

[Barry University](#)
[Institutional Repository](#)

[Theses and Dissertations](#)

2008

The Effect of Mindfulness Meditation on Locus of Control and
Thought Suppression in Female Substance Users

Lekha Gandhi

THE EFFECT OF MINDFULNESS MEDITATION ON LOCUS OF CONTROL AND
THOUGHT SUPPRESSION IN FEMALE SUBSTANCE USERS

DISSERTATION

Presented in Partial Fulfillment of the Requirements for
the Degree of Doctor of Philosophy in
Leadership and Education in
the Adrian Dominican School of Education of

Barry University

by

Lekha Gandhi, M. S., M. A., LMHC

* * * *

Barry University

2008

Area of Specialization: Counseling

THE EFFECT OF MINDFULNESS MEDITATION ON LOCUS OF CONTROL AND
THOUGHT SUPPRESSION IN FEMALE SUBSTANCE USERS

DISSERTATION

by

Lekha Gandhi

2008

APPROVED BY:

Catharina M. Eeltink, Ph.D.
Chairperson, Dissertation Committee

Christine Sacco-Bene, Ph.D.
Member, Dissertation Committee

Marilyn Lutz, Ed.D.
Member, Dissertation Committee

Terry Piper, Ph.D.
Dean, Adrian Dominican School of Education

Copyright by Lekha Gandhi, 2008

All Rights Reserved

ABSTRACT

THE EFFECT OF MINDFULNESS MEDITATION ON LOCUS OF CONTROL AND THOUGHT SUPPRESSION IN FEMALE SUBSTANCE USERS

Lekha Gandhi

Barry University, 2008

Dissertation Chairperson: Dr.Catharina M. Eeltink

Purpose

The purpose of this research was to determine the effect of Mindfulness meditation intervention on locus of control and thought suppression for females in a residential substance abuse program. The study utilized a quasi-experimental nonrandomized control-group pretest-posttest design.

Method

Volunteer participants in this study were recruited for experimental and control groups separately from the same substance abuse program. The experimental group completed the Drinking-Related Internal-External Locus of Control Scale (DRIE) and the White Bear Suppression Inventory (WBSI), a Thought Suppression Scale, as pretests, and then received four weeks of Mindfulness meditation intervention. After four weeks the participants again completed the DRIE and the WBSI questionnaires as posttests. Once the intervention was completed with the experimental group, the control group was recruited, and also completed the Drinking-Related Internal-External Locus of Control Scale and the White Bear Suppression Inventory questionnaires for the pretest, but did

not receive the Mindfulness meditation intervention. At the end of four weeks the control group completed the DRIE and the WBSI questionnaires as a posttest. The scores for experimental and control groups were compared, and a statistical analysis was conducted to assess differences between the two groups.

Major Findings

After analyzing the data, statistically significant improvement was found in increased internal locus of control and decreased thought suppression in relation to substance use in participants who participated in Mindfulness meditation intervention as compared to participants who did not. The results support previous research findings that Mindfulness meditation may be a useful adjunctive treatment for substance use disorder.

ACKNOWLEDGEMENTS

I would like to thank several people, personally, for their assistance in completion of this dissertation. First, to my committee, Dr. Kitty Eeltink, Dr. Paul Gallant and Late Dr. Gene Tootle, thank you for your guidance, your suggestions, and your encouragement. I want to extend a special thanks to my committee chair, Dr. Eeltink for her endless support, countless readings of this study, and many hours of her valuable time. Dr. Eeltink was always accessible and available not only to address my questions and concerns, but also providing continuous words of encouragement as I went through the IRB encounters and then lost my “sample population” at the critical juncture of data collection. It was Dr. Eeltink’s support that kept me moving forward.

The dissertation voyage was arduous, but adventurous, with only one heart felt regret of losing my esteemed committee member Dr. Tootle. I deeply feel the loss of his guidance, knowledge and charismatic energy that emitted from him blessing all his students. I will always remain thankful to him for guiding us to new avenues of knowledge. I thank Dr. Christine Sacco-Bene, and Dr. Marilyn Lutz for filling the positions for dissertation committee created by the absence of Late Dr. Tootle and Dr. Gallant, who transferred out of Barry University.

Additionally, special appreciation is extended to my friend Dr. Sandra Davis, for her consistent support, encouragement and presence during all my dissertation defenses, providing much needed moral support. A very special note of gratitude to Lamerial Daniels and Dr. Leonard Branch of Orange County Corrections Department for their incredible support in directing me to the right community resources, in selection of the research population. I also want to extend my deep appreciation to Liz Singer and the

staff at the STEPS program for their invaluable assistance, and to the female participants who finally brought this project to its completion.

I thank with deep gratitude to my nephew Dr. Amitabh Gumman who introduced me to Mindfulness Meditation many years ago, and later encouraged me to translate my interest into this study. A heartfelt thanks to the closest people in my life, foremost my mother Maya Rani Mehrotra, and my sisters, Vinita Khanna, Dr. Vijaya Chandel, and Anita Varma for their abundant love, support and warmth that surrounded me all through the years of this journey. My sincere gratitude to my incredible extended family, Dr. Madhav Se'gal, Dr. Uma Se'gal, Dr. Ranjana Se'gal, and all the members of the family whose words of encouragement, practical advice from their own experience in the education field, gave me the needed motivation and inspiration.

Finally thanks to my beloved sons, Sohang and Gorang who are on their own journey of achieving doctoral degrees in their respective disciplines. Their brilliance, intense dedication, youthful energy and skillful challenging had always been the source of inspiration for me. Thank you for making time for hours of editing, continuous support and most of all your love every step of the way. Without your presence the completion of this project would not have been possible.

DEDICATION

This dissertation is dedicated to the loving memory of my father, Late Harcharan Lal Mehrotra and my mother Maya Rani Mehrotra, for instilling in me the love for knowledge and a spirit of persistence.

This dissertation is also dedicated to two most important people in my life, my sons Sohang and Gorang. Without their patience, understanding, support, and most of all love, this mission would have been impossible.

TABLE OF CONTENTS

	Page
ABSTRACT.....	iv
ACKNOWLEDGMENTS	vi
DEDICATION	viii
LIST OF TABLES.....	xii
LIST OF FIGURES	xiii
CHAPTERS	
I. THE PROBLEM.....	1
Introduction.....	1
Background.....	3
Theoretical Framework.....	7
Statement of the Problem.....	11
Purpose of the Study.....	11
Significance of the Study.....	12
Research Question.....	12
Definition of Terms.....	13
Organization of the Study.....	14
II. REVIEW OF THE LITERATURE	15
Introduction.....	15
Spirituality.....	15
Mindfulness meditation	17
Western perspective of Mindfulness practice	21
Comparison of Mindfulness and Concentration meditation	24
Buddhist philosophy and addictions	30
Mindfulness practice as a clinical intervention.....	32
Mindfulness meditation in correctional population	37
Mindfulness meditation and the mechanisms of change	40
Summary.....	43
III. METHODOLOGY	45
Introduction.....	45
Research Design and Rationale	45

Research Question and Hypothesis.....	47
Independent Variable.....	48
Dependent Variables.....	48
Participants.....	48
Selection of Participants.....	49
Confidentiality.....	50
Instrumentation.....	51
Procedure.....	56
External Validity.....	57
Assumptions.....	58
Limitations.....	58
Delimitations.....	59
Data Analysis.....	59
Summary.....	60
IV. RESULTS.....	61
Introduction.....	61
Descriptive Statistics: Demographic Data.....	62
Descriptive Statistics: Pretest Scores.....	70
Group Equivalency Analysis.....	72
Descriptive Statistics: Posttest Scores.....	73
Inferential Statistics.....	75
Summary.....	77
V. SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS.....	78
Introduction.....	78
Restatement of the Methodology.....	79
Conclusions.....	80
Implications.....	83
Recommendations for Practice.....	85
Recommendations for Future Research.....	87
Summary.....	88
REFERENCES.....	90
APPENDIX A.....	107
APPENDIX B.....	109
APPENDIX C.....	111

APPENDIX D..... 113

APPENDIX E..... 114

LIST OF TABLES

	Page
Table 1 Experimental Group: Demographic Data	69
Table 2 Control Group: Demographic Data.....	70
Table 3 Drinking-Related Internal-External Locus of Control Scale Pretest Scores...	71
Table 4 White Bear Suppression Inventory Pretest Scores	72
Table 5 Independent Samples <i>t</i> -test Assessing Control and Experimental Group Equivalency (DRIE Scale).....	73
Table 6 Independent Samples <i>t</i> -test Assessing Control and Experimental Group Equivalency (WBSI Scale)	73
Table 7 Internal-External Locus of Control Pretest-Posttest Change Scores	74
Table 8 White Bear Suppression Inventory Posttest-Pretest Change Scores.	75
Table 9 Independent Samples <i>t</i> -test for Pretest-Posttest Difference Scores (DRIE Scale).....	76
Table 10 Independent Samples <i>t</i> -test for Pretest-Posttest Difference Scores (WBSI Scale).....	77

LIST OF FIGURES

	Page
Figure 1 Age of Experimental Group Participants	63
Figure 2 Age of Control Group Participants.....	63
Figure 3 Ethnic Distribution for the Experimental and Control Groups.	64
Figure 4 Educational Levels for the Experimental and Control Groups	65
Figure 5 Employment Status of the Experimental and Control Groups	66
Figure 6 Anti-depressant Medication Usage for the Experimental and Control Groups.....	67
Figure 7 Years of Alcohol/drug Abuse for the Experimental and Control Groups.....	68

CHAPTER I

THE PROBLEM

Introduction

Drug addiction and alcoholism rank among the most devastating and costly social ills of contemporary times (Fals-Stewart, O'Farrell, & Birchler, 1997). Drugs not only cause human suffering but also create an excessive stress on the nation's economy. In the United States alone, the estimated yearly direct and indirect economic social cost from substance abuse has reached up to \$414 billion, with an estimated 5.34% increase annually (The Schneider Institute for Health Policy, 2001). Substance abusing individuals also exhaust community resources, some of which include specialized drug treatment, treatment of drug induced health problems, over consumption of the welfare programs, strain on the criminal justice system due to frequent arrests, incarceration, parole and probation (Fals-Stewart, et al., 1997). Other social cost factors include reduced productivity in the workplace, costs to victims of crimes by substance abusing individuals, property damage caused by accidents and cost to family members whose resources are exhausted to support and maintain the drug abusing habits (French, Rachal, & Hubbard, 1991).

Injection drug users (IDU) are at a higher risk of contracting and transmitting communicable diseases such as HIV, hepatitis C, tuberculosis, and sexually transmitted diseases (Barnett & Hui, 2000). Mothers using injection drugs or having an IDU sex partner have contributed to more than one half of pediatric AIDS cases involving infants (Fortuin, Kwiatkowski, & Booth, 2002). Drug use amongst the pregnant women can result in premature delivery, serious birth defects, delayed development and impaired

parenting (Schilling, Doring, & Lungren, 2006). High rates of intimate partner violence and associated post-traumatic stress disorder are very common experiences of women drug users (El-Bassel, Gilbert, Wittes, Wu, Gatea, & Schilling, 2003). According to Bureau of Justice Statistics Bulletin (2000), the number of incarcerated women in prisons and jails more than doubled between 1990 and 1999, outpacing the male incarcerated population. Drug offenders accounted for the largest source of the total growth among incarcerated women. According to Messina & Prendergast (2001), "compared with incarcerated men, women inmates are more likely to have a coexisting psychiatric disorder, to have lower self-esteem, to have more severe substance use histories (e.g., using hard drugs, using more frequently, or taking drugs intravenously), and to test HIV-positive" (p. 49).

Several treatment options are available in the community including out patient and residential substance abuse treatment programs employing cognitive-behavioral curriculum, the 12-step disease model treatment approach, and pharmacological maintenance programs involving the long-term administration of a medication that either replaces the illicit drug, such as Heroin, or blocks its action (Bureau of Justice Statistics, 1999). Currently, the residential treatment models have become the preferred method of substance abuse treatment for both male and female populations. These programs are intensive, long-term, highly structured residential treatment modalities that are based on cognitive-behavioral approaches for chronic, hard-core drug users. Aftercare typically consists of 12-step meetings and periodic group or individual counseling (Messina & Prendergast, 2001).

Female substance users present a unique challenge due to their drug using lifestyle entwined with various other factors such as vocational, medical, psychological, relational and parenting issues. The treatment provided needs to be tailored to the special needs of the female drug users. The completion of community-based treatment is associated with successful outcomes for both men and women (DeLeon & Jainchill, 1981; Messina, Wish, & Nemes, 2000), but the limited outcome studies on existing substance abuse treatments, the cost of long term treatment modalities, and the minimal utilization of available treatment warrants new directions in substance abuse treatment. The alternative modality needs to be cost effective, accessible, brief, and attuned to the needs of female substance users. This study examines the effects of an alternative spirituality-based treatment, Mindfulness meditation, on locus of control and thought suppression in relation to substance use in female population in residential treatment. Mindfulness meditation is not only cost effective and accessible, but can also be practiced at home without compromising time away from childcare, family or jobs, and has also proven to increase psychological well being of the practitioner (Baer, 2003). Thus Mindfulness practice may become a favorable modality of treatment for female substance users.

Background

Drug dependence can be defined as a compulsive desire to continuously use a drug to either create a certain mood (get high), or avoid painful realities despite adverse personal, medical, financial, or legal consequences (Cleave, Byrd, & Revell, 1987).

An effective substance abuse treatment program should be able to deliver services in a manner consistent with the ability and learning style of the individuals being treated

(Gornik, 2001). Currently, two treatment approaches are prevalent in the field, the cognitive-behavioral treatment (CBT) and the 'Minnesota Model' treatment program, which is based on twelve steps (AA/NA) disease model approach (Cook, 1988). In past thirty years or so cognitive-behavioral approaches have been able to establish their effectiveness in the treatment of substance use and related disorders (Carroll, 1996; Kadden, 2001). In the context of substance use, it postulates the assumption that addictive behaviors are learned behaviors, and can be replaced by healthy, adoptive behaviors using a similar learning process (Kadden, 2001).

CBT is a present oriented psychotherapy, which involves the assessment of contextual, social, affective, and cognitive precipitants of a substance-using individual (Marlatt, Witkiewitz, & Dullworth, 2004). The participant is assisted in developing and rehearsing coping skills, both drug specific, such as avoiding drug-associated cues, and general, such as reducing negative affect, and utilizing non-drug sources of reinforcement (Epstein, Hawkins, Covi, Umbricht, & Preston, 2003). The most common interventions in CBT include: coping skills training, cue exposure, relapse prevention, contingency management, community reinforcement, and behavioral marital therapy for social support (Kadden, 2001). The interventions guide toward increasing the ability to resist substance related cues, increasing self-efficacy, and reducing positive outcome expectancies (Marlatt, et al., 2004).

The Minnesota Model is based on the disease concept, which describes alcohol and drug addictions as a chronic, primary illness affecting a person physically, mentally and spiritually (Spicer, 1993). The program is based on the twelve steps of Alcoholic Anonymous (AA), which is a worldwide accepted, mutual support group, promoting

complete abstinence from using any substances (Spicer, 1993). Alcoholic Anonymous is a fellowship of men and women who share their strength and hope with each other to stay sober and help others to achieve sobriety. The foundation of the twelve steps is a spiritual awakening and surrender to a “higher power” for restoring sobriety and balance in a person abusing substances. Multiple research studies have established the effectiveness of AA participation on alcohol consumption (Morgenstern, Labouvie, McCrady, Kahler, Frey, 1997; Project MATCH, 1997), and on increased active coping behavior, self-efficacy, and improved social support (Humphreys, Mankowski, Moos, & Finney, 1999; Morgenstern, et al., 1997).

Both CBT and the Minnesota Model of substance abuse treatment are similar in their effectiveness and treatment outcomes, but significantly differ in their theoretical framework and practices (Morgenstern et al., 1997). Both the approaches, although well established, suffer from major drawbacks. Per Marlatt et al. (2004), “CBT is not as widely available as AA and NA, and it is more cost-prohibitive” (p. 262). They further suggest that the theocentric focus of AA /NA might create resistance in certain people seeking treatment, particularly people from other world religions or those who do not belong or subscribe to any religion. The inherent dogmatism and the disease concept of the approach are also open to criticism (Cook, 1988). The research data base also suggest the stigma and embarrassment associated with the labels of being an “addict” or “alcoholic” deters many from seeking any formal addiction treatment (Sobell, Ellingstad, & Sobell, 2000).

The current concerns regarding the available treatments for substance use call for an increased awareness of “the consumer choice perspective” (Marlatt & Witkiewitz,

2002). The need appears to be for a more compassionate, non-dogmatic, less theistic, non-stigmatizing, widely and easily available and affordable, alternative approach for substance abuse treatment (Marlatt et al., 2004). This study introduces an alternate spirituality-based intervention, Mindfulness meditation practice, which might be able to fill the gap for the consumer need.

