the study. Participants were included whether
they were at the treatment center voluntarily or whether they had been mandated to treatment or offered treatment as an alternative or mitigation to potential incarceration or prosecution.

**Exclusion Criteria.** Exclusion criteria included anyone with active hallucinations, delusions, or alogia (poverty of speech); anyone who was currently intoxicated or in active detoxification; and anyone who was currently experiencing suicidal or homicidal ideation. The treatment center intake and counseling staff screen for these conditions at intake. They administer urinalyses for drug use and screen for alcohol use at intake and at regular intervals throughout treatment. Any client who was unable to understand the initial questionnaires in the study, either due to cognitive or psychiatric impairment or lack of fluent English, as determined by the PI (who is a licensed clinical social worker), was excluded from participation, as these issues may have interfered with their ability to provide consent, participate fully in the study, or collect accurate feedback. Potential participants were also excluded if they were not going to be at the treatment center long enough to complete the four classes.

**Baseline Composition and Characteristics of the Sample and Comparability of Groups**

Based on the discussed recruitment procedures, group assignment, and inclusion and exclusion criteria, a sample was created. Demographic descriptions of the sample and comparability of group conditions focused on the selected characteristics of age, education, relationship status, employment status, race or ethnicity, number of arrests, involvement in the criminal justice system, and substance use history (See Tables 1 and 2). The study participants had a mean age of 37 (SD=11.43) and were White/Caucasian (61.5%), African American (20.4%), Hispanic/Latina (11.1%), American Indian (3.7%) and Other (3.7%). Educational level included high school diploma or GED (40.7%), some college credit (22.2%), associate degree
(5.6%), and bachelor’s degree (3.7%). Only 10.2% of the sample reported they had full-time employment or were self-employed. Employment status included out of work but looking for work (47.5%), out of work and not currently looking for work (23.7%), homemaker (6.8%) and unable to work (3.4%). Only 16.7% reported being married or in a partnership, with the rest reporting they were single and never married (46.3%), divorced (24.1%), separated (7.4%), and widowed (1.9%). The mean number of arrests was 6 (SD=5.62), with 3 convictions (SD=2.43) and 3 times in jail or prison (SD=3.64). Lifetime substance use was highest for alcohol (M=11.85 years, SD=1.40), cannabis (M=6.37 years, SD=8.14), and amphetamines (M=5.24 years, SD=8.12). On average, participants had used more than one substance per day for M=6.5 years (SD=9.73). The intervention and the control groups in both sessions were comparable on all measured variables at baseline except age, with the treatment group an average of eight years older than the control group (t=2.90, p=0.01); lifetime heroin use, with the treatment group having an average of two fewer years of use compared to the control group (t=-2.79, p=-0.01); and the number of days on medically assisted treatment, with the treatment group having an average of four fewer days than the control group (t=-2.20, p=0.03) (See Table 1 in Analysis).

Group Assignment and Randomization

Recruitment for the study took place at Nexus Recovery Center at a Friday Community Meeting with all the adult women in the inpatient unit the week before the groups started. The project was explained, flyers were distributed, and a sign-up sheet was passed around. The recruiter stressed that this study was a voluntary activity and that no one’s treatment would be affected by their participation or non-participation in the project. The interviews of potential participants were conducted on the Saturday, Sunday and Monday following the recruitment meeting. Each participant was assigned a consecutive number when she was interviewed for the
study. These numbers were then blindly randomized using the Microsoft Excel randomization function for the intervention and the control groups, with equal 50-50 randomization. The study classes began on the Tuesday following the interviews. This process was repeated twice (two weeks apart) with two separate groups.
Table 1

Descriptive Demographics of Sample and Comparability of Groups

<table>
<thead>
<tr>
<th>Race/ethnicity</th>
<th>Treatment</th>
<th>Control</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frequency</td>
<td>Percent</td>
<td>Frequency</td>
</tr>
<tr>
<td>American Indian</td>
<td>1</td>
<td>3.8</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Black or African American</td>
<td>7</td>
<td>26.9</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>0.7</td>
<td>-0.7</td>
<td>0.7</td>
</tr>
<tr>
<td>Hispanic or Latina</td>
<td>1</td>
<td>3.8</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>-1.1</td>
<td>1.1</td>
<td>-1.1</td>
</tr>
<tr>
<td>White/Caucasian</td>
<td>16</td>
<td>61.5</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Other</td>
<td>1</td>
<td>3.8</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Chi-Square (4, N = 54) = 3.45, p = 0.49

<table>
<thead>
<tr>
<th>Education level</th>
<th>Treatment</th>
<th>Control</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frequency</td>
<td>Percent</td>
<td>Frequency</td>
</tr>
<tr>
<td>No schooling completed</td>
<td>0</td>
<td>0.0</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>-0.7</td>
<td></td>
<td>0.6</td>
</tr>
<tr>
<td>Nursery school to 8 grade</td>
<td>2</td>
<td>7.7</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>1.1</td>
<td></td>
<td>-1</td>
</tr>
<tr>
<td>Some high school, no diploma</td>
<td>0</td>
<td>0.0</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>-1.5</td>
<td></td>
<td>1.4</td>
</tr>
<tr>
<td>High school graduation, diploma or the equivalent (eg GED)</td>
<td>9</td>
<td>34.6</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td>-0.4</td>
<td></td>
<td>0.3</td>
</tr>
<tr>
<td>Some college credit, no degree</td>
<td>8</td>
<td>30.8</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td></td>
<td>-1</td>
</tr>
<tr>
<td>Trade/technical/vocational training</td>
<td>2</td>
<td>7.7</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>-0.2</td>
<td></td>
<td>0.2</td>
</tr>
<tr>
<td>Associate degree</td>
<td>2</td>
<td>7.7</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>0.5</td>
<td></td>
<td>-0.5</td>
</tr>
<tr>
<td>Bachelor's degree</td>
<td>1</td>
<td>3.8</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>0.1</td>
<td></td>
<td>-0.1</td>
</tr>
</tbody>
</table>

Chi-Square (7, N = 52) = 10.35, p = 0.17
### Frequencies of categorical demographic characteristics by total sample and treatment groups (cont.)

<table>
<thead>
<tr>
<th>Relationship status</th>
<th>Treatment</th>
<th></th>
<th>Control</th>
<th></th>
<th>Total</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frequency</td>
<td>Percent</td>
<td>Frequency</td>
<td>Percent</td>
<td>Frequency</td>
<td>Percent</td>
</tr>
<tr>
<td>Single, never married</td>
<td>Count</td>
<td>10</td>
<td>38.5</td>
<td>15</td>
<td>53.6</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>Stand Res</td>
<td>-0.5</td>
<td>0.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married or domestic partnership</td>
<td>Count</td>
<td>5</td>
<td>19.2</td>
<td>4</td>
<td>14.3</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>Stand Res</td>
<td>0.4</td>
<td>-0.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Widowed</td>
<td>Count</td>
<td>1</td>
<td>3.8</td>
<td>0</td>
<td>0.0</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Stand Res</td>
<td>0.8</td>
<td>-0.7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Divorced</td>
<td>Count</td>
<td>6</td>
<td>23.1</td>
<td>7</td>
<td>25.0</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td>Stand Res</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Separated</td>
<td>Count</td>
<td>2</td>
<td>7.7</td>
<td>2</td>
<td>7.1</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Stand Res</td>
<td>0.1</td>
<td>-0.1</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Chi-Square (4, N = 52) = 1.89, p = 0.76

<table>
<thead>
<tr>
<th>Employment status</th>
<th>Treatment</th>
<th></th>
<th>Control</th>
<th></th>
<th>Total</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frequency</td>
<td>Percent</td>
<td>Frequency</td>
<td>Percent</td>
<td>Frequency</td>
<td>Percent</td>
</tr>
<tr>
<td>Employed for wages full time</td>
<td>Count</td>
<td>1</td>
<td>3.8</td>
<td>1</td>
<td>3.6</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Stand Res</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-employed</td>
<td>Count</td>
<td>1</td>
<td>3.8</td>
<td>3</td>
<td>10.7</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Stand Res</td>
<td>-0.7</td>
<td>0.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Out of work and looking for work</td>
<td>Count</td>
<td>13</td>
<td>50.0</td>
<td>15</td>
<td>53.6</td>
<td>28</td>
</tr>
<tr>
<td></td>
<td>Stand Res</td>
<td>-0.1</td>
<td>0.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Out of work but not currently looking for work</td>
<td>Count</td>
<td>7</td>
<td>26.9</td>
<td>7</td>
<td>25.0</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>Stand Res</td>
<td>0.1</td>
<td>-0.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A homemaker</td>
<td>Count</td>
<td>2</td>
<td>7.7</td>
<td>2</td>
<td>7.1</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Stand Res</td>
<td>0.1</td>
<td>-0.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unable to work</td>
<td>Count</td>
<td>2</td>
<td>7.7</td>
<td>0</td>
<td>0.0</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Stand Res</td>
<td>1.1</td>
<td>-1</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Chi-Square (5, N = 54) = 3.073, p = 0.69

44
Table 2

Descriptive Demographics of Sample and Comparability of Groups

<table>
<thead>
<tr>
<th>Mean and standard deviations of continuous demographic characteristics at pre-test</th>
<th>Total</th>
<th>Treatment</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
</tr>
<tr>
<td>Age of respondent</td>
<td>37.35</td>
<td>11.43</td>
<td>33.29</td>
</tr>
<tr>
<td>Number of arrests</td>
<td>6.06</td>
<td>5.62</td>
<td>6.85</td>
</tr>
<tr>
<td>Number of convictions</td>
<td>3.17</td>
<td>2.43</td>
<td>3.31</td>
</tr>
<tr>
<td>Number of times in jail</td>
<td>3.46</td>
<td>3.64</td>
<td>3.94</td>
</tr>
<tr>
<td>Alcohol – Lifetime Use</td>
<td>11.85</td>
<td>11.40</td>
<td>14.33</td>
</tr>
<tr>
<td>Heroin – Lifetime Use</td>
<td>1.66</td>
<td>2.71</td>
<td>0.61</td>
</tr>
<tr>
<td>Other opiates/analgesics – Lifetime Use</td>
<td>2.83</td>
<td>6.16</td>
<td>0.04</td>
</tr>
<tr>
<td>Methamphetamine – Lifetime Use</td>
<td>0.41</td>
<td>1.80</td>
<td>2.88</td>
</tr>
<tr>
<td>Barbiturates – Lifetime Use</td>
<td>0.83</td>
<td>4.44</td>
<td>1.70</td>
</tr>
<tr>
<td>Other sedatives, hypnotics, tranqs – Lifetime Use</td>
<td>2.66</td>
<td>9.49</td>
<td>2.95</td>
</tr>
<tr>
<td>Cocaine – Lifetime Use</td>
<td>4.18</td>
<td>6.86</td>
<td>6.00</td>
</tr>
<tr>
<td>Amphetamines – Lifetime Use</td>
<td>5.24</td>
<td>8.32</td>
<td>5.75</td>
</tr>
<tr>
<td>Cannabis – Lifetime Use</td>
<td>6.37</td>
<td>8.12</td>
<td>6.91</td>
</tr>
<tr>
<td>Hallucinogens – Lifetime Use</td>
<td>1.19</td>
<td>4.07</td>
<td>0.48</td>
</tr>
<tr>
<td>Inhalants – Lifetime Use</td>
<td>0.02</td>
<td>0.14</td>
<td>0.00</td>
</tr>
<tr>
<td>More than one substance per day – Lifetime Use</td>
<td>6.50</td>
<td>9.73</td>
<td>8.42</td>
</tr>
</tbody>
</table>

Equivalence of groups after randomization. To assess the equivalence of the treatment and control groups for continuous variables prior to intervention sessions, mean differences between groups were analyzed using t tests of pre-test scores of mindfulness, frequency of alcohol and drug cravings, severity of alcohol and drug cravings, lifetime drug and alcohol use, stress, mood, PTSD, and previous treatment. Table 2 displays the equivalence of groups for continuous variables. The groups were equivalent at baseline on all variables except age, with the treatment group an average of 8 years older than the control group ($t=2.90, p=0.01$); lifetime heroin use, with the treatment group having an average of 2 fewer years ($t=-2.79, p=0.01$).
compared to the control group; and the number of days on medication-assisted treatment, with the treatment group having an average of 4 fewer days than the control group ($t=-2.20, p=0.03$).

**Comparisons of categorical variables at randomization: Control and treatment groups**

To assess the equivalence of the treatment and control groups prior to intervention sessions, Chi-square tests of independence were used with pre-test scores of exposure to mindfulness, mindfulness meditation experience, other meditation experience, and PTSD diagnosis. The groups were equivalent across all of these categorical variables.

**Retention, Participant Payments, Tracking Procedures**

A total of 61 participants signed consent forms and completed pre-test questionnaires. Of these, 30 of these were randomly allocated to the intervention group and 31 were randomly allocated to the control group. After randomization, ten participants left the study, mostly due to illness or unplanned early discharge. Of the 61, 51 (84%) completed the classes and 50 (82%) completed the post-intervention measures. Only 18 participants (30%) completed the four-week follow-up, however.

At completion of consent and pre-tests, each person received a $5.00 gift card to the store Target. After completing four sessions and the post-intervention measures, participants were given a $10.00 Target gift card. A Target gift card of $25.00 was given to each participant who completed the 4-weeks follow-up. Any transportation costs for follow-up interviews associated with coming back to the treatment center were reimbursed. (Only one participant required this.) The participants verbalized enthusiasm in anticipation of the gift cards. Each participant initialed by their name when they received their card.

During the initial consent portion, the study facilitator collected participants’ contact information for follow-up after they left the treatment center. The facilitator collected
addresses, cell phone numbers, home phone numbers, and email addresses of the participants, as well as any other ways to reach them such as through relatives or friends. The facilitator obtained permission to text them. Participants were told the four-week follow-up could be done in person or by phone, and that the final gift card could be mailed to them. Folders with a copy of their HIPAA and consent forms, as well as a card with the researcher’s name and contact information, were distributed to each participant. These folders also included a calendar with the dates of each class they were to attend, the date of the post-intervention follow-up, and a reminder of when their four-week follow-up would be, all highlighted in yellow. At the end of each class, the facilitator reminded participants about the date and time of the next class, and of the post-intervention and four-week follow-up dates in order to sustain engagement. It was particularly challenging for many of the participants to remember when the classes were to be held and to show up on time. The cognitive difficulties of very early sobriety, post-acute withdrawal symptoms, the stressors of being in inpatient treatment, and in some cases psychiatric symptoms, made attending very demanding for many participants. Although the treatment center provides monthly calendars with daily events and locations of each meeting printed on them, the clients often lose them or forget which day it is. Counseling staff were reminded by email that their clients might be participating in the research study and were given the dates and times. Thirty minutes before each class, the tech staff, interns and counselors were reminded in person or by phone to send any research participants to the Gratitud or Serenity Rooms. These were real-world circumstances of conducting an intervention during the day-to-day schedule of a busy inpatient treatment center with participants in very early sobriety.

Many of the clients transitioned into a five-week to eight-week intensive outpatient
program at the center a few days before their discharge date, and permission was obtained to speak to the outpatient program staff to locate participants for their four-week follow-ups. At the post-intervention follow-up, everyone’s discharge date was confirmed and their contact information was reviewed for accuracy. The importance of the final follow-up and the $25.00 gift card they would receive was reiterated, and a sticker with a reminder to complete the four-week follow up was put on the $10.00 gift card they received at the post-intervention interview for an additional reminder.

**Data on Participants Who Did Not Participate/Complete the Study**

At the initial consent and pre-test phase (N=71), 10 individuals were excluded. Of the people excluded, seven did not meet the inclusion criteria (six would not be in inpatient long enough to complete the study, one person was cognitively unable to understand the study or the consent). Three participants were unable to complete the consent and pre-tests due to what appeared to be continued symptoms of drug or alcohol detox and were sleepy and unfocused. No one declined to participate. During the two-week intervention, attrition was relatively low with 10 participants (16%) not attending the classes for various reasons, including illness, doctors’ appointments for illness, early discharge from treatment, and, in one case, forgetfulness. One person was excluded after she had completed the intervention as she was unable to complete the post-intervention follow-up due to significant psychiatric impairment (See Figure 1).

Of the 61 participants that were randomized into the study, 51 (84%) completed the classes and 50 (82%) completed the post-intervention measures. The loss of the one participant between class completion and completion of post-intervention measures was due to sudden early discharge from treatment. In spite of numerous reminders given to the
participants, only 18 out of the 50 actually completed the four-week follow-ups. Each participant was telephoned and texted multiple times for the final follow-up, with voice mails being left if there was a voice mail system available. Many of the participants had cell phones that were disconnected, or were using prepaid cell phones that did not provide voice mail. Email was used when it was available. In many cases, a participant suggested a specific time and date that would be best to talk and then did not answer when called again. Participants that did call back apologized and said their lives were busy and stressful and they had meant to call earlier but could not find the time. A few reported they had resumed use quickly after their discharge and had elected for another treatment elsewhere. On the surface, there did not appear to be any obvious differences between the participants who completed all phases of the study and the participants who did not do the final follow-up. Because of the low number of participants who completed the four-week follow-up, however, no meaningful differences between the groups could be detected.

The Brief Mindfulness Intervention

Previous research has suggested that a mindfulness-based program for increasing coping skills in individuals with substance use problems could be successfully modified to be delivered in a short period of time (Bloom-Foster & Mehl-Madrona, 2019; Kamboj et al., 2017; Mermelstein & Garske, 2015; Paz, Zvielli, Goldstein, & Bernstein, 2017; Roy-Byrne et al., 2014; Vinci et al., 2015). A brief program might enhance retention rates as compared with standard eight-week outpatient interventions while still providing benefits, and would be more feasible to conduct in an inpatient setting. With this in mind, the present investigator designed a two-week program to be delivered in a 90-minute class twice a week for two weeks, for a total of four sessions. This program was an adaptation and integration of Mindfulness-Based Stress
Reduction, Mindfulness-Based Relapse Prevention, Mindfulness-Based Cognitive Therapy, and Mindful Self-Compassion. The program was specifically designed to provide particular coping tools and support for people who are in early recovery from the use of addictive substances and who are in inpatient treatment. The design of the program was informed by over four years of clinical work at an inpatient facility for women with substance use disorders as well as professional training in MBSR, MBCT, MBRP, and MSC from the University of San Diego Medical School Center for Mindfulness, and the teaching of numerous mindfulness classes and MBIs in the community at large.

All of the components of this program were repeated each session with some exceptions in the initial class. The total time was 90 minutes per session, with the teaching and exercises taking 80 minutes and 10 minutes allocated for discussion. A Fidelity Checklist ensured all components of the Brief Mindfulness Intervention were done at each session. Appendix B1 contains the complete manual and detailed instructions on how to conduct each session.

The Brief Mindfulness Intervention was designed to teach mindfulness skills that can be practiced in each session, and handouts and resources were provided for the participants to practice the mindfulness meditations and techniques on their own. The most salient mindfulness practices for stress management, anxiety reduction, mood regulation, and urge abatement were chosen. Attention was given to the pedagogy or the best-practice approach to teaching mindfulness and how to impart knowledge proficiently. Great care was taken with the language used when leading a mindfulness meditation or exercise to ensure that it was clear and easy to understand and acceptable to a broad range of educational or cultural groups. Trauma-sensitive vocabulary and instructions were used throughout as women in inpatient treatment for substance use have very high rates of trauma and PTSD (Capezza & Najavits, 2012) and it is essential to
create a safe space for them to learn mindfulness skills (Treleaven, 2018). For this study, the treatment center offered Tuesdays and Wednesdays from 3:15 pm to 4:45 pm as the group time. **Class 1** – This session starts with a welcome and introductions, followed by a review of group rules and expectations to create a safe space to be together. The facilitator explains that this group teaches additional coping tools to support people in recovery from substance use. The facilitator provides 10 minutes of psychoeducation around the definition of mindfulness and how it can be used to help with maintaining abstinence. The first mindfulness exercise led by the facilitator is a three-minute Mindful Breathing activity, also called a Mindful Check-In, which was adapted from MBCT (Segal, Williams, & Teasdale, 2013). The group then completes a 10-minute Mindfulness of Breath and Sounds meditation, inspired by MBSR (Kabat-Zinn, 2013). Then the facilitator leads a 10-minute adaptation of a Mindful Self-Compassion exercise called Soften, Soothe, and Allow (Germer & Neff, 2020). These foundational exercises demonstrate a way to use mindfulness immediately to calm, ground, and connect with oneself in the present moment, and to self-soothe. Participants are encouraged to reflect on their experiences during the meditations. The facilitator then explains the SOBER Response method, which was originally developed in MBRP (Bowen, Chawla, & Marlatt, 2010). Participants are shown how to use the Urge Surfing meditation, adapted from MBRP, with the caution that if anyone’s feelings get too uncomfortable, they can just follow their breath. The facilitator then hands out a Trigger and Craving Log, also adapted from MBRP, and shows participants how they can fill it out every time they notice a trigger or have a craving to drink or use substances. The facilitator supplies handouts that include an introduction to mindfulness, instructions for doing all the exercises or mediations on their own, resources for practicing outside of class, and the logs. Reminders are given about the next class. The participants are encouraged to practice between classes, but there
is no mandatory homework. Expertise with and the benefits of mindfulness obviously increase with practice, but the realities of the fluid and dynamic nature of inpatient experience precludes giving compulsory assignments.

Class 2 – The introductory portion of Class 1 is eliminated, but the definition of mindfulness and how it relates to addiction is reiterated. The facilitator repeats the mindfulness exercises and meditations, with the addition of a Brief Body Scan, adapted from MBSR (Kabat-Zinn, 2013). Short inquiry for observations of the participants’ present moment experiences is invited. Handouts are offered to anyone who has lost theirs. Participants are encouraged to practice between class.

Class 3-4 – The same format as Class 2 is followed.

The Control Group

The full manual for the Control Group can be found in Appendix B5. The purpose of this group was to provide something to compare to the intervention besides TAU. We hoped to determine if 90 minutes of mindfulness conferred any benefits compared with 90 minutes of simple relaxation time.

Classes 1-4 – Participants are welcomed and the format of the group and expectations are explained. The facilitator explains that they are learning additional coping tools to support themselves in recovery and that their participation is appreciated. The group is a safe place where everyone can feel free to participate and work on their recovery together, while having a period of calm and peacefulness where they can relax. Soft music is played from an audio player and a variety of adult coloring book pages are distributed, along with colored crayons. Talking is kept to a minimum. At the end of the group, participants are reminded when the next class will take place. Each class repeats the same procedures.
Training of Control Condition Personnel

The researcher of the study conducted all the recruitment, interviews and the
Intervention Group. A seasoned staff member at the facility who did not have day-to-day
contact with all the clients volunteered to facilitate the Control Group. This staff member is a
masters-level counselor with 20 years of clinical experience. She was given the Control
Group Manual, which the researcher reviewed with her.

Fidelity Assessment

Fidelity Assessment Checklists, dated and signed, were used in each class, for both the
Intervention and Control groups, to ensure adherence to all of the protocols and to ensure the
Control Group did not incorporate any aspects of the experimental condition. The Fidelity
Checklist verified that both Intervention and Control groups followed their curricula with
total fidelity (100% in each class for both sessions). These checklists incorporated reminders
about marking attendance and absences as well as each separate part of the intervention or the
control protocols. (See Appendix B4 and B6).

Measures

The main source of the data was self-report from the participants themselves, at
pretest, at the end of intervention and at four weeks post-discharge. The dependent variable is
resumed posttreatment substance use cravings, and this was measured specifically by the
frequency of use, the duration and severity of any resumed use and the frequency and
severity of cravings. We also measured for any other adverse outcomes from substance use,
such as arrests or incarceration, hospitalizations or return to treatment. The researcher
conducted an exploratory analysis using multiple regression analysis to test the effect of
group assignment on psychological distress, stress, mood, PTSD, quality of life, substance
use, criminal justice involvement, and functional impairment. The independent variable is the mindfulness intervention or the benign intervention. Data were collected on pre-test levels of mindfulness and whether they changed after the intervention and at four weeks post-discharge. The study also collected data on potential covariates or confounders on key characteristics that might have an effect on outcomes, such as education level or exposure to other treatments. The measures selected are valid for the population being served, for the level of change that can reasonably be expected within the study’s time frame, and also for cultural appropriateness (Solomon, Cavanaugh, & Draine, 2009). This last point is an important consideration as the population at this treatment center is typically culturally and ethnically diverse. Samples of all the measures to be used can be found in Appendix D. A detailed timeline of when measures were given is included in the Table of Incentives and Measures in Appendix C.

**Sociodemographic and Background Information**

A study-designed questionnaire of 27 items collected relevant sociodemographic data and life status information: age, race/ethnicity, gender identification, employment, education, and relationship status, legal status and any previous exposure to mindfulness. In the four-week follow up, this was modified to 12 questions.

**Substance Use Measures**

Presence of a substance use disorder is diagnosed by the intake staff at the treatment center. Because anyone who does not meet the criteria for substance use disorder is not admitted to the treatment center, it was assumed that 100% of the participants met the criteria for substance use disorder. During the study, substance use was assessed with the Addiction Severity Index Lite (ASI Lite), which tracks substance use for the last 30 days. The ASI Lite
has 13 questions, with a key for types of drugs; it is easy to use and has demonstrated validity with both alcohol and drugs and reliability ranging from 0.65 to 0.89 in prior research (Cacciola et al., 2007). The ASI was administered at pretest, post-intervention and four weeks post-discharge. Cravings for alcohol or drugs was measured using the Penn Alcohol Craving Scale (PACS), a 5-question, self-report measure that has been shown to be valid and reliable, with internal consistency of $\alpha=0.92$ in prior research (Flannery, Volpicelli & Pettinati, 1999). It has been successfully adapted to include both alcohol and drug craving (Bowen, Chawla & Collins, et al., 2009) and was used at pre-test, post-intervention and four weeks post-discharge. The reliability in this study for the PACS was $\alpha=0.93$.

**Mindfulness Measures**

Mindfulness is a disposition-like characteristic assessed by trait mindfulness self-report on validated scales that operationalize mindfulness. The Mindful Attention Awareness Scale (MAAS) was used to measure core characteristics of trait mindfulness at pretest and at post-intervention and at four weeks post-discharge. The MAAS is a 15-item scale that demonstrates good reliability, validity, and test-retest reliability, with a reliability of $\alpha=0.89$ in prior research (MacKillop & Anderson, 2007). It tests equally well with males and females and has been used in community populations (Brown & Ryan, 2003; MacKillop & Anderson, 2007). It is positively associated with measuring well-being, as newer research has demonstrated a relationship between trait mindfulness and physical and mental health functioning (Black, Sussman, Johnson & Milam, 2012; Fetterman, Robinson, Ode & Gordon, 2010). The MAAS has been successfully translated into multiple languages and used with diverse populations, including people who identify as Chinese, Persian, Columbian, Swedish, and South African (Black, Sussman, Johnson & Milam, 2012). With the control group, administration of the
MAAS will measure if any of the same skills were learned by other means (e.g., from outside experiences or from the participants in the intervention). Participants were asked not to share their experience until completion of the study. Participants were asked questions with prompts to record any personal mindfulness or meditation practice at pretest (seven questions) and four weeks post-discharge (4 questions). The reliability in this study for the MAAS was $\alpha=0.88$.

**Assessment of Mental Health and Other Concerns**

The Brief Symptom Inventory (BSI-18) was administered at pretest, post-intervention and at four weeks post-discharge to measure psychological distress. The BSI-18 is a short questionnaire (18 items) and a reliable instrument ($\alpha >0.80$ in prior research) (Wang, et al., 2010). The BSI-18 measures somatization, depression, and anxiety and incorporates the Global Severity Index (Derogatis & Spencer, 1983; Franke, et al., 2017). The BSI-18 has a valid factorial structure and can be used to measure mental health among people who use drugs (Wang, et al., 2010). The reliability of the BSI-18 in this study was $\alpha=0.93$. The Perceived Stress Scale (PSS) was used at pretest, post-intervention, and at four weeks post-discharge. Self-reported stress relative to ability to cope was measured with the PSS, a commonly used 10-item instrument that has demonstrated good internal consistency and validity across cultures (Lee, 2012; Taylor, 2015). Studies have shown reliability with Cronbach’s $\alpha$ from 0.70 (Lee, 2012) to 0.78 (Taylor, 2015). The reliability of the PSS in this study was $\alpha=0.81$. The Short Inventory of Problems-Revised (SIP-R) was given at pre-test and at four weeks post-discharge only, as the problems it measures would not have shifted significantly while the participants were in residential treatment. The 17- question SIP-R assesses adverse consequences due to substance use. The SIP-R has demonstrated good internal reliability and convergent validity and is a strong measure of consequences of use in a
broad sample of people seeking treatment for alcohol and other drug use. Prior research has supported reliability of the SIP-R ($\alpha=0.95$; Kiluk, Dreifuss, Weiss, Morgestern, & Carroll, 2013). The SIP-R has shown to be appropriately culturally relevant when used with people who use substances and identify as African-American and non-Latino White (Dillon, Whiteman & Duan, 2015). The reliability for the SIP-R in this study was $\alpha=0.90$.