Mindfulness or Vipassana meditation is an ancient meditative practice expounded by the historical Buddha 2,500 years ago as a direct way of understanding the workings of the mind, and achieving complete liberation from human suffering (Fleischman, 1997). Although part of Buddhist tradition, the practice is not limited by religion, race or creed, there is no conversion, and the skills are taught in clinical settings independently of the religious and cultural traditions of their origins (Kabat-Zinn, 1982). Vipassana, a word from Pali - an ancient Indian language - literally means, "to see things as they really are" (Dhar, 1994, p. 19). Mindfulness has been described as "paying attention in a particular way: on purpose, in the present moment, and non-judgmentally" (Kabat-Zinn, 1994, p. 4). Mindfulness practice has achieved a distinct place in contemporary psychology, as an approach for skillfully responding to mental processes that cause emotional and behavioral maladaptations (Bishop et al., 2004). As stated by Groves and Farmer (1994), "In the context of addictions mindfulness might mean becoming aware of triggers for craving...and choosing to do something else which might ameliorate or prevent craving, so weakening the habitual response" (p.189). In addictions craving responses consists of increased outcome expectancies for reaching desired affect (getting high) or increased motivation to reduce negative affect or withdrawal symptoms. Mindfulness may provide a heightened awareness and non-judgmental, non-reactive acceptance of cravings,

creating a state of metacognitive awareness and relaxation (Marlatt et al., 2004). As Witkiewitz, et al. (2005), describe “mindfulness may serve as an alternative to addiction more than just a coping strategy for dealing with urges and temptations, but rather as a gratifying replacement behavior” (p. 220). Preliminary data from their recent study support the effectiveness of Mindfulness meditation in reducing alcohol and drug use, and related problems such as improved locus of control, impulse control, optimism, self-regulation skills, and decreased thought suppression, resulting in enhanced self-awareness and improved coping skills for addictive behaviors (Witkiewitz, Marlatt, & Walker, 2005).

Theoretical Framework

Mindfulness practice is a multi-dimensional approach, impacting an individual on cognitive, behavioral, neurobiological and spiritual levels. Its theoretical underpinnings may be explained by wide range of well-established theories, some describing its essence as spiritual, transpersonal and humanistic, while others subscribe its roots grounded in cognitive, behavioral, and information processing approaches.

Humanistic psychology views man in a positive light, with an inner tendency, for self-actualization. It suggests that it is natural for a pure mind to exhibit an innate capacity for love, compassion and altruism (Wilber, 1982). These are the very qualities Mindfulness meditation propounds in the practitioner. Chandirimani (1994) describes transpersonal aspects similar to mindfulness practice as transcendence, which involves processes connecting individual consciousness to a larger spiritual ocean in which they participate. Similar to Mindfulness practice, Transpersonal theory proposes that “direct

insight” lies outside the realm of intellect, and is obtained by observing rather than thinking, and by looking inside oneself for answers.

The theoretical framework of Jungian, archetypal and depth psychology, similar to mindfulness approach presents a nondual, postmodern aspect, questioning the Cartesian dichotomies between self and other, knower and known, and spirit, soul, and world. They all propose that suffering is caused by the illusion that we are separate from our experience (Mcabee, 2000). Mindfulness practice is similar to these theories in their approach to suffering and its alleviation, that healing comes with accepting life as it is, and increasing equanimity and compassion in the face of suffering (Mcabee, 2000). In context of addictions the compulsive, repetitive behaviors of substance abuse, cravings and denial may be transcended with deeper insights and equanimity.

Mindfulness meditation, also known as insight meditation, consists of increasing awareness of the cognitive processes arising within our consciousness. As described by Miller et al. (1995), “Mindfulness shares with cognitive therapy the perceptive that perception and thought drive emotion and behavior and that if one changes one’s relationship to thought, one can change deeply ingrained self-destructive or maladaptive patterns of behavior” (p.198). The mindfulness approach encourages, an openness to all internal events, without attempting to substitute one thought pattern for another, and allowing a direct experience of the inaccuracy, limited nature and intrinsic impermanence of thoughts (Miller, Fletcher, & Kabat-Zinn, 1995).

Teasdale et al. (1995), describe Mindfulness as a meta-cognitive state of nonjudgmental, decentered awareness of one’s thoughts. Metacognitions can be defined as belief’s and attitudes regarding cognitions, or simply as “cognition about cognition”

(Flavell, 1981). Metacognitive theory describes a difference between adaptive or correct metacognitions and maladaptive or erroneous metacognitions, depending on the validity of the statement procured regarding the cognitive experience. Becoming aware of and correcting the maladaptive cognitions is one of the most important skills of this theory (Toneatto, 2002). Cognitive therapy emphasizes modification of maladaptive thoughts, in contrast, mindfulness practice proposes acceptance of thoughts (Teasdale, 1999). From this perspective, a person experiencing a craving may be encouraged to change the metacognitive beliefs regarding the cognition related to craving, rather than the original cognitions (Teasdale, 1999).

The role of memory and attention in information processing in substance use and relapse is well established (Breslin, Zack, & McMain, 2002). According to Baker et al. (1986), drug use is stimulated by the activation of an integrated network of information contained in long-term memory. These include conditioned motivations containing drug relevant information of affective stimuli and the habitual responses to these stimuli. Once activated, it will guide the addict towards positive affect system for reward, or a negative affect system for relief from emotional distress or withdrawal.

Berslin et al. (2002) discussed the reciprocal effects of memory and attention. Nothing is encoded or retrieved from memory unless an adequate amount of attention is applied, similarly, more attention is devoted to over learned and over rehearsed patterns of thoughts and emotions engraved in long term memory. This appears to be the phenomenon which causes involuntary recruitment of attention to drug and alcohol related stimuli in a substance user. As described by Tiffany (1990), environmental stimuli can activate memory, by 'automatic processing' without a conscious awareness of a

motivation or voluntary action plan. Drug related memory could also be activated indirectly by urges or negative affect, generating 'non-automatic processing.' Tiffany also suggested this scenario leads to the exhausting cognitive struggle to disrupt the drug seeking action plan in an abstinent addict. These drug related, over learned plans are firmly anchored in memory and can very well defeat the poorly established (less rehearsed) 'abstinence plans,' causing loss of control and eventual relapse.

Berslin et al. (2002) emphasized the 'decentered perspective' or 'cognitive distancing' (Hayes, Strosahl, & Wilson, 1999; Teasdale, Segal, Williams, 1995) as the key skills of mindfulness practice employed in the information processing in substance abuse treatment. The moment-to-moment conscious attention (non-automatic or effortful processing) to one's current experience in mindfulness, is in complete contrast to the mindless, 'automatic attention' activated by the substance abuse memory network. In contrast to Tiffany's suggestion, mindfulness processing (non-automatic) is not applied to substitute or inhibit cognitions regarding drug use plans, but to observe the cognitive and affective interplay of the memory network. This non-judgmental, non-reactive stance produces "the shift in perspective from actor or subject to observer" (Berslin et al., 2002, p. 287), and may deter the relapse response. This decentered perspective may also increase awareness of automatic triggers and increase self-efficacy due to the greater sense of control over the actual decision to use. The conscious attention to one's thoughts and feelings may increase the emotional tolerance of negative affect, which is one of the prominent triggers for drug use. Thus mindfulness can help to restore voluntary control of the underlying preconscious and affective processes causing drug use and relapse (Berslin et al., 2002).

Statement of the Problem

Substance abuse has become a pervasive public health problem worldwide (World Health Organization (WHO), 1999). According to the United Nations Office for Drug Control and Crime Prevention (UNODCCP, 2002) approximately 185 million people worldwide are current drug users, and in need for drug treatment. The Bureau of Justice Statistic (BJS, 2000) reported that approximately 40% of U.S. population has drug use problem, yet, 90% of those Americans in need of treatment are not receiving any care. The evidence indicates that drug users are more likely than nonusers to commit crimes, cause accidents, miss work, suffer from substance related medical and emotional issues and in general cause economical stress in their personal life as well as in the community they reside (National Institute on Drug Abuse, 2000).

The preferred models of substance abuse treatments in the community are residential treatment programs that are long term, intensive, highly structured, and cost prohibitive (BJS, 1999). The lack of empirically based outcome studies, the minimal utilization of the available treatments, and the exorbitant cost of present treatments demand that an alternative treatment be clinically documented, tested and included as the treatment modality for substance abuse disorders.

Purpose of the Study

The purpose of this study is to examine the effect of Mindfulness meditation as an adjunctive treatment on Locus of Control and Thought Suppression in relation to substance use in females in residential substance abuse program.

Significance of the Study

The empirical literature on the effects of mindfulness training suggest that mindfulness as a clinical intervention may lead to beneficial results for a variety of problematic conditions, including substance use disorders, pain, stress, anxiety, depression and eating disorders (Baer, 2003). Extensive research data has been documented regarding the benefits of Mindfulness meditation in reducing recidivism and criminal behaviors in Indian prison system (Khurana & Dhar, 2000; Vora, 1994). There are a few studies indicating Mindfulness meditation as a promising intervention for substance abuse in incarcerated population (Kishore, Verma, Dhar, 1996; Witkiewitz et al., 2005). The purpose of this study is to provide additional data and empirical evidence on the efficacy of Mindfulness meditation as an intervention for substance use treatment in female population. This alternative approach presents as a more compassionate, feasible, cost effective, and easily available treatment for substance abuse. Employing Mindfulness meditation as a treatment could decrease and even possibly eliminate the stigma and embarrassment associated with the label of being an addict that results from traditional substance abuse treatments. Thus the individual may be more likely to view the mindfulness practice as a socially valued and accepted approach for substance abuse treatment.

Research Question

The primary research question guiding this study is whether the practice of Mindfulness meditation will affect the Locus of Control and Thought Suppression in relation to substance use in the females receiving treatment in residential program. The specific question investigated in this study is as follows:

(Q1) Will the practice of Mindfulness Meditation produce a difference between experimental and control groups' scores on the Drinking-Related Internal-External Locus of Control Scale (DRIE), and on the White Bear Suppression Inventory (WBSI)?

Definition of Terms

Anapana: The objective observation of one's own respiration – an exercise in cultivation of right awareness, not regulation or control of the breath (Dhar, 1994).

Aversion and Craving: Disliking and extreme desire. The practice of Mindfulness consists of 'feeling' the sensations throughout the body. Our subconscious mind, habitually reacts to pleasant sensations with craving and unpleasant sensations with aversion (Dhar, 1994).

Bodily Sensations: Described by the Buddha as having both mental and physical aspects; therefore offering a means to examine the totality of mind and body (Hart, 1987).

Equanimity: Non-reactive, evenness of mind. A stage in the practice of Mindfulness, in which old impurities lying dormant in the unconscious rise to the surface level of the mind in form of physical sensations. By maintaining equanimity towards these sensations, the meditator allows them to be eradicated (Hart, 1987).

Impermanence: Ephemeral, changing. By keeping the attitude of equanimity towards all internal phenomena, the meditator repeatedly observes the fact of the impermanence of the mind-body process (Dhar, 1994).

Mindfulness Meditation: A Buddhist meditative practice, defined as the effort to intentionally pay attention, nonjudgmentally, to present moment experience, and sustain this attention over time (Miller, Fletcher, Kabat-Zinn, 1995).

Pali: An ancient Indian language recording the teachings of the Buddha (Hart, 1987).

Sanskrit: An ancient literary language of India (Hart, 1987).

Suffering: Unsatisfactoriness, pain, or imperfection. According to the First Noble Truth of Buddha ‘suffering exist’ – not that life is continuous pain, but rather that any pleasure found in the mundane world is only temporary and that suffering at some point is unavoidable (Groves & Farmer, 1994).

Vipassana: Introspection, insight that totally purifies the mind, specifically, insight into the impermanent nature of mind and body (Hart, 1987).

Organization of the Study

Chapter I presented an overview, background, theoretical framework, and purpose of the study. In Chapter II, related literature is reviewed to provide the reader with an expanded understanding of the subject area. The methodology, procedures, and data analysis techniques are described in Chapter III. The results of the study are reported in Chapter IV, and Chapter V contains conclusions, implications, and recommendations for future studies.

CHAPTER II

REVIEW OF THE LITERATURE

Introduction and Overview

This study is designed to determine the effect of Mindfulness mediation on the Locus of Control and Thought Suppression in relation to substance use in female population in residential treatment setting. The relationship between mindfulness meditation and addictive behaviors is fairly uncharted. To gain a better understanding of the relationship, this literature review examines the concepts of spirituality, mindfulness meditation, and the Buddhist philosophy in relation to addictions. It also examines the traditional treatments for substance use and the past research on the effects of transcendental mediation on addictions. The literature review further explores mindfulness mediation and change process in relation to cognitive, behavioral and neurobiological mechanisms, and the application of mindfulness mediation in other areas of psychological well-being. Lastly, the results of other studies utilizing mindfulness mediation in different settings are reviewed and recommendation for its use as a treatment modality for addictive behaviors is established.

The purpose of Chapter II is to provide a comprehensive review of the research findings in past two decades relating to the utilization of mindfulness mediation in treatment of addictions. It begins with general discoveries in this area and concludes with a specific review of mindfulness meditation as a treatment for addictive behaviors.

Spirituality

In the history of metaphysics the term spirituality was used as a contrast to materialism. “Spiritual realities” were understood as those that like the wind or the

fragrance of rose, was experienced but could not be bound by human senses (Kurtz & Ketcham, 1992). Spirituality can also be defined as human longing for transcendence of bounded selfhood in search for the sacred (Miller, 1998). Spirituality manifests in human personality as an internal set of values, a sense of meaning, and a sense of inner wholeness reaching transcendence and mystical experiences at times (Wolfe & Stevens, 2001). Religions, on the other hand are organized systems of values and beliefs about God along with involvement in a religious community of believers and practitioners (Wolfe & Stevens, 2001). Although nourished and supported by religion, spirituality is quite distinct from religion in its boundlessness, free from any set orientations or value systems. The world religions vary in their chosen paths, but there are common themes connecting them, such as achieving divine consciousness and transcending human suffering (Marlatt et al., 2004).

An addiction, whether to drugs, alcohol, food, or sex, is initially a hopeful experience of losing oneself to a “higher power,” which will shield the addict from the problems of human existence (Gilligan, 1997). Although temporarily mimicking a spiritual experience by altering sensory perceptions, thoughts etc., addictions eventually decrease spiritual capacity, resulting in both physical and mental disorders (Miller, 1998). Conversely ‘spirituality’ can become a natural gateway of preventing and treating the substance use disorder (Marlatt et al., 2004). The most well known spirituality based program has been the 12-step Minnesota model of substance use treatment (Cook, 1998), which holds the view, that addiction is a spiritual as well as a medical disorder (Alcoholic Anonymous World Services, 1976). Despite an increased interest in spirituality in both the clinical and research communities, spirituality has not been a primary focus of

investigation in the addiction literature (Miller, 1998). However, the current investigative studies present evidence for the role of spiritual and religious beliefs in recovery from addiction (Avants, Warburton, & Margolin, 2001; Brizer, 1993; Green, Fullilove, & Fullilove 1998; Kendler, Gardner, & Prescott, 1997; Mathew, Georgi, Wilson, & Mathew, 1996; Pardini, Plante, Sherman, & Stump, 2000). Twelve-step self-help group participation causes subsequent decrease in alcohol consumption and related problems (Mckeller, Stewart, & Humphreys, 2003; Morgenstern et al., 1997; Project MATCH, 1997). Research also indicates that other spiritual interventions such as transcendental meditation (Alexander et al., 1994), yoga (Calajoe, 1986), and meditation and mindfulness training (Breslin et al., 2002; Marlatt et al., 2004) are associated with reduced alcohol and substance use.

Spiritual and religious faith, generally speaking, appears to provide a buffer against the depressogenic effects of stressful life events (Kendler, Gardner, & Prescott, 1997). Faith may provide a protective role in physical and mental health (Benson & Dusek, 1999; Galanter, 1997) by introducing an effective coping strategy for well being and recovery (Pargament, 2000).

Mindfulness Meditation

Mindfulness meditation, also known as Vipassana meditation or Insight meditation in the West is rooted in Buddhism. Vipassana or Mindfulness is an ancient meditation technique, laudatory references to which are found even in the oldest Indian scripture Rigveda (Pethe & Chokhan, 1994). It was rediscovered 2500 years ago by Gotama Buddha, and is the essence of what he practiced and taught. Although Vipassana contains the core of what was later called Buddhism, it is not an organized religion,

requires no conversion, and is open to students of any faith, nationality, color or background (Pethe & Chokan, 1994). To make use of Vipassana or Mindfulness practice the student need not be familiar with the teachings of Buddha although such knowledge can help to clarify the personal understanding which comes through meditation. These meditation techniques are not religious in nature, and the student does not need to believe in anything in order to do them. The purpose is not to create a system of beliefs, but rather to give guidance on how to see clearly into the nature of the mind, for relief of suffering and the dispelling of illusions (Kabat-Zinn, 1990).

The word Vipassana comes from the Pali language, which is an ancient Indo-Aryan language of north Indian origin (Tandon, 1994). The term Vipassana has two component parts, namely Vi + Passana. Vi means minutely, perfectly, exactly, sincerely, inwardly and intrinsically. Passana means looking, observing, introspecting, investigating etc. Thus literally it means, “seeing clearly” within us (Tiwary, 1994). It also means observing oneself in a special way, on purpose in the present moment, and nonjudgmentally. This kind of attention nurtures greater awareness, clarity, and acceptance of present moment reality (Kabat-Zinn, 1994).

Vipassana or Mindfulness meditation practice was expounded by the historical Buddha as the direct way to complete liberation from human suffering. During its 2500-year history, the Buddha’s teachings have manifested in a multitude of different forms, adapting to the nuances of various cultural and historical environments in which they arose. But at the heart of these manifestations lies the three fold division of meditative practice: morality (Sila), mastery over the mind (Samadhi) and wisdom (Panna) that the Buddha is said to have taught and exemplified himself. These divisions constitute the

basis for Buddha's Eightfold Noble Path: right speech, right action and right livelihood compose morality (Sila); right effort, right mindfulness, and right concentration compose mastery over the mind (Samadhi); and right understanding and right thoughts compose wisdom (Panna), (Hart, 1988; Ledi, 1999).

Certain Buddhist traditions believe that only through direct meditative experience can a person arrest the speed of the afflicted mind, and see the world objectively with clarity and insight, resulting in the transcendence of suffering (Hart, 1988).

There are three steps to the training of Vipassana or Mindfulness practice (Goenka, 1987). The first is the observance of five basic moral precepts viz., abstention from violence, stealing, lying, sexual misconduct, and intoxicants – since any willful violation of these precepts causes mental agitation which makes it difficult to observe the mind objectively (Modak, 1994). The next step is to bring serenity and concentration to the mind, by focusing attention on the natural and normal breath (not controlled and regulated breath). This practice is called Anapana, which means awareness of respiration. There is just a silent “bare observation” of the natural flow of respiration, with a steady attention free from any strain. To aid the development of concentration, the students is encouraged to focus the attention on finer details, such as feeling the coolness or warmth of the breath, or where the breath is touching in the area around the nostrils. The habitual tendency of the mind to wander away, comes to the fore immediately allowing the student to experience the turbulent nature of the mind. The student is again encouraged to not feel dejected, but to continue to bring attention back to the breath (Dhar, 1994). With the systematic practice of Anapana, the concentration increases, and a natural calming and equalizing of the breath takes place. As the breath is very intimately

related to the mind, this leads to simultaneous tranquility of the mind - in fact of the entire life-rhythm (Dhar, 1944). The mind also becomes sharp and receptive to observe subtler sensations occurring in the area around the nostrils where attention is focused during the practice of mindfulness of breathing.

A well-concentrated mind is said to be beneficial for the pursuit of Vipassana practice and thus leads the meditator to take the next step viz., awareness of the bodily sensations. The meditator is required to observe the sensations that manifest in the entire body every moment. Sensations occur on the body, but they are felt by the mind as a result of constant and continuous interactions of mind and matter. Everything that arises in the mind is accompanied by sensation (Khin, 1991).

The practice of Vipassana or Mindfulness consists of observing the sensations throughout the body with equanimity, without any reaction or evaluation. The student is soon astounded as to how stubbornly the subconscious mind reacts to these sensations. It habitually reacts to pleasant sensations with craving and to unpleasant sensations with aversion, thus deepening the mind's conditioned tendency to run after sensory pleasures and run away from pain (Dhar, 1994; Sole-Leris, 1986). However the firm stance by the practitioner of awareness and equanimity in observing the entire spectrum of sensations acts to gently break this habit pattern. The mind begins to gain insight by repeatedly observing the sensations as they actually are: constantly changing - arising, staying for sometime, fading away, and giving rise to other sensations. Through experiential and repeated practice, the habit of reaction is replaced by an experience of truth of impermanence (anicca). "This observing the sensations as they really are in their true

characteristic of impermanence is the practice of Vipassana or Mindfulness meditation” (Dhar, 1994, p. 19).

Western Perspective of Mindfulness Practice

Mindfulness practice has gained considerable prominence in the west in recent decades due to its relevance to health and emotional well being (Easterline & Cardena, 1998). Mindfulness has been described as a process of focusing one’s attention in a non-judgmental or accepting way on moment-to-moment experience (Kabat-Zinn 1994; Linehan, 1993; Marlatt & Kristeller, 1999). Mindfulness practice is adopted in western psychology as a means of increasing self-awareness and the repertoire of copings to deal with emotional and behavioral distress (Bishop et al., 2004). Mindfulness practice on other hand in Eastern spiritual tradition, primarily Buddhism, is a means of reaching liberation and transcending human suffering. The regular practice of Mindfulness meditation may invoke qualities such as awareness, insight, wisdom, compassion, and equanimity (Goldstein, 2002); however, the ultimate goal in Eastern tradition remains the spiritual awakening and evolution (Goldstein & Kornfield, 1987).

The current consensus of professionals from the fields of health and research suggest that mindfulness practices as a set of skills can be taught independently of its spiritual origin to Westerners who are unwilling to adopt Buddhist terminology or traditions but seek the benefits of the practice (Kabat-Zinn, 2000).

The current Western Mindfulness literature prescribes numerous meditation exercises to develop mindfulness skills (Kabat-Zinn, 1994; Linehan, 1993). Individuals are encouraged to attend to internal experiences, in present moment, such as bodily sensations, thoughts, and emotions. Others include aspects of the environment, such as

sights and sounds (Kabat-Zinn, 1994; Linchan, 1993). All skills have a common thread of an attitude of non-judgmental acceptance. All sensations, thoughts, and emotions are observed with full attention, but without evaluation or further engagement with them (Marlatt & Kristeller, 1999). Thus, "mindfulness is the nonjudgmental observation of the ongoing stream of internal and external stimuli as they arise" (Baer, 2003, p.125).

Western researchers and clinicians who have introduced Mindfulness practice in various mental health, and addiction treatment programs usually teach these skills without incorporating the Buddhist religion or cultural traditions (Kabat-Zinn, 1982).

The current research in the West suggests that mindfulness interventions are gaining increasing popularity, and may lead to reduction in a variety of problematic conditions, including pain, stress, anxiety, chronic depression, eating disorders, and drug addictions (e.g., Kabat-Zinn, 1982; Kristeller & Hallett, 1999; Marlatt et al., 2004; Shapiro, Schwartz, & Bonner, 1998; Teasdale, Williams, Soulsby, Segal, Ridgeway, & Lau, 2000).

Hayes & Wilson (2003), emphasize the need for understanding the processes and principles that underlie mindfulness. According to them, mindfulness is treated and applied in various ways as a technique, a method or collection of techniques, or as a psychological process that can produce outcomes, and sometimes even as an outcome in and of itself. They discuss the fact that at times confusion is created when different methods and processes are described with the same term "mindfulness".

Langer's (1989), in his work in social psychology describes mindfulness as a creative cognitive process. This concept teaches participants to view information from multiple perspectives, within new contexts for greater learning creativity, and problem

solving. Although Langer's mindfulness concept has certain similarities with Mindfulness meditative approaches, several important differences exist (Baer, 2003). Langer's mindfulness interventions involve opening the channels of awareness so that information may be learned or manipulated from the external situations via goal oriented cognitive tasks, such as problem solving. Meditation based mindfulness approaches, on the other hand, are based on the inner experiences of nonjudgmental observation and acceptance of thoughts, emotions and sensations as they arise in the individual. Langer (1989) clarified the distinction between the two forms of mindfulness, emphasizing that they are rooted in very different historical and cultural backgrounds and principals.

Bishop et al. (2004) conjointly proposed a testable operational definition for Mindfulness practice. They proposed a two-component model of mindfulness and described each component in terms of specific behaviors, experiential manifestations, and underlying psychological processes. In their operational definition, "the first component involves the self-regulation of attention so that it is maintained on immediate experience, thereby allowing for increased recognition of mental events in the present moment. The second component involves adopting a particular orientation toward one's experiences in the present moment, an orientation that is characterized by curiosity, openness, and acceptance" (Bishop et al., 2004, p. 232). The instrument developed based on the above constructs examines, "whether training in mindfulness, increases the mindfulness scores corresponding to improvements in performance on tasks that require skills in sustained attention, switching, inhibition of elaborative processing and adopting a wider perspective" (Bishop et al., 2004, p. 238).

The Kentucky Inventory of Mindfulness skill is a self-report-inventory developed by Baer et al., (2004). Four mindfulness skills were specified: observing, describing, acting with awareness, and accepting without judgment. Scales designed to measure each skill were developed and evaluated. Results showed good internal consistency and test-retest reliability and a clear factor structure. Findings suggested that, “mindfulness skills are differentially related to aspects of personality and mental health, including neuroticism, psychological symptoms, emotional intelligence, alexithymia, experiential avoidance, dissociation, and absorption” (Baer, Smith, Allen, 2004, p. 191).

The clinical applications of mindfulness-based approaches are growing in areas of mental health and physical well being (Bishop et al., 2004). This increased attention will continue to demand a rigorous research and may result in mindfulness and related approaches ultimately having a profound impact on the field (Hayes & Wilson, 2003).

Comparison of Mindfulness and Concentration Meditation

Meditation can be defined as the deliberate deployment of mental attention to obtain a particular patterning of consciousness. The purpose of such practice depends on the individual practitioner, who may be aiming to reach liberation, gain insight into the nature of the mind, achieve an altered state of consciousness or merely seeking relaxation (Easterlin & Cardena, 1998). Dhyana is the generic Sanskrit term for meditation, which refers to both the act of inward contemplation and an intermediate state between mere attention to an object and complete absorption in it (Zimmer, 1951).

Mikulas (1990) describes the practice of meditation by dividing it into four components: form, object, attitude and behaviors of the mind. Form represents the setting and positioning of the body during meditation. Object refers to the primary object

of one's attention during meditation. Attitude is the mental backdrop during meditation. Behaviors of the mind are the methods used to change one's awareness of internal or external stimuli. Concentration and mindfulness meditation or integrated form of both techniques is at the core of the major meditation traditions of the world ((Shapiro, 1982; Dun, Hortigan, Mikulas, 1999). The Pali Buddhist Scriptures describe the two meditation styles as interrelated: concentrative meditation develops serenity and mindfulness meditation develops insights (Gunaratana, 1985).

Modern meditation teachers at times use the metaphor of a camera to explain these two methods. The concentration meditation is likened to a zoom lens focusing on a specific object within the field, and mindfulness meditation to a wide angle lens that focuses on the whole field (Shapiro, 1982). These methods differ in their approach to accomplishing change in awareness; concentration practices apply restrictive techniques and mindfulness expansive or opening techniques.

Mikulas (1990) defines concentration as the focus of awareness towards a single point or object. The meditator focuses awareness on a single stimulus, such as the breath. If the attention begins to drift due to the intrusion of thoughts, one simply brings the attention back gently and firmly to the object of meditation – e.g. breathing.

Concentration meditation can be found in several spiritual traditions such as Hindu Japa, Transcendental Meditation, Raj Yoga, Christian Prayer of the Heart, Jewish Kavvanah and Sufi Zikr. These meditations involve techniques of breath control, verbalization of a mantra (sacred sound, word, phrase) or prayer, focusing attention on an image, or intellectual contemplation (Goleman, 1988).

Farthing (1992) defined mindfulness practice as involving open receptivity and awareness of all stimulation while the practitioner suspends the evaluation, analysis, or classification of those stimuli. The automatic habitual perceptions are disregarded and the individual experiences all objects arising in consciousness during the practice as if it were his first encounter with them. Mindfulness meditation forms the basis of most Buddhist meditations such as Vipassana and Zazen.

The meditation phenomena as described by the constructivist view (Del Monte, 1987) present various constructs of the mind as follows:

Stimulus habituation.

In meditation practice, stimulus repetition such as repetition of a mantra or bringing attention repeatedly on the breath may lead to a condition of “no-thought” This seems to occur due to stimulus habituation, which causes inhibition of cognitive construing. With increased concentration, spatial and temporal distortion may occur as well as increased concreteness leading to preverbal sense-making; for example, feelings of love, fear, anger, changed body size, and temporal distortions. The emergence of preverbal material is dependent on individual’s life experience and can be neutral or intense and traumatic.

Modification of brain-hemisphere laterality.

Ornstein (1972) suggested that during meditation right-hemisphere activity is enhanced while the left hemisphere functioning is reduced. Earle (1981), on the other hand, found that only in early stages of meditation is the right hemisphere activity dominant; during advanced meditation both right- and left- hemisphere activity is inhibited. Fromm (1981) discussed that mental functioning can be differentiated into two

modes: primary process and secondary process. The primary process mentations consist of nonverbal imagery and poor or absent reality orientation while the secondary process mentations are reality oriented and logical, and are expressed linguistically. Fromm (1981) supported the view that for a novice meditator there may be an increase in primary type experiences, but in advanced states of meditation all cognitive processing decreases.

Unstressing.

DelMonte (1987) defines unstressing as the process of bringing into consciousness repressed emotional material during meditation. The meditative process blocks the habitual logical, verbally labeled cognitions and defenses, in psychoanalytic terms allowing the expression of “repressed material.” Repressed material may be experienced in the form of preverbal constructs such as feelings of love, fear, panic, anger, irritation, etc. This cathartic release of preverbal material is similar to what is found in abreaction of free association.

Transcendence.

During meditation the emergence of the preverbal material can be released via unstressing or can be transcended. Unstressing can become habitual for a meditator without leading to transcendence or insight and change (DelMonte, 1987). Unstressing can be equated to descendance as opposed to transcendence from the psyche to the soma. In psychodynamic terms, this is described as adaptive regression as opposed to psychotic regression. Transcendence, as in the state of “no-thought” in meditation, is the feeling of unity or bliss due to the rising above the bipolarity of all mental constructs, but still staying connected to the very basic somatic level such as posture, form, respiration, and other metabolic processes. In transcendence, the meditator reestablishes his preverbal

sense of “oneness,” by not involving with the duality of our mental constructs and remaining with the essential unity of reality (DelMonte, 1987).

Bimodal consciousness.

Deikman (1971) described the bimodal consciousness in terms of action mode and the receptive mode. The action mode consists of goal oriented tasks and manipulation of one’s environment; e.g. obtaining nutrition, avoiding pain or discomfort, defense etc. The receptive mode on the other hand is inward oriented, i.e. it is introspective, and involves reflexivity, having a passive or “letting go” attitude. The meditation process primarily involves the receptive mode

Deautomatization.

Meditation practice helps break the habit of deautomatization of experiencing, i.e. all experiences are experienced as if for the first time, novel and fresh. The meditative mind is open, receptive and nonjudgmental, as opposed to the habitual, biased mind, which is bound by past experiences (DelMonte, 1987).

The meditation phenomena described above are generally present in both concentrative and mindfulness meditation, with a few major differences. In both concentrative and mindfulness meditation there is a decrease in mental cognitive constructs leading to descendance into preverbal or somatic constructs. However, in concentrative meditation the mental constructs are inhibited or obstructed, while in mindfulness they are expanded and observed in a nonattached or nonjudgmental way, without any blocking (DelMonte, 1987).

During mindfulness meditation, attention is ‘deautomatized’, i.e., the meditator adopts a broad open stance and views the content of his awareness without habitual

prejudice, as novel events, which leads the meditator to gainful insights into the nature of mind and its functioning. In concentrative meditation the attention is narrowed by exclusion of all elements other than the single object of attention, leading to a state of “no-thought,” but without any apparent insight into the ‘workings of the mind’ (DelMonte & Kenny, 1985).

Both concentrative and mindfulness meditations primarily involve the receptive mode as opposed to the action mode of the mind. However this is more pronounced in mindfulness as compared to concentrative meditation (Ornstein, 1972).

The experience of meditation is a very subjective process depending on the individual, the technique he chooses, his level of growth, introvert or extrovert personality aspects, the “unresolved issues” or the “unfinished business” in the psyche and so forth. The monotonous repetition of a stimulus in concentrative meditation may lead some to a state of trance, and others to drowsiness or even various forms of “unstressing.” However a more advanced meditator may reach the state of “no-thought” or “transcendence” (DelMonte & Kenny, 1985).

In mindfulness practice the attention is open and there is no stimulus repetition, thus the meditator avoids trance, drowsiness and stimulus habituation. However, he may still experience unstressing, no thought, and transcendence. Although mindfulness and concentrative meditation techniques differ in their approach, the outcomes can be similar in achieving a higher state of consciousness

Buddhist Philosophy and Addictions

“To abstain from harmful actions; to perform wholesome actions; to purify the mind: these are the teachings of the Buddha.” (Dhammapada, Theosophical University Press, 1980).