The Primary Care PTSD Screen (PC-PTSD-5) was used to screen for PTSD with five items and asks about symptoms rather than traumatic events in a person’s life. It was given at pretest, at post-intervention and at four weeks post-discharge. The PC-PTSD-5 has shown excellent diagnostic accuracy and has broad acceptability to clients, as well as test-retest reliability of $r=0.83$ (Prins, et al., 2016). The reliability for the PC-PTSD-5 in this study was $\alpha=0.77$. The Sheehan Disability Scale (SDS) was given at pre-test and follow-up. It is a 5-item scale that measures the extent to which symptoms interfere with work/school, social life and home/family life. The SDS has been shown to be a reliable and valid self-rated measure of impairment in functioning used with participants in psychiatric treatment outcome studies as well as with people who experience co-occurring disorders (Olfson et al., 1997; Sheehan & Sheehan, 2008). In previous studies, the SDS has had excellent internal reliability ($\alpha=0.89$; Hodgins, 2013). The reliability for the SDS in this study was $\alpha=0.67$. The CDC-HRQOL-4 was given at pretest, post-intervention and at four weeks post-discharge. This particular measure includes a 7-item Quality of Life scale, which was adapted from the Center for Disease Control’s Healthy Days Core Module (CDC HRQOL-4). The adaptation omits some questions that ask information that was included in other measures (e.g., feeling sad or blue). In the CDC HRQOL-4, there are questions about general health, sleep and any illness or injury that caused major recent impairment in functioning. The CDC-HRQOL-4 has been used by the
Centers for Disease Control since 1993 and has been shown to have good measurement properties across populations and settings (Moriarty, Zack & Kobau, 2003), including reliability ranging from $\alpha=0.58$ to $\alpha=0.75$ (Andresen, Catlin, Wyrwich, & Jackson-Thompson, 2003).

**Treatment Evaluation Measures**

A six item Treatment Evaluation Inventory Short Form (TEI-SF) was adapted for the mindfulness intervention and was used to gather information about the acceptability of and satisfaction with the treatment procedures to clients. The TEI-SF is developed from the TEI, which was originally used for interventions with children. The TEI-SF has been shown to be a sound instrument with good internal consistency, validity, and reliability ($\alpha = 0.85$) (Kelley, Heffer, Gresham, & Elliot, 1989). The TEI-SF has been modified to six questions and uses a five-point Likert Scale from Strongly Disagree to Strongly Agree. It was administered post-intervention with both groups. These data were of interest in gauging the social validity or the acceptability and satisfaction with the behavioral intervention, an area of importance in behavioral intervention research in general (Kelley, Heffer, Gresham, & Elliott, 1989; Newton & Sturmey, 2004) and in mindfulness research in particular (Amaro, 2014; Amaro & Witkiewitz, 2013; Witkiewitz, Greenfield, & Bowen, 2013). The reliability of the TEI-SF in this study was $\alpha=0.90$.

**Treatment Services Review**

To assess for any other services participants may have engaged in either before or after treatment, a 24-question Treatment Services Review (TSR) was administered at pre-test and at four weeks post-discharge to all participants. The TSR is used to gather information about specific services provided to patients attending substance use and other types of treatment.
programs. Previous tests of reliability for the TSR have been done with test-retest and internal consistency (using kappa coefficient and intraclass correlation coefficient) over 7-30 day periods and both in-person and by phone. The reliability ranged from poor to excellent (Cacciola et al., 2008). For the purposes of this study, the TSR was used to assess mental health, substance use, or other support services obtained that could have contributed to positive outcomes. The reliability for the TSR in this study was $\alpha=0.80$.

**Open-Ended Feedback**

At the end of the intervention and at four weeks post-discharge, all participants were asked one open-ended question: “Do you have any feedback?” This question captured reactions and comments that were not necessarily reflected in the measures.

**Internal Reliability with the Study Sample**

**Table 3**

<table>
<thead>
<tr>
<th>Scale</th>
<th>Cronbach alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brief Symptom Inventory (BSI-18)</td>
<td>0.93</td>
</tr>
<tr>
<td>Mindful Attention Awareness Scale (MAAS)</td>
<td>0.88</td>
</tr>
<tr>
<td>Penn Alcohol Craving Scale (PACS)</td>
<td>0.93</td>
</tr>
<tr>
<td>Perceived Stress Scale (PSS)</td>
<td>0.81</td>
</tr>
<tr>
<td>Primary Care PTSD Screen (PC-PTSD-5)</td>
<td>0.77</td>
</tr>
<tr>
<td>Sheehan Disability Scale (SDS)</td>
<td>0.67</td>
</tr>
<tr>
<td>Short Inventory of Problems-Revised (SIP-R)</td>
<td>0.90</td>
</tr>
<tr>
<td>Treatment Evaluation Inventory Short Form (TEI-SF)</td>
<td>0.90</td>
</tr>
<tr>
<td>Treatment Service Review (TSR)</td>
<td>0.80</td>
</tr>
</tbody>
</table>

As shown in Table 3, all scales except the Sheehan Disability Scale (SDS) demonstrated good (PC-PTSD $=0.77$), very good (MASS $=0.88$; PSS $=0.81$; TSR$=0.80$), or excellent (BSI-18$=0.93$; PACS$=0.93$; SIP-R$=0.90$; TEI-SF$=0.90$) internal reliability. The SDS demonstrated lower reliability with a Cronbach’s alpha $= 0.67$.  

59
Training of Data Collectors

The author of the study conducted all data collection. Individual interviews were conducted in a private room and the author was present to read the questions aloud to the participants as needed or to clarify.

Data Analysis

To describe the sample as a whole, descriptive statistics were conducted for all demographic variables. Mean, standard deviation, and range were calculated for continuous variables: age; total number of classes attended; number of arrests, convictions, and times in jail or prison; lifetime use of alcohol, heroin, methamphetamine, other opiates/analgesics, cocaine, amphetamines, cannabis, hallucinogens, inhalants, and more than one substance per day; PACS alcohol craving frequency and alcohol craving severity; MASS; BSI total score, SOM score, DEP score, and ANX score; PSS; SIP-R total score, physical score, inter-personal score, intra-personal score, impulse control score, and social responsibility score; PTSD score; CDC overall health, pain, and trouble sleeping; and TSR total score, number of inpatient treatment episodes, days attended a 12-step meeting, days MAP, and days medication prescription/refill for psychological or emotional problems. Frequencies were calculated for categorical variables: group assignment, race/ethnicity, gender identity, employment status, education level, relationship status, ever heard of mindfulness or mindfulness meditation, ever practiced mindfulness or mindfulness meditation, ever practiced any other kinds of meditation, and PTSD diagnosis.
**Intervention Delivery**

To test the effect of a novel delivery of mindfulness training, mean differences between treatment and control groups on post-test and follow-up levels of mindfulness were analyzed. Multiple regression analysis was used to test the following models:

1. mindfulness post-test scores = mindfulness pre-test scores + group assignment
mindfulness follow-up scores = mindfulness post-test scores + mindfulness pre-test scores + group assignment.

**Hypothesis Testing**

Mean differences between treatment and control groups were tested on 1) post-test scores of frequency of drug and alcohol cravings, 2) post-test scores of severity of drug and alcohol cravings, 3) post-test scores of stress, 4) post-test scores of mood, 5) follow-up scores of frequency of drug and alcohol cravings, 6) follow-up scores of severity of drug and alcohol cravings, 6) follow-up scores of stress, and 7) follow-up scores of mood. Multiple regression analysis was used to test the following models:

1. frequency of cravings post-test score = frequency of cravings pre-test score + group assignment
2. severity of cravings post-test score = severity of cravings pre-test score + group assignment
3. stress post-test score = stress pre-test score + group assignment
4. mood post-test score = mood pre-test score + group assignment
5. frequency of cravings follow-up score = frequency of cravings post-test score + frequency of cravings pre-test score + group assignment
6. severity of cravings follow-up score = severity of cravings post-test score + frequency of cravings pre-test score + group assignment
7. stress follow-up score = stress post-test score + stress pre-test score + group assignment
8. mood follow-up score = mood post-test score + mood pre-test score + group assignment

**Exploratory Analysis**

Multiple regression analysis was used to explore the effect of group assignment on psychological distress, PTSD, quality of life, substance use, criminal justice involvement, and functional impairment. While mindfulness has been associated in previous research with changes in some of these variables, studies were either measuring immediate changes (e.g., psychological distress) with no follow-up, or used longer mindfulness interventions than conducted here. Exploratory analysis was, therefore, conducted with these variables with no predictions regarding the direction or effectiveness of the brief intervention. Because eight models will be run to test the impact of the intervention on the dependent variables, a Bonferroni correction will be used to protect against a Type I error whereby it is concluded that the intervention had an impact on a dependent variable when the observed difference between groups was in fact based on chance. An alpha level of $p<0.001$ will be used to determine the significance of differences between groups instead of the conventional $p<0.05$. This was determined by dividing $p<0.05$ by the number of models planned to test the impact of a mindfulness intervention on substance use and mood outcomes ($N=8$).

**Intervention acceptability.** Summary statistics were used to explore the acceptability of the intervention with the treatment group using the TEI-SF. Means, standard deviations, frequencies, and percentages were calculated for the overall score and each item separately. Chi-square tests of independence were used to explore differences in scores by age and race/ethnicity.
Human Subjects: Risk Reduction and Benefits

The Institutional Review Board of the University of Pennsylvania determined that this study adequately protected participants against undue risks. Upon making this determination, the IRB officially stamped their approval on the Informed Consent (see Appendix A3). Inpatient clients at Nexus Recovery Center volunteered for the study after hearing a presentation from the researcher or, in some cases, from other clients. The researcher met with each client to explain maintenance of confidentiality and HIPAA rights, as well as the parameters of the study. The researcher protected anyone with diminished autonomy by not enrolling them to be in the study if they did not demonstrate the capacity to understand the consent forms or procedures (this happened with one participant).

After an overview of the research study, each client was asked if she would like to participate in a study on mindfulness and how it might help people in recovery. Potential risks, protections, and benefits were discussed and referred to in the Informed Consent. It was clearly stated that participation in the study was not required by the treatment center and that if they joined, dropped out, or decided not to take part in the study, there would be no negative consequences from their counselor or from the agency. It was clearly stated that there would also be no special treatment or benefits (other than the gift cards as payment for completion of study measures) from their counselor or from the agency for participating. Each participant was given a folder containing their consent form, which included instructions for participants to contact the Office of Regulatory Affairs at the University of Pennsylvania if they felt there was a research-related violation.

Elements were incorporated into the research design of the study that minimized any risk and enhanced protection of participant well-being. The mindfulness intervention
encourages only discussion of present-moment observations, so graphic stories about past
substance use or trauma events did not occur. Because the control group design does not
include any discussion, disclosure of traumatic events was not an issue.

Several steps were taken to ensure that the personal information obtained during the
course of this research study will always be kept private. The participants were assigned a
code number, so that information gathered will be confidential and that when the study is
written up or when it is presented, no names or other identifying information will be used.
The Institutional Review Board at the University of Pennsylvania has access to the records,
but only see a code number and not a name. Stored electronic information was be password-
protected and has identifying information (such as birthdates) removed. Only the PI has
access to the names of the participants and their matching code numbers, and all data were
stored in a locked file for the duration of the study and analysis before being shredded. The
Principal Researcher has a Certificate of Confidentiality from the National Institutes of Health
(see Appendix A2), which means that we cannot be forced to disclose any information given
to us by research participants in any civil, criminal, administrative, legislative, or other
proceeding, whether at the federal, state, or local level. This reassured participants who were
involved in the criminal justice system that their information would be kept confidential.
There was no transfer of data between the researcher and any treatment staff member.

The risks in this study were very small. The skills taught in the study have almost no
risk of harm. There was a slight chance that being in the mindfulness group could bring up
uncomfortable feelings or emotions or memories, but this was always manageable. Other
studies have documented that mindfulness has no adverse effects (Chiesa & Serretti, 2014;
Garland et al., 2015; Zgierska et al., 2009). Research into patient-centered outcomes indicates
that mindfulness is a safe alternative treatment that is inexpensive to implement, noninvasive, and involves no medication or equipment (McCubbin et al., 2014). A risk of the control group is that the participants do not learn any useful skills.
CHAPTER III

RESULTS

A total of 54 women participated in the study. As shown in Table 4, 61% of the women in the sample reported being White/Caucasian \( (n=33) \), 20% reported being Black or African American \( (n=11) \), 11% reported being Hispanic or Latina \( (n=6) \) and 4% reported being American Indian \( (n=2) \). Most of the women had a high school diploma or higher, with 41% \( (n=22) \) having graduated high school or the equivalent; 22% \( (n=12) \) having some college; 9% \( (n=5) \) having trade, technical, or vocational training; and almost 10% having an Associate \( (n=3) \) or Bachelor’s \( (n=2) \) degree. Almost half of the women were single (46%, \( n=25 \)), almost one-third reported being divorced (24%, \( n=13 \)) or separated (\( n=4 \)), and 16% \( (n=9) \) reported being married or in a domestic partnership. There was very little variation in employment status, with the large majority reporting being unemployed: 47.5% \( (n=28) \) were unemployed and looking for work and 24% \( (n=14) \) were unemployed and not looking for work. Only two people (3.4%) in the entire sample reported that they were employed for wages full time.
<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>Treatment</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frequency</td>
<td>Percent</td>
<td>Frequency</td>
</tr>
<tr>
<td><strong>Race/ethnicity</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>American Indian</td>
<td>2</td>
<td>3.7</td>
<td>1</td>
</tr>
<tr>
<td>Black or African American</td>
<td>11</td>
<td>20.4</td>
<td>7</td>
</tr>
<tr>
<td>Hispanic or Latina</td>
<td>6</td>
<td>11.1</td>
<td>1</td>
</tr>
<tr>
<td>White/Caucasian</td>
<td>33</td>
<td>61.1</td>
<td>16</td>
</tr>
<tr>
<td>Other</td>
<td>2</td>
<td>3.7</td>
<td>1</td>
</tr>
<tr>
<td><strong>Education level</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No schooling completed</td>
<td>1</td>
<td>1.9</td>
<td>0</td>
</tr>
<tr>
<td>Nursery school to 8 grade</td>
<td>2</td>
<td>3.7</td>
<td>2</td>
</tr>
<tr>
<td>Some high school, no diploma</td>
<td>5</td>
<td>9.3</td>
<td>0</td>
</tr>
<tr>
<td>High school graduation, diploma or the equivalent (e.g. GED)</td>
<td>22</td>
<td>40.7</td>
<td>9</td>
</tr>
<tr>
<td>Some college credit, no degree</td>
<td>12</td>
<td>22.2</td>
<td>8</td>
</tr>
<tr>
<td>Trade/technical/vocational training</td>
<td>5</td>
<td>9.3</td>
<td>2</td>
</tr>
<tr>
<td>Associate degree</td>
<td>3</td>
<td>5.6</td>
<td>2</td>
</tr>
<tr>
<td>Bachelor's degree</td>
<td>2</td>
<td>3.7</td>
<td>1</td>
</tr>
<tr>
<td><strong>Relationship status</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single, never married</td>
<td>25</td>
<td>46.3</td>
<td>10</td>
</tr>
<tr>
<td>Married or domestic partnership</td>
<td>9</td>
<td>16.7</td>
<td>5</td>
</tr>
<tr>
<td>Widowed</td>
<td>1</td>
<td>1.9</td>
<td>1</td>
</tr>
<tr>
<td>Divorced</td>
<td>13</td>
<td>24.1</td>
<td>6</td>
</tr>
<tr>
<td>Separated</td>
<td>4</td>
<td>7.4</td>
<td>2</td>
</tr>
<tr>
<td><strong>Employment status</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Employed for wages full time</td>
<td>2</td>
<td>3.4</td>
<td>1</td>
</tr>
<tr>
<td>Self-employed</td>
<td>4</td>
<td>6.8</td>
<td>1</td>
</tr>
<tr>
<td>Out of work and looking for work</td>
<td>28</td>
<td>47.5</td>
<td>13</td>
</tr>
<tr>
<td>Out of work but not currently looking for work</td>
<td>14</td>
<td>23.7</td>
<td>7</td>
</tr>
<tr>
<td>A homemaker</td>
<td>4</td>
<td>6.8</td>
<td>2</td>
</tr>
<tr>
<td>Unable to work</td>
<td>2</td>
<td>3.4</td>
<td>2</td>
</tr>
</tbody>
</table>
Table 5

Chi Square Tests of Independence of Categorical Variables: Treatment v. Control

<table>
<thead>
<tr>
<th>Heard of Mindfulness or MM</th>
<th>Group Assignment</th>
<th>Control</th>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>Count</td>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>Stand Res</td>
<td>-0.3</td>
<td>0.3</td>
</tr>
<tr>
<td>Yes</td>
<td>Count</td>
<td>21</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>Stand Res</td>
<td>0.2</td>
<td>-0.2</td>
</tr>
</tbody>
</table>

Chi-Square (1, N = 54) = 0.22, p = 0.64

<table>
<thead>
<tr>
<th>Practiced Mindfulness or MM</th>
<th>Group Assignment</th>
<th>Control</th>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>Count</td>
<td>9</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>Stand Res</td>
<td>-0.4</td>
<td>0.4</td>
</tr>
<tr>
<td>Yes</td>
<td>Count</td>
<td>19</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>Stand Res</td>
<td>0.3</td>
<td>-0.3</td>
</tr>
</tbody>
</table>

Chi-Square (1, N = 54) = 0.60, p = 0.44

<table>
<thead>
<tr>
<th>Practiced meditation other than MM</th>
<th>Group Assignment</th>
<th>Control</th>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>Count</td>
<td>12</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>Stand Res</td>
<td>0.6</td>
<td>-0.6</td>
</tr>
<tr>
<td>Yes</td>
<td>Count</td>
<td>15</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>Stand Res</td>
<td>-0.4</td>
<td>0.5</td>
</tr>
</tbody>
</table>

Chi-Square (1, N = 53) = 1.05, p = 0.31

<table>
<thead>
<tr>
<th>PTSD diagnosis</th>
<th>Group Assignment</th>
<th>Control</th>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>Count</td>
<td>12</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>Stand Res</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Yes</td>
<td>Count</td>
<td>16</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>Stand Res</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Chi-Square (1, N = 54) = 0.002, p = 0.97

As seen in Table 5, the two groups did not differ significantly on mindfulness exposure [Chi-square (1, N=54)=0.22, p=0.64], mindfulness meditation experience [Chi-square (1, N=54)=0.60, p=0.44], other meditation experience [Chi-square (1, N=53)=1.05, p=0.31], or PTSD diagnosis [Chi-square (1, N=54)=0.002, p=0.97] at baseline.
Table 6

| Mean and Standard Deviations of Continuous Variables by Total Sample and Study Group |
|----------------------------------|---------------------------------|---------------------------------|---------------------|---------------------|
|                                  | Total Mean | Total SD | Treatment Mean | Treatment SD | Control Mean | Control SD |
| Age of respondent                | 37.35      | 11.43    | 33.29           | 6.93           | 41.73        | 13.66      |
| Number of arrests                | 6.06       | 5.62     | 6.85            | 6.46           | 5.14         | 4.39       |
| Number of convictions            | 3.17       | 2.43     | 3.31            | 2.48           | 2.94         | 2.41       |
| Number of time in jail or prison | 3.46       | 3.64     | 3.94            | 4.27           | 2.83         | 2.62       |
| Heroin - Lifetime Use            | 1.66       | 2.71     | 0.61            | 1.97           | 2.67         | 2.96       |
| Other opioids - Lifetime Use     | 2.83       | 6.16     | 0.04            | 0.20           | 2.78         | 5.76       |
| Methamphetamine - Lifetime Use   | 0.41       | 1.80     | 2.88            | 6.63           | 0.76         | 2.49       |
| Barbiturates - Lifetime Use      | 0.83       | 4.44     | 1.70            | 6.31           | 0.00         | 0.00       |
| Other sedatives, hypnotics, tranqs - Lifetime Use | 2.66 | 9.49 | 2.95 | 12.99 | 2.40 | 4.99 |
| Cocaine - Lifetime Use           | 4.18       | 6.86     | 6.00            | 8.73           | 2.58         | 4.20       |
| Amphetamines - Lifetime Use      | 5.24       | 8.32     | 5.75            | 9.49           | 4.76         | 7.19       |
| Cannabis - Lifetime Use          | 6.37       | 8.12     | 6.91            | 8.24           | 5.88         | 8.14       |
| Hallucinogens - Lifetime Use     | 1.19       | 4.07     | 0.48            | 1.16           | 1.84         | 5.51       |
| Inhalants - Lifetime Use         | 0.02       | 0.14     | 0.00            | 0.00           | 0.04         | 0.20       |
| More than one substance per day - Lifetime | 6.50 | 9.73 | 8.42 | 12.35 | 4.91 | 6.77 |

As shown in Table 6, the mean age of the women in the sample was 37 (sd=11.43). The women had an average of 6 arrests (sd=5.62), 3 convictions (sd=2.43), and had been in jail or prison an average of 3.46 times (sd=3.64). Lifetime substance use was highest for alcohol (n=11.85 years, sd=1.40), cannabis (n=6.37 years, sd=8.14), and amphetamines (n=5.24 years, sd=8.12). On average, participants had used more than one substance per day for 6.5 years (sd=9.73).

While 54 women participated in both the pre-test and post-test, only 18 women completed the follow-up measures. Because the limited follow-up data only represents one-third
of the sample, the following sections report only those results analyzing differences between

groups at post-test.

**Mindfulness Training**

**Table 7**

*Multiple Regression Analysis of Treatment Effects on Mindfulness at Post-Test*

<table>
<thead>
<tr>
<th></th>
<th>B</th>
<th>Std. Error</th>
<th>β</th>
<th>t-test</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>3.20</td>
<td>0.64</td>
<td>5.02</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td>Group Assignment</td>
<td>0.32</td>
<td>0.25</td>
<td>0.17</td>
<td>1.27</td>
<td>0.21</td>
</tr>
<tr>
<td>Total number of classes attended</td>
<td>-0.15</td>
<td>0.12</td>
<td>-0.17</td>
<td>-1.24</td>
<td>0.22</td>
</tr>
<tr>
<td>Pre-MASS score</td>
<td>0.38</td>
<td>0.13</td>
<td>0.38</td>
<td>2.84</td>
<td>0.01</td>
</tr>
</tbody>
</table>

\[ R^2 = 0.22, F(3, 44)=4.07, p=0.01 \]

As seen in Table 7 there was no significant difference between study groups on post-test
mindfulness scores \((B=0.32, p=0.21)\) when controlling for pre-test mindfulness scores and total
number of classes attended. While the model was significant in explaining the variance in
mindfulness post-test scores \([R^2=0.22, F(3,44)=4.07, p=0.01]\), this can likely be explained by the
relationship with the mindfulness pre-test scores \((B=0.38, p=0.01)\)

**Hypothesis Testing**

As shown in Table 8, there was no significant difference between study groups at post-
test on severity of cravings \((B=0.99, p=0.18)\) when controlling for pre-test severity scores and
total number of intervention sessions attended. While the model was significant in explaining the
variance in severity of craving post-test scores \([R^2=0.31, F(3,42)=6.02, p=0.002]\), this finding
can likely be explained by the relationship with the severity of craving pre-test scores \((B=0.36,
p=0.00)\).
Table 8

Multiple Regression Analysis of Treatment Effects on Severity of Cravings at Post-Test

<table>
<thead>
<tr>
<th></th>
<th>B</th>
<th>Std. Error</th>
<th>β</th>
<th>t-test</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>-0.75</td>
<td>1.40</td>
<td>-0.54</td>
<td>0.59</td>
<td></td>
</tr>
<tr>
<td>Group Assignment</td>
<td>0.99</td>
<td>0.72</td>
<td>0.18</td>
<td>1.37</td>
<td>0.18</td>
</tr>
<tr>
<td>Total number of classes attended</td>
<td>0.23</td>
<td>0.34</td>
<td>0.09</td>
<td>0.68</td>
<td>0.50</td>
</tr>
<tr>
<td>Pre-PACS Severity score</td>
<td>0.36</td>
<td>0.10</td>
<td>0.49</td>
<td>3.74</td>
<td>0.00</td>
</tr>
</tbody>
</table>

$R^2 = 0.31\,, \, F(3, 42)=6.02\,, \, p=0.002$

As shown in Table 9, there was no significant difference between study groups at post-test on frequency of cravings ($B=0.61\,, \, p=0.46$) when controlling for pre-test frequency scores and total number of intervention sessions attended. While the model was significant in explaining the variance in frequency of craving post-test scores [$R^2=0.21\,, \, F(3,42)=3.60\,, \, p=0.02$] this finding can likely be explained by the relationship with frequency of craving pre-test scores ($B=0.27\,, \, p=0.00$)

Table 9

Multiple Regression Analysis of Treatment Effects on Frequency of Cravings at Post-Test

<table>
<thead>
<tr>
<th></th>
<th>B</th>
<th>Std. Error</th>
<th>β</th>
<th>t-test</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>-0.27</td>
<td>1.66</td>
<td>-0.16</td>
<td>0.87</td>
<td></td>
</tr>
<tr>
<td>Group Assignment</td>
<td>0.61</td>
<td>0.83</td>
<td>0.10</td>
<td>0.74</td>
<td>0.46</td>
</tr>
<tr>
<td>Total number of classes attended</td>
<td>0.41</td>
<td>0.40</td>
<td>0.14</td>
<td>1.03</td>
<td>0.31</td>
</tr>
<tr>
<td>Pre-PACS Frequency score</td>
<td>0.27</td>
<td>0.09</td>
<td>0.43</td>
<td>3.11</td>
<td>0.00</td>
</tr>
</tbody>
</table>

$R^2 = 0.21\,, \, F(3, 42)=3.60\,, \, p=0.02$

As shown in Table 10, there was no significant difference between study groups at post-test on stress, controlling for pre-test stress scores and total number of intervention sessions attended ($B=-0.20\,, \, p=0.92$).
Table 10

*Multiple Regression Analysis of Treatment Effects on Stress at Post-Test*

<table>
<thead>
<tr>
<th></th>
<th>B</th>
<th>Std. Error</th>
<th>β</th>
<th>t-test</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>13.71</td>
<td>4.85</td>
<td></td>
<td>2.83</td>
<td>0.01</td>
</tr>
<tr>
<td>Group Assignment</td>
<td>-0.20</td>
<td>1.84</td>
<td>-0.02</td>
<td>-0.11</td>
<td>0.92</td>
</tr>
<tr>
<td>Total number of classes attended</td>
<td>-0.64</td>
<td>0.85</td>
<td>-0.11</td>
<td>-0.76</td>
<td>0.45</td>
</tr>
<tr>
<td>Pre-PSS score</td>
<td>0.24</td>
<td>0.13</td>
<td>0.27</td>
<td>1.84</td>
<td>0.07</td>
</tr>
</tbody>
</table>

\[ R^2 = 0.09, F(3, 44)=1.43, p=0.25 \]

As shown in Table 11, there was no significant difference between study groups at post-test on mood \((B=-2.15, p=0.45)\) when controlling for pre-test mood scores and total number of intervention sessions attended. While the model was significant in explaining the variance in mood post-test scores \([R^2=0.20, F(3,45)=3.73, p=0.02]\), this finding can likely be explained by the relationship with mood pre-test scores \((B=0.24, p=0.01)\).

Table 11

*Multiple Regression Analysis of Treatment Effects on Mood at Post-Test*

<table>
<thead>
<tr>
<th></th>
<th>B</th>
<th>Std. Error</th>
<th>β</th>
<th>t-test</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>14.44</td>
<td>5.89</td>
<td></td>
<td>2.45</td>
<td>0.02</td>
</tr>
<tr>
<td>Group Assignment</td>
<td>-2.15</td>
<td>2.80</td>
<td>-0.10</td>
<td>-0.77</td>
<td>0.45</td>
</tr>
<tr>
<td>Total number of classes attended</td>
<td>-1.52</td>
<td>1.32</td>
<td>-0.16</td>
<td>-1.15</td>
<td>0.26</td>
</tr>
<tr>
<td>Pre-BSI Total score</td>
<td>0.24</td>
<td>0.08</td>
<td>0.39</td>
<td>2.88</td>
<td>0.01</td>
</tr>
</tbody>
</table>

\[ R^2 = 0.20, F(3, 45)=3.73, p=0.02 \]

**Exploratory Analysis**

There were no significant treatment differences at post-test between study groups on PTSD, quality of life, substance use, or functional impairment. However, because the effect of group assignment on post-test PTSD scores approached significance \((B=0.91, p=0.06)\), post-hoc
(unplanned) analysis was conducted to explore the role that PTSD may play in mindfulness interventions.

Table 12

*Multiple Regression Analysis of Treatment Effects on Post-Test PTSD Scores*

<table>
<thead>
<tr>
<th></th>
<th>B</th>
<th>Std. Error</th>
<th>β</th>
<th>t-test</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>-0.55</td>
<td>0.94</td>
<td>-0.59</td>
<td>0.56</td>
<td></td>
</tr>
<tr>
<td>Group Assignment</td>
<td>0.91</td>
<td>0.46</td>
<td>0.23</td>
<td>1.96</td>
<td>0.06</td>
</tr>
<tr>
<td>Total number of classes attended</td>
<td>0.18</td>
<td>0.22</td>
<td>0.10</td>
<td>0.82</td>
<td>0.42</td>
</tr>
<tr>
<td>Pre-PTSD score</td>
<td>0.58</td>
<td>0.12</td>
<td>0.58</td>
<td>5.02</td>
<td>0.00</td>
</tr>
</tbody>
</table>

*Post-hoc Analysis*

As seen in Table 12, PTSD scores did significantly predict mindfulness scores in the sample as a whole at pre-test \(B=-0.17, p=0.01\), with every additional ~5 points on the PTSD measure associated with a 1-point decrease in mindfulness.

Table 13

*Multiple Regression Analysis of Pre-Test PTSD Scores on Pre-Test Mindfulness*

<table>
<thead>
<tr>
<th></th>
<th>B</th>
<th>Std. Error</th>
<th>β</th>
<th>t-test</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>3.84</td>
<td>0.25</td>
<td>15.44</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td>Pre-PTSD score</td>
<td>-0.17</td>
<td>0.06</td>
<td>-0.34</td>
<td>-2.57</td>
<td>0.01</td>
</tr>
</tbody>
</table>

\[ R^2 = 0.11, F(1, 51)=6.60, p=0.01 \]
Table 14

Multiple Regression Analysis of Treatment Effects on Mindfulness Controlling for Post-Test PTSD

<table>
<thead>
<tr>
<th></th>
<th>B</th>
<th>Std. Error</th>
<th>β</th>
<th>t-test</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>3.27</td>
<td>0.48</td>
<td>6.87</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td>Group Assignment</td>
<td>0.55</td>
<td>0.24</td>
<td>0.29</td>
<td>2.33</td>
<td>0.02</td>
</tr>
<tr>
<td>Pre-MASS score</td>
<td>0.31</td>
<td>0.13</td>
<td>0.31</td>
<td>2.49</td>
<td>0.02</td>
</tr>
<tr>
<td>Post-PTSD score</td>
<td>-0.19</td>
<td>0.06</td>
<td>-0.40</td>
<td>-3.13</td>
<td>0.003</td>
</tr>
</tbody>
</table>

\[ R^2 = 0.34, F(3, 44)=7.46, p=0.00 \]

As shown in Tables 13 and 14, the treatment group scored on average one-half of a point higher than the control group on post-test mindfulness (\( B=0.55, p=0.02 \)) when controlling for post-test PTSD and pre-test mindfulness scores.

**Intervention Acceptability**

The mean score on the TEI-SF was 4.34 out of a possible 5.0 (\( sd = 0.77 \)), with a low score of 1.67 (\( n=1 \)) and a high score of 5.0 (\( n=3 \)). As shown in Table 15, there were no significant differences in scores between women who reported identifying as Black or African American, White, or a race other than those listed. More respondents who reported identifying as American Indian disagreed or strongly disagreed that they found the intervention acceptable (TEI-SF=1.67, \( Std. Residuals = 4.6 \)) than would be expected, suggesting that identifying as an American Indian woman may be associated with having lower intervention acceptability. The Chi-square test, however, found that there was no overall relationship between race/ethnicity and intervention acceptability [\( Chi-square (28, N=23) = 36.91, p=0.12 \)].
Table 15

Chi Square Test of Independence of Race/Ethnicity and TEI-SF Score

<table>
<thead>
<tr>
<th>TEI-SF Score</th>
<th>American Indian</th>
<th>Black or African American</th>
<th>Latina</th>
<th>White</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.67</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Std Res</td>
<td>4.59</td>
<td>-0.51</td>
<td>-0.21</td>
<td>-0.78</td>
</tr>
<tr>
<td>3.83</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Std Res</td>
<td>-0.29</td>
<td>0.66</td>
<td>-0.29</td>
<td>-0.20</td>
</tr>
<tr>
<td>4.17</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Std Res</td>
<td>-0.42</td>
<td>0.94</td>
<td>-0.42</td>
<td>-0.28</td>
</tr>
<tr>
<td>4.33</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Std Res</td>
<td>-0.21</td>
<td>1.45</td>
<td>-0.21</td>
<td>-0.78</td>
</tr>
<tr>
<td>4.5</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Std Res</td>
<td>-0.29</td>
<td>-0.72</td>
<td>-0.29</td>
<td>0.71</td>
</tr>
<tr>
<td>4.67</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Std Res</td>
<td>-0.47</td>
<td>-0.27</td>
<td>-0.47</td>
<td>-0.02</td>
</tr>
<tr>
<td>4.83</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Std Res</td>
<td>-0.47</td>
<td>-0.27</td>
<td>1.68</td>
<td>-0.02</td>
</tr>
<tr>
<td>5.00</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Std Res</td>
<td>-0.36</td>
<td>-0.88</td>
<td>-0.36</td>
<td>0.87</td>
</tr>
</tbody>
</table>

ChiSquare (28, N=23) = 36.91, p=0.12

As shown in Table 16, there was also no significant relationship between age and acceptability of the intervention ($B=0.02$, $p=0.11$)

Table 16

Multiple Regression Analysis of Age on TEI-SF Scores

<table>
<thead>
<tr>
<th></th>
<th>B</th>
<th>Std. Error</th>
<th>β</th>
<th>t-test</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>3.72</td>
<td>0.45</td>
<td>8.30</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>0.02</td>
<td>0.01</td>
<td>0.34</td>
<td>1.67</td>
<td>0.11</td>
</tr>
</tbody>
</table>

$R^2 = 0.12$, $F(1, 23)=0.18$, $p=0.67$

Open-Ended Feedback

Although qualitative data were not a research focus in the project, the last page of
measures asked, “We’re interested in your opinion. Do you have any other feedback?” at post-intervention and four-week follow-up. At post-intervention, 46 participants offered feedback, 19 people in control group and 35 people in the intervention. Eleven participants in the control group commented that the classes were relaxing. One participant said she did not feel the group (control) taught her much, two found it boring, and two found it hard to sit still. In the intervention group, 34 participants had favorable reactions to the class and the mindfulness activities, and 1 participant gave unfavorable feedback, noting that it was hard for her to concentrate and she was uncomfortable and nervous. At four-week follow up, nine participants offered comments, seven people in the control group and two people in the intervention group. Seven people in the intervention group indicated they had learned useful skills in the class, and two of the people in the control group responded that they had enjoyed the class. One participant in the control group said she thought the class was “hogwash” at the time, but later realized she wanted that peaceful time each day. While qualitative comments cannot support a definitive conclusion, it is nevertheless interesting to note that the feedback given about the intervention was overwhelmingly positive, with 100% of the intervention participants offering favorable comments and only two participants including comments that were somewhat unfavorable. Some of the comments were quite remarkable and suggested that the intervention was acceptable, well-received, and seen as offering benefits. (See Tables 17-20 below). The benefits of participating in the intervention group included the potential increase in coping skills gained from being in the intervention. Many of the women in both groups verbalized having a sense of higher purpose by contributing to the general knowledge base of ways to help women struggling with addictions. One comment on follow-up was, “Thank you for letting me be a participant in your research about us to better learn more
about our addictions.” Another comment was, “good luck with [the] study and I hope that [the] research will be of help for all involved’s betterment.”

Table 17

*Feedback from Control Group Post-intervention (n=19)*

<table>
<thead>
<tr>
<th>Question: “Do you have any other feedback?”</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Unfavorable comments:</th>
</tr>
</thead>
<tbody>
<tr>
<td>“Peaceful music was boring.”</td>
</tr>
<tr>
<td>“I found myself not wanting to go because it was ‘boring.” . . . The second week, I REALLY dreaded coming.”</td>
</tr>
<tr>
<td>“Was unable to sit still.”</td>
</tr>
<tr>
<td>“. . .it was kinda hard sitting still.”</td>
</tr>
<tr>
<td>“I don’t feel I got much from this group.”</td>
</tr>
<tr>
<td>“Just wish that all the coloring pages were more simple.”</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Favorable comments:</th>
</tr>
</thead>
<tbody>
<tr>
<td>“I did find myself more relaxed and focused.”</td>
</tr>
<tr>
<td>“Coloring is helpful and so is relaxing music.”</td>
</tr>
<tr>
<td>“It helped me feel more relaxed and less stressed.”</td>
</tr>
<tr>
<td>“It was very relaxing.”</td>
</tr>
<tr>
<td>“I left the class calm and relaxed.”</td>
</tr>
<tr>
<td>“The classes were great.”</td>
</tr>
<tr>
<td>“I think coloring is very relaxing and calming.”</td>
</tr>
<tr>
<td>“I really enjoyed the coloring! It was so relaxing . . .”</td>
</tr>
<tr>
<td>“Being in the classes made me feel relaxed and comfortable. . . . The coloring was enjoyable and made me feel like I could relax and not be disturbed for once.”</td>
</tr>
</tbody>
</table>
### Table 18

**Feedback from Control Group Four-week Follow-up (n=2)**

**Question:** “Do you have any other feedback?”

<table>
<thead>
<tr>
<th>Unfavorable comments:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>“The relaxation techniques - I thought it was a bunch of hogwash.”</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Favorable comments:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>“. . . after I got out (of treatment), I wanted that peaceful time each day.”</td>
<td></td>
</tr>
<tr>
<td>“I have enjoyed this study very much.”</td>
<td></td>
</tr>
<tr>
<td>“I appreciate the class and everything.”</td>
<td></td>
</tr>
</tbody>
</table>

### Table 19

**Feedback from Intervention Group Post-intervention (n=35)**

**Question:** “Do you have any other feedback?”

<table>
<thead>
<tr>
<th>Unfavorable comments:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>“I was unable to concentrate with eyes opened or closed, I was uncomfortable and nervous. I want to be able to set my mind to focus on what was being said by the instructor. I may need to practice it a little more often to see if I can concentrate. I'm very easily distracted.”</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Favorable comments:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>“. . . gave me new skills and emphasized how it can help me in Recovery- I consider it to be a vital part of my program for the future.”</td>
<td></td>
</tr>
<tr>
<td>“I have been practicing the techniques daily and have found that my mind is clearer, my meditation periods are longer, I am quicker to get ‘into’ ‘the meditations’ state, and I am significantly more aware of my body and heart connection. . . . I have learned to be kind and compassionate and loving towards myself &quot;Self Love&quot; and I have so needed that!”</td>
<td></td>
</tr>
<tr>
<td>“I enjoy[ed] and found the class very helpful in controlling my stress and in calming my cravings. Also helped me sleep at night and calm me down when classes got out of control very frequently without staff stepping in.”</td>
<td></td>
</tr>
<tr>
<td>“This study was very helpful to me.”</td>
<td></td>
</tr>
</tbody>
</table>
“. . . use these coping skills to calm down in my recovery. Especially the Breathing one!”

“This class helped me so much to cope with my own personal stress issues. I looked forward to it and felt so much relief when it was over. I left the class calm and relaxed. I will practice meditation daily in my life now . . .”

“The classes were very helpful to me in ways of relaxing and with coping skills.”

“This class was wonderful - I liked how we got the chance to practice mindfulness several times (guided) and we weren't immediately expected to grasp without practice.”

“I found the mindfulness research helpful and I actually used it when I was out at a Dr's appt. It was so very helpful for me.”

“I feel the class [was] very positive and relaxing and it help[ed] me take a good look at myself.”

“. . . it helped me open my eyes in a lot of ways like I stay aware of my surroundings and when I feel overwhelmed or anxiety I breathe. Mostly I love that I am aware of my surroundings it's like seeing a whole new world around me.”

“Learning the structure in a realistic setting was very helpful. By repetition it made learning how to meditate easier and to become comfortable with doing some of these exercises alone.”

“I loved the classes. I was able to help my son cope with being emotionally rattled by using skills that I have learned in class. I've also been able to help myself cope by using tools that I have learned. I intend to continue using these skills in my life. I Love Love Love mindfulness!”

“The breathing has helped me alot [sic] during times when I felt annoyed, which is frequent for me. I will be trying to use mindfulness meditation once I leave Nexus, especially because I'm worried that being in my home alone will be a trigger for me. I liked the ‘ride the wave’ analogy because I could relate it to the time I spent at the beach with my family.”

“I was able to really get in touch with what emotions I was feeling and felt that I was able to handle these emotions. I will definitely use the activities in the future.”

“I believe using mindfulness will help me tremendous[ly] to regulate my emotions before I get so overwhelmed by them. I feel that [the] urge surfing technique will be very beneficial as I have previously had numerous urges and cravings that have been so strong that I went back out. I will definitely use this technique in my daily routine.”
“Now I use mindfulness meditation as a coping. It is helpful for getting my day started also for going to sleep. It also helps me stop and think of my next move in choices by being aware with my thinking of moves or choice I am making. I'm glad I took the class before I leave treatment as a coping skill.”

“I'm just grateful to have had this experience! I'd like to add I will definitely be using the tools I've learned in everyday life to keep me SOBER!”

“I'm just use[sic] to constant and fast (I'm an addict ;;) She was able to finally reel me in and get me to meditate and concentrate.”

“. . . it is a good coping skill for me!”

Table 20

Feedback from Intervention Group Four-week Follow-up (n=7)

Question: “Do you have any other feedback?”

Unfavorable comments: none

Favorable comments:

“I've been more aware that I have a fear of failure and how overwhelming it can be. I've come to awareness of who I am.”

“I have been meditating every day for 2 weeks in the garden every morning, and it feels good. I know that I only have today. Mindfulness meditation is positive and I really benefit from it. It gives me serenity. I am not down on myself because I relapsed. Thank you for the tools.”

“I recently got diagnosed with rheumatoid arthritis and was in the hospital for 2 weeks. I remembered the (mindfulness) classes and still had the handouts and used it in the hospital to help me when I felt miserable and down and out. Mindfulness meditation helped me the most - it was the one thing that really helped me from treatment. Once I could calm down, I realized what I was doing to myself. It was the one thing I got from treatment that I can really use.”

“You taught me coping skills. I get up every morning and pray and meditate.”

“I have been using the exercises I learned during class when I felt overwhelmed and during
cravings and found it very helpful in reducing the intensity and length of the craving. This is the longest increment of time that I have been able to stay clean. I have also been trying to use meditation in the morning before I start my day and before I notice difficulties with cravings. I think it is very helpful.”

“I'm practicing mindfulness every day. I would not be sober today if it were not for becoming aware of my thoughts in the moment as a coping strategy and being aware of my emotions instead of reacting to my emotions. This was a game changer for me. I was unaware of this whole process until this introduction of mindfulness.”
CHAPTER IV

DISCUSSION AND IMPLICATIONS

This pilot study yielded numerous valuable lessons in using mindfulness with people experiencing substance use in an inpatient setting. We were able to recruit and retain participants, with 50 of the original 61 women completing the two weeks of classes. The intervention was well-received by the participants and was feasible to implement. The intervention was also acceptable to the diverse population of the sample. Despite the null findings of the hypothesis, this study offers some insight into developing brief mindfulness interventions for use in an inpatient substance use setting and offers some directions to consider when developing similar future interventions. Surprisingly, no statistically significant effects were found that supported the hypothesis in this study.

As discussed in the Results section, there was no statistically significant difference between study groups at post-intervention on severity of substance use cravings, stress, or mood. Additionally, there were no statistically significant differences in acquisition of trait mindfulness between groups, frequency of cravings, PTSD symptoms, quality of life, substance use, or functional impairment. There are several possible explanations for these results. It is possible that the participants in the control group had some exposure to mindfulness in other parts of their inpatient treatment day. Although the researcher asked the staff at the center not to practice any mindfulness activities or meditations with them, it is possible that members of the control group had prior or concurrent exposure that was not detected by the screening tools. It is also possible that the complexity of participants’ co-occurring issues interfered with learning or using mindfulness skills. As discussed below, the participants had higher rates (compared to national averages) of criminal justice system involvement, PTSD, reported substance use, stress, anxiety,
depression, and somatization in comparison to national averages. The participants, in general, had low rates of steady employment, limited education, and frequent barriers to accessing needed resources (e.g., safe housing, medical care, medicine, therapy, legal assistance, employment). The women at this inpatient center often experience adverse community circumstances (e.g., dearth of affordable housing, health inequities, high crime) and a lack of social and family supports. All or any of these stressors could have interfered in some way with the participants’ response to the mindfulness intervention.

Descriptive data analysis indicated the intervention had a high degree of acceptability among participants. No statistically significant differences were found between groups on post-test measures of mindfulness, frequency or severity of substance cravings, psychological distress, PTSD, or quality of life. However, the high prevalence of PTSD among participants may have interfered with the ability to acquire mindfulness skills given that when controlling for post-test PTSD, the treatment group scored on average one-half of a point higher than the control group on post-test mindfulness. This finding was identified in post-hoc (unplanned) analysis conducted to explore the role that PTSD may have played in the mindfulness intervention.

Compared with national averages, women in this study had higher rates of criminal justice system involvement, PTSD symptoms, substance use, stress, anxiety, depression, and somatization. A total of 51.9% of the participants had been in jail at least once, compared to the national average for women of 1.8% (U.S. Department of Justice, 2003). A total of 92.6% of the participants had been arrested at least once, and 57.4% of the participants met criteria for PTSD compared to approximately 5-12% of women in the general U.S. population (Mehta & Binder, 2011; Harvard National Comorbidity Survey, 2017). The 2018 Survey on Drug Use and Health (NSDUH, 2019) cited that 7.9% of the national female population 12 or older used illegal
substances in the past month, and 20.5% women 12 or older engaged in binge drinking in the last month (U.S. Dept. of Health & Human Services, 2016). In this study, 44% of the participants reported drinking to intoxication in the past month, and rates of substance use in the past month included 31% for amphetamines, 36% for cannabis, and 42.6% reporting more than one substance per day in the last month. A 2015 Stress in American survey showed that 5.3% of women report they suffer from stress (American Psychological Association, 2016). In contrast, 98% of the participants in this study scored above average on symptoms of stress, with 56% scoring 2 or more standard deviations above the mean. For anxiety, 40% of the participants scored above average, with 19% scoring in the 90th percentile, compared to 23.4% of women nationally (Harvard National Comorbidity Survey, 2017). Looking at depression, 40% of the participants scored above average, with 15% of participants scoring in the 90th percentile, compared with 8.7% of women nationally (NSDUH, 2019). Somatization frequency among the sample was 48%, with 17% of participants scoring in the 90th percentile, compared to 0.02% - 2% among women in the general population (Oyama, Paltoo, & Greengold, 2007).

Previous mindfulness studies may not be relevant to this population because they have often not included participants experiencing multiple co-occurring challenges. The numerous difficulties faced by this study’s participants may have influenced or moderated their ability to integrate the mindfulness skills in a way that produced meaningful change. The participants in this study represent an underserved population, and future mindfulness interventions should adapt to meet their needs.

**PTSD and Mindfulness – Potential Moderator of Change?**

Of all the co-occurring factors in the sample, it is interesting to examine PTSD more closely. The high prevalence of PTSD among the participants (57.4 % versus 5%-12% in the
general population; Mehta & Binder, 2011; Harvard National Comorbidity Survey, 2017) is consistent with Najavits’ estimates of PTSD among women who use substances. In her work, she estimates that 30%-59% of this population experiences PTSD, often resulting from multiple incidents of childhood physical and sexual assault (Najavits, Weiss, & Shaw, 1997). The high levels of PTSD may have interfered with the ability to acquire mindfulness skills given that, when controlling for post-test PTSD, the treatment group scored on average one-half of a point higher than the control group on post-test mindfulness. This finding was identified in post-hoc (unplanned) analysis conducted to explore the role that PTSD may have played in the mindfulness intervention. It is conceivable that the high levels of ongoing and untreated trauma and PTSD may have made it more challenging for the participants. The areas of the brain affected by regular mindfulness practice are similar to those affected by PTSD; perhaps, in a shorter intervention, this slowed down or limited the ability to use mindfulness effectively. Specifically, among individuals with PTSD, neuroimaging research shows increased activity in the amygdala, the hippocampus, insula, and several parts of the prefrontal cortex (Boyd, Lanius, & McKinnon, 2018; King et al., 2016; Hayes, VanElzakker, & Shin, 2012), which overlap with areas of change indicated in mindfulness. It is well-established that the hypothalamus pituitary adrenal (HPA) axis is activated after exposure to trauma and is “one of the more consistent neurobiological abnormalities observed in PTSD” (Mehta & Binder, 2012, p. 654). One of the putative mechanisms of mindfulness is its ability to limit HPA axis over-response in times of stress (Manigault, Woody, Zoccola, & Dickerson, 2018). While we know that mindfulness can be effective in reducing PTSD symptoms, for individuals with untreated or under-treated PTSD, mindfulness approaches may be insufficient if emotional regulation and distress tolerance skills
have not also been developed (Boyd, Lanius, & McKinnon, 2018). Testing mindfulness among populations with high prevalence of trauma is an opportunity for further research.

**Measures: Are we really measuring what we think we are measuring?**

Another factor in the results could be the measures themselves. What was actually being measured? The measures were chosen because they are used frequently in this field of research, and they have good degrees of reliability and validity. However, many of the participants had difficulty understanding at least two of the scales and interpreting several of the questions on other scales. The queries were clarified when possible, but it is unclear how many participants did not ask a question and therefore misunderstood what was being asked. Participants had the most questions and confusion about the Addiction Severity Index-Lite (ASI-Lite) and the Sheehan Disability Scale (SDS). The ASI-Lite format was complicated to the participants and required frequent explanations that one column was for the last 30 days and the other for lifetime use. Participants were unfamiliar with the standard names for the drugs they had used, knowing them only by their more common street names (e.g., “speed” rather than methamphetamine, “Norco” rather than hydrocodone). Participants often did not know the categories of the drugs they used (e.g., that hydrocodone is an opioid), and they had to consult the index (which had been expanded for this study) multiple times for a description of the drug categories. The ASI-Lite seemed outdated to many participants, suggesting it needs to be updated with more current drugs and drug names. For example, no one understood what barbiturates referred to, and several participants had questions about how ecstasy (MDMA) should be categorized. The scale also does not include some of the newer synthetic drugs, e.g., K2, bath salts, or N-Bomb. These inconsistencies may have led to inaccurate reporting of the actual drugs used or the timeframes in which they were used.
The Sheehan Disability Scale question format was also confusing to many participants, and its questions had to be interpreted more plainly. The SDS aims to assess functional impairment in work/school, social, and family life from substance use. However, many participants said they felt grateful and/or safe at the treatment center and were happy to get help, so they did not feel that their addiction issues had caused them problems while they were in treatment. Even being separated from family or friends was often viewed as a good thing, as several people expressed, “I’m getting help.” The Mindful Awareness Attention Scale (MAAS) was also misinterpreted. Question 12 on the MAAS asks interviewees to rate the truth of the following statement, “I drive places on ‘automatic pilot’ and then wonder why I went there.” Several participants said they answered “Almost Never” because they either did not have a car or a driver’s license, which was certainly not a measure of their mindful attention. Question 13, “I find myself preoccupied with the future or the past,” was seen by several people to be asking about traumatic events (PTSD and hypervigilance)—not lack of present moment awareness. These comments raised the suggestion that the MAAS might not have been measuring trait mindfulness accurately, at least with this group of participants, which could have affected key results. One systematic review found that the MAAS was unable to find significant differences between novice meditators and non-meditators (Park, Reilly-Spong, & Gross, 2013), so perhaps the MAAS was not sensitive enough to pick up changes in the intervention group. The same researchers stated that none of the current mindfulness scales have “sufficient evidence of content validity” and “none can be strongly recommended based solely on superior psychometric properties” (p. 2639). Another assessment of mindfulness measures argues that none of the available scales are fully adequate (Bergomi, Tschacher, & Kupper, 2013). Another measure with problematic elements was the Brief Symptom Inventory (BSI-18), designed to measure
psychological distress. Question 8 on the BSI asks participants to rate how much, in the last seven days, they have been “feeling blue.” At least two dozen people said they did not understand what “blue” referred to, not interpreting it as a synonym for sad or down. Several women mentioned that they answered Question 4, “Pains in heart or chest” as “Extremely” because they had cardiac-related problems, rather than the intention of the question to measure anxiety-related symptoms. It was clear that real world, in vivo results of measures with this inpatient population may have differed significantly from how they were originally designed and validated.

Related to the measures, it was also possible that there was some respondent fatigue. When participants became weary of the survey questions, their attention and motivation waned, and the quality of the data they provided began to deteriorate. The pre-test measures were quite extensive, with participants answering 11 different measures totaling 154 individual questions. The post-intervention measures included 9 measures with 93 questions. The four-week follow-up had 12 measures with 133 questions.

Sample Retention

Eighteen participants completed the four-week follow-up measures, which was not a large enough group for comparative statistical analysis. Therefore, the data that were analyzed came from the post-intervention measures. It was unfortunate that so few participants could be reached for the four-week follow up, even though the research protocol involved multiple follow-up strategies and participants often conveyed enthusiasm at the outset of the study about ongoing participation. Each participant had given multiple ways to be contacted, but with several attempts by multiple means (phone, text, email, calling relatives), most people could not be reached. As discussed earlier, many of the participants had cell phones that were
disconnected or were using prepaid cell phones that did not provide voicemail. In many cases, a participant suggested a specific time and date that would be best to talk and then did not answer when called again. Participants who did call back apologized and said their lives were busy and stressful and they had meant to call earlier but could not find the time. It seemed that once participants had left the treatment center, they were overwhelmed by the demands of their lives and the challenges of early recovery, making the study a distant memory.

**Treatment Duration**

It is also possible that the length of the mindfulness intervention was too brief to teach measurable mindfulness skills and therefore had no impact on the dependent variable. This question is an unknown with brief mindfulness interventions as they are not manualized. How much is enough? The study was also unable to provide a feasible way for the participants to practice guided meditations between sessions, so perhaps more practice was needed. There is no firm agreement by researchers on exactly how much practice is needed to acquire sufficient mindfulness skills to effect real change, but we know that more skills are generally gained with more practice.

**Fidelity**

Fidelity adherence checklists were completed for each class in both the control and intervention groups. The Fidelity Checklist verified that both intervention and control groups followed their curricula with total fidelity. The checklists were 100% in each class for both conditions.

**Implications for Social Work and Related Disciplines**

This study clearly demonstrates differences we face as social workers conducting research in the real world versus a controlled clinical trial setting. Things do not always go as
smoothly as we hope, scales may not measure what they are supposed to, and we must adapt to best serve people experiencing complex, co-occurring concerns. A Clinical Trials Network trial on substance use that this author was previously involved in at a treatment center excluded anyone taking psychotropic medication, people involved in the criminal justice system, anyone with significant mental health diagnoses, and people who were left-handed. The eventual sample was not representative of the actual population of people who use substances, but it did control for many potential confounding factors. In the current study, we were inclusive, with participants whose identities included diversity in race, ethnicity, education, socioeconomic resources, mental health challenges, and criminal justice system involvement. The intervention was shown to be very acceptable to this diverse group of participants, which reflects an important contribution to mindfulness research.

This study also points out the limitations of well-accepted, standardized measures in practice. We identified some complexities in how participants responded. As social workers, we must ask ourselves if the language is understandable, are if we are actually measuring what is intended, and if the measure is truly valid for our sample? Perhaps we need to alter measures, change the language, or reformat them and then test them in focus groups to see if they retain their validity with new populations.

Another implication for social work is understanding more about the way trauma and PTSD may affect people’s ability to learn coping skills for self-management. Our results indicated that PTSD may have interfered with the participants’ ability to incorporate mindfulness skills, something that should be considered in future development of interventions.

One of the reasons the study implementation went smoothly is that the researcher was
respectful of the procedures at the center and of the clients. Because of their broad training, social workers can work in almost any situation; they can adapt. They understand agency settings, have a passion for clients, and are willing to meet clients where they are. These social work values were critical to forming a collaborative partnership with the agency that ensured the study proceeded efficiently (Solomon, Cavanaugh, & Draine, 2009).

One of the foundational practices of social work is the strengths-based approach to assessment and intervention and multi-systems interventions. This study looked at one intervention that has the potential to help people build on their innate skills and encourages the development of positive coping. Teaching mindfulness as a way to help people weigh choices for themselves, and possibly choose healthier responses, may provide a compassionate approach to addressing addiction that can further social justice (Hick & Furlotte, 2009). A mindfulness-based approach to helping people improve coping and sustain sobriety in early recovery is a strengths-based approach that is affordable and teaches positive coping that can be used in multiple ways beyond substance use abstinence.

**Strengths/Limitations**

A strength of this study was its participants, who were diverse in racial/ethnic, socioeconomic, and education demographics. One impetus for this research was to learn if mindfulness could be presented in an acceptable way with a diverse population. Previous research by Amaro (2014) suggested that MBSR had a “lack of fit and low acceptability” (p. 612) among African American and Latina women. In the present study, the mean score on the TEI-SF, which measured acceptability, was 4.34 out of a possible 5.0. As shown in Table 15, there were no statistically significant differences in scores between women who reported identifying as Black or African American, White, or a race other than those listed. Two
respondents reported identifying as American Indian and either disagreed or strongly disagreed that they found the intervention acceptable (TEI-SF=1.67, Std. Residuals = 4.6). This finding could suggest that identifying as an American Indian woman may be associated with having lower intervention acceptability, but it is hard to draw conclusions based on responses from two individuals. The Chi-square test found that there was no overall relationship between race/ethnicity and intervention acceptability. The feedback comments were also consistent with favorable opinions of the acceptability of the intervention. Acceptability is an important topic in the discussions around teaching mindfulness in the community. There have been criticisms that almost all of the Western teachers of mindfulness are White, in a dominant White culture (Magee, 2019), or that the audience is White and privileged, the “Volvo-and-vino-set” (Oppenheimer, 2015, p. 17). As discussed earlier, many studies of mindfulness either have not gathered information related to the racial/ethnic backgrounds of the participants or the participants were majority Caucasian, resulting in potential lack of applicability with diverse populations (Amaro, Spear, Vallejo, Conran & Black, 2014; Amaro, 2014; K. Proulx, 2003; J. Proulx et al., 2017).