Buddhist philosophy offers the fundamental tenets to create intervention for use with addicted individuals from all walks of life, with diverse spiritual beliefs. The Buddha taught that one should avoid doing harm to one’s self or others. These are the very qualities essential for changing addictive behaviors. The Buddhist tradition advocates a “stage-model” of spiritual development (Avants & Margolin, 2004), which supports the current emphasis in addiction treatment on knowing and responding to the client’s stage of treatment readiness (Prochaska & Diclemente, 1986). Cognitive strategies such as monitoring the emergence of automatic thoughts, thought stopping and refocusing, metacognition, etc., are similar to the mind training skills taught in Buddhist manuals (Avants & Margolin, 2004).

The Buddhist perspective on suffering, craving and attachment, the impermanence of all phenomena and taking the right refuge are some of the doctrines closely related to the cause of addictive behavior (Groves & Farmer, 1994). The root of Buddhist teachings – the Four Noble Truths about suffering and the Noble Eightfold Path leading to elimination of suffering provides a context in which to understand and treat addictive behaviors (Avants & Margolin, 2004).

The Four Noble Truths are: (a) Suffering exists; (b) Suffering has an identifiable cause; (c) The cause of suffering can be terminated; (d) The Noble Eightfold path is the specific way by which the cause can be terminated (Crosweiler, 1999).

In the framework of Buddhist philosophy, what we conventionally call a person can be understood in terms of five aggregates: the physical form, and the four mental components: consciousness, perceptions, sensations or feelings and reaction or cognitions (Boisvert, 1995). From the Buddhist perspective of the first noble truth, as described by Groves and Farmer (1994), the addict suffers from withdrawal from drugs, the fear of not getting his next 'fix' and mostly from the chaotic, stressful lifestyle of drug addiction.

According to Buddhist philosophy and the second noble truth, the cause of suffering is craving, which is experienced as sensations or feelings. Applied to addictive behaviors, the addict craves to continue the pleasant feelings of 'high' and avoid the unpleasant feelings of withdrawal. The third noble truth suggests that it is possible to terminate craving and consequently it is possible for an addict to be happy without indulging in the addictive behaviors (Groves & Farmer, 1994).

The fourth noble truth leads to the eightfold path to provide specific ways of terminating cravings. The eightfold path includes right understanding, right thought, right speech, right action, right livelihood, right effort, right mindfulness and right concentration. The eightfold path is subdivided into three further elements of Wisdom, Morality and Mastery over Mind (Crosweller, 1999).

Wisdom includes right understanding and right thought. It brings the realization that the mind becomes entrapped in certain habit patterns of cravings, clinging to pleasant sensations and avoiding unpleasant sensations which continuously arise and fall, shrouded in impermanence (Avants & Margolin, 2004). In the context of addiction, the phenomena of impermanence and change open up the possibility of positive change

(Groves & Farmer, 1994). Right thought leads to harmlessness and non-ill-will, changing our attitude from a self-centered orientation to generosity, loving-kindness, and compassion. Self-centeredness, being one of the challenges of addiction, thus gets resolved.

Morality includes right speech, action and livelihood, so as to not cause harm to one's self or others. The five precepts of morality are: (a) to live a life free from killing or harming any living being; (b) to live a life free from stealing or coveting what does not belong to one; (c) to live a life free from abusing the senses; (d) to live a life free from telling any kind of untruth; and (e) to live a life free from self-intoxication with alcohol or drugs (Crosweller, 1999).

Mastery over Mind encompasses right effort, right mindfulness and right concentration to cease the cycle of craving and desires. Right effort is needed to develop and maintain skillful mental states, and to guard the gates of the senses (Groves & Farmer, 1994). This simply means avoiding exposure to stimuli, which lead to craving. Right concentration and right mindfulness leads to single-pointed focus and experience of the impermanence of mental and physical phenomenon. In relation to addiction the experience of craving as a mental event, which arise and subside like a wave in ocean, leads to a non-reactive stance and inner knowing that craving will subside eventually. Mindfulness practice thus provides a pathway leading from the heavy burden of addiction to the freedom of enlightenment (Marlatt, 2002).

Mindfulness Practice as a Clinical Intervention

The idea of using meditation to reduce substance use is not new (Marlatt & Marques, 1977), but a recent up-surge of interest in it, has led to an impressive body of

empirical literature on Mindfulness interventions and research (Krasner, 2004). The first survey studies on Transcendental Meditation™ as an intervention for substance abuse were promising (Benson, 1975; Marcus, 1974). TM can be defined as a concentrative meditation, where in the practitioner silently chants a “mantra” (a sacred Sanskrit word or phrase), in two daily sittings of 20-minutes each. The benefits of TM were explored in treating and preventing of substance abuse, in an extensive review of 24 studies by Gelderloos et al. (1991), these studies presented results in favor of TM. Alexander et al. (1994) also reviewed studies presenting some positive effect of TM in reducing alcohol and drug use. Some prominent studies (Marlatt & Marques, 1977; Taub, Steiner, Weingarter, & Walton, 1994) with heavy and high-risk drinkers demonstrated effectiveness of meditation in reducing alcohol consumption.

Recently there has been a substantial interest in Mindfulness Meditation as a clinical intervention, not only for addictive behaviors, but also in fields of psychological and physical well being. The Center for Mindfulness in Medicine, Healthcare, and Society at the University of Massachusetts Medical school, recently reported that there are more than 240 hospitals, clinics, and other health related settings worldwide offering clinical interventions based on mindfulness training (Santorelli, 2004).

In her extensive review of mindfulness based clinical interventions, Baer (2003) categorized interventions as based on mindfulness training or as interventions incorporating mindfulness training. Baer (2003, p. 139) suggests that, “in spite of significant methodological flaws, the current literature suggests that mindfulness-based interventions may help to alleviate a variety of mental health problems and improve psychological functioning.”

Mindfulness-based stress reduction (MBSR), developed by Jon Kabat-Zinn in 1979, created much of the interest in the clinical application of mindfulness in other areas of psychological well being (Bishop et al., 2004). MBSR is a manualized group intervention based on mindfulness training. It was originally utilized for the management of chronic pain and anxiety (Kabat-Zinn, 1982, Kabat-Zinn, et al., 1992). It is also applied now to reduce psychological morbidity associated with chronic illness, as well as to treat emotional and behavioral disorders (Kabat-Zinn, 1998). Instructions are given on various mindfulness skills including the body scan and sitting meditation, Mindful Hatha yoga, discussion of stress, and coping skills. Daily home work assignments for meditation practice, and engaging in various mindfulness practices, while performing ordinary activities are also part of the program (Kabat-Zinn, 1990).

Mindfulness-based cognitive therapy (MBCT) is also a manualized group intervention based on mindfulness training (Segal, Williams, & Teasdale, 2002), drawing largely from Kabat-Zinn's (1990) MBSR program. It combines elements of mindfulness training with more traditional cognitive therapy. As described by Teasdale et al. (1995, p. 25), "the goal of this treatment is to reduce relapse and recurrence in patients who have recovered following a range of initial treatments for depression." They identify an information-processing analysis of depressive relapse, in individuals who have experienced major depressive episodes, and in whom the old patterns of cognitive processing gets reactivated in presence of mild negative affect, precipitating a new episode of depression. These individuals are taught the mindfulness skills of watching their thoughts and feelings non-judgmentally, and experiencing the impermanence of these mental events, as they arise and subside. Such detached or decentered view of one's

thoughts, as ‘mental events’, not ‘realities’, prevents the escalation of negative thoughts into potential relapse (Teasdale et al., 1995).

Dialectical behavior therapy (DBT) was developed as a treatment approach for the borderline personality disorder (Linehan, 1993). It incorporates mindfulness training as part of its interventions. Mindfulness skills are taught in DBT, as a method to invoke the “wise mind” and cultivate mindfulness “what” skills (observe, describe, participate) and mindfulness “how” skills (non-judgmentally, one-mindfully, and effectively). DBT does not insist on extensive or required duration of mindfulness practice, instead such goals are set by the clients and their therapists (Baer, 2003).

Acceptance and Commitment therapy (ACT; Hayes, Strosahl, & Wilson, 1999) does not prescribe its interventions in terms of mindfulness training, but does incorporate strategies consistent with mindfulness approaches. Clients are taught to identify and let go of the internally oriented control strategies, to accept the presence of difficult thoughts and feelings without changing the cognitions or decreasing the levels of emotion. They are also taught to “just notice” the thoughts and emotions as they arise, without struggling, arguing, or accepting them to be literally true (Bach & Hayes, 2002).

Recently there has been some remarkable work done in the field of substance use, incorporating mindfulness-based interventions. Mindfulness based relapse prevention for alcohol and substance use disorders (Witkiewitz, Marlatt, & Walker, 2005) conceptualizes craving as a cognitive response with stimulus properties. The craving response may constitute a complex system of triggers causing a habitual cognitive responding leading to relapse. As Witkiewitz et al. (2005) describe, “mindfulness meditation may disrupt this system by providing heightened awareness and acceptance of

the initial craving responses, without judging, analyzing, or reacting. By interrupting this system, meditation acts as a form of counter conditioning, in which a state of metacognitive awareness and relaxation replaces the reinforcement previously associated with engaging in the addictive behavior” (p. 219).

Avants & Margolin (2004) of Yale University School of Medicine have developed, “The Spiritual Self-Schema (3-S) therapy” for the treatment of addictive and HIV risk behaviors. The therapy is based on a convergence of cognitive and Buddhist psychology, and the interventions are guided by the Noble Eightfold Path of Buddhist philosophy. Clients receive training in wisdom, ethics, and gaining mastery over the mind. Mindfulness practice is taught as one of the core skills for gaining mastery over the mind.

Several other investigators have successfully integrated mindfulness approaches in treating variety of problematic conditions. Some of the examples in current literature include, psychological morbidity associated with medical illness (Reibel, Greeson, Brainard, & Rosenzweig, 2001), generalized anxiety disorder (Roemer & Orsillo, 2002), eating disorder (Kristeller & Hallett, 1999), post traumatic stress disorder (Wolfsdorf & Zlotnick, 2001), alteration in brain and immune function (Davidson et al., 2003), study on breast cancer patients showing improvement in stress, mental adjustment and locus of control (Tacon, Caldera, & Ronaghan, 2004) etc. The field of research continues to grow as more robust studies are being conducted utilizing mindfulness training in various clinical settings.

Mindfulness Meditation in Correctional Population

Correctional facilities are expected to perform the herculean task not only of confining society's offenders but transforming them into good and healthy citizens ((Vora, 1994). Correctional programs, like academic education, vocational training, therapeutic milieus, behavior modification techniques, etc. have not been able to reform and deter this population from returning back to the life of crime (Dhar, 1994).

One successful work, in the field of corrections was initiated in India, by the revered Vipassana master, S. N. Goenka, in the form of a ten-day Vipassana meditation course (Singh, 1994). In 1975 the first Vipassana course was taught to 120 inmates in a maximum-security jail, and a second course in 1977 to prison inmates. For the next 13 years the Vipassana courses were stopped in the correctional system due to the change of policies. It was not until 1990 that the correctional climate became more conducive to adopt these courses mainly due to the positive results and rigorous research on the benefits of Vipassana courses (Singh, 1994). At present there are number of prisons and jails in India where permanent meditation centers are established and Vipassana courses are conducted on regular basis. In 1996 a Vipassana course was held at a Taiwanese drug-rehabilitation prison for 182 inmates, and also at prisons in England and New Zealand.

In Indian prisons extensive research data has been documented regarding the benefits of Vipassana or Mindfulness practice. Shah's (1976) study of the first jail course reports a considerable positive change in the attitude and behavior of the inmates. Other studies report improved discipline, improved mental and physical health, decrease in crimes within the jail, improved relationship between staff and inmates, better control of

anger, and decreased self-centeredness (Dhar, 1994; Vora, 1994). The results from follow up studies indicated a decrease in recidivism, decrease in affective states of anxiety, depression, and hostility, as well as enhanced well-being and a sense of hope for the future (Chandiramani, Verma, Dhar, & Agarval, 1994; Khurana & Dhar, 2000).

Other studies indicated that Mindfulness meditation has a promising outcome as an intervention for alcohol and drug use in incarcerated populations (Kishore, Verma, & Dhar, 1996; Witkiewitz et al., 2005). Dhar & Kumar (1994) suggested a similar outcome with their study, which suggested that 78% of the inmates who were addicted to smoking or chewing tobacco reported their desire for these products had been extinguished.

In November of 1997, the very first Vipassana course was held in a North American jail at the North Rehabilitation Facility (NRF) in Seattle, WA (Meijer, 1999). The Addictive Behaviors Research Center at the University of Washington undertook the unique study on the use of Vipassana meditation as a stand-alone treatment for alcohol and drug problems at NRF (Marlatt et al., 2004). Inmates were recruited from the facility, many of whom were heavy substance users prior to incarceration. The participants were assessed immediately before and after the course, and three months following the release from the facility (Witkiewitz et al., 2005). The preliminary findings from the research study are very promising, “ they provide support for the feasibility and clinical effectiveness of the Vipassana meditation course for reducing alcohol/drug use, psychiatric symptoms, thought suppression, improving drinking-related cognitions and locus of control, optimism, self-regulation, and readiness to change” (Marlatt et al., 2004, p. 281).

In Massachusetts, (the soon-to-be-published study) Mindfulness-Based Stress Reduction program (MBSR) was taught to more than 1,500 inmates and 100 staff including the Commissioner of Public Safety and several prison superintendents of the Massachusetts Department of Corrections. MBSR program was also taught at the Lowell Correctional Institute in Florida, which is state's largest prison for females. About fifty female inmates participated in eight weeklong program and about twenty-five of them also participated in five days of silent retreat meditating nine hours a day. Similar program has been used in Texas prison dropping the recidivism rate from 50% to as low as 11%. The research findings from all these studies are very promising providing support for the effectiveness of Mindfulness-based interventions in Correctional system (Griffith, 2007).

'Start Again' in Switzerland and 'Cyrenian House' in Australia are both addiction therapy centers. Although not a correction facility, the 'Start Again' program also accepts clients who have been sentenced for drug related crimes. The primary aim is the rehabilitation of drug addicts, and their reintegration into society (Scholz & Studer, 1999). The centers utilize a "depth-systemic addiction therapy program", which is a unique synthesis of three distinct healing modalities: Systemic therapies; the twelve-step program; and Vipassana meditation (Hammersley & Cregan, 1986; Scholz & Studer, 1999). The success rates of these programs are over seventy percent of the treatment population (Scholz & Studer, 1999), which once again establishes the utility and effectiveness of Mindfulness interventions in substance use treatment.

Mindfulness Practice and the Mechanisms of Change

The diverse clinical applications of mindfulness practice and the empirical research demonstrating symptom reduction and behavior change, leads us to explore the mechanisms underlying the process of change. Exposure and Desensitization is proposed as one of the prominent mechanisms of mindfulness training (Kabat-Zinn, 1982; Marlatt, 2004; Berslin et al., 2002). In mindfulness practice the meditator is taught sustained, non-judgmental observation of sensations, thoughts, and emotions without eliciting a mental or psychological reaction. As Alterman et al. (2004, p. 262), describe, “non-reactive attention is one reason Mindfulness meditation training may hold promise for addictions work - that is, at a behavioral level, Mindfulness meditation trains the person to be behaviorally still, which reduces the impulse to act. During training the impulse may be as simple as scratching an itch, changing posture, or getting out of one’s seat and doing something else. Over time the trainee manages to relate to the impulse without ‘automatically’ acting. A ‘pause’ develops between impulse and action.”

A number of cognitive-behavior therapist consider mindfulness training as Introceptive exposure (Baer, 2003; Linehan, 1993). Clients are encouraged to tolerate the negative sensations without trying to control them, until they subside, thus allowing the learning that the emotions pass without using the old avoidance strategies or trying to escape the negative affective states through substance use.

Acceptance leading to growth and change is a major concept in current psychotherapy literature. Mindfulness training teaches acceptance skills, such as acceptance of uncomfortable emotions without the use of defense and acceptance of reality or experiencing things as they really are in the present moment (Hayes et al.,

1999; Linehan, 1993). In context of substance abuse, acceptance can lead to letting go of the denial, as well as acceptance of the discomfort caused by the urges and cravings for drugs, without giving into them. Similarly non-judgmental self-observation may lead to increased self-management or self-efficacy skills, which improve recognition of internal cues, and urges to use substances thus improving the strategies of relapse prevention (Marlatt et al., 2004).

Several research scholars describe the mechanism of change in mindfulness practice as based on changes in thought patterns, or to changes in an individual's relationship to thoughts (Teasdale et al., 2000). In contrast to cognitive restructuring, the student is asked to observe the thoughts without elaborating, changing, or substituting them. This leads to the insight that thoughts constantly arise and fall, and not necessarily are the reflection of truth or reality, and do not require escape or avoidance behaviors (Baer, 2003). Mindfulness practice may activate a metacognitive mode of processing, which is an active and reflective process that is directed at one's own cognitive activity (Allen & Armour-Thomas, 1991; Teasdale et al., 2000). This may provide heightened awareness of the internal cues for craving and relapse responses, eventually disrupting the cycle of substance abuse.

Among the most intriguing mechanism of change process in Mindfulness practice is the alteration in the physiological aspect of an individual. For past thirty years a number of studies have been done establishing relationship between electroencephalographic (EEG) activity and meditation (Murphy & Donovan, 1997; Shapiro & Walsh, 1984). Based on this ongoing research it is argued that meditation

might be a unique or fourth state of consciousness apart from being just a relaxation response (Dunn, Hortigan, & Mikulas, 1999).

Powledge (1999) discusses the relevance of the role the dopamine pathway of the brain plays in drug addiction. According to her “addiction is now seen to be a brain disease triggered by frequent use of drugs that change the biochemistry and anatomy of neurons and alter the way they work” (Powledge, 1999, p. 513). With prolonged drug use the brain adapts to this chemical saturation, and giving up drugs leaves it in shock and demanding a return to the new homeostasis. Thus even the brains of people who are in recovery and sincerely wish to stay clean remain vulnerable to relapse. “Deprived addicts are no longer seeking to get high, they just want to feel normal” (Powledge, 1999, p. 513).

The alteration caused by drugs center along a single pathway in the brain: the pleasure center or the “reward circuit” which lie primarily in the ancient part of the brain called the limbic system (Cleave et al., 1987). The drugs work by interfering with or substituting for the brain’s natural chemicals, called the neurotransmitters. Dopamine is the chief neurotransmitter in the brain reward pathway.

Kjaer and colleagues (2002), in their study of meditative practice, reported increased dopamine release during meditation, which resulted in decreased desire for action along with heightened sensory imagery. They further described this process, as the meditator becoming a ‘neutral observer’ losing conscious control of his actions and experiencing an enhancement of sensory stimulations.

Newberg et al. (2001), describe meditation as a complex neurocognitive task, which is often associated with alterations in body physiology and psychological

measures. Their findings support that meditation is associated with increased activity in the frontal lobes, and decreased activity in posterior parital lobes, which may attribute to the increased attention of subjects and the experience of alterations of the sense of space. Lazar and colleagues (2000), linked meditation with activation of neural structures involved in attention and control of the autonomic nervous system. Several other studies have demonstrated changes in brains electroencephalography (EEG) in particular, increased alpha-wave activity over the frontal regions of the brain (Corby, Roth, Zarcone, & Kopell, 1978; Benson, Malhotra, Goldman, Jacobs, & Hopkins, 1990). Davidson et al. (2003) utilized EEG and immunological research on influenza vaccine in a randomized controlled trial of Mindfulness-based stress reduction program. The participants showed significant increase in left sided prefrontal activity associated with positive affect and also a significant increase in antibody titers to the influenza vaccine.

The overall findings from the research on meditation suggests that the neurological changes are consistently associated with enhanced internalized attention, enhanced mindfulness, relaxation, increased attention control and reduced readiness for action (Marlatt et al., 2004). Thus in context of addiction the above behaviors of the mind activated by Mindfulness meditation can become valuable tools to let go of the mindless compulsive behaviors of substance abuse (Marlatt, 2002).

Summary

In the past 10 years the interventions based on Mindfulness training have become increasingly popular. Although rooted in Buddhism, Mindfulness is easily adoptive to the Western mind, without any theistic restrictions or demands. The theoretical underpinning of mindfulness appears to integrate and blend well into contemporary cognitive-

behavioral therapy, adding levels of evolution as well as revolution, and perhaps leading to the emergence of “Radical Cognitivism” (Marlatt et al., 2004). The interventions have been able to establish their efficacy and may help to alleviate a variety of mental health problems and improve psychological functioning. Recently an intervention based on Vipassana meditation as a stand-alone treatment for substance use was applied in correctional population with promising results (Witkiewitz et al., 2005). The need for methodologically sound studies of mindfulness interventions in the field of addictions remains very viable. In the view of cost containment, effective time limited group intervention with wide accessibility may be favored over the at times socially stigmatized, lengthy and expensive traditional treatments for substance abuse.

CHAPTER III

METHODOLOGY

Introduction

Chapter III includes a description of the research design and discusses the rationale for the approach. In addition the sample population, participant selection, research procedures, and instrumentation are described. Lastly, issues of external validity, data analysis, and limitations are discussed.

The primary purpose of this study was to determine if the practice of Mindfulness meditation produces any significant differences in the Drinking-Related Internal-External Locus of Control scale (DRIE), and the White Bear Suppression Inventory (WBSI) test scores between female substance users who participated in Mindfulness meditation intervention and a control group of female substance users who did not participate in the Mindfulness meditation intervention. Finding a significant difference may lead towards an effective treatment to assist the practitioners who treat addictive behaviors, and individuals who suffer from it.

Research Design and Rationale

For this study, the researcher used a quasi-experimental nonrandomized control-group pretest-posttest design (Campbell & Stanley, 1966). Volunteer participants were recruited for experimental and control groups separately from the same treatment program. Due to the lack of a larger sample population, the researcher first recruited volunteer females as experimental group from the substance abuse treatment program. The participants completed the Drinking-Related Internal-External Locus of Control Scale – DRIE (Donovan & O’Leary, 1978) and the White Bear Suppression Inventory -

WBSI (Wegner & Zanakos, 1994), a Thought Suppression Scale, as a pretest. The experimental group was then provided with four weeks of Mindfulness meditation intervention, and in the last session, they were again given the Drinking-Related Internal-External Locus of Control Scale and the White Bear Suppression Inventory as a posttest. At the completion of intervention with the experimental group the researcher recruited volunteer females for control group from the new admissions to the program. The Drinking-Related Internal-External Locus of Control Scale (DRIE) and the White Bear Suppression Inventory (WBSI), questionnaires were given to the control group as a pretest in the first meeting with the researcher to validate group equivalence and establish baselines. The control group did not receive Mindfulness meditation intervention, and at the end of four weeks was given the posttest consisting of the same questionnaires as pretest. The control group took the pretest and posttest four weeks apart. The scores for both the experimental and control groups were compared, and a statistical analysis was conducted to assess differences between the two groups (Isaac & Michael, 1997).

The quasi-experimental approach is considered to be fairly strong because of the control it allows over relevant variables (Isaac & Michael, 1997). To control for within-session instrument differences, the pretest was given to the participants in a single session. Maturation and pre-testing effects were equivalent in both groups as all participants were studied over a short period of time lapse and all participants were given a pretest (Isaac & Michael, 1997). In this design due to absence of randomization, the possibility always existed that some critical difference, not reflected in the pretest, was operating to contaminate the posttest data.

External validity discusses the extent to which research findings can be generalized to populations, settings, experimental variables, and measurement variables (Isaac & Michael, 1997). Although the unrandomized control group pretest-posttest design is fairly strong, it has no control for the interaction of the pretest and the treatment, which may sensitize the participants, affecting the generalizability. Similarly interaction of selection, history and the reactive effects of experimental procedures, that is participants knowing they were being studied might have affected their responses, which may affect generalizability. The nonrandomized control-group pretest-posttest design has some advantage, since it deals with intact group and does not disrupt the treatment program at the facility.

Research Question and Hypothesis

The primary research question and the corresponding hypothesis are as follows:

- Question: Will the practice of Mindfulness meditation produce a difference between experimental and control group's scores on the Drinking-Related Internal-External Locus of Control Scale (DRIE), and on the White Bear Suppression Inventory (WBSI)?
- Hypothesis: Mindfulness meditation practice will produce a significant difference between experimental and control group's scores on the Drinking-Related Internal-External Locus of Control Scale (DRIE) and the White Bear Suppression Inventory (WBSI).
- Null Hypothesis: Mindfulness meditation practice will produce no significant difference between experimental and control group's scores on the Drinking-

Related Internal-External Locus of Control Scale (DRIE) and the White Bear Suppression Inventory (WBSI).

Independent Variable

The independent variable is the “input” that is presumed to cause, effect, or influence the outcome (Isaac & Michael, 1997). In this study the independent variable was the Mindfulness meditation practice.

Dependent Variable

The dependent variable can be described as the “output” or the outcome, which is dependent on the independent variable, or the treatment that is given (Isaac & Michael, 1997). In this study the dependent variables were drinking-related internal-external locus of control and thought suppression as measured by the DRIE and WBSI scales respectively.

Participants

Female residents, who were heavy alcohol and substance users prior to treatment, were recruited from a substance abuse residential treatment program in Central Florida. Fifteen females who agreed to participate on voluntary basis were selected as an experimental group, and provided with Mindfulness meditation intervention for four weeks. Upon completion of the intervention, researcher recruited six volunteer females as a control group from the new admissions to the same treatment program. The control group did not receive any Mindfulness meditation intervention, but was given an opportunity to participate in Mindfulness meditation practice after the completion of the study. Two females dropped out of the study, one each from the experimental and the control group. All of the participants received traditional substance abuse treatment at the

residential facility. This researcher had no therapeutic relationship or work related relationship with the volunteers. The participants filled a demographic data sheet, which also included questions for inclusion and exclusion criteria. The inclusion criteria consisted of: female participants with a minimum age of 18 involved in a residential substance abuse treatment program. The exclusion criteria included: current diagnosis of a serious, medical condition, which could become a hindrance in practicing Mindfulness meditation. The inclusion and exclusion criteria were clearly identified on both the recruitment flyer and the consent form and the demographic survey included questions to verify the criteria.

Selection of Participants

The deputy director of the residential treatment program was contacted in writing to request permission to conduct the research study (see Appendix A). The research project was discussed in a personal meeting for its appropriateness and for maintaining the confidentiality and welfare of the voluntary participants. The Institutional Review Board (IRB), for Barry University reviewed the dissertation proposal, and granted permission to commence the research.

Participants were recruited by posting a notice in the female residential facility. This flyer described the details of the study and asked volunteers for participation (see Appendix B). After reading the notice females interested in participation were asked to contact the researcher at her office phone (407-740-0383).

A group meeting with all the volunteers was conducted. The purpose and procedures of the study were explained. It was emphasized that research participation was strictly voluntary and participants were not going to receive negative repercussion

for deciding not to be involved with this study, and were not going to receive compensation of any sort for their involvement in the research. It was also clarified that if they decline to participate or should choose to drop out at any time during the study, there would be no adverse effects whatsoever. Issues regarding confidentiality were discussed and informed consent was explained. The informed consent forms were distributed, signed, and collected (see Appendix C). Each participant was asked to complete a demographic data sheet (see Appendix D). Finally, the voluntary participants were asked to complete the Drinking-Related Internal-External Locus of Control Scale (DRIE), and the White Bear Suppression Inventory (WBSI), a Thought Suppression Scale, as a pretest. The Mindfulness meditation training commenced the following week, for four weeks and ended with participants completing the posttest utilizing the DRIE and the WBSI questionnaires. At the conclusion of four weeks, the researcher recruited the control group following the same procedure as above but without providing the Mindfulness training to the control group for four weeks. The researcher clarified to the group that they would be given the opportunity to participate in Mindfulness training, after the completion of the study. The control group completed the Drinking-Related Internal-External Scale (DRIE) and the White Bear Suppression Inventory (WBSI), as pretest in the initial meeting with the researcher, and the same scales as posttest at the end of the four weeks.

Confidentiality

A key coding system was used to protect the identities of the participants in this study. Each participant was assigned a number. A key with each participant's first name and middle initial and the corresponding identification number was created. No names

were used in any publications to ensure the participant's confidentiality. Only group mean data was used when describing the results of this study. Once the data was collected, it was maintained along with demographic data sheets, and the key codes in a locked file cabinet in the researcher's office, which is occupied only by the researcher, and only the researcher has the key to the office. Consent forms were also stored in a secure location, however separate from the other data. All data was available only to the researcher and the researcher's supervisor. All raw data, including demographic data will be destroyed after five years in accordance with Florida laws and university policies and procedures.

Instrumentation

Drinking-Related Internal-External Locus of Control Scale (DRIE)

The test instrument selected for use in this study is the DRIE scale. It was designed by Donovan and O'Leary (1978), to assess respondents' expectancies of locus of control with regard to drinking/drug-related behavior. The DRIE is a 25 item self-administered questionnaire presented in forced choice format. Each item consists of an internally oriented response alternative paired with an external alternative, each of which focuses on the same drinking/drug-related topic. Respondents choose the alternative more closely representing their beliefs or behaviors (Keyson & Janda, 1985).

The DRIE is scored in the external direction by summing the number of external response options endorsed. Higher scores reflect less perceived control over drinking. The DRIE taps three factors: (a) intrapersonal (e.g., "I feel powerless to prevent myself from drinking when I am anxious or unhappy" or "If I really wanted to, I could stop drinking"); (b) interpersonal (e.g., "I get so upset over small arguments that they cause

me to drink” or “I can usually handle arguments without taking a drink”); and (c) general control (e.g., “Staying sober depends mainly on things going right for you” or “successfully licking alcoholism is a matter of hard work, luck has little to do with it”) (Keyson & Janda, 1985).

DRIE is adapted from the conceptual model and assessment method developed by Rotter (1975), to define an individual’s beliefs about the extent to which the outcome of important life events are under personal control (internal locus of control) or under the influence of chance, fate, or powerful others (external locus of control). The DRIE assess these beliefs specifically with respect to the individual’s perceptions of control with respect to alcohol, drinking behavior, and recovery. Alcohol-dependent individuals have been found to be more external in their drinking-related locus of control than nondependent drinkers. An external locus of control is found to contribute more towards physical, social, and psychological impairment from drinking. With alcohol treatment, over course of time the perception of control seems to shift more towards internal orientation. Following treatment, alcoholics having an internal drinking-related locus of control are less likely to relapse, drink less and have a shorter prolonged drinking episode if they do relapse, and have a better overall drinking-related outcome than alcoholics with an external DRIE score (Keyson & Janda, 1985).

Psychometrics Properties

Donovan and O’Leary (1978) conducted a study on 120 men, all veterans receiving inpatient treatment for alcoholism. The subjects came from lower-middle class socioeconomic background, with mean age as 45.0 years and mean educational level as 11.95 years. The overall mean score on the DRIE scale was 6.32, with scores ranging

from 0 to 17. The standard error of measurement (0.37) was relatively small. The DRIE total scale has been found to have a high degree of reliability, with alpha and split-half reliability coefficients of 0.77 and 0.70, respectively.

Validity data for DRIE scale was derived from Criterion (predictive, concurrent, postdictive) validity. The DRIE has been found to differentiate between alcohol-dependent and nondependent individuals; to be related to drinking patterns and alcohol-related physical, social, and psychological impairment among alcohol-dependent individuals; and to be predictive of post treatment drinking behavior. It is also related to measures of generalized locus of control, but at relatively low levels. Factor analysis indicates that there are three meaningful dimensions of drinking-related locus of control: Interpersonal, Intrapersonal, and General.

The results suggest that the DRIE scale is a relatively sound psychometric instrument. The two primary subscales derived from the factor analysis - interpersonal and intrapersonal control - appear to have significant psychological meaning in alcoholics, who experience significantly less control over potential sources of interpersonal and intrapersonal pressures (Donovan & O'Leary, 1978). The scale has also been adapted to assess substance-specific control orientations of cocaine abusers and cigarette smokers (Keyson & Janda, 1985). In this study, the scale was used to assess alcohol and other drug abuse orientation of the participants.

The clinical utility of DRIE for the current study was to assess the individual's perception of personal control related to alcohol or other substances, substance using behavior, and recovery. More external scores, suggest less personal control and a greater influence of chance, fate, or powerful others, resulting in more rapid return to drinking or

using drugs, more alcohol/drug use during the initial lapse episode, a greater likelihood of an initial lapse escalating into a more serious relapse, and overall poorer outcomes following treatment. The purpose of the experimental intervention was to modify the perception of control through Mindfulness meditation training, with an anticipated shift toward a more internal locus of control.

The White Bear Suppression Inventory (WBSI)

The White Bear Suppression Inventory (WBSI) was designed by Wegner and Zanakos (1994), to measure people's general tendency to suppress unwanted negative thoughts. The WBSI is a 15-item questionnaire containing questions such as: "I have thoughts that I cannot stop"; "My thoughts frequently return to one idea". Chronic thought suppression is a variable that is related to reports of obsessive thinking and expression of negative affect such as depression and anxiety. The WBSI can identify people who may suffer negative consequences of trying not to think about certain issues and also can be used by practitioners to evaluate change over time in the tendency to suppress thoughts.

Norms.

The WBSI has been studied with thousands of respondents, mainly university students. The mean score in five samples of university men was 45.8 and in five samples of university women were 47.6. The mean standard deviation across all groups is 9.68. The difference between men and women was significant in four out of the five samples.

Scoring.