Another strength was that the intervention was feasible to deliver, with few materials and no equipment needed. The intervention was noninvasive and inexpensive. The facilitator needs to have some training in mindfulness-based practices to understand the purpose behind the meditations and didactic portions, as well as experience and knowledge of substance use treatment.

A limitation involved the hectic and often chaotic nature of inpatient treatment. Women in very early sobriety often experience multiple challenges. The participants often forgot or lost their handouts and generally had difficulties with time management, likely a reflection of recent
substance use, the stressors of treatment, trauma, and management of any psychiatric symptoms and related medications. It was difficult some days to assemble everyone in time for class; calendars, multiple reminders, and staff promptings were used to address this situation. An additional limitation was not being able to provide the women with recordings of the meditations to take with them for practice between classes as no one is allowed to have technological devices in treatment at the center.

As discussed above, a further limitation might have been treatment duration. The length of the mindfulness intervention may have simply been too brief to teach measurable mindfulness skills. Shorter mindfulness interventions are not manualized in any way, and we do not know exactly how much is enough to produce meaningful change, or how much of each activity is needed. Many of the brief mindfulness research studies that found significant differences were done in a lab with nonclinical populations, which involves numerous differences in relation to an active, dynamic inpatient substance use treatment center.

An additional limitation was the small sample size. We randomized 61 participants in the two groups, which was a reasonable sample size for a pilot study. However, with a larger sample, there might have been more of a difference detected between the groups. If we had been able to repeat the intervention groups several more times, it would have provided a larger sample, and we may have had more respondents in the four-week follow-up. A further limitation was not being able to have a research team or at least some additional staff to help with the follow-up calls. Completions of the four-week follow-up interviews might have increased if there had been several people calling the participants more frequently.
Prior Research

Few previous studies have used a brief mindfulness intervention; most have included six or eight weeks of classes, usually in an outpatient setting rather than an inpatient setting, and have often not involved follow-up assessments (Zgierska et al., 2019; Bowen et al., 2009; Bowen et al., 2014; Brewer et al., 2009; Chiesa & Serretti, 2014; Li, Howard, Garland, McGovern, & Lazar, 2017). This study provides some contributions to researchers and practitioners designing shorter practices in an inpatient setting. It demonstrates that a mindfulness intervention can be both feasible and acceptable for use in substance use treatment, something questioned by other researchers (Bautista, James, & Amaro, 2019; Amaro & Black, 2017). It also demonstrates that a mindfulness intervention can be acceptable to women of color, which has been queried in other studies (Amaro & Black, 2017; Amaro, 2014). This study suggests that we need more rigorous measures to detect mindfulness and measures with better content validity, an observation made by prior authors (Park, Reilly-Spong, & Gross, 2013; Bergomi, Tschacher, & Kupper, 2012).

Future Research

Research is needed for a methodized brief mindfulness program specifically for people in inpatient treatment for addictions. Many treatment centers offer “mindfulness” on their marketing materials, but there is no standardized, evidence-based protocol for such a program, and there are very few randomized controlled trials in this area. Each research study is testing another variation of a mindfulness curriculum, with different meditations and exercises used for different lengths of time, and no uniformity of days or weeks. Tang and Leve (2016) referred to this lack of a systemized model of intervention as a significant barrier, with no agreement on the optimal length or type of classes or meditations to produce benefits. More mindfulness studies need to be conducted with people struggling with
addictions, as this is a population that would benefit from the skills. Inpatient populations of individuals with addictions could use the additional coping skills and self-regulation that mindfulness offers, but more research must be done in this area to find a robust intervention.

Further research should be conducted with a larger sample size where moderation analysis can be done to determine if PTSD is affecting the outcomes. More sensory types of mindfulness exercises could be incorporated into the design of the intervention, which might increase grounding and decrease any PTSD-related dissociation. These techniques could include mindful walking and mindful movement.

Development of a more valid mindfulness scale is another area of opportunity. The scales currently used all seem to miss asking about one feature or another of mindfulness, and it would have been impractical to use more than one scale. New measures might be created or present mindfulness scales (as well as other scales, such as the ASI and the SDS) might be modified to make the language more contemporary, clear, and culturally relevant and then psychometrically tested.

Future research could include finding a company or foundation to donate or underwrite audio listening devices (e.g., MP3 players) so that participants could listen to guided meditations between sessions and following their conclusion. This component would not take the place of in-person classes, but would supplement the instruction. With more practice opportunities outside of class built into the intervention, mindfulness skill acquisition would likely be increased.

An important area of subsequent mindfulness research relates to diversity and inclusion, teaching mindfulness to populations with diverse sociodemographic representation (J. Proulx et al., 2017). A current orientation in mindfulness is equity, with mindfulness and
compassion practices focused on racial justice, social change, community connection, and transforming the harmful dynamics of institutionalized racism (Magee, 2019; King, 2018). Mindfulness can be used for challenging oppression and inequality, healing communities, and enhancing cultural strengths. But first, mindfulness teachers and developers of mindfulness-based practices must be open to perspectives beyond the dominant culture and be willing to adapt mindfulness with diverse populations. Making mindfulness contextually appropriate when working with diverse individuals will enhance both relevance and engagement. J. Proulx et al. (2017) suggest we use Crenshaw’s concept of intersectionality (Carbado, Crenshaw, Mays, & Tomlinson, 2013; Mattsson, 2014) to inform the way we present mindfulness. Using an intersectional approach to mindfulness would encourage teachers and researchers to provide practices that reflect the complexities of race, ethnicity, socioeconomic resources, gender, and sexuality. In this way, mindfulness and mindful compassion could have a significant impact on oppression and inequality (Sanchez-Flores, 2017; Edwards, 2016).

Conclusion

This study demonstrated strong acceptability with a diverse inpatient population, as well as clear feasibility. The study indicated that PTSD may be a potential moderator of change in acquiring mindfulness skills, something that warrants further research. This study was not able to demonstrate significant changes in substance use cravings, stress, mood, or differences in acquisition of trait mindfulness between groups, or frequency of cravings, PTSD symptoms, quality of life, substance use, or functional impairment to support the original hypothesis. The study findings suggest that measures of mindfulness and substance use could be improved to enhance accuracy. The concept of having a brief mindfulness
intervention in an inpatient addiction program to help people positively maintain sobriety and stabilization is valuable. Further research is needed to define how it can best be designed and implemented.
References


validation of 8-week focused attention and open monitoring interventions within a 3-armed randomized controlled trial. *Behaviour Research and Therapy, 101*, 92-107.


Canby, N. K., Cameron, I. M., Calhoun, A. T., & Buchanan, G. M. (2015). A brief mindfulness intervention for healthy college students and its effects on psychological


marijuana users. *Journal of Substance Abuse Treatment, 42*(1), 56–64.


Derogatis, L. R., & Spencer, M. S. (1983). The Brief Symptoms Inventory (BSI): Administration, scoring, and procedures manual. Baltimore: Johns Hopkins University School of Medicine, Clinical Psychometrics Unit.


perceived barriers to incorporating mindfulness into treatment. *Substance Use & Misuse*, 51(14), 1930-1935.


& D. Forbes (EDS.), Handbook of mindfulness: Culture, context and social engagement (pp. 75-94). New York, NY: Springer.


Kazniak, A, & Barsalou, L. W., lecture at Upaya Zen Center, Santa Fe, New Mexico, March, 2013.


regarding the use of pilot studies to guide power calculations for study proposals.

*Archives of General Psychiatry, 63*(5), 484-489.


Lin, Y., Callahan, C. P. & Moser, J. S. (2018). A mind full of self: Self-referential processing as a mechanism underlying the therapeutic effects of mindfulness training on internalizing
disorders. *Neuroscience and Biobehavioral Reviews*, 92, 172-186.


The National Association for Children of Alcoholics. (2005). *Core competencies for social workers in addressing the needs of children of alcoholic or drug dependent parents*. Rockville, MD: SAMHSA.


Substance Abuse and Mental Health Services Administration, Office of Applied Studies. (September 30, 2010). *The N-SSATS report: Mental health screenings*
and trauma-related counseling in substance abuse treatment facilities.

Rockville, MD.


Austria: Author.


How mindfulness alters the brain and facilitates emotional regulation. *Mindfulness, 8*(6), 1471-1487.


http://doi.org/10.1016/j.addbeh.2012.04.001


Appendix A1
Agency Commitment Letter

October 1, 2017
Kay Colbert, LCSW
5445 La Sierra Drive, Ste. 103
Dallas, Texas 75231

Dear Kay,

On behalf of Nexus Recovery Center, I am pleased to confirm our agreement for collaboration on your “Brief Mindfulness Intervention with Substance Use Disorders in an Inpatient Treatment Setting” study. We look forward to working with you and creating a program that may be of benefit to our clients in the future. Specifically, we agree to:

- allow for meetings with intake staff, counselors, techs and any other staff as needed for the purpose of project coordination and troubleshooting.
- allow intake staff and counselors to hand out flyers with information about the study and how to sign up.
- provide group space for conducting groups during the course of the project, as well as for interviews.
- allow for random assignment of clients so that half of those who volunteer will be assigned to the mindfulness group and half will be assigned to the control group, with the understanding that those in the control group will be offered the mindfulness intervention at the completion of the study.
- allow outpatient staff and staff conducting regular follow-ups with discharged clients to meet with you and share relevant information on any study participants.
- notify you in a timely manner of any issues, concerns or problems.

We believe that this project will be an essential addition to the array of services that we already provide to this population and will serve as a model to those who are dedicated to find new and effective ways to treat substance abuse.

We are looking forward to collaborating with you and will do all we can to ensure the success of this project.

Sincerely,

[Signature]
A. Rebecca Crowell
Executive Director
Dear Dr. Engstrom,

Enclosed is the Confidentiality Certificate, protecting the identity of research subjects in your single-site/single-protocol project entitled “Brief Mindfulness Intervention with Women in an Inpatient Substance Use Treatment Setting”.

Please note that the Certificate expires on 12/20/2019.

NIH expects investigators to inform research participants of the protections and the limits to protections provided by a Certificate of Confidentiality issued under the NIH Policy. NIH has provided sample language for informed consent forms that researchers are free to use or adapt as needed and appropriate for their participants.

If you determine that the research project will not be completed by the expiration date, 12/20/2019, you must submit a written request for an extension of the Certificate three (3) months prior to the expiration date. If you make significant changes to the protocol for this study (e.g., change of principal investigator or institution), you should contact the COC Coordinator regarding modification of this Certificate. Any requests for modifications of this Certificate must include the reason for the request, documentation of the most recent IRB approval, and the expected date for completion of the research project.

Please contact the NIH CoC Coordinator if you have any questions about the Certificate of Confidentiality at NIH-CoC-Coordinator@mail.nih.gov.

Correspondence should be sent to:
NIH COC Coordinator BG RKL1 RM 3524
6705 Rockledge Drive
Bethesda, MD 2081

Sincerely,
CERTIFICATE OF CONFIDENTIALITY

Number:
CC-OD-19-381

Issued to

University of Pennsylvania

conducting research known as

Brief Mindfulness Intervention with Women in an Inpatient Substance Use Treatment Setting

In accordance with the provisions of section 301(d) of the Public Health Service Act, 42 U.S.C. 241(d), this Certificate is issued to the Principal Investigator, Dr. Malitta Engstrom and University of Pennsylvania to protect the privacy of subjects in the above named single-site/single-protocol research study, which is collecting or using identifiable, sensitive information. If there is a discrepancy between the terms used in this Certificate and section 301(d), the statutory language will control.

Research data containing identifiable, sensitive information collected during this study initiated on 07/15/2019 (and concluding on 12/20/2019) is covered by the Certificate. Identifiable, sensitive information protected by the Certificate and all copies thereof are protected for perpetuity.

The recipient of this Certificate shall comply with all requirements of subsection 301(d) of the Public Health Service Act.

This Certificate does not represent an endorsement of the research project by the Department of Health and Human Services. Information collected during the term of the Certificate is protected in perpetuity. However, this Certificate does not protect information collected from participants enrolled after the term of the Certificate.

07/03/2019
Date

NIH Certificates of Confidentiality Coordinator
Office of Extramural Research
National Institutes of Health
Appendix A3
Informed Consent and HIPAA Authorization Form

University of Pennsylvania Informed Consent and HIPAA Authorization Form

**Title of the Research Study:** Brief Mindfulness Intervention with Women in an Inpatient Substance Use Treatment Setting

**Protocol Number:** 833249

**Principal Investigator:** Malitta Engstrom, Ph.D., School of Social Policy & Practice, University of Pennsylvania, 3701 Locust Walk, Philadelphia, PA 19104; 215-573-6454. malitta@sp2.upenn.edu

**Co-investigator:** Kay Colbert, LCSW, 5445 La Sierra Drive, Suite 103, Dallas, TX. 75231; 214-864-5981. kay@kaycolbert.com

**Emergency Contact:** Kay Colbert, LCSW, 5445 La Sierra Drive, Suite 103, Dallas, TX. 75231; 214-864-5981. kay@kaycolbert.com

You are being asked to take part in a research study. This is not a form of treatment or therapy, and it does not involve any medication. It is not supposed to detect a disease or find something wrong. Your participation is voluntary, which means you can choose whether or not to participate. If you decide to participate or not to participate, there will be no loss of benefits to which you are otherwise entitled. Before you make a decision, you will need to know the purpose of the study, the possible risks and benefits of being in the study, and what you will be asked to do if you decide to participate. The researcher is going to talk with you about the study and give you this consent document to read. You do not have to make a decision now; you can take the consent document and share it with friends, sponsor, medical provider or family.

If you do not understand what you are reading, do not sign it. Please ask the researcher to explain anything you do not understand, including any language contained in this form. If you decide to participate, you will be asked to sign this form and a copy will be given to you. Keep this form, in it you will find contact information and answers to questions about the study. You may ask to have this form read to you.

**What is the purpose of the study?**

The purpose of this study is to learn more about how to help people manage stress and substance use cravings. We are teaching a brief group training in how to increase awareness of what we are doing in the present moment to see if it will
help adults with substance use problems manage stress and cravings better. This study is being conducted for a dissertation for a Doctorate in Clinical Social Work at the School of Social Policy and Practice at the University of Pennsylvania. There will be two groups of participants, who will be randomly assigned (which is like flipping a coin) to either a group that learns how to increase awareness of the present moment or another group that participates in music and relaxation. The researcher will follow up with everyone at the end of the intervention and then at four weeks after leaving treatment. The results of the study will be used to determine if using awareness or relaxation tools can help women experiencing substance use problems.

**Why was I asked to participate in the study?**

You are being asked to join this study because you are in inpatient treatment at this treatment program and have met the criteria for substance use treatment. This study is looking at how mindfulness might help people in inpatient treatment for substance use manage stress and substance use cravings.

**How long will I be in the study?**

The study will take place over a period of six weeks. This means for the next two weeks, you will attend a group twice each week. Each session will last approximately 90 minutes. If you miss a session, you can make it up as long as the study is running. The investigator will ask you some questions before the study starts, at the end of the classes, and then four weeks later. The completion of these forms will take approximately 30 minutes. Approximately 64 people at this treatment program will participate in this study.

**Where will the study take place?**

You will be asked to come to a group room, located at this treatment program, for both the classes and the pre and post follow-up interviews. The classes will take place on Tuesdays and Thursdays, 9:30 am – 11:00 am, although this may be subject to minor changes depending on the center’s schedule. The follow-up questions can be done at this treatment center or over the phone if necessary.

**What will I be asked to do?**

Participants will be asked to:

- Answer some questions about their substance use history, their mental health history, and how they are feeling at the present time.

- Attend a 90-minute group twice each week for two weeks and participate in the exercises.

- No one will touch you or do anything to you. No medication will be given. The exercises are similar to either relaxation or meditation-type exercises.
• Answer some questions about how you are feeling and managing recovery, about triggers or cravings and any substance use at the beginning of the study, at the end of the four classes and then again four weeks later. This may be done in person at the treatment center or by phone.

• To participate in this study, you must be at least 18 years of age, fluent in English, willing to participate in three 30-minute interviews: before the study, after the study, and at four weeks follow-up.

• You will be compensated for your time in the study with gift cards to Target: $5.00 after completing the pre-test questions, $10.00 for completing the questions after the groups are over (at two weeks), and $25.00 after completing the questions four weeks after you leave this treatment program.

• If you continue in the outpatient program at this center, the investigator will talk to the counselor or administrative staff to obtain your contact information, if necessary, for the follow-up questions.

What are the risks?

The risks in this study are minimal. The investigator will keep your information private. Someone might find out you were in the study, which means they would know you were in a substance use treatment program. The skills taught in the intervention group have almost no risk of harm. There is a slight chance that being in the group might bring up uncomfortable feelings or emotions or memories. There is a possibility you may feel uncomfortable about answering some of the questions that are asked. You do not have to answer any question you do not want to. If you feel upset about any questions asked or the study and want to talk to someone, the investigator will assist you with accessing onsite counseling services.

Any information you give us about abuse or neglect or harm to a child or an older person, or if you express an intent to harm yourself or others, must be reported to the appropriate authorities. If you bring any contraband to the classes, it will be reported to the treatment center staff.

How will I benefit from the study?

You may or may not benefit from study participation. However, your participation could help us understand if present moment awareness skills can help you manage triggers, cravings and urges to use substances, which can benefit you indirectly. In the future, this information may help other people to use these techniques to help manage these experiences more successfully.

What other choices do I have?

Your alternative to being in the study is to not be in the study.
If you choose not to be in the study, you will continue your treatment as usual at this treatment program.

**What happens if I do not choose to join the research study?**

You may choose to join the study or you may choose not to join the study. Your participation is voluntary.

There are no negative consequences if you choose not to join the research study. If you choose not to volunteer in the research study, your services will continue as usual at this treatment program with no negative consequences.

**When is the study over? Can I leave the study before it ends?**

The study is expected to end after all participants have completed all four classes and all the information has been collected. The study may be stopped without your consent for the following reasons:

- The PI feels it is best for your safety and/or health and/or the safety of the group-you will be informed of the reasons why.
- The PI, the sponsor, or the Office of Regulatory Affairs at the University of Pennsylvania can stop the study anytime.

You have the right to end participation in the research study at any time during your participation. There is no penalty or loss of benefits to which you are otherwise entitled if you decide to do so. Withdrawal from the study will not interfere with your future care.

If you no longer wish to be in the research study, please contact Kay Colbert in person when she is at the treatment center, or at 214-864-5981, or kay@kaycolbert.com and take the following steps:

Explain that you do not wish to participate any longer in the study. There will be no consequences for this.

**How will confidentiality be maintained and my privacy be protected?**

The investigator will do her best to make sure that the personal information obtained during the course of this research study will be kept private. Your name will not be used in the study or given to the University of Pennsylvania. However, total privacy cannot be guaranteed. Your personal information may be given out if required by law to ensure your safety or the safety of another person. If information from this study is published or presented at scientific meetings, your name and other personal information will not be used.

The participants will be assigned a code number, so that information gathered will
be confidential and when the study is written up no names or other identifying information will be used. If information from this study is published or presented at scientific meetings, names or other personal information will not be used. The Institutional Review Board at the University of Pennsylvania will have access to the records but will only see a code number and not a name. Stored electronic information will have identifying information (such as birthdates) removed.

The Principal Researcher will have a Certificate of Confidentiality from the National Institutes of Health, which means that the investigator cannot be forced to disclose any information given to us by research participants to anyone not connected with this research, including in any civil, criminal, administrative, legislative, or other proceeding, whether at the federal, state, or local level, unless you have given permission for this disclosure. This will ensure to the best of our ability that participants who may be involved in the criminal justice system will have their information kept confidential. The Certificate of Confidentiality will not be used to prevent disclosure as required by federal, state or local law of abuse or neglect of a minor, abuse or neglect of an older adult, or if you pose significant risk of harming yourself or others. In the case of abuse or neglect of a minor, it is required to report this to Child Protective Services. In the case of abuse or neglect of an older adult, it is required to report this to Adult Protective Services. If you indicate there is a risk to your safety through self-harm or to another person’s safety, your counselor or other personnel at the treatment center will be informed.

The Certificate of Confidentiality will not be used to prevent disclosure for any purpose you have consented to in this informed consent document. You should understand that a Certificate of Confidentiality does not prevent you from voluntarily releasing information about yourself or your involvement in this research. If you want your research information released to an insurer, medical care provider, or any other person not connected with the research, you must provide consent to allow the researchers to release it. Copies of these consent forms will be kept in a locked file that only the researchers have access to and will be destroyed once the study is over and closed with the University of Pennsylvania Institutional Review Board.

Data from this study will be de-identified (your name or other identifying information about you will not be used) and can be stored and distributed for future research studies without additional informed consent.

**What information about me may be collected, used or shared with others?**

We will ask your name, date of birth, race, gender. Phone number or other contact information will be collected for follow-up.

You will be assigned a participant number as identification and we will not use your name. The information in the questionnaires will ask about: employment, education, legal history, substance use, substance use cravings, stress, and health
status. No detailed personal health information will be collected. Your name and phone number will be kept to contact you for the follow-up questions at four weeks after you leave the treatment center, and then will be destroyed after the study.

**Why is my information being used?**
Your information is used by the research team to contact you during the study. Your information and results of the study are used to:
- Do the research.
- Oversee the research.
- To see if the research was done right.
- To evaluate and manage research functions.

**Who may use and share information about me?**
The following individuals may use or share your information for this research study:
- Kay Colbert, LCSW (principal investigator of the study)
- Malitta Engstrom, PhD (study chair)
- Phyllis Solomon, PhD (committee member)
- Michelle Evans-Chase, PhD (statistical consultant)

**Who, outside of the School of Social Policy and Practice at the University of Pennsylvania, might receive my information?**
No one else will receive your information.

The Principal Investigator or study staff will inform you if there are any additions to the list above during your active participation in the study. Any additions will be subject to University of Pennsylvania procedures developed to protect your privacy.

**What happens if I am injured from being in the study?**
There is minimal risk of injury from being in this study.

**Will I have to pay for anything?**
No, you will not have to pay to participate in this study. If there are any transportation costs associated with meeting to answer the follow up questions at four weeks after you leave this treatment program, you will be reimbursed up to $25.00.

**Will I be paid for being in this study?**
Participants who complete the initial interview for the study will receive a $5.00 gift card from Target. Participants who complete the second interview at the end of the four classes will get an additional $10.00 gift card from Target. Participants who complete the follow-up interview (by phone or in person) will receive an additional
$25.00 gift card from Target. Transportation costs for completing the final follow-up interview will be reimbursed up to $25.00.

Who can I call with questions, complaints or if I’m concerned about my rights as a research subject?

If you have questions, concerns or complaints regarding your participation in this research study or if you have any questions about your rights as a research participant, you can speak with the Principal Investigator listed on page one of this form. If a member of the research team cannot be reached or you want to talk to someone other than those working on the study, you may contact the Office of Regulatory Affairs with any question, concerns or complaints at the University of Pennsylvania by calling (215) 898-2614.

When you sign this document, you are agreeing to take part in this research study. If you have any questions or there is something you do not understand, please ask. You will receive a copy of this consent document.

- I am 18 years of age or over.
- All my questions have been answered.
- I have read and understand the description of my participation activities.
- I understand that I may keep a copy of this form for my records.
- I voluntarily agree to participate in this study and understand that I may withdraw at any time without consequence.
- I give permission for the investigator(s) to gather my written or reported data for analysis, understanding that any published reports will not identify me in any form.
- I give permission for the investigator to contact staff at this treatment program for my contact information in order to complete follow-up interviews.

Print Name of Subject:

______________________________
Signature:

______________________________
Date:
Name of Researcher: Kay Colbert, LCSW

Signature:

________________________________________

Date

________________________________________

University of Pennsylvania IRB Approval
From 06/12/19 – 05/19
Appendix B1

Intervention Manual

Intervention Manual for Brief Mindfulness Program for Groups in Inpatient Substance Use Treatment
Kay Colbert, LCSW
University of Pennsylvania

Introduction

The Brief Mindfulness Program described in this manual is an adaptation and integration of several mindfulness-based programs: Mindfulness-Based Stress Reduction (MBSR), Mindfulness-Based Cognitive Therapy for Depression (MBCT), Mindfulness-Based Relapse Prevention (MBRP) and Mindful Self-Compassion (MSC). The program is specifically designed to provide particular coping tools and support for people who are in early recovery from the use of addictive substances and who are in inpatient treatment.

The design of this program has been informed by clinical work at an inpatient facility for women with substance use disorders as well as professional training in MBSR, MBCT, MBRP and MSC from the University of San Diego Medical School Center for Mindfulness. The program is designed to be easily delivered to groups in inpatient settings. Most inpatient treatment centers have a rolling admissions system and there are people coming and leaving constantly. Trying to teach distinct modules at each session means that some participants miss out on critical material, so this design teaches the same skills each class, with subsequent classes reinforcing the skills and giving further opportunities for practice. The design takes the core elements of mindfulness-based programs and creates a practical, simplified modality for teaching these skills. The program is made up of 90-minute sessions delivered two times a week for 2 weeks, so each participant will have four sessions. This time frame is realistic and feasible for most treatment center schedules with treatment stays of 20 to 30 days. Clients do not need any to have any understanding of mindfulness to participate in this program.

The literature reflects that the more participants practice these techniques on their own, the more reported benefits. However, again to be realistic and practical, we do not include any mandatory requirements for practice or any logs to check on how often participants practice.

This manual is geared towards clinicians who already have some basic knowledge and understanding of mindfulness, but formal training or certification is not necessary. If you have questions or comments on this manual, contact Kay Colbert, LCSW at kay@kaycolbert.com
The Brief Mindfulness Program

All components to be repeated each session. Total time is 90 minutes each session. (Total time of all exercises is 80 minutes, which allows 10 minutes for extra discussion.) Use the Fidelity Checklist provided to ensure all components of the Brief Mindfulness Intervention are done at each session.

1. Welcome

Simple Mindfulness of the Breath and Body (1-2 minutes) – sometimes called an Arriving Practice or Soft Landing. (refer to Facilitator Handouts)

10 minutes Introductions, Group Format, Rules, Expectations

a. Introductions: Welcome people as they come in the room.

Session 1 Only: Hi, my name is ______________.
I am doing the research study that you have volunteered to participate in. You are all participating in a study that teaches people additional coping tools to support people in recovery from substance use. Your participation is really appreciated.

All Sessions: Ask them to settle in and take care of any restroom breaks or drinks of water quickly before class starts. Ask everyone their name and print their names on the sign in sheet. Remind them their names will not be used in the study, just a number, but we are asking for their name each time just to keep track of who is here. The facilitator welcomes new members, has everyone introduce themselves by first name and how many of the mindfulness sessions they have attended. Briefly go over format of group and expectations for participants. Even if there are no new members, this should be gone over briefly. The facilitator explains that they are all participating in a study that teaches people additional coping tools to support people in recovery from substance use. Tell them their participation is appreciated. Remind them that four sessions are needed to complete the study.

Your name will not be used in the study, we will identify you by a number only. However, we will take roll so we can keep track of who is here.

As a reminder, you are being asked to come to four of these classes and then answer some questions about your experience. Everything you tell us will be kept confidential.

For the next 90 minutes, we will do a relaxing activity together. Talking will be kept to a minimum – please don’t talk unless you have to. This will help us keep a calm, soothing atmosphere in the room.

I’d like to start by welcoming any new members. Who is here for the first time? Please raise your hand.
b. Group Format: The facilitator explains that this group teaches additional coping tools to support people in recovery from substance use.

- The groups will teach mindfulness-based skills that can be used to help manage a variety of issues, including stress, anxiety, uncomfortable emotions, pain, triggers and cravings and will teach skills to help maintain abstinence.
- In the group, we will do a variety of mindfulness exercises together, some involving periods of silence. I will talk you through these exercises.
- We will share what we noticed and experienced during these exercises.
- We will then discuss how these mindfulness skills might be used for recovery, as well as life in general.
- The exercises will be repeated from class to class and this is because they are key skills and need practicing for you to learn them. Repetition is helpful for learning any new skill and teaching your brain new ways of doing things.
- If something uncomfortable or upsetting should come up for you during any of the exercises, please open your eyes if they are closed, feel your feet on the floor and just follow your breath in and out.

c. Group Rules and Expectations: The facilitator asks participants to attend to restroom or other breaks before class starts.

- This group is a safe place where everyone can feel free to participate and work on her recovery together.
- Please share, participate.
- Please keep bathroom breaks or water runs to an emergency basis.
- Use I statements. No cross-talk on what others have said.
- Please raise hands to share, and be respectful of our time, keeping comments brief.
- No sleeping, no cell phones, no side-talking.
- Respect yourself and others in the group.
- Maintain confidentiality outside of the group.
- In this particular group, we do not discuss past experiences or tell “war stories” about using.
- Please maintain quiet during the mindfulness practices.

2. Psychoeducation 10 minutes (repeated each session)
Introduction to Mindfulness (see handout)

a. What is mindfulness?

- “Awareness that emerges through paying attention on purpose, in the present moment, and non-judgmentally to the unfolding of experience moment by moment.” (Kabat-Zinn, 2003)
- Mindfulness is being aware of your present moment.
- You are not judging yourself or your experience, reflecting or thinking thoughts.
- You are simply observing the moment in which you find yourself.
- It’s the opposite of being on auto-pilot.
- Mindfulness is something that has been around for a very long time, but more recently we have learned it has many benefits for people that practice it.
- It is not a religious practice and it is consistent with your own religious practices, whatever they may be.
• Mindfulness skills can help manage stress, anxiety, uncomfortable emotions, pain and increase grounding, increase as sense of well-being, increase a sense of being calm. This is backed up by scientific research.

b. How can mindfulness help with relapse prevention?
• Helps with distress tolerance skills, reduces suffering, increases self-compassion when things get difficult, increases emotional regulation and increases the ability to make good decisions.
• Helps you become more of aware of any triggers or cravings early on, before you feel totally overwhelmed. Then you can ground yourself, use your coping skills and think through your options clearly.
• You can learn, with practice, to respond thoughtfully instead of react impulsively.
• This increases the making of healthy, safe choices.

3. Formal mindfulness practice (repeated each session)
a. Teaching breathing: Have the participants place one hand on their belly and one on their chest area and take a breath. Have them take a deep breath. Encourage them to feel the breath entering their body, perhaps through the nose, going down the throat, into the lungs. Feeling the chest and belly expanding and falling with each inhale and exhale. Just easy breaths through the nose. No need to make sounds or breathe through the mouth. Remind them that we all have our breath with us, all the time. It is always with us to use as grounding and calming. Deep breathing tells our brain to start our natural relaxation system, and we cannot be stressed and relaxed at the same time. It is a tool that we will use throughout this class.

b. Teaching Mindfulness of the Breath, and Awareness of Physical Sensations, Emotions, Thoughts
   i. 3 minutes Mindful Breathing, also called a Mindful Check-In (all classes)
   ii. 10 minutes Mindfulness of Breath and Sounds

Inquiry or Feedback – ask for a few participants to “popcorn” out observations, keep brief.

• Keep discussion to the experience of the present moment.
• Ask, “What did you notice?”
• “What came up for you during the exercise?” “What did you notice going on in your body physically? What emotions came up? Any automatic thoughts?”
• Keep this to simple labeling, not story-telling.
• Encourage participants to stay in the present moment.
• Facilitator’s response should be interested but neutral and non-judgmental. “Uh huh, I see.” “OK.”
• Ask, “How was that for you?”
• Ask, “How might you use this in your recovery?”
• Ask, “How might checking in with what is going on with yourself apply to urges or cravings to use alcohol or drugs?”
• Ask, “How can checking in with yourself lead to better ways of coping with urges or cravings?
iii. **10 minutes** Brief Body Scan (classes 2-4)

Inquiry or Feedback – ask for a few participants to “popcorn” out observations, keep brief.

- Keep discussion to the experience of the present moment.
- Ask, “What did you notice?”
- “What came up for you during the exercise?” “What did you notice going on in your body physically? What emotions came up? Any automatic thoughts?”
- Were you able to focus on your body? What was that like for you?
- Keep this to simple labeling, not story-telling.
- Encourage participants to stay in the present moment.
- Facilitator’s response should be interested but neutral and non-judgmental. “Uh huh, I see.” “OK.”
- Ask, “How was that for you?”
- Ask, “How might you use this in your recovery?”

C. Introducing Mindful Self-Compassion

i. **10 minutes** Self-Compassion (MSC) exercise, Soften, Soothe, Allow. Cultivates ability to have self-compassion and self-kindness when difficulty arises. Explain that when things get overwhelming or uncomfortable, participants can have awareness of this and then simply offer themselves some comfort or kindness, just as they might to a good friend or a beloved child. They might say to themselves, “Oh, this hurts!” Or, “This is really uncomfortable!” And then try the MSC exercise, a simplified version of which is in their handouts.

Inquiry or Feedback – ask for a few participants to “popcorn” out observations, keep brief.

- Keep discussion to the experience of the present moment.
- Ask, “What did you notice?”
- “What came up for you during the exercise?” “What did you notice going on in your body physically? What emotions came up? Any automatic thoughts?”
- Keep this to simple labeling, not story-telling.
- Encourage participants to stay in the present moment.
- Facilitator’s response should be interested but neutral and non-judgmental. “Uh huh, I see.” “OK.”
- Ask, “How was that for you?”
- Ask, “How might you use this in your recovery?”

4. Mindfulness specifically for SUD (repeated each session)

a. **10 minutes** SOBER Response to be used when there are triggers or cravings or when things get difficult.

   (1) Explain: This is an exercise to do anywhere, anytime. Use it in the middle of a stressful or high-risk situation, if you are upset or when you are experiencing triggers or cravings and urges to use substances or act out in other unhealthy ways. Going through these steps can help you step out of automatic pilot, turn down reactivity,
and become more aware and mindful in your response. You can respond rather than react.

(2) Write on board in a vertical line, the letters: S O B E R

(3) Following the handout, beside each letter, write the rest of the word and explain what it means.

S TOP
O BSERVE
B REATHE
E XPAND AWARENESS
R ESPOND

(4) On **Observe**, note that this is just like the Mindful Check-In, checking in with body sensations, emotions and thoughts.

(5) On **Expand Awareness**, solicit suggestions from the participants to what their choices in a situation might be, both positive and negative, and the probable consequences of each. What is the big picture?

(6) On **Respond**, solicit suggestions from the participants to what their response in the situation might be if they made a mindful choice.

(7) The SOBER Response is a flexible tool. Participants can do it in a few seconds for a few minutes. If it works for you, just do a SOB. It is also fine to change the order and Breathe first if that works for you, B-SOBER.

(8) Ask, “How might things be different if you use this technique when you had urges or cravings?”

b. **10 minutes Urge Surfing**

(1) Explain that people in recovery sometimes have urges or cravings to use substances or do other unhelpful behaviors to make themselves feel better. It may seem we are powerless when we have cravings, but mindfulness practice can help us manage them skillfully.

Urge surfing teaches ways to respond differently when we have an urge or craving to use substances or do any kind of behavior that is unhealthy for us. When cravings are strong, you may feel them in your body and have thoughts or urges to behave in a certain way. We may react automatically in ways that are not helpful to us in the long term. We can learn to respond differently to these experiences. (If there is a whiteboard, draw a picture of a wave on the board. Show the peak of the wave, and how the wave then gets weaker.)
When urges or cravings come up, it is like a wave washing over us. We can stay with the wave, using the breath to stay steady and calm, riding the wave as it grows and peaks, and then rolls back out. The wave or craving will go away naturally, all by itself. All urges or cravings, no matter how strong, will eventually go away all by themselves. We can use mindfulness breathing to ride the wave safely until it goes away.

(2) Using the Facilitator Urge Surfing handout, guide participants through the exercise. Tell them if any feelings get too uncomfortable, to just continue to follow the breath.

c. **5 minutes** Trigger and Craving Log.

   (1) Hand out Trigger and Craving Log for the week. Show participants how to fill out every time they notice a trigger or have a craving to drink or use substances. Refer to the example on the handout.

d. Encourage participants to practice the exercises and use the techniques they have learned. As with any skill, practicing makes it easier to do. Tell them that the more mindfulness they can do, even if it is very brief, can help them make positive changes in their brain. Explain that once they leave treatment, there are many mindfulness resources available online (many at no cost) and in their communities.

5. **Reminders**
Remind participants to refer to their handouts during the week. Remind them when the next class will take place. Remind them that they are being asked to attend four classes total and do a follow-up session four weeks after they discharge, by phone or in person. Any transportation costs for meeting in person will be reimbursed. Everyone who completes the classes and the follow-ups will receive a $25 gift card.

6. **Handouts for Participants**
Handouts will be provided to all participants and will be available at every session. It is usually best to hand these out at the end to minimize distractions.
   1. Introduction to Mindfulness Handout, including Challenges
   2. Mindful Check-In Handout
   3. Mindful Self-Compassion Handout
   4. SOBER Response Handout
   5. Urge Surfing
   6. Resources for Practicing Handout
   7. Triggers and Cravings Log Handout
Facilitator Handouts

1. Simple Mindfulness of the Breath or Soft Landing
2. 3-Minute Mindful Breathing or Mindful Check-In
3. Mindfulness of Breath and Sounds
4. Brief Body Scan
5. Soften, Soothe, Allow
6. Urge Surfing
Appendix B2
Handouts for Participants
Introduction to Mindfulness

What is Mindfulness?
Mindfulness is simply paying attention in the present moment, without any judgement. Being aware of what is going on with you and what is going on around us.

What does Mindfulness have to do with recovery?
Paying Attention: Gives you greater awareness of triggers and cravings and your responses to them. Interrupts automatic behavior.

In the Present Moment: Learning to accept the present moment instead of using substances to avoid it.

Non-judgmentally: Not going with the negative feelings or thoughts that often lead to resumed use.

Mindfulness teaches us to pause before reacting, helping us to choose healthier responses.

How do I do Mindfulness?
Simply take a pause, wherever you are. Take a deep breath. Notice what you are doing and feeling in the present moment. It’s as simple as that!

Some mindfulness practices can be done sitting or lying down, like a meditation. Some are done during everyday activities, such as walking or eating or brushing your teeth. Just putting all your attention onto what you are doing.

Some mindfulness practices guide you to focus on what is going on inside you: What physical sensations are there, what emotions and what thoughts are going through your head. Just notice.

Some mindfulness practices focus your awareness on what is going on around you: sounds, sells, sights, tastes.

How Long do I Have to do It?
Research shows that even a few minutes of mindfulness a few times a day can help us feel calmer, more grounded in the present and more focused and emotionally regulated. The more you do, the more benefits you may get.

Is Mindfulness a Religion or a Cult?
No, mindfulness is not a religion or anything that interferes with your practice of your own belief system.

What are the Challenges to Doing Mindfulness?
Making time to practice mindfulness can be a challenge, but start by setting aside a few minutes, even just 1 or 2 minutes. Once we are still, often we notice all the thoughts...
going through our head or we notice uncomfortable feelings or sensations. Just let
thoughts go by like clouds in the sky, that’s just what our minds do. We do not need to try
to stop our thoughts or have an empty mind. When discomfort is present, just notice it
and stay with it as long as you are able, using your breath as an anchor.
Mindful Check-In

This is something to practice several times a day. You might even set the alarm on your phone to remind you in the morning, noon and evening. You can keep your eyes open or closed when you do this. You can do it sitting, lying down, standing, even walking. You can take 1 minute to do this, or 5 minutes, whatever feels right for you. If at any point it becomes uncomfortable, just return to the breath, following your inhale and exhale.

1) **BREATHE** - use breath as an anchor to present moment. Follow your inbreath and your outbreath. Just notice what breathing feels like.

2) **THOUGHTS** – notice what thoughts are going through the mind. Try to not follow the thoughts, just notice that they are there. You might label them, such as, “Oh, I’m having a thought about dinner.” Or, “I’m thinking about what I will live when I leave treatment.”

3) **EMOTIONS** – notice what feelings or emotions are present, pleasant or unpleasant. Try not to get wrapped up in the emotions, just notice that they are there. You might label them, such as, “Oh, I’m feeling anxious right now.” Or, “I’m feeling happy right now.”

4) **BODY SENSATIONS** – notice what physical sensations are here right now. Notice any areas of warmth or coolness, relaxation or tightness. Trying to not judge the feelings as good or bad, just noticing.

5) **BACK TO THE BREATH** – bring your attention back to the sensation of breathing, to your inhaling and exhaling. Simply noticing the physical sensations of breathing for a few moments. Use the breath as an anchor.
**Mindful Self-Compassion**

When things are starting to get challenging, overwhelming or difficult:

1. Take a deep breath, notice thoughts, emotions, physical sensations.
   
   Ask yourself: What am I feeling right now?

2. Close your eyes and begin to focus on your breath. Inhaling and exhaling.

3. Say to yourself: This is a moment of suffering. This is a moment of difficulty. This hurts. This is stressful. Ouch.

4. Remind yourself: Suffering is part of life. This is what connects us with others. Other people feel this way. I’m not alone. We all struggle in our lives.

5. Soothing touch: Put your hands over your heart (or belly, face, legs or wherever feels comforting). Feel the warmth of your hands.

6. Say to yourself: What do I need in this moment to feel better? What do I need to hear right now to express kindness to myself? Some phrases might be:
   
   May I be kind to myself.
   May I give myself the compassion that I need.
   May I be patient.
   May I be strong.
   May I accept myself as I am.

   Practice saying these or other comforting words to yourself on your inbreaths.

7. On the outbreath, imagine exhaling the tension, anxiety, stress, discomfort . . . letting it go.

8. Repeat as needed.

“And when we're in a mindset of mindful compassion, a little space grows around our destructive emotions that allows us to make positive changes in our lives.”

- Christopher Germer

SOBER RESPONSE

This is an exercise you can do almost anywhere, anytime. Use it in the middle of a stressful or high-risk situation, if you are upset or when you are experiencing triggers or cravings and urges to use substances or act out in other unhealthy ways. Going through these steps can help you step out of automatic pilot, turn down reactivity, and become more aware and mindful in your response. You can respond rather than react.

S TOP – Stop what you are doing. Notice what is happening right now. When you are in a stressful or risky or triggering situation, slow down, check in with what is happening in the present moment.

O BSERVE – Observe. Notice physical sensations going on in the body, emotions that are here, any thoughts you are having. Just notice.

B REATHE – Gather your attention and bring it to your breath. Follow inbreath and outbreath, for a few breath cycles or a few minutes.

E XPAND AWARENESS – Expand your awareness to see the whole situation. What are your choices here? What would be the consequences of each?

R ESPOND – Choose a response, thoughtfully. What is truly needed in this situation and how you can best take care of yourself? Whatever is happening in your mind and body, you still have a choice in how you respond. In this way, you are not reacting with your “emotion mind,” you are making a mindful choice.

Urge Surfing

Urges or cravings are not failures or signs you are weak. They are a natural part of the recovery process. Here is a way to handle them. Practicing this will help you manage urges without using substances or doing other behaviors that are unhelpful. The more you practice this, the easier it will get. Urges that are not fed will grow weaker.

When urges or cravings come up, think of it like a wave washing over us. We can stay with the wave, using the breath to stay steady and calm, riding the wave as it grows and peaks, and then rolls back out. The wave or craving will go away naturally, all by itself. We can use mindfulness breathing to ride the wave safely until it goes away.

1. Pause. Take a deep breath in and out. Notice the physical feeling of breathing. Stay with this feeling for a few moments. Remember urges or cravings are just feelings and cannot hurt you in any way. The worse thing that can happen is that you will feel these uncomfortable feelings.
2. Find where in your body you feel the urge or craving. Do a scan of the body. Is there physical discomfort somewhere? If so, imagine sending your breath to that place in your body, soothing and creating a little space there, and then breathing out from that spot any discomfort or tension.
3. Notice if you are having any uncomfortable or unwanted emotions or feelings. Just notice these, continuing to follow the breath, in and out. Imagine breathing out the emotions.
4. Notice if you are having any thoughts come up, perhaps about what you should do or things you are telling yourself. Just notice these, knowing you DO NOT have to act on them. They are just thoughts going through the mind. Imagine them floating away Continue to follow the inbreath and the outbreath.
5. Stay here with whatever is happening without the need to control it, without the need to control it, or do anything about it, or react by doing something that is not helpful or healthy for you.
6. Imagine that the urge or the craving is like a wave, rising, watching it. If we stay calm and do not react, we can watch the wave peak and then come down again and fade. Use the breath as a way to surf the wave.
7. Perhaps now notice what we really need or crave in this moment? Do we have a deeper need below the craving? Are we lonely, stressed, unhappy? Can we name what we really need? Continue to follow the breath, in and out. Be kind and gentle with yourself.
8. Continue to follow the breath, noticing the breath in and out. Notice that you have a choice to stay with these feelings, that you do not have to react or do anything. You always have this choice when you have urges or cravings. No matter what is going on in your body, or what thoughts you are telling yourself or what emotions are coming up, you can recognize what is going on. You have a choice to stay with this, using your breath to ride the wave until it washes out.
9. Stay with the breath for as long as you need to. Breathing in soothing breath, breathing out any discomfort or tension. Riding the wave, watching it go away.

Adapted from Mindfulness-Based Relapse Prevention, Bowen, S., Chawla, N., & Marlatt, G.A. (2010).
# Triggers and Cravings Log

## Noticing Triggers and Cravings Log

Pay close attention this week to what triggers you to crave alcohol or drugs. Each time, answer the

<table>
<thead>
<tr>
<th>Date / Day</th>
<th>Situation or Trigger</th>
<th>What physical sensations did you experience?</th>
<th>What emotions or moods?</th>
<th>What were your automatic thoughts at the time?</th>
<th>What did you do?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday, Feb 12</td>
<td>Example: Had an argument with my mother.</td>
<td>Chest was tight, heart beating fast, face hot, hands shaking.</td>
<td>Angry, anxious, craving.</td>
<td>I need something to get me through this. How much cash do I have?</td>
<td>Took a walk, talked to a friend.</td>
</tr>
</tbody>
</table>

Adapted from Mindfulness-Based Relapse Prevention, Bowen, S., Chawla, N., & Marlatt, G.A. (2010).
Resources for Practicing Mindfulness

Online
There are many resources online if you have access to the internet and they have guided meditations you can listen to at no cost.
- Mindfulness-Based Relapse Prevention www.mindfulrp.com/
- Mindful Self-Compassion www.mindfulselfcompassion.org/
- Center for Mindful Self-Compassion www.mindfulselfcompassion.org/
- Kristin Neff www.self-compassion.org
- University of California San Diego Center for Mindfulness mindfulness.ucsd.edu/
- University of Massachusetts Center for Mindfulness www.umassmed.edu/cfm/
- Palouse Mindfulness – a free, work at your own pace, Mindfulness-Based Stress Reduction course. palousemindfulness.com

Apps
There are many mindfulness apps available, some free and some not. Many people like Headspace, Insight Timer, Stop, Breathe & Think, Oxford MBCT, Oak.

DFW Resources: (includes different types of classes, some using variations on mindfulness)
- Dallas Meditation Center – a variety of meditation, tai chi, chi gong classes. Many classes cost only what you can afford.
  4801 Spring Valley Rd, Suite 115, Dallas, TX 75244, 972-432-7871
  www.dallasmeditationcenter.com
- Dallas Yoga Center – a variety of secular yoga & meditative classes, from beginner to advanced.
  Beginner class discounts.
  4525 Lemmon Ave, 3rd floor, Dallas 75219, 214-443-9642
dallasyogacenter.com/
- Maria Kannon Zen Center (inside White Rock UMC)
  1450 Oldgate Ln, Dallas, TX 75218
  214-388-1122
- KTC Dallas
  1000 Armada Ave, Irving, TX 75061
  (214) 948-3348
- PCD Dallas
  1501 Pipeline Rd E, Bedford, TX 76022

Crow Museum of Asian Art
Their Wellness 101 series offers something every day of the week, all classes free of charge. Includes yoga, qigong, meditation, relaxation.
  2010 Flora St., Dallas 75201
  214-979-6430
  http://crowcollection.org/learn/wellness/

Shambala Dallas
Free public meditation classes. Unity of Dallas, 6525 Forest Lane, Dallas 75230 or Oak Cliff, 3839 W. Kiest Blvd.
dallas.shambhala.org
**Sign-In Sheet (to be completed by researcher)**

Date of class: ________________________________

<table>
<thead>
<tr>
<th>Name (please print)</th>
<th>Participant #</th>
</tr>
</thead>
<tbody>
<tr>
<td>1)</td>
<td></td>
</tr>
<tr>
<td>2)</td>
<td></td>
</tr>
<tr>
<td>3)</td>
<td></td>
</tr>
<tr>
<td>4)</td>
<td></td>
</tr>
<tr>
<td>5)</td>
<td></td>
</tr>
<tr>
<td>6)</td>
<td></td>
</tr>
<tr>
<td>7)</td>
<td></td>
</tr>
<tr>
<td>8)</td>
<td></td>
</tr>
<tr>
<td>9)</td>
<td></td>
</tr>
<tr>
<td>10)</td>
<td></td>
</tr>
<tr>
<td>11)</td>
<td></td>
</tr>
<tr>
<td>12)</td>
<td></td>
</tr>
<tr>
<td>13)</td>
<td></td>
</tr>
<tr>
<td>14)</td>
<td></td>
</tr>
<tr>
<td>15)</td>
<td></td>
</tr>
<tr>
<td>16)</td>
<td></td>
</tr>
</tbody>
</table>
Appendix B3
Facilitator Handouts for Intervention
**Simple Mindfulness of the Breath, or Arriving Practice or Soft Landing**

1-2 minutes

Let’s start by taking a moment to just settle into this class. Putting aside anything you have in your lap, putting notebooks or pens or purses under your chair.

Perhaps now just taking a deeper breath or two . . . and dropping into silence . . . closing your eyes if that feels comfortable for you; if not, just keeping a soft unfocused gaze.

Breathing in slowly and deeply and then letting the breath out slowly. And as you breathe out, noticing that natural feeling of releasing a little more with each out breath...

Just simply letting go.... breathing in . . . and out . . .

Perhaps noticing a feeling of what you were doing just before you came here . . . and letting that fade away. Perhaps noticing thoughts of what you are going to do after this class, and letting those thoughts fade into the background.

Just breathing in . . . and out . . .

Now, continuing to breathe naturally, bringing your awareness to any physical sensations you have in your body. Perhaps you can feel sensations of touch or light pressure where your body makes contact with the chair, with the cushion or the floor. Maybe you can feel your feet inside your socks or the light touch of your blue jeans on your legs. Noticing where your hands are. Spending a moment or two just noticing and exploring these sensations.

And just noticing your breath again, breathing in . . . and out . . .

There’s nothing you have to do right now, nothing you have to fix, all you have to do is be present here today, with yourself, just breathing.

Now very slowly and gently, while still maintaining an awareness of your body, when you are ready, allowing your eyes to open if they were closed and your awareness to include the room, and the people around you.
3 Minute Breathing Space
A Mini-Meditation to bring Mindfulness into everyday life

STEP 1. BECOMING AWARE OF RIGHT NOW

Taking a moment now and settling into a comfortable position.

Becoming more aware of how things are in this moment by having an erect and dignified posture, whether sitting or standing. If possible, close your eyes, or keep soft unfocused gaze a few feet in front of you.

Focusing your attention now on your breath and noticing your very next breath in. And your breath out. Following your next in breath, and then the outbreath.

Then, bringing your awareness to your inner experience and acknowledging it, ask, “What is my experience right now?”

What THOUGHTS are going through the mind? As best you can, acknowledge thoughts as mental events, perhaps putting them into words. Trying not to follow the thoughts but just NOTICE them.

What FEELINGS are here? Turning toward any sense of discomfort or unpleasant feelings, acknowledging them. See if you can notice the feelings and maybe label them. “Oh, I’m feeling happy right now.” or “Oh, I’m feeling anxious right now.”

What BODY SENSATIONS are here right now? Perhaps quickly scanning the body to pick up any sensations of tightness or tension, acknowledging the sensations. Trying not to judge the feelings as good or bad, just noticing.

STEP 2. GATHERING FOCUS ON THE BREATH

Then redirecting your attention to focus on the physical sensations of the breathing itself. Moving in close to the sense of the breath in the belly, in the abdomen . . . feeling the sensations of your belly expanding as the breath comes in . . . and falling back as the breath goes out. Maybe noticing the breath coming in through the nose, filling your throat, upper chest, lower chest. Follow the breath all the way in and all the way out, using the breathing to anchor yourself into the present.

STEP 3. EXPANDING AWARENESS

Now expanding your awareness around the breathing so that it includes a sense of the body as a whole, your posture, and facial expression. If you become aware of any sensations of discomfort, tension, or resistance, taking your awareness there by breathing into them on the inbreath. Then breathing out from those sensations, softening and opening with the outbreath. As best you can, bringing this expanded awareness to the next moments of your day.

Adapted from Mindfulness-Based Cognitive Therapy, Segal, Williams, and Teasdale (Guilford Press, 2013).
Mindfulness of the Breath and Sound

10 minutes
And so, we are going to spend the next few minutes just being here in this room together. You don’t have to feel anything in particular, you don’t have to relax - seeing if you can just be here, present in this room today. Seeing if you can just be aware of the present moment without effort, without needing it to be different, just being aware.

Take a moment to adjust your position comfortably wherever you’re sitting, whether it’s on the floor, or in a chair or on a couch ... Putting down any objects that you might be holding or have in your lap. Gently closing your eyes if that’s comfortable for you and settling into your body... If it’s more comfortable for you not to close your eyes, just keep a soft focus a few feet in front of you.

Taking a moment to feel your feet of the floor, your back on the chair. See if you can feel your hips and your spine supporting you.

Perhaps now taking a deeper breath or two ... Breathing in slowly and deeply and then letting the breath out slowly. And as you breathe out, noticing that natural feeling of releasing a little more with each out breath...

Just simply letting go.... breathing in . . . and out . . .

Now, when you are ready, bring your awareness to the sounds that are present in this moment.

Without searching for sounds, let them come to you and fill your ears. Simply hearing sounds near and sounds far away.
These may be sounds inside the room, outside the room, inside your own body. *(Note to facilitator: If there are loud sounds going on, mention them. “You might hear shouting in the hall.”)*

Notice any judgments or thoughts about the sounds and let them pass away. You might notice yourself thinking, “I wish people would be quiet.” Just notice that and let the thought drift by.

Notice if you find yourself trying to identify or label the sounds and instead focus on hearing the bare sounds themselves.

Now, if you will, bringing your awareness to the changing patterns of physical sensations in your belly and your chest as your breath moves in and out of your body. You might place your hand on your belly so you can feel the rising and falling with each breath. Breathing in and noticing the sensation of air coming in through your nostrils, flowing down the back of your throat, filling your chest and your belly.

Focusing your awareness on the sensations of slight stretching as the belly rises with each inbreath and the gently deflation as it falls with each outbreath. As best you can, following with your awareness the changing physical sensations all the way through an
inbreath and then the outbreath. Perhaps noticing a slight pause between one inbreath and the following outbreath.

There is no need to control the breathing in any way – simply let the breath breathe itself. As best you can, also bringing this attitude of just allowing to the rest of your experience here today. There is nothing to be fixed, no particular state to achieve. As best as you can, simply allowing this experience, sitting here breathing, to be just as it is, without needing it to be anything other than what it is.

Sooner or later (usually sooner), your mind will wander away from the focus on the breath to thoughts going through our head, perhaps planning or daydreaming or drifting along. This is OK, it’s simply what minds do. It’s not a mistake or a failure. When you notice that your awareness is no longer on the breath, congratulate yourself for noticing because you have come back and you are once more being aware of your present experience. You might want to say to yourself, “Oh, I was thinking a thought.” Then, gently bring your awareness back to a focus on your very next inbreath, using your inbreath as an anchor to the present moment. And then your outbreath again. Perhaps labeling the thought, “Oh that was a thought about what I am going to cook for dinner.” Or, “That was a thought about what I need to do tomorrow.” Just noticing the thought is a mental event and coming back to the next breath inbreath. And outbreath. To the rising and the falling of your belly.

Perhaps imagining the thought as a leaf on a stream floating by, just noticing the event and letting it flow past. Or as a cloud in the sky on a windy day. Let it drift by. Or a billboard on the highway. Just notice and let it go past.

As best you can, bringing a quality of kindness and compassion to your awareness, perhaps seeing the repeated wanderings of the mind as opportunities to bring patience and gentle curiosity to your experience here today.

Being aware of your experience in each moment, using the breath as an anchor to gently reconnect with the here and now. Reconnecting with the next inbreath. . . . and the next inbreath.

Now, for a few moments, listening to the gentle sound of your own breathing...Allow your breath to take up whatever rhythm feels natural for you at the moment...Easily (Pause here for a few moments.)

Now very slowly and gently, while still maintaining an awareness of your body, when you are ready, maybe moving the body a little, wiggling the fingers and toes or gently stretching. Then allowing your eyes to open and your awareness to include the room, and the people around you.

Adapted from Segal, Williams, Teasdale, 2013.
**Brief Body Scan**

10 minutes

(Note to facilitator: This can be done sitting or lying down, whatever you have room for. It may even be done standing up if participants wish. Adjust any directions accordingly to shorten or lengthen as time allows. If time is running short, you may do fewer individual body parts, but keep the flow the same.)

For the next 10 minutes or so, having the intention to be simply present with yourself, with this moment as it is. Choosing to take some time to be where you are, in your body without any other place to go, without anything else to do except to be present in this moment as it is.

Taking this time to settle yourself in a posture of some comfort. Notice any clothing that may be restrictive and doing what you can to be comfortable, removing shoes perhaps.

Allowing your eyes to close gently if that feels right for you.

Taking a few moments to get in touch with the movement of your breath. Just noticing your body breathing, in and out. Perhaps noticing the breath is cooler as it comes in the nostrils and down into the chest. And perhaps noticing it is slightly warmer air as you exhale. It’s not about breathing in any particular way, but simply about noticing the process of breathing itself.

Recognizing that along the way, we may feel somewhat relaxed, on occasion, but that may not be the point of being present in this body scan. Just simply noticing what it is – if we are anxious or uncomfortable or agitated in some way, or wanting it to be different, noticing that as well. If relaxation is here, noticing what that feels like in the body.

And, when you are ready, allowing the attention to rest on the body as a whole. Notice the points of contact your body has with the chair or the floor, your mat or chair. Notice your body being supported by the floor or the chair. Just beginning to have a sense of the body as it is. Taking the time to settle in.

Having a sense of the body as a whole from the top of the head down to the tips of the toes. Thinking of your awareness, perhaps, as a kind of floodlight that encompasses the entire body.