The WBSI is easily scored on five-point scale from strongly disagree = 1 to strongly agree = 5. The item scores are simply summed for the total score on WBSI,

which ranges from 15 to 75, with higher scores indicating greater tendency to suppress thoughts.

Reliability.

The WBSI has very good internal consistency, with alpha coefficients that range from .87 to .89. The WBSI also has good stability with a one-week test-retest correlation of .92 and a test-retest correlation of .69 when the administrations were separated by times varying from three weeks to three months.

Validity.

The WBSI has excellent convergent validity with significant correlations between the WBSI and the Beck Depression Inventory, the Maudsley Obsessive-Compulsive Inventory, the Sensitization subscale of the Repression-sensitization scale, the State-Trait Anxiety Inventory, and the Anxiety Sensitivity Inventory. The WBSI was negatively correlated with repression, suggesting that the WBSI measures a characteristic that is unlike repression as traditionally conceived.

The selection of WBSI as an instrument in this study was based on the assumption that Mindfulness practice is a metacognitive skill. In mindfulness-based cognitive therapy (Segal et al., 2002), patients are taught to be more aware of negative thoughts and their association with unpleasant sensations and painful feelings, which in context of addictions may become the cause of continuing the cycle of substance use and relapse. One possible focus of the experimental intervention was to reduce the tendency to suppress thoughts through Mindfulness meditation practice, with an anticipated lowering of scores on WBSI scale.

Procedure

The consent to conduct the study with female residents was obtained from the deputy director of the residential substance abuse program. The deputy director was also contacted to discuss organization and time frame of the study, and to arrange for suitable times to conduct the study. The sessions were conducted during the free time of the participants, to avoid disruption in their regular substance abuse treatment. The researcher is a trained Mindfulness meditation practitioner, and provided the requisite meditation training. The six sessions of Mindfulness meditation intervention were held within four weeks, from 7:00 pm to 9:00 pm. on every Tuesday and remaining two sessions every other Friday from 7:00 am. To 9:00 am. The researcher also conducted an hour long feed back session after the conclusion of the study.

The Mindfulness intervention program was modeled on the work of Segal and colleagues (2002), "Mindfulness-Based Cognitive Therapy" (see Appendix E). The intervention started with body awareness meditation, and was followed by sitting meditation with a focus on sensory objects of awareness, breathing, sounds, thoughts and body sensations.

Discussions, coping skills and homework assignments were also included in the sessions. Participants used an audiotape of instructions for Mindfulness meditation practice as a homework assignment and were asked to meditate 40 minutes between 7:00 am and 8:00 am each day as a group. The program staff was requested to simply set up the audio tape each day in the designated therapy room, without providing any intervention or processing to the participants.

The experimental group completed the Drinking-Related Internal-External Locus of Control Scale (DRIE) and the White Bear Suppression Inventory (WBSI), a Thought Suppression Scale, as a pretest prior to starting the study. After the completion of the study the experimental group completed the posttest using the same two scales, the DRIE and the WBSI questionnaires. The following week the researcher met with the experimental group for an hour-long feedback session to discuss participants' experiences and answer any questions they had and conclude the meetings.

The researcher then recruited voluntary females for the control group from the new admissions to the same program. The control group was made aware that they were not going to receive Mindfulness meditation training for four weeks, but will be given the opportunity to participate in the training after the completion of the study. During the first meeting with the researcher, the control group participants discussed and signed the consent form, completed the demographic data sheet and also completed the pretest, using the Drinking-Related Internal-External Locus of Control Scale (DRIE) and the White Bear Suppression Inventory (WBSI) questionnaires. At the end of four weeks the control group again completed the same questionnaires as above for the posttest. During the four weeks the participants continued their treatment in the residential substance abuse program as usual. Each agreed to make no changes in their treatment without notifying the researcher and also not practice Mindfulness meditation during the four weeks of the study.

External Validity

External validity asks the question: Do the results allow valid generalizations to other persons and situations for which the subjects and settings of this study are

presumably representative? (Issac & Michale, 1997). Participants in this study were volunteers, and may have been highly motivated to practice Mindfulness meditation with high internal expectancy for success. The results might not generalize to individuals who are less invested in Mindfulness practice. The substance abusing female population might vary from other groups who are diagnosed with substance abuse disorder, affecting the generalizability. The reactive effects of experimental procedures, e.g., the subjects by virtue of knowing that they are in an experiment might react differently, by putting forth unusual effort or cooperation, and might hamper generalization (Isaac & Michael, 1997).

Assumptions

Some of the assumptions, which the researcher believed to be facts but could not be verified, are as follows:

- The participants were truthful in the assessment of the inclusion and exclusion criteria.
- The participants were honest with their responses on the Drinking-Related Internal-External Locus of Control Scale (DRIE) and the White Bear Suppression Inventory (WBSI) Scales.
- The participants did not compromise the results in any way by making changes in their treatment without notifying the researcher and/or engage in Mindfulness practice outside the parameters of the study.

Limitations

Potential limitations of the study are as follows:

- For generalization purposes the sample size of subjects who participated in the study is considered small.

- The length of time individuals spends practicing Mindfulness meditation outside the sessions could not be controlled.
- The results pertain only to scores on the Drinking-Related Internal-External Locus of Control Scale (DRIE) and the White Bear Suppression Inventory (WBSI) Scale and might not generalize to other test scores.
- This study did not account for improvement on the test scores that could occur due to group cohesiveness, and mutual support during the sessions.

Delimitation

The conditions that might place restriction on the conclusion of the study and their application to other situations are as follows:

- The study was conducted using volunteers from the substance abuse residential treatment program for females in Central Florida.
- The study was limited to adult females who had substance use disorder, were involved in drug rehabilitation program, and had no changes in their treatment at least one month prior to the beginning of the study.

Data Analysis

The Statistical Package for the Social Sciences software was used to analyze the results (SPSS, Chicago, III). According to Isaac and Michael (1997), the “*t*-test” is satisfactory for large samples, and particularly appropriate for small samples. They recommend the *t*-test to determine a significant difference between two sample means. In

the present study, the *t*-test was used to compare differences between group mean scores of the experimental and the control groups on the pretest and Posttest. Mean gain scores was also examined to assess the full extent of the treatment effects.

Summary

This chapter describes the method that was used in the study. It includes the research design and rationale, research question and hypothesis, a description of the participants, and a discussion of how they were selected. The procedures that were followed and the description of how data was analyzed are also included. The researcher executed the study as described, following the specific procedures delineated in this chapter.

CHAPTER IV

RESULTS

Introduction

This chapter provides a comprehensive analysis of the data obtained from the study using descriptive and inferential statistics. The pretest and posttest scores were obtained from the Drinking-Related Internal-External Locus of Control Scale (DRIE), and the White Bear Suppression Inventory (WBSI), a Thought Suppression Scale. In the tables and charts below, descriptive statistics identify demographic, pretest, and posttest data. The data was analyzed using a *t*-test with a significance level of 95% in order to assess differences in the pretest and posttest scores among the experimental and control groups.

The hypothesis tested was: Mindfulness meditation practice will produce a significant difference between experimental and control group's scores on the Drinking-Related Internal-External Locus of Control Scale and the White Bear Suppression Inventory scales. The research question was: Will the practice of Mindfulness meditation produce a difference between experimental and control group's scores on the Drinking-Related Internal-External Locus of Control Scale and on the White Bear Suppression Inventory?

This question was examined by recruiting volunteer participants for experimental and control groups separately and giving them the Drinking-Related Internal-External Locus of Control Scale and White Bear Suppression Inventory questionnaires as a pretest in the first meeting with the researcher. The experimental group received Mindfulness meditation treatment for four weeks consisting of six group meetings, lasting for two hours each. At the end of four weeks the experimental group was given the above

questionnaires again to gather the posttest scores. Due to the lack of a larger sample population, the researcher first recruited fifteen volunteer females for the experimental group from the residential substance abuse treatment program. After four weeks researcher recruited six more volunteer females for the control group from the new admissions to the same program. The control group did not receive any Mindfulness meditation treatment between taking the pretest and the posttest. The control group participants took the pretests and posttests four weeks apart.

Descriptive Statistics: Demographic Data

For this study the researcher used a quasi-experimental nonrandomized control-group pretest-posttest design (Campbell & Stanley, 1966). Two female participants dropped out of the study, one each from the experimental and the control group.

Age of Participants

The number of participants to complete the study in the experimental group was 14 females with ages ranging from 22 - 52 and a mean age of 35. The number of participant to complete the study in the control group was 5 females with ages ranging from 22 - 38 and a mean age of 30. Thus the groups were similar in age, although the experimental group was slightly older. Figures 1 and 2 present the participants' ages as histograms.

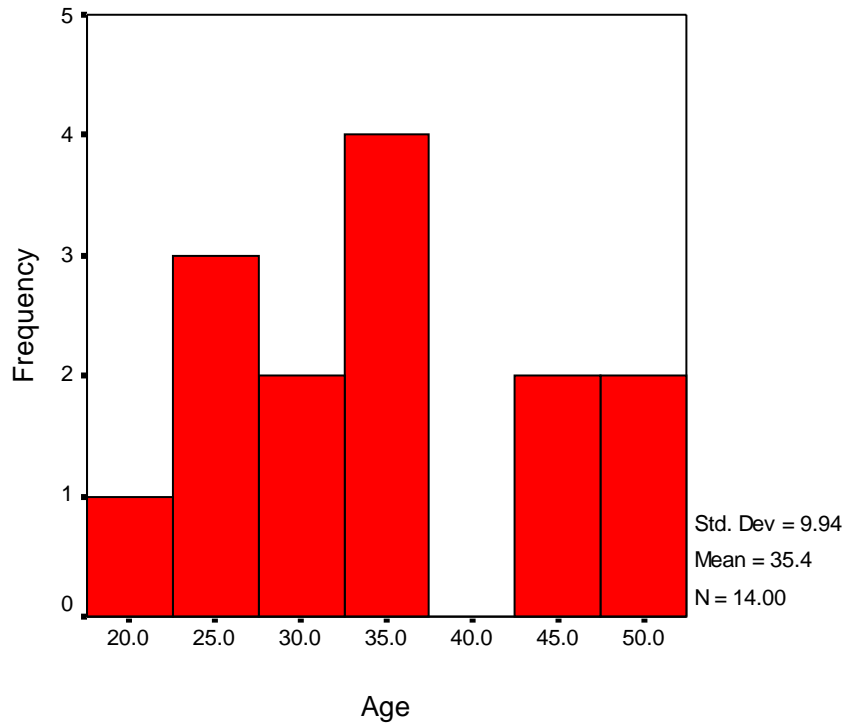


Figure 1. Age of Experimental Group Participants

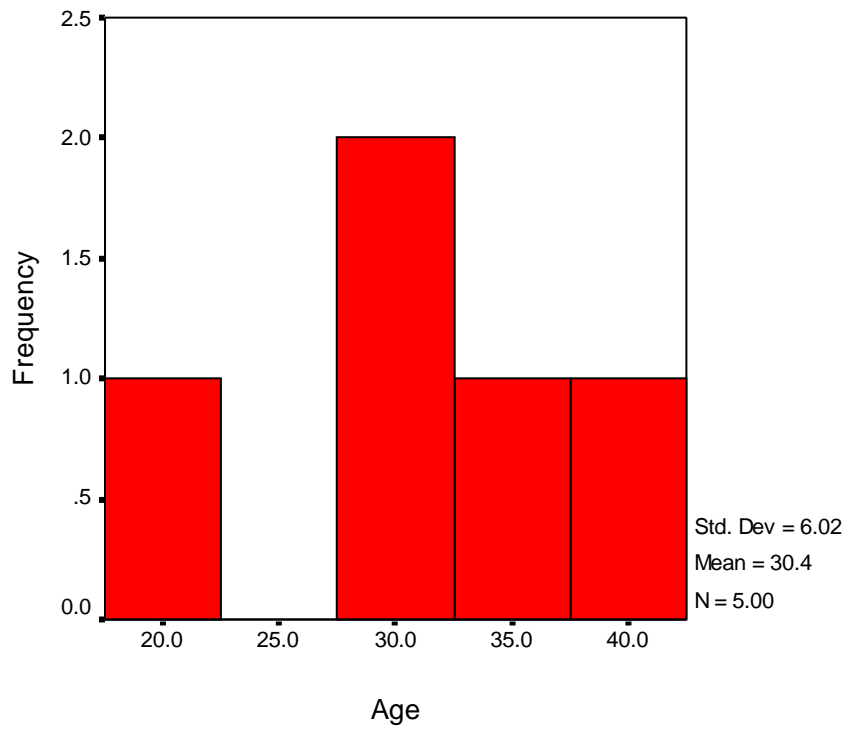


Figure 2. Age of Control Group Participants

Ethnicity

In the experimental group the participants were 72% Caucasian, 14% African-American, and 14% Hispanic. In control group participants were 60% Caucasian, and 40% African-American. The control group differed from the experimental group in that it did not have any Hispanic participants. Figure 3 presents the group ethnicities graphically.

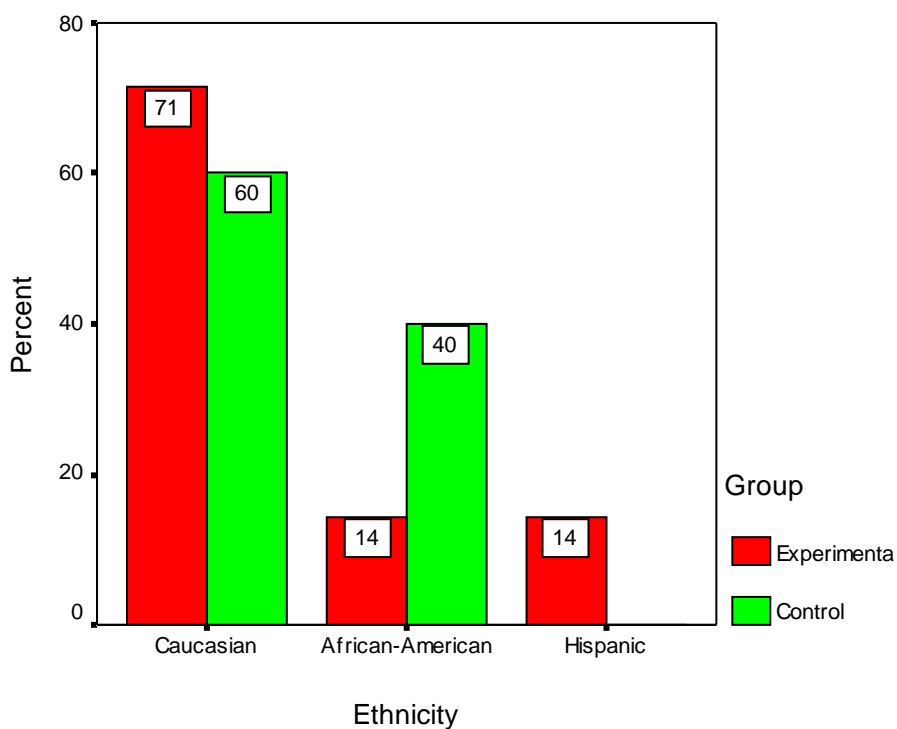


Figure 3. Ethnic Distribution for the Experimental and Control Groups

Educational Level

In experimental group 28% of participants had below high school education, 36% had high school education and 36% had some college education. In control group 40% of participants had below high school education, 40% had high school education and 20% had some college education. The groups were quite similar in terms of their educational

background. Figure 4 presents the educational levels of the experimental and control groups.

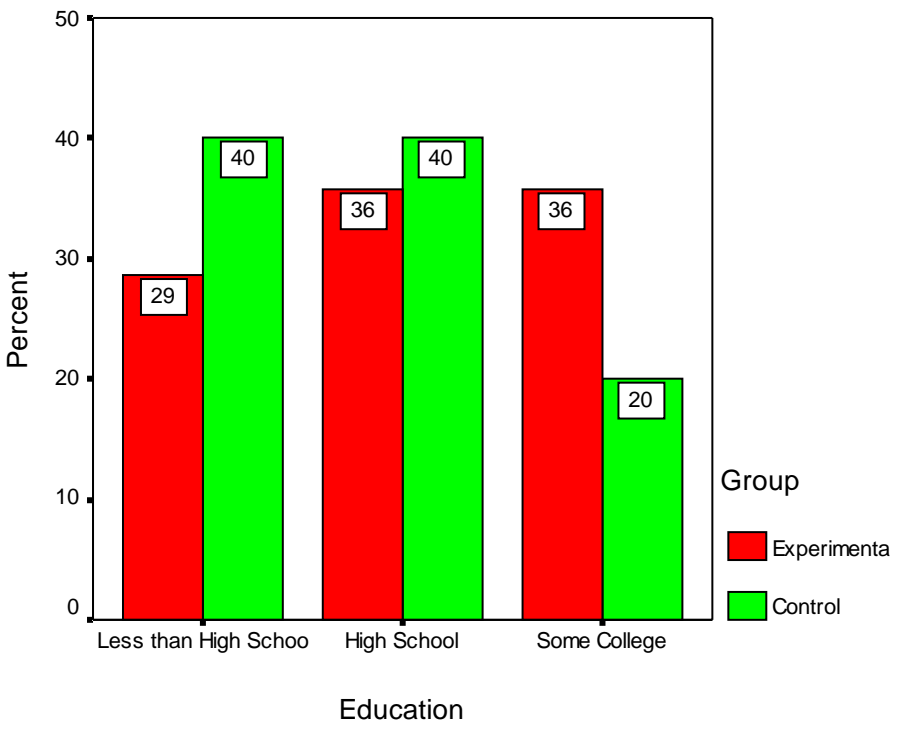


Figure 4. Educational Levels for the Experimental and Control Groups

Employment

In experimental group 50% of participants were employed and in control group 40% were employed. The groups were similar in this regard. Figure 5 shows the employment status of the experimental and control groups.

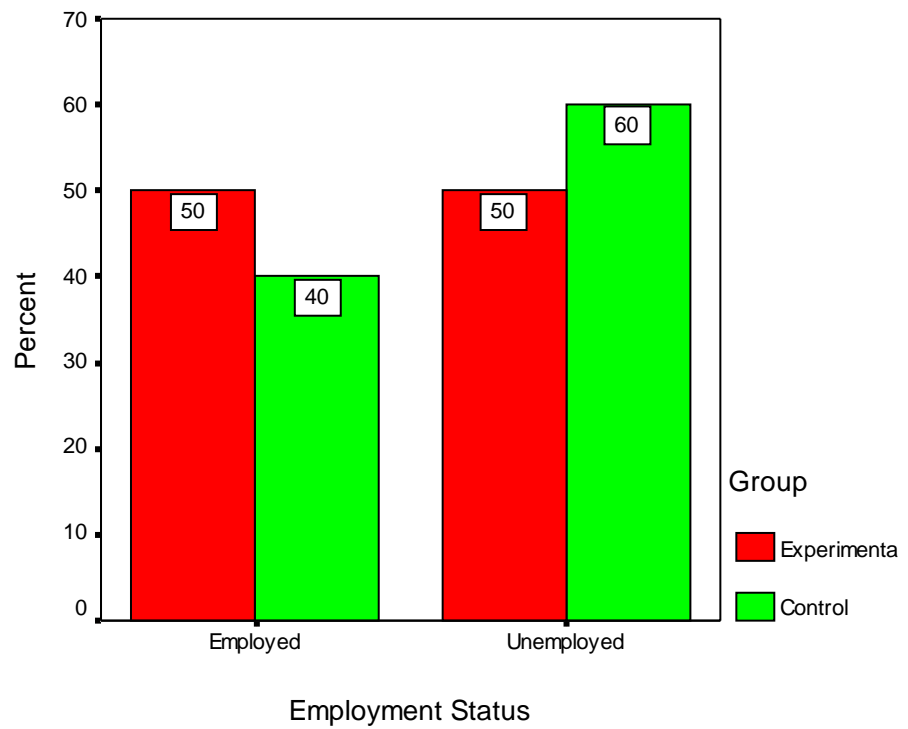


Figure 5. Employment Status of the Experimental and Control Groups

Medication

Twenty one percent of the experimental group participants were on anti-depressant medication, while control group had 40% of the participants on anti-depressant medications. Thus the control group had a higher rate of psychotropic medication use. Figure 6 presents the medication usage for the two groups.

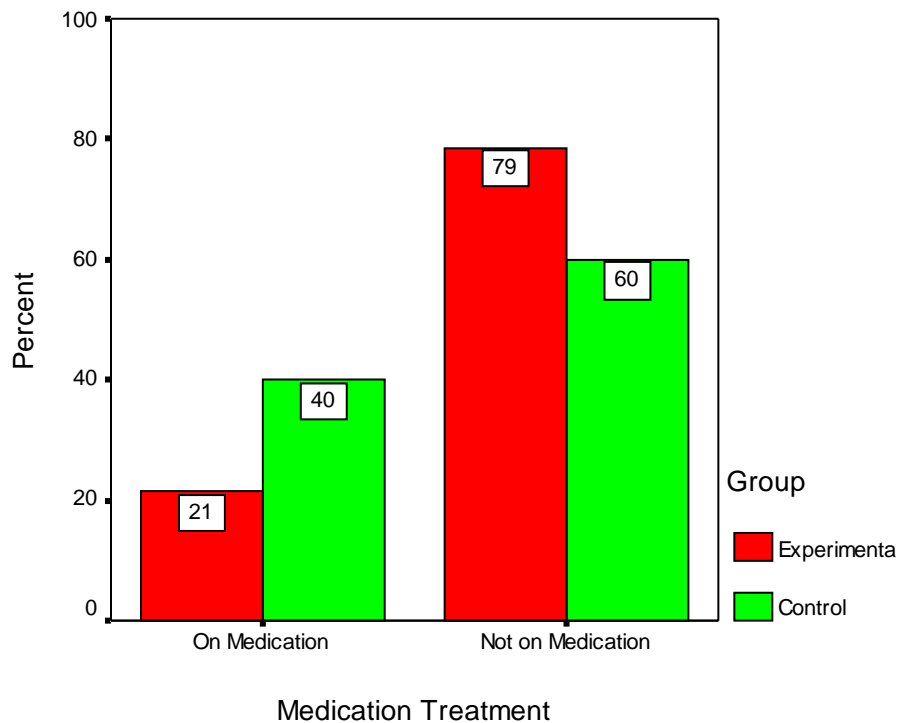


Figure 6. Anti-depressant Medication Usage for the Experimental and Control Groups

History of Alcohol/Drug Use

In the experimental group the number of years of alcohol/drug use ranged from 6 - 36 years with a mean of 14 years; for control group it ranged from 6 - 20 years with a mean of 12 years. The groups were similar in their average number of years of substance use history, but the experimental group had more participants with longer periods of substance use history. Figure 7 presents box plots of the years of alcohol/drug use for the two groups.

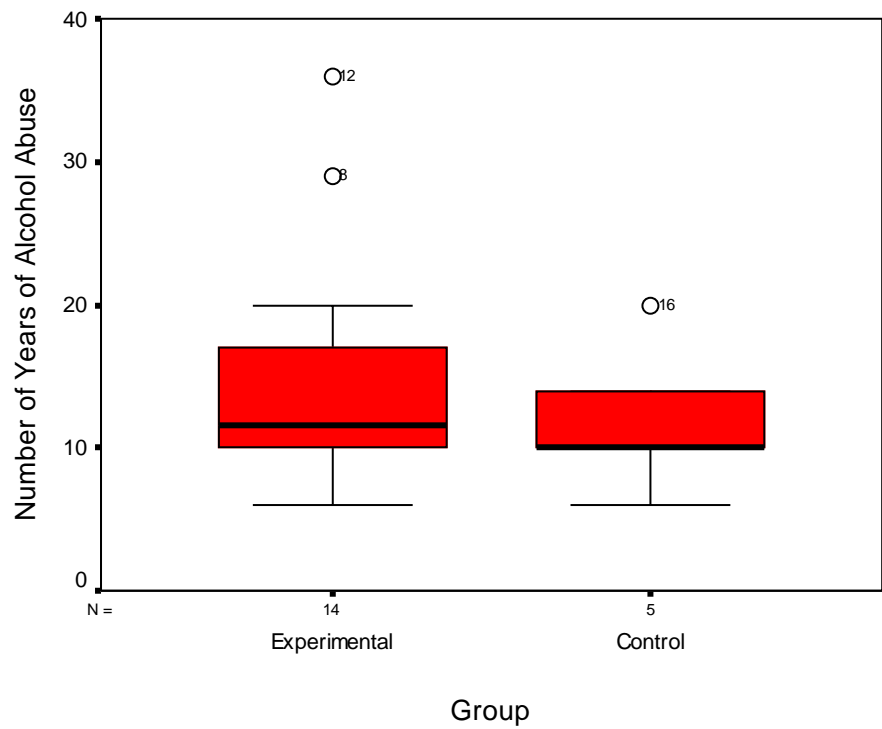


Figure 7. Years of Alcohol/drug Use for the Experimental and Control Groups

Experience with Mindfulness Meditation

None of the participants had any prior experience with Mindfulness meditation.

Table 1 and Table 2 summarize the descriptive statistics for the participants.

Table 1.

Experimental Group: Demographic Data

Participant	Age	Race	Education Level	Medication Treatment	Substance Use History
1	24	Caucasian	High school	No	8 years
2	22	Caucasian	Below H.S.	No	10 years
3	43	Caucasian	High school	No	16 years
4	52	Caucasian	High school	Yes	11 years
5	29	Caucasian	College	No	11 years
6	35	Caucasian	College	No	10 years
7	26	Black	Below H.S.	No	6 years
8	46	Caucasian	High school	No	29 years
9	25	Black	High school	Yes	6 years
10	32	Caucasian	College	No	12 years
11	37	Hispanic	College	No	17 years
12	52	Caucasian	Below H.S.	Yes	36 years
13	37	Hispanic	College	No	20 years
14	36	Caucasian	Below H.S.	No	15 years

Table 2.

Control Group: Demographic Data

Participant	Age	Race	Education Level	Medication Treatment	Substance Use History
15	22	Caucasian	Below H.S.	No	6 years
16	34	Caucasian	High school	No	20 years
17	29	Caucasian	College	Yes	10 years
18	29	Black	Below H.S.	No	10 years
19	38	Black	High school	Yes	14 years

Descriptive Statistics: Pretest Scores

The Drinking-Related Internal-External Locus of Control Scale and the White Bear Suppression Inventory pretest scores were obtained at the beginning of the study to show the participants' baseline levels of locus of control and thought suppression respectively. The scores were also used in a statistical analysis to ascertain the group equivalency of the experimental and control groups.

Drinking-Related Internal-External Locus of Control Scale

The Drinking-Related Internal-External Locus of Control Scale assesses the individual's perception of personal control related to alcohol/drug use, substance abusing behavior, and recovery. Higher scores in Internal Locus of Control suggest more personal control, less likelihood of relapse and over all better treatment outcomes. The mean pretest score on the Drinking-Related Internal-External Locus of Control Scale for the experimental group was 14.71, with a standard deviation of 3.83, and for the control

group 19.20 with a standard deviation of 3.77. There was a wide range of Drinking-Related Internal-External Locus of Control Scale pretest scores for both groups. The range of pretest scores for the experimental group for Drinking-Related Internal-External Locus of Control Scale scales was from 10 - 22 and for control group 13 - 23. The pretest scores for Internal Locus of Control in the experimental group revealed ten scores in low range between 10-15 and four scores in high range, 17-22. For the control group one score was in low range at 13 for Internal Locus of Control and four scores in high range, from 19 - 23. Overall, the control group had higher scores on the Drinking-Related Internal-External Locus of Control Scale, indicating a greater sense of personal control.

Table 3.

Drinking-Related Internal-External Locus of Control Scale Pretest Scores

	N	Mean	Std. Deviation
Experimental	14	14.71	3.83
Control	5	19.20	3.77

White Bear Suppression Inventory

The White Bear Suppression Inventory scale measures individual's general tendency to suppress unwanted negative thoughts, which in context of addiction may become the cause of poor treatment outcomes by contributing to relapse and continuing the cycle of addiction. The item scores on White Bear Suppression Inventory scale range from 15 - 75, with higher scores indicating greater tendency to suppress thoughts and vulnerability to relapse.

The mean pretest score of the White Bear Suppression Inventory for the experimental group was 61.36, with a standard deviation of 10.41, and for the control group 54.60 with a standard deviation of 5.27. The pretest scores for the White Bear Suppression Inventory scale for the experimental group ranged from 40 - 75 and for control group 48 - 62. Both the experimental and control group exhibited high scores on White Bear Suppression Inventory scale pretest.

Table 4.

White Bear Suppression Inventory Pretest Scores

	N	Mean	Std. Deviation
Experimental	14	61.36	10.41
Control	5	54.60	5.27

Group Equivalency Analysis

Independent sample *t*-tests were conducted to determine if the control and experimental groups differed significantly on the pretest Drinking-Related Internal-External Locus of Control Scale and White Bear Suppression Inventory scores at the beginning of the study. The analysis showed a significant difference between the experimental and control groups for Internal Locus of Control $t(17) = -2.25$, $p = .038$, but not for the Thought Suppression scale, $t(17) = 1.37$, $p = .188$. Thus the groups were considered equivalent in terms of their initial scores measured on the White Bear Suppression Inventory but the control group was significantly higher in terms of Internal Locus of Control. The results of the *t*-tests are presented in tabular form in Tables 5 and 6.

Table 5.

Independent Samples *t*-test Assessing Control and Experimental Group Equivalency*Drinking-Related Internal-External Locus of Control Scale*

<i>t</i>	df	Sig. 2-tailed	Mean Diff.	Std. Error Diff.	95% Confidence Interval of the Difference	
					Lower	Upper
-2.256	17	.038	-4.49	1.99	-8.68	-.29

Table 6.

Independent Samples *t*-test Assessing Control and Experimental Group Equivalency*White Bear Suppression Inventory*

<i>t</i>	df	Sig. 2-tailed	Mean Diff.	Std. Error Diff.	95% Confidence Interval of the Difference	
					Lower	Upper
1.371	17	.188	6.76	4.93	-3.64	17.15

Descriptive Statistics: Posttest Scores

Drinking-Related Internal-External Locus of Control Scale

At the completion of the four-week study, both the experimental and control groups were re-administered the Drinking-Related Internal-External Locus of Control Scale and the White Bear Suppression Inventory to determine whether the groups had a significant change in internal locus of control and thought suppression levels

respectively. The mean posttest-pretest change score for the Drinking-Related Internal-External Locus of Control Scale for the experimental group was 7.36 and the standard deviation was 3.73, and for the control group the mean pretest-posttest change score was 2.20 and the standard deviation was 1.10. The experimental group's posttest scores on Internal Locus of Control ranged from 18 - 24 and for the control group from 17 - 25. For the experimental group all scores on the Internal Locus of Control shifted to high level with an increase of 2 - 14 points. For the control group the scores also moved to high level, but the increase was only between 1 - 4 points. Overall the experimental group showed an improvement on the Drinking-Related Internal-External Locus of Control Scale as compared to the control group. Table 7 presents the Internal Locus of Control change scores for the two groups.

Table 7.

Internal-External Locus of Control Posttest-Pretest Change Scores

	N	Mean	Std. Deviation	Std. Error Mean
Experimental	14	7.36	3.73	1.00
Control	5	2.20	1.10	.49

White Bear Suppression Inventory

The mean pretest-posttest change score for the White Bear Suppression Inventory scale for the experimental group was 23.14 and standard deviation was 13.60 and for the control group the mean posttest-pretest change score was 4.00 and standard deviation was 1.58. The experimental group's posttest scores on White Bear Suppression Inventory scale ranged from 15 - 57 and for the control group from 42 - 58. For the Thought

Suppression Inventory scale the experimental group showed a decrease in negative thoughts suppression by 6 - 52 points, while the control group showed a decrease by only 2 - 6 points. Overall the experimental group showed an improvement on the White Bear Suppression Inventory as compared to the control group. Table 8 presents the Thought Suppression change scores for the two groups.

Table 8.

White Bear Suppression Inventory Pretest-Posttest Change Scores

	N	Mean	Std. Deviation	Std. Error Mean
Experimental	14	23.14	13.60	3.63
Control	5	4.00	1.58	.71

Inferential Statistics

An independent sample *t* test was conducted to evaluate the hypothesis that participants who trained in Mindfulness meditation practice would show increased internal locus of control related to substance abuse on the Drinking-Related Internal-External Locus of Control Scale and decreased thought suppression on White Bear Suppression Inventory when compared to control group who did not train. The analysis did show a significant difference in the change scores for the experimental and control groups, $t(17) = 2.992$, $p = .008$ for the Internal Locus of Control scale, and $t(17) = 3.084$, $p = .007$ for the Thought Suppression scale. The Internal Locus of Control scale posttest showed a mean difference of 5.16 points between the experimental and control groups; with the experimental group showing a larger increase in internal locus of control related to substance abuse. The White Bear Suppression Inventory posttest for thought

suppression showed a mean difference of 19.14 points between experimental and control group, with the experimental group showing the larger decrease in thought suppression. Therefore the research hypothesis is supported by the data that the practice of Mindfulness meditation does produce a difference in experimental and control group's internal locus of control and thought suppression scores on the Drinking-Related Internal-External Locus of Control Scale and the White Bear Suppression Inventory. Tables 9 and 10 show the *t*-test analysis summary for the experimental and control groups' posttest scores.

Table 9.