And as you are ready, allow that floodlight, that beam of attention to narrow and become a spotlight, a beam of light perhaps that very deliberately moves down your body, down your left leg, and into your left foot, and out to the toes of the left foot, noticing the left toes to the exclusion of everything else. Bringing attention to just this one small area of the body. And taking note of what you find here. If you are aware of sensations, the touch of clothing, warmth or coolness, numbness, tingling, even lack of sensation. Just noticing that.
And to whatever degree you may notice other things, other things in the body, passing
sounds, simply bringing the attention back to this one point. Taking in what you are
aware of, just here, just now. Not having to strain to become aware of anything in
particular, but just taking note of what’s here.

And as you’re ready, beginning to move your attention to encompass the rest of the left
foot. The ball of the foot, the arch, the sole, the heel, the sides around the ankles the top
of the foot. taking it in as it is in this moment.

And now, the left ankle.

PAUSE

And as you’re ready, moving the attention to the lower leg, the calf, the shin. Just holding
this part of the body in awareness just as it is. You may notice a sense of touch where
your left leg touches the mat or the chair, perhaps a sense of movement of air,
temperature – warmness or coolness. Perhaps tension or relaxation. If tension is what
you encounter, not having to do anything about it if you choose not to. Letting this
experience be just what it is, without it having to be any different from what it is. Perhaps
simply taking note of it as it is.

And now allowing the attention to move to the left knee, once again seeing if we can be
aware of it, just the left knee. Taking note of whatever you discover here. Recognizing
that there are parts of the body that may hold memories or emotions, so along the way
it’s not unusual for people to encounter certain memories, emotions or thoughts
associated with particular parts of the body. If these memories or thoughts or emotions
arise, simple allowing them to wash over us, like waves as we sit on the beach, watching
them come in and then recede. Recognizing that they are just thoughts or emotions or
memories . . . and now awareness of the left thigh. An area where some of us may hold
some tension. If that’s your experience, just acknowledging its presence. Simply noticing
where you feel what you feel, what’s here just now. Is it warm, cool, loose, tight. And
letting go of it having to be different than it is. Letting go of any need to change it, to
improve it.

Gathering the attention now, and moving that spotlight across the hips, to the right side
and down the right leg, moving all the way down to the right foot and into the toes of the
right foot. Perhaps noticing if they are different from the toes of the left foot. Tuning in to
the experience of these toes in this moment as it is.

Moving the attention now from those toes to the rest of the right foot, the ball of the foot,
the arch, the heel, the left and right sides, the top. Taking in the right foot as a whole.
Aware perhaps of how complex this part of the body is and how amazing it is it moves us
around. Aware of the right ankle, just the right ankle. Not trying to have any particular
feeling, but just seeing what’s here. Adopting an attitude perhaps of playful curiosity with
the body. What will we find here? Exploring this body as we would any new thing we encounter, even though this is not new at all.

Slowly moving the beam of attention to the lower right leg area, the calf and shin. Just holding it in awareness, noticing whatever sensation is here.

And moving the attention to the right knee, noticing what you notice. Noticing perhaps a slight twist or feeling the foot falling out.

Moving attention now to the right thigh. Just exploring, little by little. Perhaps noticing our attention wandering to thoughts of other things, other times, other places. Each time we are aware the mind has wandered, simply ushering it back, urging it back to the place where we are, in this case the right thigh. Allowing to rest here for whatever period of time we are able. And when we find the attention wandering again, bringing it back patiently and calmly.

Choosing now to move the attention from the right thigh to include the hip area. Just being willing to encounter whatever you find. If what you find is no sensation, that’s fine too.

Simply taking it in.

And now moving attention to the lower back, an area of the body many of us experience some discomfort in. And whether you experience discomfort or tightness or relaxation or no particular sensation at all, just choosing to attend here. Seeing if we can be fully present with the sensation of what we find in the lower back right now. And if we find ourselves labeling what we find as tightness or pain, seeing if we can be more specific. Can we be aware of the sensation that tightness pain takes in the lower back takes in this particular moment, or whatever sensation is here, not stopping at a label.

And as you’re ready, allowing your attention to move to the abdomen, the belly, the organs inside and noticing the movement of the breath. The effects of the process of breathing, the gentle ballooning out and in, that goes along with the breath moving in and out. Tuning in to what’s here.

And moving up the torso, into the ribcage, the chest, the upper back. Being aware, perhaps, of the work of the heart and lungs inside the body, doing what they do, breathing and moving oxygen into the entire body. The subtle changes that happen in the upper back as the breath unfolds, inhaling and exhaling.

Awareness of the shoulders. Awareness of the rocking movement of breathing on the shoulders.

Drawing attention back into that narrow beam, over to the left arm, past the elbow to the left hand. Settling in to awareness of each of the fingers of the left fingers. Now the palm
of the left hand, the back of the hand, any points of contact between the hand and any surface on which it rests.

Aware of the left wrist. And moving now to the left forearm, seeing what we find here. Even if what we find is no particular sensation.

And the left upper arm. Experiencing the left arm, just the left arm as a whole. Can we stay present with it for just this moment, as it is.

Allowing attention to move up the shoulder and across the shoulders, and down the right arm, past the right elbow to the right hand and the fingers of the right hand. Tuning in to what you find in the fingers of the right hand as it is just now. Into the right hand itself, the back of the hand, the palm of the hand.

Bringing awareness to the right wrist.

And to the right forearm.

And noticing the right elbow and the right upper arm. Just taking it in. Noticing what’s here.

And broadening that beam of awareness to include the right arm as a whole. Then all the way up to the shoulder.

Bringing attention now to the neck. Whatever arises in this complex area of the body, simply allowing it to arise and being present for all of it. Aware of the breath moving through. We may hold discomfort, tension, warmth in the neck. And seeing if in this moment we can simply be aware of it, without the need to do anything. Without the need to change it in any way, just allowing it to be here because it is.

Moving attention up into the head, the jaw, and chin and mouth and lips and tongue and teeth, the roof of the mouth. Just taking these in.

Aware of the cheeks, the nose, the areas around the eyes, the eyes themselves, the brow, the forehead. We may encounter a facial expression or clenching in the jaw. And maybe choosing to let go of that or changing that, but not having to. Just being curious.

Aware of the sides of the head, the ears, the back of the head. Perhaps noticing the sensation of the back of the head.

And awareness of the top of the head. Maybe even feeling the hair on top of the head.

And very slowly but deliberately, broadening that beam that spotlight back to a floodlight, allowing it to soften and spread, to slowly encompasses the rest of the head, the neck, the shoulders, the arms, the torso, the hip area, the thighs, the lower legs, and the feet and the tips of the toes.
Becoming aware again of this entire body, lying or sitting here, the whole body breathing. Aware of this amazing vehicle in which we live. This whole body, breathing in this moment, functioning in this moment, thinking, feeling, imagining, remembering, but still present and still here. Breathing.

In these last few moments, taking this opportunity to perhaps feel some gratitude towards yourself for having taken this time, to be present with yourself, without any having to make it any different, without having to do anything other than to be present, to be aware, for the moments that we actually have, these moments.

And so, as it feels right for you, beginning perhaps moving your fingers and toes, and gently bringing your attention back to the place where you are and the next activities of your day. Recognizing that this feeling of presence, and of focus, if that is what you are experiencing is as close as the next moment. As close as the next breath.

Now very slowly and gently, while still maintaining an awareness of your body, when you are ready, maybe moving the body a little, wiggling the fingers and toes or gently stretching. Then allowing your eyes to open and your awareness to include the room, and the people around you.

Adapted from Hickman, 2013.
Soften, Soothe, Allow

10 minutes

In this exercise, we will invite you to use a soothing touch, that is, place your hands or hand somewhere on your body that you find comforting or soothing. It might be your heart area, your belly, your face. Anywhere that feels right. And you can keep your hands there for just a little while or throughout the whole exercise, whatever works best for you.

Now, finding a comfortable position, closing your eyes if that is comfortable for you, and taking three relaxing breaths, inhaling and exhaling. Placing your hand on your heart or your belly for a few moments to remind yourself that you are in the room, and to bring kindness to yourself.

Now letting yourself bring to mind a mildly or moderately difficult situation that you are in right now, perhaps a health problem, stress in a relationship, or a loved one in pain. Do not choose a very difficult problem, just choose a problem that can generate a little stress in your body when you think of it. Now clearly visualize the situation. Who was there? What was said? What happened?

Now seeing if you can name the strongest emotion—a difficult emotion—associated with that situation: anger? sadness? grief? confusion? fear? longing? despair? Repeat the name of the emotion to yourself in a gentle, understanding voice, as if you were validating for a friend what he or she is feeling: “That’s longing.” “That’s grief.”

Now expanding your awareness to your body as a whole.

Recalling the difficult situation again and scan your body for where you feel it the most. In your mind’s eye, sweeping your body from head to toe, stopping where you can sense a little tension or discomfort.

Now choosing a single location in your body where the feeling expresses itself most strongly, perhaps as a point of muscle tension or an achy feeling, like a heartache.

In your mind, inclining gently toward that spot.

And now, soften, soothe and allow.

Soften into that location in your body. Letting the muscles be soft without a requirement that they become soft, like simply applying a heating pad or a warm towel to sore muscles. You can say, “soft…soft…soft…” quietly to yourself, to enhance the process. Remember that you are not trying to make the sensation go away—you are just being with them with loving awareness.

If you wish, letting yourself just soften around the edges. No need to go all the way in.
Soothe yourself for struggling in this way. Putting your hand over your heart or other part of your body and feel your body breathe. Perhaps kind words arise in our mind, such as, “Oh my dear, this is such a painful experience. May I grow in ease. May I give myself the kindness that I need. May I grow in well-being.”

If you wish, you can also direct kindness to the part of your body that is under stress by placing your hand in that place. It may help to think of your body as if it were the body of a beloved friend or a child. You can say kind words to yourself, or just repeat “soothe…soothe…soothe.”

Allow the discomfort to be there. Giving up the wish for the feeling to disappear. Letting the discomfort come and go as it pleases, like a guest in your own home. You can repeat, “allow…allow…allow.”

“Soften, soothe and allow.” “Soften, soothe and allow.” You can use these three words like a saying, reminding yourself to incline with tenderness and kindness toward your discomfort.

If you experience too much discomfort with an emotion, just following your breath until you feel better.

Now very slowly and gently, while still maintaining an awareness of your body, when you are ready, maybe moving the body a little, wiggling the fingers and toes or gently stretching. Then allowing your eyes to open and your awareness to include the room, and the people around you.

Adapted from The Center for Mindful Self-Compassion, 2017.
Urge Surfing

Urges or cravings to use substances are not failures or signs you are weak. They are a natural part of the recovery process. Here is a way to handle them. Practicing this will help you manage urges without using substances or doing other behaviors that are unhelpful to you. The more you practice this, the easier it will get. Urges that are not fed will grow weaker.

Urge surfing teaches ways to respond differently when we have an urge or craving to use substances or do any kind of behavior that is unhealthy for us. When cravings are strong, you may feel them in your body and have thoughts or urges to behave in a certain way. We may react automatically in ways that are not helpful to us in the long term. We can learn to respond differently to these experiences.

When urges or cravings come up, it is like a wave washing over us. We can stay with the wave, using the breath to stay steady and calm, riding the wave as it grows and peaks, and then rolls back out. The wave or craving will go away naturally, all by itself. All urges or cravings, no matter how strong, will eventually go away all by themselves. We can use mindfulness breathing to ride the wave safely until it goes away.

We are going to practice, for a few minutes, staying with feelings that might be uncomfortable, but are not threatening to us in any other way.

Guided exercise:

1. Imagine that you are having an urge or craving or remember the last time you did. Ok, does everyone have something in mind? Now, begin by pausing. Take a deep breath in and out. Notice the physical feeling of breathing. Stay with this feeling for a few moments. Remember urges or cravings are just feelings and cannot hurt you in any way. The worse thing that can happen is that you will feel these uncomfortable feelings.

2. Find where in your body you feel the urge or craving. Do a scan of the body. Is there physical discomfort somewhere? If so, imagine sending your breath to that place in your body, soothing and creating a little space there, and then breathing out from that spot any discomfort or tension.

3. Notice if you are having any uncomfortable or unwanted emotions or feelings. Just notice these, continuing to follow the breath, in and out. Imagine breathing out the emotions.
4. Notice if you are having any thoughts come up, perhaps about what you should do or things you are telling yourself. Just notice these, knowing you DO NOT have to act on them. They are just thoughts going through the mind. Imagine them floating away Continue to follow the inbreath and the outbreath.

5. Stay here with whatever is happening without the need to control it, without the need to control it, or do anything about it, or react by doing something that is not helpful or healthy for you.

6. Imagine that the urge or the craving is like a wave, rising, watching it. If we stay calm and do not react, we can watch the wave peak and then come down again and fade. Use the breath as a way to surf the wave.

7. Perhaps now notice what we really need or crave in this moment? Do we have a deeper need below the craving? Are we lonely, stressed, unhappy? Can we name what we really need? Continue to follow the breath, in and out. Be kind and gentle with yourself.

8. Continue to follow the breath, noticing the breath in and out. Notice that you have a choice to stay with these feelings, that you do not have to react or do anything. You always have this choice when you have urges or cravings. No matter what is going on in your body, or what thoughts you are telling yourself or what emotions are coming up, you can recognize what is going on. You have a choice to stay with this, using your breath to ride the wave until it washes out.

9. Stay with the breath for as long as you need to. Breathing in soothing breath, breathing out any discomfort or tension. Riding the wave, watching it go away.

Adapted from Mindfulness-Based Relapse Prevention, Bowen, S., Chawla, N., & Marlatt, G.A. (2010).
Notes to Facilitators

Use of bells: Traditionally, meditation bells or chimes or bowls are tapped to signal the beginning and end of each meditation period. These are not necessary but may be used if you have them. Explain to the class they have no special significance other than to let everyone know when the exercise is starting or ending.

Timing: Be aware of the clock so you leave plenty of time for the exercises without rushing. Tell participants in advance that you may have to move on when they are sharing, but it is just for time management and that you are willing to chat after class. Practice the mindfulness exercises out loud with a timer before you do the class for the first time. Get a sense of how long they take and the flow. You might make a note on your copy of how long each section takes. Try to be familiar with the exercises so you do not have to read them verbatim.

Breathing: Participants should be encouraged to breathe naturally. We suggest deep breaths at some points, and these may be done through the nose. No need for sounds, mouth breathing or what is sometimes called yoga or ujjayi breathing.

Seating: Most treatment centers only have room for participants to sit in chairs. All of these exercises can be done sitting in a chair. If you have room, you can offer people the option to sit on the floor or lie down during the body scan, but this is not necessary.

Sleeping: Often people in residential treatment may be still detoxing or coming in off a long period of use, and this may make them tired in class. Occasionally clients may dose off during the longer exercises. Gently explain at the beginning of class that this may happen and ask permission to tap them gently on the shoulder (or foot if they are lying down). You might suggest they listen to their bodies saying they are tired.

Language: All language should be nonjudgmental, kind and inviting. We invite clients to observe the breath or close their eyes, we do not instruct. We use the gerund form of verbs (noticing, breathing, moving) as it sounds less demanding. Some participants may have different literacy levels, language abilities or differing levels of understanding about the subject. Get a feel for our group and adapt your language to fit participants needs. Welcome questions if participants need clarification. Because many clients may not have a background in mindfulness, we refer to the activities as “exercises” and not “meditations.” Although some of them are mindfulness meditations, we want to keep the language free from suggestions or any particular associations.

Feedback: Just a reminder that his is not a typical process group or group therapy. We do not, as a facilitator, want to give advice, problem solve or elicit group feedback for others. Our comments should be in the spirit of inquiry: how was that for you? what did you notice? We should be encouraging but neutral with comments.

Abreactions: Infrequently some clients, particularly those with trauma histories, may become overwhelmed just by sitting quietly and turning their awareness inward. Some
have been using alcohol or other drugs to numb their emotions and have not felt anything in a while. Almost anything can be a trigger, so just be prepared. Always offer participants the option of taking care of themselves by opening their eyes during an exercise or just coming back to following the breath. Look around the room at the participants during each exercise to make sure everyone is comfortable. Have a box of tissues available if someone becomes overwhelmed. This is not necessarily a negative reaction, it may just be that the client is beginning to feel things again. Be willing to chat after class if anyone wants to discuss what came up for them in private.

Body Scan: When doing the body scan, be especially aware that women with any history of physical assault may find this uncomfortable. Always give the option of keeping the eyes open or sitting up as lying down may feel too vulnerable. Refer generally to the “hips” or “hip area” instead of mentioning genitalia or buttocks specifically.

Control Group

See the separate Facilitator’s Manual for the control group conditions. Participants should not be explicitly told they are in the control group, but rather, that they are participating in the research study. Each participant is told at the very beginning that they have an equal chance of being in a group getting the intervention part or in a group acting as a control group. Anyone who wants to experience the intervention at a later date (after the research project is over) may do so free of charge and should contact the PI. The control group will receive a $25 gift card when they have completed the classes and the follow-up sessions.
Appendix B4

Fidelity Checklist: Brief Mindfulness Intervention Session Components

To be completed each session

<table>
<thead>
<tr>
<th>Each Session</th>
<th>Check if Completed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Introductions</td>
<td></td>
</tr>
<tr>
<td>2. Sign in sheet, reminder names not used</td>
<td></td>
</tr>
<tr>
<td>3. Expectations for group rules and confidentiality</td>
<td></td>
</tr>
<tr>
<td>4. Discussion of group structure and format, reminder of 4 sessions</td>
<td></td>
</tr>
<tr>
<td>5. Psychoeducation: What is Mindfulness?</td>
<td></td>
</tr>
<tr>
<td>6. Mindful Breathing</td>
<td></td>
</tr>
<tr>
<td>7. Mindfulness of Breath and Sounds</td>
<td></td>
</tr>
<tr>
<td>8. Body Scan (start in Session #2)</td>
<td></td>
</tr>
<tr>
<td>9. Self-Compassion Soften, Soothe and Allow</td>
<td></td>
</tr>
<tr>
<td>10. SOBER Response</td>
<td></td>
</tr>
<tr>
<td>11. Urge Surfing</td>
<td></td>
</tr>
<tr>
<td>12. Trigger and Craving Logs</td>
<td></td>
</tr>
<tr>
<td>13. Reminders</td>
<td></td>
</tr>
<tr>
<td>14. Handouts</td>
<td></td>
</tr>
<tr>
<td>15. Thank everyone for coming</td>
<td></td>
</tr>
</tbody>
</table>

Date of session: __________________________

Signature: ________________________________
Appendix B5
Manual for Brief Mindfulness Program for Groups in Inpatient Substance Abuse Treatment (Control)

Kay Colbert, LCSW
University of Pennsylvania

Introduction

All components to be repeated each session. Total time 90 minutes each session. Use the Fidelity Checklist provided to ensure all components of the Brief Mindfulness Intervention are done at each session.

If you have questions or comments on this manual, contact Kay Colbert, LCSW at kay@kaycolbert.com

1. Set up: Set out crayons and enough coloring pages for participants to use and have choices.

2. Welcome

a. Introductions: The facilitator welcomes new members, has everyone introduce themselves by first name and how long they have been at the treatment center. Briefly go over format of group and expectations for participants. Even if there are no new members, this should be gone over briefly. Take attendance using the Sign-In Sheet provided. The principal researcher will fill in the participant numbers, but please make sure the names are legible.

b. Group Format: The facilitator explains that they are all participating in a study that teaches people additional coping tools to support people in recovery from substance use. Tell them their participation is appreciated.

c. Group Rules and Expectations: The facilitator asks participants to attend to restroom or other breaks before class starts.

- This group is a safe place where everyone can feel free to participate and work on her recovery together.
- Please keep bathroom breaks or water runs to an emergency basis.
- No sleeping, no cell phones, no side-talking.
- Respect yourself and others in the group.
- This group will be done in silence and calm.
- The group will listen to calming music and will be coloring designs for stress relief.
- You may take the coloring pages with you when you leave, but the crayons have to stay here.
d. Begin music, using the playlist provided and using a Bluetooth wireless device to play it. Give everyone directions to start. If there are comments about the music, explain it is soft and soothing to help with relaxation and stress reduction.

e. Facilitator keeps chatting to a minimum, encourages participants to stay with the coloring activity.

f. If participants do not want to color the entire time, they may rest quietly.

g. When time is up, thank everyone for coming and allow them to take the pages they worked on, but not any extra blank ones for later or for their friends.

h. If participants ask about payment, incentives or money, you may tell them that they will get $10.00 after completing the four classes and answering the questions, and an additional $25.00 after answering the questions at the 4-week follow-up. All payments will be in the form of gift cards to Target.

i. Reminders

Remind participants when the next class will take place. Remind them that they are being asked to attend four classes total and do a follow-up session ($10 gift card) and then another follow-up session four weeks after they discharge, by phone or in person. Any transportation costs for meeting in person will be reimbursed. Everyone who completes the classes and the follow-ups will receive a $25 gift card.

j. Any further questions should be directed to Kay Colbert, LCSW. Phone: 214-864-5981, email: kay@kaycolbert.com

Coloring pages come from this book:

<table>
<thead>
<tr>
<th>Adult Coloring Book</th>
<th>Published by Blue Star Coloring, 2015.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>106 pages, $8.45</td>
</tr>
</tbody>
</table>

Music playlist – music that is quiet, slow and mostly instrumental.
Verbal Instructions for Group

(As people are coming in): Welcome everyone, please take a seat and make sure you run to the restroom or get a drink of water before we start.

Hi, my name is ______________.

I am helping with the research study that you have volunteered to participate in. You are all participating in a study that teaches people additional coping tools to support people in recovery from substance use. Your participation is really appreciated. It’s important that you attend every one of the 4 sessions and do the follow-up questions afterwards. (Give them reminder of when the next classes and the follow-up will be.)

I am taking attendance, but your name will not be used in the study, we will identify you by a number only. However, we ask you sign in so we can keep track of who is here.

As a reminder, you are being asked to come to four of these classes and then answer some questions about your experience. Everything you tell us will be kept confidential. If you have to miss a class, you can make it up as these classes will be running for at least four weeks.

For the next 90 minutes, we will do a relaxing activity together. Talking will be kept to a minimum – please don’t talk unless you have to. This will help us keep a calm, soothing atmosphere in the room.

I’d like to start by welcoming any new members. Who is here for the first time? Please raise your hand.

Let’s go around and introduce ourselves by first name and tell me how long you have been at Nexus. [Note to facilitator: as clients introduce themselves print their name on the Attendance Sheet.)

Now I’d like to go over the group rules and expectations:

- This group is a safe place where everyone can feel free to participate and work on her recovery together.
- Please keep bathroom breaks or water runs to an emergency basis.
- No sleeping, no cell phones, no side-talking.
- Respect yourself and others in the group.
- This group will be done in silence and calm.
- The group will listen to calming music and will be coloring designs for stress relief.
- You may take the coloring pages with you when you leave, but the crayons have to stay here. Extra pages have to stay here as that’s one of the rules of the study.
Now I’m going to turn on some soft music to help with relaxation and stress reduction. You may start coloring. *start music, keeping volume fairly low but loud enough for all to hear*

If you do not want to color the entire time, they may rest quietly.

(When time is up). Thank you everyone for coming. You may take the pages you worked on, but not any extra blank ones for later or for their friends. Thank you for your participation.

**Remind them of next session and stress it’s important they do not miss:**

*Wednesday, July 24 3:15 – 4:45*

*Tuesday, July 30, 3:15 – 4:55*

*Wednesday, July 31, 3:15 – 4:45*

*Thursday, Aug 1: follow-up questions. We will have a sign-in sheet on Tuesday and Wednesday to sign up for a 20-min interview with Kay.*

*Adapt these dates to your schedule.*
# Attendance Sheet (to be completed by facilitator)

Date of class: ________________________________

<table>
<thead>
<tr>
<th>Name (please print)</th>
<th>Participant #</th>
</tr>
</thead>
<tbody>
<tr>
<td>1)</td>
<td></td>
</tr>
<tr>
<td>2)</td>
<td></td>
</tr>
<tr>
<td>3)</td>
<td></td>
</tr>
<tr>
<td>4)</td>
<td></td>
</tr>
<tr>
<td>5)</td>
<td></td>
</tr>
<tr>
<td>6)</td>
<td></td>
</tr>
<tr>
<td>7)</td>
<td></td>
</tr>
<tr>
<td>8)</td>
<td></td>
</tr>
<tr>
<td>9)</td>
<td></td>
</tr>
<tr>
<td>10)</td>
<td></td>
</tr>
<tr>
<td>11)</td>
<td></td>
</tr>
<tr>
<td>12)</td>
<td></td>
</tr>
<tr>
<td>13)</td>
<td></td>
</tr>
<tr>
<td>14)</td>
<td></td>
</tr>
<tr>
<td>15)</td>
<td></td>
</tr>
<tr>
<td>16)</td>
<td></td>
</tr>
</tbody>
</table>
Appendix B6
Fidelity Checklist: Benign Intervention Session Components (Control)

To be done at each session

Each Session

1. Introductions
2. Sign-in sheet completed, reminder names not used
3. Expectations for group rules and confidentiality
4. Discussion of group structure, reminder of 4 sessions
5. Crayons for everyone
6. Selection of coloring pages for everyone
7. Music playing
8. Thank everyone for coming
9. Remind everyone of next session or follow-up.

Date of session: ________________________

Signature: ______________________________
Incentives and Measures

- **Intervention:** A 90-minute mindfulness class, twice a week for two weeks (or until participants complete 4 classes, if possible)

- **Control:** A 90-minute session, twice a week for two weeks (or until participants complete 4 classes, if possible)

<table>
<thead>
<tr>
<th>Timeframe</th>
<th>Pre-test</th>
<th>End of intervention (after 2 weeks)</th>
<th>4 weeks post-discharge</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Incentives:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$5 gift card</td>
<td></td>
<td>$10 gift card</td>
<td>$25 gift card</td>
</tr>
</tbody>
</table>

**Measure & Coding**

<table>
<thead>
<tr>
<th>Measure &amp; Coding</th>
<th>Reason for</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Sociodemographic + 27 ques</td>
<td>Sociodemographic, employment, education, relationship status, legal, mindfulness</td>
</tr>
<tr>
<td>B. Sociodemographic + 12 ques</td>
<td>Employment, education, relationship status, legal, mindfulness</td>
</tr>
<tr>
<td>C. Addiction Severity Index Lite (ASI, alcohol-drug section) 13 ques</td>
<td>C. ASI CP. ASI CF. ASI Track substance use last 30 days</td>
</tr>
<tr>
<td>D. Penn Alcohol Craving Scale (PACS, adapted for drugs-alcohol) 5 ques</td>
<td>D. PACS DP. PACS DF. PACS Measure triggers 7 cravings last 7 days</td>
</tr>
<tr>
<td>E. Mindfulness Attention Awareness Scale (MAAS) 15 ques</td>
<td>E. MAAS EP. MAAS EF. MAAS Measure characteristics of trait mindfulness</td>
</tr>
<tr>
<td>F. Brief Symptom Inventory (BSI-18) 18 ques</td>
<td>F. BSI-18 FP. BSI-18 FF. BSI-18 Measure psychological distress</td>
</tr>
<tr>
<td>G. Perceived Stress Scale</td>
<td>G. PSS GP. PSS GF. PSS Measure perceived stress</td>
</tr>
<tr>
<td></td>
<td>Questionnaire/Scale/Inventory</td>
</tr>
<tr>
<td>---</td>
<td>--------------------------------------------------------</td>
</tr>
<tr>
<td>H.</td>
<td>Short Inventory of Problems-Revised (SIP-R)</td>
</tr>
<tr>
<td>I.</td>
<td>Primary Care PTSD Screen (PC-PTSD-5)</td>
</tr>
<tr>
<td>J.</td>
<td>Sheehan Disability Scale (SDS)</td>
</tr>
<tr>
<td>K.</td>
<td>CDC Quality of Life (CDC HRQOL, adapted)</td>
</tr>
<tr>
<td>L.</td>
<td>Treatment Evaluation Inventory, Short Form (TEI-SF)</td>
</tr>
<tr>
<td>M.</td>
<td>Treatment Services Review (TSR, adapted for Pre-Test)</td>
</tr>
<tr>
<td>N.</td>
<td>Treatment Services Review (TSR, adapted for Follow-Up)</td>
</tr>
<tr>
<td>O.</td>
<td>Ask “any feedback”</td>
</tr>
</tbody>
</table>

**Notes:**
- H. SIP-R
- I. PC-PTSD-5
- IP. PC-PTSD-5
- IF. PC-PTSD-5
- J. SDS
- JF. SDS
- K. CDC HRQOL
- KP. CDC HQRL
- KF. CDC HRQOL
- LP. TEI-SF
- M. TSR
- NF. TSR
Appendix D
Measurement Tools for Study

D1. Cover Sheet #1 for Individual Participants
To be filled in by researcher at Pre-test.

QA1. Date of Interview: _______ _______ _______

QA2. Time of interview: _______ am / pm

SOCIODEMOGRAPHIC

3AQ. Name: ____________________________________________
First name Last name

QA4. Age: ____________________

QA5. Date of birth: ________________________________

QA6. Race/ethnicity: (circle one)
1. American Indian
2. Alaskan Native
3. Asian
4. Black or African American
5. Native Hawaiian or other Pacific Islander
6. Hispanic or Latina
7. White / Caucasian
8. Other: ________________________________

QA7. What is your current gender identity? (circle one)
1. Female
2. Male
3. Transgender
4. Gender non-conforming
5. Different identity

QA8. Employment status: (circle all that describe you) Are you currently:
1. Employed for wages full time
2. Employed for wages part time
3. Self-employed
4. Out of work and looking for work
5. Out of work but not currently looking for work
6. A homemaker
7. A student
8. Military
9. Retired
10. Unable to work

QA9. Education level: (circle one)
1. No schooling completed
2. Nursery school to 8th grade
3. Some high school, no diploma
4. High school graduate, diploma or the equivalent (for example: GED)
5. Some college credit, no degree
6. Trade/technical/vocational training
7. Associate degree
8. Bachelor’s degree
9. Master’s degree
10. Professional degree
11. Doctorate degree

QA10. Relationship status: (circle one)

1. Single, never married
2. Married or domestic partnership
3. Widowed
4. Divorced
5. Separated

LEGAL

QA11. Was this admission to Nexus Recovery Center prompted or suggested by the criminal justice system?

1. YES 2. NO

QA12. Have you ever been arrested or taken into custody by the police?

1. YES 2. NO

QA13. If YES, how many times? _____________

QA14. Have you been convicted of a crime? Please don’t count minor traffic violations.

1. YES 2. NO

QA15. If YES, how many times? _____________

QA16. Have you been ever been in jail or prison for 30 days or more for breaking the law?

1. YES 2. NO

QA17. If YES, how many times? _____________

QA18. Are you currently (now) under any form of criminal justice supervision, including on probation?

1. YES 2. NO

If NO:
QA19. Have you ever in your life been under any form of criminal justice supervision, including on probation?
   1. YES  2. NO

QA20. If YES, how many times? ______________

PRIOR MINDFULNESS – MEDITATION EXPERIENCE
QA21. Have you ever heard of mindfulness or mindfulness meditation?
   1. YES  2. NO

QA22. Have you ever practiced mindfulness or mindfulness meditation?
   1. YES  2. NO

QA23. Do you currently do mindfulness meditation?
   1. YES  2. NO

QA24. If YES, how many times a week?
   1. 1 time a week
   2. 2-4 times a week
   3. Almost every day

QA25. Have you ever practiced any other kinds of meditation?
   1. YES  2. NO

QA26. If YES, what kind? ______________________________________________________

QA27. If YES, how many times a week?
   1. 1 time a week
   2. 2-4 times a week
   3. Almost every day
D2. Cover Sheet #2 for Individual Participants
To be filled in by researcher at Post-test.

QB1. Date of Interview: _______ _______ _______
    month       day       year

QB2. Time of interview: _______ am / pm

SOCIODEMOGRAPHIC

QB3. Name:

                                  First name
                                  Last name

QB4. Employment status: (circle all that describe you)  Are you currently:

11. Employed for wages full time
12. Employed for wages part time
13. Self-employed
14. Out of work and looking for work
15. Out of work but not currently looking for work
16. A homemaker
17. A student
18. Military
19. Retired
20. Unable to work

QB5. Relationship status: (circle one)

6. Single, never married
7. Married or domestic partnership
8. Widowed
9. Divorced
10. Separated

LEGAL

QB6. Since leaving Nexus Recovery Center, have you ever been arrested or taken into custody by the police?

1. YES                  2. NO

QB7. If YES, how many times? ______________

QB8. Are you currently (now) under any form of criminal justice supervision, including on probation?

1. YES                  2. NO

MINDFULNESS – MEDITATION EXPERIENCE
QB9. Since leaving Nexus Recovery Center, have you been practicing any mindfulness or mindfulness meditation?

1. YES  
2. NO

QB10. If YES, approximately how many times a week?

4. 1 time a week
5. 2-4 times a week
6. Almost every day

QB11. Do you practice any other kinds of meditation?

1. YES  
2. NO

QB12. If YES, what kind?  ______________________________________________________
Participant#: _______________

Here are some questions about your alcohol and other drug use. The information you give is confidential, and will only be used for research purposes.

For the following questions, I am asking about the **past 30 days prior to treatment entry** and **in your lifetime**.

For lifetime, use I am interested in the number of years that you used 3 or more times per week. If you don’t understand exactly what drugs we are talking about, please ask and we can refer to the definitions.

<table>
<thead>
<tr>
<th></th>
<th>1. PAST 30 DAYS (Days)</th>
<th>2. LIFETIME USE (Years)</th>
<th>3. *Route of Administration</th>
</tr>
</thead>
<tbody>
<tr>
<td>QC1. Alcohol - any use at all</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>QC2. Alcohol - to Intoxication</td>
<td></td>
<td>No Answer Required</td>
<td></td>
</tr>
<tr>
<td>QC3. Heroin</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>QC4. Methadone (illicit)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>QC5. Other opiates/analgesics</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>QC6. Barbiturates</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>QC7. Other sedatives, hypnotics, tranquilizers</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>QC8. Cocaine</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>QC9. Amphetamines</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>QC10. Cannabis</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>QC11. Hallucinogens</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>QC12. Inhalants</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>QC13. More than one substance per day</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* **Route of Administration:**
  1=Oral, 2=Nasal, 3=Smoking, 4=Non IV injection, 5=IV injection, 9=Never Used
Definitions

- **Alcohol**: wine, beer, liquor
- **Heroin**: white, brown, black, cheese
- **Methadone (illicit)**
- **Opiates/analgesics**: fentanyl, hydrocodone, dilaudid, oxycodone, codeine, morphine, vicodin
- **Barbiturates**: Luminal (phenobarbital), Mebaral (mephobarbital), Nembutal (pentobarbital)
- **Other sedatives, hypnotics, tranquilizers**: benzodiazepines such as Valium, Klonopin, Xanax, Halcion, Prosom; sedative hypnotics such as Ambien, Lunesta, Sonata
- **Cocaine**
- **Amphetamines**: meth, speed, Adderall, Dexedrine, Ritalin, Concerta
- **Cannabis / marijuana / weed**
- **Hallucinogens**: PCP, DXM, ketamine, psilocybin, peyote or mescaline, salvia or sage)
- **Inhalants**: aerosol sprays, gasoline, nitrites, whippets
D4. ASI lite to use at end of intervention

Participant#: ________________

Here are some questions about your alcohol and other drug use. The information you give is confidential, and will only be used for research purposes. For the following questions, I am asking about the time you have been in treatment, including today.

If you don’t understand exactly what drugs we are talking about, please ask and we can refer to the definitions.

<table>
<thead>
<tr>
<th></th>
<th>1. your time in treatment</th>
<th>3. *Route of Administration</th>
</tr>
</thead>
<tbody>
<tr>
<td>QC1. Alcohol - any use at all</td>
<td>_________________________</td>
<td></td>
</tr>
<tr>
<td>QC2. Alcohol - to Intoxication</td>
<td>_________________________</td>
<td></td>
</tr>
<tr>
<td>QC3. Heroin</td>
<td>_________________________</td>
<td></td>
</tr>
<tr>
<td>QC4. Methadone (illicit)</td>
<td>_________________________</td>
<td></td>
</tr>
<tr>
<td>QC5. Other opiates/analgesics</td>
<td>_________________________</td>
<td></td>
</tr>
<tr>
<td>QC6. Barbiturates</td>
<td>_________________________</td>
<td></td>
</tr>
<tr>
<td>QC7. Other sedatives, hypnotics, tranquilizers</td>
<td>______</td>
<td>______</td>
</tr>
<tr>
<td>QC8. Cocaine</td>
<td>_________________________</td>
<td></td>
</tr>
<tr>
<td>QC9. Amphetamines</td>
<td>_________________________</td>
<td></td>
</tr>
<tr>
<td>QC10. Cannabis</td>
<td>_________________________</td>
<td></td>
</tr>
<tr>
<td>QC11. Hallucinogens</td>
<td>_________________________</td>
<td></td>
</tr>
<tr>
<td>QC12. Inhalants</td>
<td>_________________________</td>
<td></td>
</tr>
<tr>
<td>QC13. More than one substance per day</td>
<td>______</td>
<td>______</td>
</tr>
</tbody>
</table>

* Route of Administration:  
1=Oral, 2=Nasal, 3=Smoking, 4=Non IV injection, 5=IV injection, 9=Never Used
Definitions

- **Alcohol**: wine, beer, liquor
- **Heroin**: white, brown, black, cheese
- **Methadone** (illicit)
- **Opiates/analgesics**: fentanyl, hydrocodone, dilaudid, oxycodone, codeine, morphine, vicodin
- **Barbiturates**: Luminal (phenobarbital), Mebaral (mephobarbital), Nembutal (pentobarbital)
- **Other sedatives, hypnotics, tranquilizers**: benzodiazepines such as Valium, Klonopin, Xanax, Halcion, Prosom; sedative hypnotics such as Ambien, Lunesta, Sonata
- **Cocaine**
- **Amphetamines**: meth, speed, Adderall, Dexedrine, Ritalin, Concerta
- **Cannabis / marijuana / weed**
- **Hallucinogens**: PCP, DXM, ketamine, psilocybin, peyote or mescaline, salvia or sage)
- **Inhalants**: aerosol sprays, gasoline, nitrites, whippets
D5. ASI lite to at four week follow-up

Participant #: __________________

Here are some questions about your alcohol and other drug use. The information you give is confidential, and will only be used for research purposes.

For the following questions, I am asking about the time since you have left treatment at Nexus, including today.

If you don’t understand exactly what drugs we are talking about, please ask and we can refer to the definitions.

<table>
<thead>
<tr>
<th></th>
<th>1. since you left treatment</th>
<th>3. *Route of Administration</th>
</tr>
</thead>
<tbody>
<tr>
<td>QC1. Alcohol - any use at all</td>
<td>___ ___</td>
<td></td>
</tr>
<tr>
<td>QC2. Alcohol - to Intoxication</td>
<td>___</td>
<td></td>
</tr>
<tr>
<td>QC3. Heroin</td>
<td>___ ___</td>
<td>___</td>
</tr>
<tr>
<td>QC4. Methadone (illicit)</td>
<td>___</td>
<td>___</td>
</tr>
<tr>
<td>QC5. Other opiates/analgesics</td>
<td>___ ___</td>
<td>___</td>
</tr>
<tr>
<td>QC6. Barbiturates</td>
<td>___</td>
<td>___</td>
</tr>
<tr>
<td>QC7. Other sedatives, hypnotics, tranquilizers</td>
<td>___ ___</td>
<td>___</td>
</tr>
<tr>
<td>QC8. Cocaine</td>
<td>___ ___</td>
<td>___</td>
</tr>
<tr>
<td>QC9. Amphetamines</td>
<td>___ ___</td>
<td>___</td>
</tr>
<tr>
<td>QC10. Cannabis</td>
<td>___ ___</td>
<td>___</td>
</tr>
<tr>
<td>QC11. Hallucinogens</td>
<td>___ ___</td>
<td>___</td>
</tr>
<tr>
<td>QC12. Inhalants</td>
<td>___ ___</td>
<td>___</td>
</tr>
<tr>
<td>QC13. More than one substance per day</td>
<td>___ ___</td>
<td>___</td>
</tr>
</tbody>
</table>

* Route of Administration:
1=Oral, 2=Nasal, 3=Smoking, 4=Non IV injection, 5=IV injection, 9=Never Used
Definitions

- Alcohol: wine, beer, liquor
- Heroin: white, brown, black, cheese
- Methadone (illicit)
- Opiates/analgesics: fentanyl, hydrocodone, dilaudid, oxycodone, codeine, morphine, vicodin
- Barbiturates: Luminal (phenobarbital), Mebaral (mephobarbital), Nembutal (pentobarbital)
- Other sedatives, hypnotics, tranquillizers: benzodiazepines such as Valium, Klonopin, Xanax, Halcion, Prosom; sedative hypnotics such as Ambien, Lunesta, Sonata
- Cocaine
- Amphetamines: meth, speed, Adderall, Dexedrine, Ritalin, Concerta
- Cannabis / marijuana / weed
- Hallucinogens: PCP, DXM, ketamine, psilocybin, peyote or mescaline, salvia or sage
- Inhalants: aerosol sprays, gasoline, nitrites, whippets
D6. Penn Alcohol Craving Scale

Participant #: __________________

Please read each item carefully and circle the number that best describes your craving during the past week.

QD1. During the past week how often have you thought about drinking or using other drugs or about how good a drink or other drug would make you feel?

0  Never (0 times during the past week)
1  Rarely (1 to 2 times during the past week)
2  Occasionally (3 to 4 times during the past week)
4  Often (11 to 12 times during the past week or 2 to 3 times a day)
5  Most of the time (20 to 40 times during the past week or 3 to 6 times a day)
6  Nearly all the time (more than 40 times during the past week or more than 6 times a day)

QD2. At its most severe point, how strong was your craving during the past week?

0  None at all
1  Slight, that is a very mild urge
2  Mild urge
3  Moderate urge
4  Strong urge, but easily controlled
5  Strong urge and difficult to control
6  Strong urge and would have drunk alcohol or used other drugs if they were available

QD3. During the past week how much time have you spent thinking about drinking or using other drugs or about how good a drink or other drugs would make you feel?

0  None at all
1  Less than 20 minutes
2  21 to 45 minutes
3  46 to 90 minutes
4  90 minutes to 3 hours
5  Between 3 to 6 hours
6  More than 6 hours

QD4. During the past week how difficult would it have been to resist taking a drink or using drugs if you had known they were around?

0  Not difficult at all
1  Very mildly difficult
2  Mildly difficult
3 Moderately difficult
4 Very difficult
5 Extremely difficult
6 Would not be able to resist

QD5. Keeping in mind your responses to the previous questions, please rate your overall average alcohol or other drug craving during for the past week.

0 Never thought about drinking or using and never had the urge to drink or use
1 Rarely thought about drinking or using and rarely had the urge to drink or use
2 Occasionally thought about drinking or using and occasionally had the urge to drink or use
3 Sometimes thought about drinking or using and sometimes had the urge to drink or use
4 Often thought about drinking or using and often had the urge to drink or use
5 Thought about drinking or using most of the time and had the urge to drink or use most of the time
6 Thought about drinking or using nearly all the time and had the urge to drink or use nearly all the time
D7. Mindful Attention Awareness Scale

**Participant #: __________________**

**Day-to-Day Experiences**

Instructions: Below is a collection of statements about your everyday experience. Using the 1-6 scale below, please indicate how frequently or infrequently you currently have each experience. Please answer according to what really reflects your experience rather than what you think your experience should be. Please treat each item separately from every other item.

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Almost Always</td>
<td>Very Frequently</td>
<td>Somewhat Frequently</td>
<td>Somewhat Infrequently</td>
<td>Very Infrequently</td>
<td>Almost Never</td>
</tr>
</tbody>
</table>

| QE1. I could be experiencing some emotion and not be conscious of it until some time later. | 1 2 3 4 5 6 |
| QE2. I break or spill things because of carelessness, not paying attention, or thinking of something else. | 1 2 3 4 5 6 |
| QE3. I find it difficult to stay focused on what’s happening in the present. | 1 2 3 4 5 6 |
| QE4. I tend to walk quickly to get where I’m going without paying attention to what I experience along the way. | 1 2 3 4 5 6 |
| QE5. I tend not to notice feelings of physical tension or discomfort until they really grab my attention. | 1 2 3 4 5 6 |
| QE6. I forget a person’s name almost as soon as I’ve been told it for the first time. | 1 2 3 4 5 6 |
| QE7. It seems I am “running on automatic,” without much awareness of what I’m doing. | 1 2 3 4 5 6 |
| QE8. I rush through activities without being really attentive to them. | 1 2 3 4 5 6 |
| QE9. I get so focused on the goal I want to achieve that I lose touch with what I’m doing right. | 1 2 3 4 5 6 |
| QE10. I do jobs or tasks automatically, without being aware of what I’m doing. | 1 2 3 4 5 6 |
| QE11. I find myself listening to someone with one ear, doing something else at the same time. | 1 2 3 4 5 6 |
| QE12. I drive places on ‘automatic pilot’ and then wonder why I went there. | 1 2 3 4 5 6 |
| QE13. I find myself preoccupied with the future or the past. | 1 2 3 4 5 6 |
| QE14. I find myself doing things without paying attention. | 1 2 3 4 5 6 |
| QE15. I snack without being aware that I’m eating. | 1 2 3 4 5 6 |
Participant #: _________________

0=NOT AT ALL  1=A LITTLE BIT  2=MODERATELY  3=QUITE A BIT  4=EXTREMELY

Listed below are problems people sometimes have. During the last 7 days, including today, 

*how much has this problem distressed or bothered you:*

<table>
<thead>
<tr>
<th>QF1. Faintness or dizziness</th>
<th>NOT AT ALL</th>
<th>A LITTLE BIT</th>
<th>MODERATELY</th>
<th>QUITE A BIT</th>
<th>EXTREMELY</th>
</tr>
</thead>
<tbody>
<tr>
<td>QF2. Feeling no interest in things</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>QF3. Nervousness or shakiness inside</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>QF4. Pains in heart or chest</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>QF5. Feeling lonely</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>QF6. Feeling tense or keyed up</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>QF7. Nausea or stomach upset</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>QF8. Feeling blue</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>QF9. Suddenly scared for no reason</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>QF10. Trouble getting your breath</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>QF11. Feelings of worthlessness</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>QF12. Spells of terror or panic</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>QF13. Numbness or tingling in parts of your body</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>QF14. Feeling hopeless about the future</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>QF15. Feeling so restless you couldn’t sit still</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>QF16. Feeling weak in parts of your body</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>QF17. Thoughts of ending your life</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>QF18. Feeling fearful</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>
D9. Perceived Stress Scale

Participant #: ____________________

The questions in this scale ask about your feelings and thoughts during the last month. In each case, you will be asked to indicate how often you felt or thought a certain way. Although some of the questions are similar, there are differences between them and you should treat each one as a separate question. The best approach is to answer fairly quickly. That is, don’t try to count up the number of times you felt a particular way; rather indicate the alternative that seems like a reasonable estimate.

For each question choose from the following alternatives:
0 – never 1 - almost never 2 – sometimes 3 - fairly often 4 - very often

______ QG1. In the last month, how often have you been upset because of something that happened unexpectedly?
______ QG2. In the last month, how often have you felt that you were unable to control the important things in your life?
______ QG3. In the last month, how often have you felt nervous and stressed?
______ QG4. In the last month, how often have you felt confident about your ability to handle your personal problems?
______ QG5. In the last month, how often have you felt that things were going your way?
______ QG6. In the last month, how often have you found that you could not cope with all the things that you had to do?
______ QG7. In the last month, how often have you been able to control irritations in your life?
______ QG8. In the last month, how often have you felt that you were on top of things?
______ QG9. In the last month, how often have you been angered because of things that happened that were outside of your control?
______ QG10. In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?
D10. Short Inventory of Problems - Revised

Participant #: _____________________

Please circle the number of each question that describes how you have felt about your drinking or drug use in the past month or so:

QH1. I have been unhappy because of my drinking or drug use.

QH2. Because of my drinking or drug use, I have lost weight or not eaten properly.

QH3. I have failed to do what is expected of me because of my drinking or drug use.

QH4. I have felt guilty or ashamed because of my drinking or drug use.

QH5. I have taken foolish risks when I have been drinking or using drugs.

QH6. When drinking or using drugs, I have done impulsive things that I regretted later.

QH7. Drinking or using one drug has caused me to use other drugs more.

QH8. I have gotten into trouble because of drinking or drug use.

QH9. The quality of my work has suffered because of my drinking or drug use.

QH10. My physical health has been harmed by my drinking or drug use.

QH11. I have had money problems because of my drinking or drug use.

QH12. My physical appearance has been harmed by my drinking or drug use.

QH13. My family has been hurt by my drinking or drug use.

QH14. A friendship or close relationship has been damaged by my drinking or drug use.

QH15. My drinking or drug use has gotten in the way of my growth as a person.

QH16. My drinking or drug use has damaged my social life, popularity, or reputation.

QH17. I have spent too much or lost a lot of money because of my drinking or drug use.
D11. Primary Care PTSD Screen

Participant #: _________________________

Sometimes things happen to people that are unusually or especially frightening, horrible, or traumatic. For example:
• a serious accident or fire
• a physical or sexual assault or abuse
• an earthquake or flood
• a war
• seeing someone be killed or seriously injured
• having a loved one die through homicide or suicide.

Qi1. Have you ever experienced this kind of event?
   YES           NO

If you answered NO, Please stop here.

If you answered YES, please answer the questions below.

In the past month, have you...

Qi2. Had nightmares about the event(s) or thought about the event(s) when you did not want to?
   YES           NO

Qi3. Tried hard not to think about the event(s) or went out of your way to avoid situations that reminded you of the event(s)?
   YES           NO

Qi4. Been constantly on guard, watchful, or easily startled?
   YES           NO

Qi5. Felt numb or detached from people, activities, or your surroundings?
   YES           NO

Qi6. Felt guilty or unable to stop blaming yourself or others for the event(s) or any problems the event(s) may have caused?
   YES           NO
D12. Sheehan Disability Scale

Participant #: ____________________

Thinking about the last week
Please mark ONE circle for each scale.

WORK* / SCHOOL

The symptoms have disrupted your work / school work:

QJ1

I have not worked /studied at all during the past week for reasons unrelated to the disorder.
* Work includes paid, unpaid volunteer work or training

SOCIAL LIFE

The symptoms have disrupted your social life / leisure activities:

QJ2

FAMILY LIFE / HOME RESPONSIBILITIES

The symptoms have disrupted your family life / home responsibilities:

QJ3

DAYS LOST
How many days in the last week did your symptoms cause you to miss school or work or leave you unable to carry out your normal daily responsibilities?

DAYS UNDERPRODUCTIVE
On how many days in the last week did you feel so impaired by your symptoms, that even though you went to school or work, your productivity was reduced?
Participant #: ____________________

Please circle or fill in the answer that best fits how you feel.

QK1. Would you say your general health is:
   a. Excellent
   b. Very good
   c. Good
   d. Fair
   e. Poor

QK2. Now thinking about your physical health, which includes physical illness and injury, for about how many days during the past 30 days was your physical health NOT good?
   a. Number of days __________
   b. None / zero

QK3. During the past 30 days, for about how many days did poor physical health keep you from your usual activities?
   a. Number of days __________
   b. None / zero

QK4. Are you LIMITED in any way in any activities because of any impairment or health problem?
   a. YES
   b. NO
QK5 If you answered YES to question #4, which of these cause a MAJOR impairment or health problem that limits your activities? Circle which ones apply to you.

a. Arthritis / rheumatism
b. Back or neck problem
c. Broken bones, bone or joint injury
d. Walking problem
e. Lung / breathing problem
f. Hearing problem
g. Heart problem
h. Stroke problem
i. Hypertension / high blood pressure
j. Diabetes
k. Cancer
l. HIV / AIDS
m. Depression / anxiety / emotional problem
n. Other problem

QK6 During the past 30 days, for about how many days did PAIN make it hard for you to do your usual activities?

a. Number of days __________
b. None / zero

QK7 During the past 30 days, for about how many days have you felt you did NOT get ENOUGH REST or SLEEP?

a. Number of days __________
b. None / zero
D14. Treatment Evaluation Short Form – Adapted for Mindfulness

Participant #: ____________

Please complete the items listed below by placing a checkmark on the line next to each question that best shows how you feel about the mindfulness classes that you took. Please read the items carefully.

<table>
<thead>
<tr>
<th>Q1.</th>
<th>I found the mindfulness practices we did in the classes an acceptable way to learn new coping skills.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Strongly Disagree</td>
</tr>
<tr>
<td>Q2.</td>
<td>I would be willing to use these practices in the future.</td>
</tr>
<tr>
<td>Q3.</td>
<td>I liked the exercises used in the classes.</td>
</tr>
<tr>
<td>Q4.</td>
<td>I believe the exercise are likely to help with my coping.</td>
</tr>
<tr>
<td>Q5.</td>
<td>I experienced discomfort during the classes.</td>
</tr>
<tr>
<td>Q6.</td>
<td>Overall, I have a positive reaction to these classes.</td>
</tr>
</tbody>
</table>
D15. Treatment Services Review – Adapted for Pre-test

Participant #: ______________________

Thinking about your treatment for using substances or addiction:

QM1. Is this your first time in inpatient treatment? YES NO
QM2. If no, how many inpatient treatment episodes have you had? ______________________

QM3. How many outpatient treatments have you had? ______________________

QM4. In the 3 months before you came to Nexus Recovery Center, did you have any treatment for your substance use? YES NO

QM5. If yes, what kind? (circle as many as apply)
- Inpatient treatment
- Individual counseling or therapy
- Group therapy / outpatient
- AA, NA or other 12-step group
- Psychiatrist or other medical doctor
- Other: ______________________

Thinking about other support services that you may have gotten,
How many days in the past month have you:

QM6. Had any individual or group counseling session for physical medical problems? __________

QM7. Had a meeting focused on helping you with any problems getting along with your spouse, significant other or other members of your family? __________

QM8. Had a meeting focused on helping you with any child care or parenting problems? __________

QM9. Had an evaluation or testing for psychological or emotional problems? __________

QM10. Had a medication prescription or refill for any psychological or emotional problems? __________

QM11. Had an individual session for any psychological or emotional problems? __________

QM12. Had a group session for psychological or emotional problems? __________

QM13. Had a session of relaxation training, biofeedback or meditation? __________

Thinking about other support services that you may have gotten,
How many days in the past month have you:

QM14. Had a meeting focused on helping you getting housing, food, clothing or shelter? __________

QM15. Had a meeting focused on you getting SSI, welfare, disability or other benefits? __________

QM16. Had a reading class, literacy testing or GED testing? __________

QM17. Had a meeting focused on helping you get schooling or training? __________

QM18. Had a meeting focused on helping you get employment? __________

QM19. Taken a medication to help you detox from alcohol or drugs? __________

QM20. Taken a medication to help prevent you from drinking or using drugs? __________
QM21. Received acupuncture to help you stop or reduce drinking or drug use? __________
QM22. Attended a 12-step meeting like AA, NA or similar? __________
QM23. Had a group counseling or individual counseling session where there was significant discussion on your alcohol / drug problems? __________
QM24. Been tested for alcohol or drug use? __________
D16. Treatment Services Review – Adapted for Follow-Up

Participant #: ________________

Treatment Services Review, Adapted for Follow-Up

QNF1. How long did you stay at Nexus Recovery Center:

_______________________________

QNF2F. Did you complete treatment at Nexus Recovery Center? (Did you get a certificate of completion)

YES  NO

QNF3. If no, why did you leave?

• Left AMA (against medical advice)
• Tested positive for substances and was asked to leave
• Was asked to leave due to violations of rules other than substance use

QNF4. In the 4 weeks since left treatment at Nexus Recovery Center, did you have any treatment for substance use or mental health?

YES  NO

QNF5. If yes, what kind? (circle as many as apply)

• Individual counseling or therapy
• Group therapy
• AA, NA or other 12-step group
• Psychiatrist or other medical doctor
• Other: ________________________

Thinking about other support services you may have gotten,

How many days in the past month have you:

QNF6. Had any individual or group counseling session for physical medical problems?

QNF7. Had a meeting focused on helping you with any problems getting along with your spouse, significant other or other members of your family? __________

QNF8. Had a meeting focused on helping you with any child care or parenting problems?

QNF9. Had an evaluation or testing for psychological or emotional problems? __________

QNF10. Had a medication prescription or refill for any psychological or emotional problems? __________

QNF11. Had an individual session for any psychological or emotional problems? __________

QNF12. Had a group session for psychological or emotional problems? __________

QNF13. Had a session of relaxation training, biofeedback or meditation? __________

QNF14. Had a meeting focused on helping you getting housing, food, clothing or shelter? __________
QNF15. Had a meeting focused on you getting SSI, welfare, disability or other benefits? ____________

QNF16. Had a reading class, literacy testing or GED testing? ____________

QNF17. Had a meeting focused on helping you get schooling or training? ____________

QNF18. Had a meeting focused on helping you get employment? ____________

QNF19. Taken a medication to help you detox from alcohol or drugs? ____________

QNF20. Taken a medication to help prevent you from drinking or using drugs? ____________

QNF21. Received acupuncture to help you stop or reduce drinking or drug use? ____________

QNF22. Attended a 12-step meeting like AA, NA or similar? ____________

QNF23. Had a group counseling or individual counseling session where there was significant discussion on your alcohol / drug problems? ____________

QNF24. Been tested for alcohol or drug use?
D17. Other Feedback

Participant # _______________

QOF1. We’re interested in your opinion. Do you have any other feedback?

______________________________________________________________________________

______________________________________________________________________________

______________________________________________________________________________

______________________________________________________________________________

______________________________________________________________________________

______________________________________________________________________________

______________________________________________________________________________

______________________________________________________________________________

______________________________________________________________________________

______________________________________________________________________________

______________________________________________________________________________

______________________________________________________________________________

______________________________________________________________________________
Appendix E
Codebook

Participant Number (PartNumber)
Group (Group)  Treatment = 1  Control = 0
Total Number of Classes Attended (TotalClass)
Attended Class 1 (Class1)  Yes = 1  No = 0
Attended Class 2 (Class2)  Yes = 1  No = 0
Attended Class 3 (Class3)  Yes = 1  No = 0
Attended Class 4 (Class4)  Yes = 1  No = 0

DEMOGRAPHICS

QA4. Age (QA4Age)

QA6. Race/ethnicity (QA6RaceEthnic)
   American Indian = 1  Alaskan Native = 2  Asian = 3  Black or African American = 4
   Native Hawaiian or other Pacific Islander = 5  Hispanic or Latina = 6  White / Caucasian = 7
   Other = 8  Race/ethnicity Other (QA6Race/EthOther)

QA7. What is your current gender identity? (QA7GenderID)
   Female = 1  Male = 2  Transgender = 3  Gender non-conforming = 4  Different identity = 5

QA8. Employment status (QA8Employ1 - QA8Employ4)
   Employed for wages full time = 1  Employed for wages part time = 2  Self-employed = 3
   Out of work and looking for work = 4  Out of work but not currently looking for work = 5
   A homemaker = 6  A student = 7  Military = 8  Retired = 9  Unable to work = 10

QA9. Education level (QA9Edu)
   No schooling completed = 1  Nursery school to 8 grade = 2  Some high school, no diploma = 3
   High school graduate, diploma or the equivalent (for example: GED) = 4
   Some college credit, no degree = 5  Trade/technical/vocational training = 6  Associate degree = 7
   Bachelor’s degree = 8  Master’s degree = 9  Professional degree = 10  Doctorate degree = 11
QA10. Relationship status (QA10Relation)
    Single, never married = 1    Married or domestic partnership = 2    Widowed = 3
    Divorced = 4    Separated = 5

CRIMINAL JUSTICE

QA11. Was admission to Nexus prompted/suggested by CJ system? (QA11AdminViaCJ)
    YES = 1    NO = 0

QA12. Have you ever been arrested or taken into custody by the police? (QA12EverArrest)
    YES = 1    NO = 0

QA13. If YES, how many times? (QA13ArrestNum) *If QA12 = NO, input 0*

QA14. Have you been convicted of a crime, not minor traffic violations? (QA14EverConvict)
    YES = 1    NO = 0

QA15. If YES, how many times? (QA15ConvictNum) *If QA14 = NO, input 0*

QA16. Ever been in jail or prison for 30 days or more for breaking the law? (QA16EverJail)
    YES = 1    NO = 0

QA17. If YES, how many times? (QA17JailNum) *If QA16 = NO, input 0*

QA18. Currently under CJ supervision, including probation? (QA18CurrentCJSuper)
    YES = 1    NO = 0

QA19. Ever in your life been under CJ supervision, including on probation? (QA19EverCJSuper)
    YES = 1    NO = 0

QA20. If YES, how many times? (QA20CJSuperNum) *If QA19 = NO, input 0*

MEDITATION

QA21. Have you ever heard of mindfulness or mindfulness meditation? (QA21HeardMM)
    YES = 1    NO = 0

QA22. Have you ever practiced mindfulness or mindfulness meditation? (QA22EverPractMM)
    YES = 1    NO = 0

QA23. Do you currently do mindfulness meditation? (QA23CurrentMM)
    YES = 1    NO = 0

QA24. If YES, how many times a week? (QA24MMPerWeek) *If QA23 = NO, input 0*
    One time a week = 1    2-4 times a week = 2    Almost every day = 3

QA25. Have you ever practiced any other kinds of meditation? (QA25OtherMed)
    YES = 1    NO = 0

QA26. If YES, what kind? (QA26KindOtherMed) TEXT

QA27. If YES, how many times a week? (QA27OtherMedPerWeek) *If QA25 = NO, input 0*
    One time a week = 1    2-4 times a week = 2    Almost every day = 3
ASI PRETEST

QC1 Alcohol – any use at all Past 30 days (PreASI_QC1Alc30) DAYS
QC1 Alcohol – any use at all Lifetime Use (PreASI_QC1AlcLife) YEARS
QC2 Alcohol – to intoxication Past 30 days (PreASI_QC2AlcIntox30) DAYS
QC3 Heroin – Past 30 days (PreASI_QC3Heroin30) DAYS
QC3 Heroin – Lifetime Use (PreASI_QC3HeroinLife) YEARS
QC3 Heroin – Route of Administration (PreASI_QC3HeroinAdm)
  Oral = 1 Nasal = 2 Smoking = 3 Non IV injection = 4 IV injection = 5 Never Used = 9
QC4 Methadone (illicit) – Past 30 days (PreASI_QC4Meth30) DAYS
QC4 Methadone (illicit) – Lifetime Use (PreASI_QC4MethLife) YEARS
QC4 Methadone (illicit) – Route of Administration (PreASI_QC4MethAdm)
  Oral = 1 Nasal = 2 Smoking = 3 Non IV injection = 4 IV injection = 5 Never Used = 9
QC5 Other opiates/analgesics – Past 30 days (PreASI_QC5OtherOpiat30) DAYS
QC5 Other opiates/analgesics – Lifetime Use (PreASI_QC5OtherOpiatLife) YEARS
QC6 Barbiturates – Past 30 days (PreASI_QC6Barb30) YEARS
QC6 Barbiturates – Lifetime Use (PreASI_QC6BarbLife) YEARS
QC7 Other sedatives, hypnotics, tranquilizers – Past 30 days (PreASI_QC7OtherSed30) DAYS
QC7 Other sedatives, hypnotics, tranquilizers – Lifetime Use (PreASI_QC7OtherSedLife) YEARS
QC8 Cocaine – Past 30 days (PreASI_QC8Cocaine30) YEARS
QC8 Cocaine – Lifetime Use (PreASI_QC8CocaineLife) YEARS
QC9 Amphetamines – Past 30 days (PreASI_QC9Amphet30) DAYS
QC9 Amphetamines – Lifetime Use (PreASI_QC9AmphetLife) YEARS
QC10 Cannabis – Past 30 days (PreASI_QC10Cannab30) DAYS
QC10 Cannabis – Lifetime Use (PreASI_QC10CannabLife) YEARS
QC10 Cannabis – Route of Administration (PreASI_QC10CannabAdm)
   Oral = 1   Nasal = 2   Smoking = 3   Non IV injection = 4   IV injection = 5   Never
   Used = 9

QC11 Hallucinogens – Past 30 days (PreASI_QC11Hallucin30)
   DAYS

QC11 Hallucinogens – Lifetime Use (PreASI_QC11HallucinLife)
   YEARS

QC12 Inhalants – Past 30 days (PreASI_QC12Inhal30)
   DAYS

QC12 Inhalants – Lifetime Use (PreASI_QC12InhalLife)
   YEARS

QC13 More than one substance per day – Past 30 days (PreASI_QC13MoreSub30)
   DAYS

QC13 More than one substance per day – Lifetime Use (PreASI_QC13MoreSubLife)
   YEARS

ASI FOLLOW-UP

QC1 Alcohol – any use at all in treatment (FUQC1Alc)
   DAYS

QC2 Alcohol – to intoxication in treatment (FUQC2AlcIntox)
   DAYS

QC3 Heroin – in treatment (FUQC3Heroin)
   DAYS

QC3 Heroin – Route of Administration (FUQC3HeroinAdm)
   Oral = 1   Nasal = 2   Smoking = 3   Non IV injection = 4   IV injection = 5   Never
   Used = 9

QC4 Methadone (illicit) – in treatment (FUQC4Meth)
   DAYS

QC4 Methadone (illicit) – Route of Administration (FUQC4MethAdm)
   Oral = 1   Nasal = 2   Smoking = 3   Non IV injection = 4   IV injection = 5   Never
   Used = 9

QC5 Other opiates/analgesics – in treatment (FUQC5OtherOpiat)
   DAYS

QC6 Barbiturates – in treatment (FUQC6Barb)
   DAYS

QC7 Other sedatives, hypnotics, tranquilizers – in treatment (FUQC7OtherSed)
   DAYS

QC8 Cocaine – in treatment (FUQC8Cocaine)
   DAYS

QC9 Amphetamines – in treatment (FUQC9Amphet)
   DAYS

QC10 Cannabis – in treatment (FUQC10Cannab)
   DAYS

QC10 Cannabis – Route of Administration (FUQC10CannabAdm)
   Oral = 1   Nasal = 2   Smoking = 3   Non IV injection = 4   IV injection = 5   Never
Used = 9
QC11 Hallucinogens – in treatment (FUQC11Hallucin)
   DAYS
QC12 Inhalants – in treatment (FUQC12Inhal)
   DAYS
QC13 More than one substance per day – in treatment (FUQC13MoreSub)
   DAYS
Penn Alcohol Craving Scale (PACS)

Pre-Test Frequency Score = Q1 + Q3 + Q5 (PrePACSFreq)
Pre-Test Severity Score = Q2 + Q4 (PrePACSSev)

Post-Test Frequency Score = Q1 + Q3 + Q5 (PostPACSFreq)
Post-Test Severity Score = Q2 + Q4 (PostPACSSev)

Follow-Up Frequency Score = Q1 + Q3 + Q5 (FU_PACSFreq)
Follow-Up Severity Score = Q2 + Q4 (FU_PACSSev)

QD1. During the past week **how often** have you thought about drinking or using other drugs or about how good a drink or other drug would make you feel?
   - 0 Never (0 times during the past week) to 6 Nearly all the time (more than 40 times or 6+ times a day)

QD2. At its most severe point, **how strong** was your craving during the past week?
   - 0 None at all to 6 Strong urge and would have drunk alcohol or used other drugs if they were available

QD3. During the past week **how much time** have you spent thinking about drinking or using other drugs or about how good a drink or other drugs would make you feel?
   - 0 None at all to 6 More than 6 hours

QD4. During the past week **how difficult would it have been to resist** taking a drink or using drugs if you had known they were around?
   - 0 Not difficult at all to 6 Would not be able to resist

QD5. Keeping in mind your responses to the previous questions, please rate your overall **average alcohol or other drug craving** during for the past week.
   - 0 Never thought about or never had the urge to 6 Thought about or had the urge nearly all the time
MAAS
Pre-test Score = average 15 items (PreMASS)
Post-test Score = average 15 items (PostMASS)
Follow-Up Score = average 15 items (FU_MASS)

<table>
<thead>
<tr>
<th></th>
<th>1 Almost Always</th>
<th>2 Very Frequently</th>
<th>3 Somewhat Frequently</th>
<th>4 Somewhat Infrequently</th>
<th>5 Very Infrequently</th>
<th>6 Almost Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>QE1. I could be experiencing some emotion and not be conscious of it until some time later.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>QE2. I break or spill things because of carelessness, not paying attention, or thinking of something else.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>QE3. I find it difficult to stay focused on what’s happening in the present.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>QE4. I tend to walk quickly to get where I’m going without paying attention to what I experience along the way.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>QE5. I tend not to notice feelings of physical tension or discomfort until they really grab my attention.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>QE6. I forget a person’s name almost as soon as I’ve been told it for the first time.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>QE7. It seems I am “running on automatic,” without much awareness of what I’m doing.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>QE8. I rush through activities without being really attentive to them.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>QE9. I get so focused on the goal I want to achieve that I lose touch with what I’m doing right now to get there.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>QE10. I do jobs or tasks automatically, without being aware of what I’m doing.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>QE11. I find myself listening to someone with one ear, doing something else at the same time.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>QE12. I drive places on ‘automatic pilot’ and then wonder why I went there.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>QE13. I find myself preoccupied with the future or the past.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>QE14. I find myself doing things without paying attention.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>QE15. I snack without being aware that I’m eating.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>
BSI-18

Pre-test Total Score = sum of all items (PreBSI_Total)
Pre-test Somatization (SOM) Score = Q1+Q4+Q7+Q10+Q13+Q16 (PreBSI_SOM)
Pre-test Depression (DEP) Score = Q2+Q5+Q8+Q11+Q14+Q17 (PreBSI_DEP)
Pre-test Anxiety (ANX) Score = Q3+Q6+Q9+Q12+Q15+Q18 (PreBSI_ANX)

Post-test Total Score = sum of all items (PostBSI_Total)
Post-test Somatization (SOM) Score = Q1+Q4+Q7+Q10+Q13+Q16 (PostBSI_SOM)
Post-test Depression (DEP) Score = Q2+Q5+Q8+Q11+Q14+Q17 (PostBSI_DEP)
Post-test Anxiety (ANX) Score = Q3+Q6+Q9+Q12+Q15+Q18 (PostBSI_ANX)

Follow-up Total Score = sum of all items (FU_BSI_Total)
Follow-up Somatization (SOM) Score = Q1+Q4+Q7+Q10+Q13+Q16 (FU_BSI_SOM)
Follow-up Depression (DEP) Score = Q2+Q5+Q8+Q11+Q14+Q17 (FU_BSI_DEP)
Follow-up Anxiety (ANX) Score = Q3+Q6+Q9+Q12+Q15+Q18 (FU_BSI_ANX)
| QF1. Faintness or dizziness | 0 | 1 | 2 | 3 | 4 |
| QF2. Feeling no interest in things | 0 | 1 | 2 | 3 | 4 |
| QF3. Nervousness or shakiness inside | 0 | 1 | 2 | 3 | 4 |
| QF4. Pains in heart or chest | 0 | 1 | 2 | 3 | 4 |
| QF5. Feeling lonely | 0 | 1 | 2 | 3 | 4 |
| QF6. Feeling tense or keyed up | 0 | 1 | 2 | 3 | 4 |
| QF7. Nausea or stomach upset | 0 | 1 | 2 | 3 | 4 |
| QF8. Feeling blue | 0 | 1 | 2 | 3 | 4 |
| QF9. Suddenly scared for no reason | 0 | 1 | 2 | 3 | 4 |
| QF10. Trouble getting your breath | 0 | 1 | 2 | 3 | 4 |
| QF11. Feelings of worthlessness | 0 | 1 | 2 | 3 | 4 |
| QF12. Spells of terror or panic | 0 | 1 | 2 | 3 | 4 |
| QF13. Numbness or tingling in parts of your body | 0 | 1 | 2 | 3 | 4 |
| QF14. Feeling hopeless about the future | 0 | 1 | 2 | 3 | 4 |
| QF15. Feeling so restless you couldn’t sit still | 0 | 1 | 2 | 3 | 4 |
| QF16. Feeling weak in parts of your body | 0 | 1 | 2 | 3 | 4 |
| QF17. Thoughts of ending your life | 0 | 1 | 2 | 3 | 4 |
| QF18. Feeling fearful | 0 | 1 | 2 | 3 | 4 |
PSS
Pre-test Score = total of 10 items (PrePSS)
Post-test Score = total of 10 items (PostPSS)
Follow-Up Score = total of 10 items (FU_PSS)

<table>
<thead>
<tr>
<th>Question</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>QG1</td>
<td>In the last month, how often have you been upset because of something that happened unexpectedly?</td>
</tr>
<tr>
<td>QG2</td>
<td>In the last month, how often have you felt that you were unable to control the important things in your life?</td>
</tr>
<tr>
<td>QG3</td>
<td>In the last month, how often have you felt nervous and stressed?</td>
</tr>
<tr>
<td>QG4</td>
<td>In the last month, how often have you felt confident about your ability to handle your personal problems?</td>
</tr>
<tr>
<td>QG5</td>
<td>In the last month, how often have you felt that things were going your way?</td>
</tr>
<tr>
<td>QG6</td>
<td>In the last month, how often have you found that you could not cope with all the things that you had to do?</td>
</tr>
<tr>
<td>QG7</td>
<td>In the last month, how often have you been able to control irritations in your life?</td>
</tr>
<tr>
<td>QG8</td>
<td>In the last month, how often have you felt that you were on top of things?</td>
</tr>
<tr>
<td>QG9</td>
<td>In the last month, how often have you been angered because of things that happened that were outside of your control?</td>
</tr>
<tr>
<td>QG10</td>
<td>In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?</td>
</tr>
</tbody>
</table>
**SIP-R**

Pre-test Total Score = sum of all items (PreSIP_Total)
Pre-test Physical Score = sum of items 2+10+12 (PreSIP_Phys)
Pre-test Inter-personal Score = sum of items 13+14+16 (PreSIP_Inter)
Pre-test Intra-personal Score = sum of items 1+4+15 (PreSIP_Intra)
Pre-test Impulse Control Score = sum of items 5+6+7 (PreSIP_Impulse)
Pre-test Social Responsibility Score = sum of items 3+8+9+11+17 (PreSIP_Social)

Follow-up Total Score = sum of all items (FU_SIP_Total)
Follow-up Physical Score = sum of items 2+10+12 (FU_SIP_Total)
Follow-up Inter-personal Score = sum of items 13+14+16 (FU_SIP_Total)
Follow-up Intra-personal Score = sum of items 1+4+15 (FU_SIP_Total)
Follow-up Impulse Control Score = sum of items 5+6+7 (FU_SIP_Total)
Follow-up Social Responsibility Score = sum of items 3+8+9+11+17 (FU_SIP_Total)
QH1. I have been unhappy because of my drinking or drug use.
QH2. Because of my drinking or drug use, I have lost weight or not eaten properly.
QH3. I have failed to do what is expected of me because of my drinking or drug use.
QH4. I have felt guilty or ashamed because of my drinking or drug use.
QH5. I have taken foolish risks when I have been drinking or using drugs.
QH6. When drinking or using drugs, I have done impulsive things that I regretted later.
QH7. Drinking or using one drug has caused me to use other drugs more.
QH8. I have gotten into trouble because of drinking or drug use.
QH9. The quality of my work has suffered because of my drinking or drug use.
QH10. My physical health has been harmed by my drinking or drug use.
QH11. I have had money problems because of my drinking or drug use.
QH12. My physical appearance has been harmed by my drinking or drug use.
QH13. My family has been hurt by my drinking or drug use.
QH14. A friendship or close relationship has been damaged by my drinking or drug use.
QH15. My drinking or drug use has gotten in the way of my growth as a person.
QH16. My drinking or drug use has damaged my social life, popularity, or reputation.
QH17. I have spent too much or lost a lot of money because of my drinking or drug use.
PC-PTSD-5:
Pre-test Total Score = Qi1= No, total score = 0; Qi1=1, total score = Qi2+Qi3+Qi4+Qi5+Qi6 (PrePTSD_Score)
Pre-test Diagnosis = Total score of 4 or 5 = Yes PTSD, total score 3 or less = No PTSD (PrePTSD_Diag)
    Yes = 1  No = 0
Post-test Total Score = Qi1= No, total score = 0; Qi1=1, total score = Qi2+Qi3+Qi4+Qi5+Qi6 (PostPTSD_Score)
Post-test Diagnosis: Total score of 4 or 5 = Yes PTSD, total score of 3 or less = No PTSD (PostPTSD_Diag)
    Yes = 1  No = 0
Follow-up Total Score = Qi1= No, total score = 0; Qi1=1, total score = Qi2+Qi3+Qi4+Qi5+Qi6 (FU_PTSD_Score)
Follow-up Diagnosis = Total score of 4 or 5 = Yes PTSD, total score of 3 or less = No PTSD (FU_PTSD_Diag)
    Yes = 1  No = 0

Sometimes things happen to people that are unusually or especially frightening, horrible, or traumatic. For example:
- a serious accident or fire
- a physical or sexual assault or abuse
- an earthquake or flood
- a war
- seeing someone be killed or seriously injured
- having a loved one die through homicide or suicide.

Qi1. Have you ever experienced this kind of event?

    YES  NO

If you answered NO, Please stop here.
If you answered YES, please answer the questions below.

In the past month, have you...

Qi2. Had nightmares about the event(s) or thought about the event(s) when you did not want to?

    YES  NO

Qi3. Tried hard not to think about the event(s) or went out of your way to avoid situations that reminded you of the event(s)?

    YES  NO

Qi4. Been constantly on guard, watchful, or easily startled?

    YES  NO

Qi5. Felt numbed or detached from people, activities, or your surroundings?

    YES  NO

Qi6. Felt guilty or unable to stop blaming yourself or others for the event(s) or any problems the event(s) may have caused?

    YES  NO
SDS
Pre-test Work/School disruption (PreSDS_QJ1)
Pre-test Did not work or go to school not because of symptoms (PreSDS_QJ1.2)
Pre-test Social life disruption (PreSDS_QJ2)
Pre-test Family disruption (PreSDS_QJ3)
Pre-test Days lost (PreSDS_QJ4)
Pre-test Days underproductive (PreSDS_QJ5)

Follow-up Work/School disruption (FU_SDS_QJ1)
Follow-up Did not work or go to school not because of symptoms (FU_SDS_QJ1.2)
Follow-up Social life disruption (FU_SDS_QJ2)
Follow-up Family disruption (FU_SDS_QJ3)
Follow-up Days lost (FU_SDS_QJ4)
Follow-up Days underproductive (FU_SDS_QJ5)
Please mark ONE circle for each scale.

**WORK* / SCHOOL**

The symptoms have disrupted your work / school work:

<table>
<thead>
<tr>
<th>Not at all</th>
<th>Mildly</th>
<th>Moderately</th>
<th>Markedly</th>
<th>Extremely</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

☐ I have not worked/studied at all during the past week for reasons unrelated to the disorder.

* Work includes paid, unpaid volunteer work or training

**SOCIAL LIFE**

The symptoms have disrupted your social life / leisure activities:

<table>
<thead>
<tr>
<th>Not at all</th>
<th>Mildly</th>
<th>Moderately</th>
<th>Markedly</th>
<th>Extremely</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

**FAMILY LIFE / HOME RESPONSIBILITIES**

The symptoms have disrupted your family life / home responsibilities:

<table>
<thead>
<tr>
<th>Not at all</th>
<th>Mildly</th>
<th>Moderately</th>
<th>Markedly</th>
<th>Extremely</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

**DAYS LOST**

On how many days in the last week did your symptoms cause you to miss school or work or leave you unable to carry out your normal daily responsibilities? ________

**DAYS UNDERPRODUCTIVE**

On how many days in the last week did you feel so impaired by your symptoms, that even though you went to school or work, your productivity was reduced? ________
CDC HRQOL

QK1. Would you say your general health is: (PreCDCQK1) (PostCDCQK1) (FU_CDCQK1)
   Excellent = 5  Very good = 4  Good = 3  Fair = 2  Poor = 1

QK2. Now thinking about your physical health, which includes physical illness and injury, for about how many days during the past 30 days was your physical health NOT good? (PreCDCQK2) (PostCDCQK2) (FU_CDCQK2)

QK3. During the past 30 days, for about how many days did poor physical health keep you from your usual activities? (PreCDCQK3) (PostCDCQK3) (FU_CDCQK3)

QK4. Are you LIMITED in any way in any activities because of any impairment or health problem? (PreCDCQK4) (PostCDCQK4) (FU_CDCQK4)
   Yes = 1  No = 0

QK5 If you answered YES to question #4, which of these cause a MAJOR impairment or health problem that limits your activities? Circle which ones apply to you:
(PreCDCQK5_1) (PostCDCQK5_1) (FU_CDCQK5_1)
(PreCDCQK5_2) (PostCDCQK5_2) (FU_CDCQK5_2)
(PreCDCQK5_3) (PostCDCQK5_3) (FU_CDCQK5_3)
(PreCDCQK5_4) (PostCDCQK5_4) (FU_CDCQK5_4)
(PreCDCQK5_5) (PostCDCQK5_5) (FU_CDCQK5_5)
(PreCDCQK5_6) (PostCDCQK5_6) (FU_CDCQK5_6)
(PreCDCQK5_7) (PostCDCQK5_7) (FU_CDCQK5_7)
   Arthritis / rheumatism = 1  Back or neck problem = 2  Broken bones, bone or joint injury = 3
   Walking problem = 4  Lung / breathing problem = 5  Hearing problem = 6
   Heart problem = 7  Stroke problem = 8  Hypertension / high blood pressure = 9
   Diabetes = 10  Cancer = 11  HIV / AIDS = 12
   Depression / anxiety / emotional problem = 13  Other problem = 14

QK6. During the past 30 days, for about how many days did PAIN make it hard for you to do your usual activities? (PreCDCQK6) (PostCDCQK6) (FU_CDCQK6)

QK7. During the past 30 days, for about how many days have you felt you did NOT get ENOUGH REST or SLEEP? (PreCDCQK7) (PostCDCQK7) (FU_CDCQK7)
TSR

Pre-test QM1. Is this your first time in inpatient treatment? (PreTSR_QM1) YES =1 NO=0
Pre-test QM2. If no, how many inpatient treatment episodes have you had? (PreTSR_QM2)
Pre-test QM3. How many outpatient treatments have you had? (PreTSR_QM3)
Pre-test QM4. In the 3 months before you came to Nexus, did you have any treatment for your SU? (PreTSR_QM4)
    YES =1 NO=0

Pre-test QM5. If yes, what kind? (circle as many as apply) (PreTSR_QM5_1) (PreTSR_QM5_2) (PreTSR_QM5_3) (PreTSR_QM5_4) (PreTSR_QM5_5) (PreTSR_QM5_6)

    Inpatient treatment = 1 Individual counseling or therapy = 2 Group therapy / outpatient = 3
    AA, NA or other 12-step group = 4 Psychiatrist or other medical doctor = 5 Other:

Pre-test QM13. Had relaxation training, biofeedback or meditation? (PreTSR_QM13BioMed)
Pre-test QM21. Received acupuncture to stop/reduce drinking/drug use? (PreTSR_QM21Acup)
Pre-test QM22. Attended a 12-step meeting like AA, NA or similar? (PreTSR_QM22_12step)
Pre-test Total Score = sum QM6 to QM24 (PreTSR_Total)
Pre-test Social Welfare Scale = Q6 + Q14 + Q15 + Q16 + Q17 + Q18 (PreTSR_SocWel)
Pre-test Family Score = Q7+Q8 (PreTSR_Family)
Pre-test Psych/Emotional Score = Q9+Q10+Q11+Q12 (PreTSR_PsychEmoPost)
Pre-test MAP Score = Q19 + Q20 (PreTSR_MAP)
Pre-test Psychosocial SUD Score = Q19+Q20+Q21+Q22+Q23+Q24 (PreTSR_Psychosoc)

Follow-up QNF1. How long did you stay at Nexus Recovery Center (FU_TSR_QNF1)

Follow-up QN2F. Did you complete treatment at Nexus? (Did you get certificate of completion) (FU_TSR_QNF2)
    Yes =1 No=0

Follow-up QNF3. If no, why did you leave? (FU_TSR_QNF3)
    Left AMA (against medical advice) = 1 Tested positive for substances and was asked to leave = 2
    Was asked to leave due to violations of rules other than substance use = 3

Follow-up QNF4. In 4 weeks since you left treatment, did you have any treatment for SU/MH? (FU_TSR_QNF4)
Yes = 1   No = 0

Follow-up QNF5. If yes, what kind? (circle as many as apply) (FU_TSR_QM5_1)
(FU_TSR_QM5_2)
(FU_TSR_QM5_3) (FU_TSR_QM5_4) (FU_TSR_QM5_5) (FU_TSR_QM5_6)

Inpatient treatment = 1       Individual counseling or therapy = 2       Group therapy / outpatient = 3
AA, NA or other 12-step group = 4       Psychiatrist or other medical doctor = 5       Other: ________

Follow-up QM13. Had relaxation training, biofeedback or meditation?
(FU_TSR_QM13BioMed)
Follow-up QM21. Received acupuncture to stop/reduce drinking/drug use?
(FU_TSR_QM13BioMed)
Follow-up QM22. Attended a 12-step meeting like AA, NA or similar?
(FU_TSR_QM22_12step)
Follow-up Total Score = sum QM6 to QM24 (FU_TSR_Total)
Follow-up Social Welfare Scale = Q6 + Q14 + Q15 + Q16 + Q17 + Q18 (FU_TSR_SocWel)
Follow-up Family Score = Q7+Q8 (FU_TSR_Family)
Follow-up Psych/Emotional Score = Q9+Q10+Q11+Q12 (FU_TSR_EmoProb)
Follow-up MAP Score = Q19 + Q20 (FU_TSR_MAP)
Follow-up Psychosocial SUD Score = Q19+Q20+Q21+Q22+Q23+Q24 (FU_TSR_Psychosoc)

---

How many days in the past month have you:

Q6. Had any individual or group counseling session for physical medical problems?
Q7. Had a meeting focused on helping you with problems getting along with spouse, significant other or other members of your family?
Q8. Had a meeting focused on helping you with child care or parenting problems?
Q9. Had an evaluation or testing for psychological or emotional problems?
Q10. Had medication prescription/refill for psychological or emotional problems?
Q11. Had an individual session for any psychological or emotional problems?
Q12. Had a group session for psychological or emotional problems?
Q13. Had a session of relaxation training, biofeedback or meditation?
Q14. Had a meeting focused on helping you getting housing, food, clothing or shelter?
Q15. Had a meeting focused on you getting SSI, welfare, disability or other benefits?
Q16. Had a reading class, literacy testing or GED testing?
Q17. Had a meeting focused on helping you get schooling or training?
Q18. Had a meeting focused on helping you get employment?
Q19. Taken a medication to help you detox from alcohol or drugs?
Q20. Taken a medication to help prevent you from drinking or using drugs?
Q21. Received acupuncture to help you stop or reduce drinking or drug use?
Q22. Attended a 12-step meeting like AA, NA or similar?
Q23. Had a group or individual counseling session w/ significant discussion of your AOD problems?
Q24. Been tested for alcohol or drug use?

TEI-SF
Post-test TEI Score = QS1+QL2+QL3+Ql4+RQL5+QL6/6 (TEI_Score)

Please complete the items listed below by placing a checkmark on the line next to each question that best shows how you feel about the mindfulness classes that you took. Please read the items carefully.

<table>
<thead>
<tr>
<th>Q.L1.</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>I found the mindfulness practices we did in the classes an acceptable way to learn new coping skills.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Q.L2.</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>I would be willing to use those practices in the future.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Q.L3.</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>I liked the exercises used in the classes.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Q.L4.</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>I believe the exercise are likely to help with my coping.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Q.L5.</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>I experienced discomfort during the classes.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Q.L6.</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall, I have a positive reaction to these classes.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>