Independent Samples *t*-test for Pretest-Posttest difference Scores

<i>Drinking-Related Internal-External Locus of Control Scale</i>						
<i>t</i>	df	Sig. 2-tailed	Mean Diff.	Std. Error Diff.	95% Confidence Interval of the Difference	
					Lower	Upper
2.992	17	.008	5.16	1.72	1.52	8.79

Table 10.

Independent Samples *t*-test for Pretest-Posttest difference Scores

<i>White Bear Suppression Inventory</i>						
<i>t</i>	df	Sig. 2-tailed	Mean Diff.	Std. Error Diff.	95% Confidence Interval of the Difference	
					Lower	Upper
3.084	17	.007	19.14	6.21	6.05	32.24

Summary

Participants in the experimental group of the research study who received the Mindfulness meditation treatment showed a statistically significant increase in Internal Locus of Control and a decrease in Thought Suppression on the Drinking-Related Internal-External Locus of Control Scale and the White Bear Suppression Inventory scores respectively, as compared to the control group participants. This is evidenced by the large increase in mean scores from pretest to posttest values between the experimental and control groups on DRIE scale and large decrease in mean scores on WBSI scale. Chapter V provides an explanation and summary of the findings, implications regarding the results of the study, recommendations for practice and further research.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Introduction

Alcoholism and drug addiction represent among the most devastating, pervasive and costly public health problems worldwide. According to the Bureau of Justice Statistic (2000), approximately 40% of U. S. population suffers from substance use disorder, but only 10% of this population seeks treatment. Alcohol and drug use are becoming increasingly prevalent among females, in the Corrections population, with female offenders presenting with more severe substance use histories than their male counterparts (Messina & Prendergast, 2001).

Several treatment options are offered in community including out patient and residential substance abuse treatments employing Cognitive Behavioral curriculum, the 12-step disease model approach, and pharmacological maintenance programs. The majority of these programs are costly and intensive long-term treatments. The theocentric focus along with the dogmatism and the disease concept of the 12-step based approach creates resistance in certain people seeking treatment (Cook, 1988). Research also indicates that the stigma and embarrassment associated with the labels of being an "addict" or "alcoholic" prevents many from seeking any formal addiction treatment (Sobell et al., 2000).

The limited outcome studies on existing substance abuse treatments, the cost of long-term modalities, the minimal utilization and non-compliance with the available treatments, the financial burden of non-treatment of addiction, and the adverse quality of life for addicts are among the numerous reasons that alternative methods for treatment of

addictions are needed. The alternative may be either a stand-alone treatment or an adjunctive to other acceptable and established methodologies. The purpose of this study was to examine the effect of Mindfulness meditation practice as an adjunctive treatment for addiction on locus of control as measured by the Drinking-Related Internal-External Locus of Control Scale (DRIE) and on thought suppression as measured by the White Bear Suppression Inventory (WBSI).

Restatement of the Methodology

This research study was a quasi-experimental, nonrandomized control-group pretest-posttest design (Campbell & Stanley, 1966). Volunteer participants were recruited for the experimental and control groups separately. Due to the lack of a larger sample population, the researcher first recruited volunteer females for experimental group from the substance abuse residential program. The participants were given the Drinking-Related Internal-External Locus of Control Scale (DRIE) and the White Bear Suppression Inventory (WBSI), a Thought Suppression Scale, as a pretest. The experimental group was provided with four weeks of Mindfulness meditation intervention consisting of six sessions, each lasting for two hours. Upon completion of the intervention, the participants were tested again for posttest, using the same questionnaires as above.

The volunteer females for the control group were then recruited from the new admissions to the same program and they completed the Drinking-Related Internal-External Locus of Control Scale (DRIE), and the White Bear Suppression Inventory (WBSI), a Thought Suppression Scale, as a pretest. The control group did not receive Mindfulness meditation intervention for four weeks, but was given the opportunity to

participate in treatment after the completion of the study. During the four weeks of the study the control group continued with their residential substance abuse treatment as usual. At the end of the four weeks, the participants again completed the DRIE and the WBSI questionnaires as a posttest.

An independent sample *t*-test was used to determine the equivalence of the Drinking-Related Internal-External Locus of Control Scale and the White Bear Suppression Inventory pretest scores for both the experimental and control groups. An independent sample *t*-test was then calculated to determine if there were significant changes in posttest for the Drinking-Related Internal-External Locus of Control Scale and the White Bear Suppression Inventory, scores between the two groups.

Conclusion

The research question guiding this study was: Will the practice of Mindfulness meditation produce a difference between the experimental and control group's scores on the Drinking-Related Internal-External Locus of Control Scale (DRIE) and on the White Bear Suppression Inventory (WBSI)?

The *t*-test analysis used to assess the differences in posttest scores between the experimental and control groups did reveal a statistically significant increase in the internal locus of control on the DRIE scores and a statistically significant decrease in thought suppression on the WBSI scores for the experimental group. These results show that the internal locus of control and thought suppression in relation to alcohol/drug abuse for the individuals who participated in the Mindfulness meditation intervention were significantly improved in comparison to the individuals who did not participate in the Mindfulness meditation intervention.

The Drinking-Related Internal-External Locus of Control Scale posttest scores revealed a 7.36 mean increase of internal locus of control for experimental group and 2.20 mean increase for control group. The White Bear Suppression Inventory posttest score showed a 23.14 mean decrease in thought suppression in experimental group and 4.00 mean decrease in control group. In other words, the experimental group, who participated in Mindfulness meditation intervention for four weeks, showed a larger increase in internal locus of control and a larger decrease in thought suppression as compared to control group, who did not participate in Mindfulness meditation intervention.

Increased internal locus of control in substance using individuals is related to better recovery, due to the decreased influence of chance, fate, or powerful others (Donovan & O'Leary, 1978). Mindfulness training teaches acceptance skills, such as acceptance of uncomfortable emotions without the use of defense, blaming and escape into external distractions. Non-judgmental self-observation in Mindfulness practice may lead to increased internal locus of control which in turn increases empowerment and self-efficacy skills, thus improving the strategies of relapse prevention (Marlatt et al., 2004).

Chronic thought suppression is a variable that is related to reports of obsessive thinking and expression of negative affect such as depression and anxiety (Wegner & Zanakos, 1994). Obsessive thoughts regarding substances and negative affective states are the two prominent triggers, which may continue the cycle of substance use and relapse (Marlatt et al., 2004). Several research scholars describe the mechanism of change in mindfulness practice as based on changes in thought patterns, or to changes in an individual's relationship to thoughts (Teasdale et al., 2000). The student is asked to

observe the thoughts without elaborating, changing, or substituting them. This leads to the insight that thoughts constantly arise and fall, and are not necessarily the reflection of truth or reality, and do not require escape or avoidance behaviors (Baer, 2003).

Mindfulness practice may activate a new mode of metacognitive processing, which may provide heightened awareness of the internal cues for craving and relapse responses. This heightened awareness due to "non-suppression of thoughts" may reduce the likelihood of relapse and a better treatment outcome.

The idea of using meditation to reduce substance use is not new, but research on utilizing Mindfulness meditation interventions has intensified recently in the field (Krasner, 2004). In her extensive review of mindfulness based clinical interventions, Baer (2003) suggested that mindfulness-based interventions might help to alleviate a variety of mental health problems and improve psychological functioning. Avants and Margolin (2004) of Yale University School of Medicine have utilized Mindfulness meditation practice as one of the core skills in the treatment of addictive and HIV risk behaviors. Recently there has been some remarkable work done in the field, incorporating Mindfulness based relapse prevention for alcohol and substance use disorders (Witkiewitz et al., 2005). 'Start Again' in Switzerland and 'Cyrenian House' in Australia are both addiction therapy centers utilizing Mindfulness meditation as one of their treatment modalities (Scholz & Studer, 1999). Mindfulness meditation treatment has established promising outcomes as an intervention for alcohol and drug use in incarcerated populations (Dhar & Kumar, 1994; Kishore et al., 1996; Witkiewitz et al., 2005). A study utilizing Mindfulness meditation as a stand-alone treatment for alcohol and drug problems was conducted by the Addictive Behavior Research Center at the

University of Washington, at North Rehabilitation facility. This study included the thought suppression (WBSI) and locus of control (DRIE) scales among other measures, and the outcome results were very promising (Marlatt et al., 2004). The results from the present study coincide with previous research showing the beneficial results of Mindfulness meditation intervention with alcohol and drug use problems.

Implications

The outcomes of this study support a positive link between Mindfulness meditation intervention and addictive behaviors. During the feed back session at the end of the study, many of the participants voiced concern about traditional treatments being too lengthy and at times stigmatizing. Some reported their lack of confidence regarding their ability to sit still for meditation during the first week, but that the practice became easier with time. The majority showed a keen interest in the process and the possibility of change at the deeper level of their being. One of the participants who considered herself as a 'sex addict' reported her initial difficulty with obsessive sexual thoughts and consequent guilt, as she attempted to meditate. She further reported, that as she persisted in Mindfulness practice of observing the thoughts non-judgmentally, without elaborating or adding any emotional content to them, the mind began to get quieter and the guilt was dissipated.

All of the participants appreciated the full acceptance of responsibility for the practice and the non-confrontational mode of the intervention. Many of the participants expressed their enthusiasm by checking out books from the library on Mindfulness meditation and related topics and even discussed and encouraged their family members to meditate. The experimental group participating in Mindfulness meditation showed improvement not only in their internal locus of control and thought suppression in

relation to substance use, but also reported general calming effect, positive mood, increased cooperation with others, and improved sleep.

The results of this study are meaningful for the female population with substance use disorder. As stated before one of the prominent triggers for substance use and relapse is considered to be the negative affective states of the mind (Marlatt et al., 2004). Current research in the field of neuroscience has demonstrated that the females have a greater capacity to feel and express emotions due to the unique physiological characteristics of their brains (Brizendine, 2006). Females on average have larger deep limbic system than males (Brizendine, 2006; Frederikse, Lu, Aylward, Barta, & Pearlson, 1999) this enables women to have larger resources dedicated to emotions, communication of emotions and bonding. Some radical research in neuroscience also indicates limbic system as being instrumental in spiritual evolution (Joseph, 2001). Although beneficial in certain aspects, having a larger limbic system also lends women vulnerable to limbic system associated problems, such as mood disorders, increased negative thinking, decreased motivation, and social isolation. In context of addiction, the above states of mind become the trigger for substance use and relapse.

The results from the current study indicate that the Mindfulness practice decreases the tendency to suppress thoughts in the participants, which decreases the expression of negative affect, and improves emotional regulation (Wegner & Zanakos, 1994), thus improving the strategies of relapse prevention.

Females, besides having a heightened capacity for emotional expression, also exhibit a tendency toward lack of empowerment and low self-esteem (Roth & Creasor, 1997), which becomes a trigger for substance use (Dodge & Potocky, 2000). The results

in current study showed an increase in locus of control or sense of personal control in females who participated in Mindfulness practice. The metacognitive awareness, acceptance of all aspects of one's self, and a sense of self efficacy generated by the practice of Mindfulness may improve the longstanding problem like enduring low self-esteem (Fennell, 2004), and ultimately improve the treatment outcome for substance use.

Due to the unique emotional, cognitive and physiological needs of female population, Mindfulness approach may become a beneficial treatment for female substance users. These results are also vital to individuals suffering from alcohol and drug use who are either reluctant to seek treatment or who have been unsuccessful in conventional treatments. The results of this study are thus meaningful for mental health and medical professionals.

Recommendations for Practice

The current research in the field of mental health suggests that Mindfulness interventions are gaining increasing popularity, and may lead to reduction in a variety of problematic conditions, including drug addiction, stress, anxiety, pain, chronic depression, and eating disorders (e.g., Marlatt et al., 2004; Kabat-Zinn, 1982; Kristeller & Hallett, 1999; Shapiro et al., 1998; Teasdale et al., 2000).

Mindfulness practice has been adopted in western psychology as a means of increasing self-awareness and gaining coping skills to deal with emotional and behavioral distress (Bishop et al., 2004). In clinical interventions the Mindfulness practice as a set of skills is taught independently of its spiritual origin of Buddhism, without diminishing its benefits for the practitioner (Kabat-Zinn, 2000).

There are more than 240 hospitals, clinics, and other health related settings worldwide offering clinical interventions based on Mindfulness training (Santorelli, 2004). Mindfulness-based stress reduction (MBSR), developed by Jon Kabat-Zinn in 1979, is a manualized group intervention based on mindfulness training. It was originally utilized for the management of chronic pain and anxiety (Kabat-Zinn, 1982, Kabat-Zinn, et al., 1992). It is also applied now to reduce psychological morbidity associated with chronic illness, as well as to treat emotional and behavioral disorders (Kabat-Zinn et al., 1998).

Mindfulness-based cognitive therapy (MBCT) is also a manualized group intervention based on mindfulness training (Segal, Williams, & Teasdale, 2002). It combines elements of mindfulness training with more traditional cognitive therapy to treat chronic depression. Dialectical behavior therapy (DBT) was developed as a treatment approach for the borderline personality disorder (Linehan, 1993). It utilizes mindfulness training as part of its interventions.

Recently there has been some noticeable work done in the field of substance abuse, incorporating mindfulness-based interventions. Mindfulness based relapse prevention for alcohol and substance use disorders (Witkiewitz et al., 2005), utilizes the Cognitive behavior (CB) model of alcohol and drug relapse along with Mindfulness training to prevent or limit relapse.

Avants and Margolin (2004) of Yale University School of Medicine have developed, “The Spiritual Self-Schema (3-S) therapy” for the treatment of addictive and HIV risk behavior. Mindfulness practice is taught as one of the core skills for gaining mastery over the mind.

Several other investigators have successfully integrated mindfulness approaches in treating a variety of problematic conditions. Some of the examples in current literature include psychological morbidity associated with medical illness (Reibel et al., 2001), generalized anxiety disorder (Roemer & Orsillo, 2002), post traumatic stress disorder (Wolfsdorf & Zlotnick, 2001), alteration in brain and immune function (Davidson, Kabat-Zinn, Schumacher, Rosenkrantz, Muller, & Santorelli, 2003), and improvement in stress, mental adjustment and locus of control in breast cancer patients (Tacon et al., 2004).

Mindfulness meditation can easily be taught in individual as well as group therapy. It has been successfully utilized with children and adolescent populations (Shah & Katakam, 1994) and correctional populations (Kishore et al., 1996; Witkiewitz et al., 2005). The field of research continues to grow as more robust studies are being conducted utilizing mindfulness training in various clinical settings.

Recommendations for Future Research

The data obtained from this study continue to substantiate results from previous studies that found a positive effect of Mindfulness meditation on substance related problems. The results are compelling enough to warrant further investigation of the effect of Mindfulness meditation treatment on addictive behaviors. If this research study were to be repeated, a valid recommendation would be to utilize a larger sample population in order to improve the generalizability of the results. The results from this study indicated that the pretest scores for the control group, on locus of control scale were much higher than the baseline scores for the experimental group, although the control group was recruited from the new admission to the program. This raised the assumption that the control group may have been affected by the tendency for social desirability. The

researcher would recommend a brief introduction prior to testing, regarding the unbiased nature of the survey, and the need for responding honestly to the questionnaire.

A study could be conducted to investigate the long-term effects of Mindfulness meditation practice. This could include testing at intervals such as three months, six months, nine months and twelve months after the beginning of the treatment. It would also be valuable to explore whether individuals who practice Mindfulness meditation as a treatment for addiction have a higher rate of compliance than those who participate in the conventional treatments.

Another recommendation for future research is to determine specifically when the individuals who participate in Mindfulness meditation treatment begin to feel a decrease in thought suppression and craving responses, and increase in internal locus of control in relation to substance use. In addition, it would be valuable to compare the timeline of improvement between a Mindfulness meditation treatment group and a conventional addiction treatment group. It will also be valuable to compare Mindfulness meditation treatment as an adjunctive therapy with an established treatment and Mindfulness meditation intervention as a stand-alone treatment. Mindfulness meditation intervention can also be compared with the Concentrative meditation intervention in the treatment of substance abuse. Lastly further research is needed concerning the identification of mechanisms of change that may underlie the effectiveness of Mindfulness meditation in the treatment of addictions.

Summary

The data from this study supported the hypothesis that the practice of Mindfulness meditation will increase the internal locus of control, and decrease the thought

suppression in relation to alcohol and drug use. The substantial economic and individual costs of substance use worldwide (WHO, 1996), makes it imperative that cost-effective, easily accessible, non-stigmatizing, and empirically supported treatments to be developed, evaluated and mainstreamed.

Employing Mindfulness meditation as a treatment could decrease and even eliminate the label of 'being an addict' and the consequent resistance that conventional treatments generate; thus, individuals may be more likely to view Mindfulness meditation as a socially acceptable intervention for alcohol and drug use.

REFERENCES

- Alcoholics Anonymous World Services (1976). *Alcoholics anonymous*. New York: Author.
- Alexander, C. N., Robinson, P., & Rainforth, M. (1994). Treating and preventing alcohol, nicotine, and drug abuse through Transcendental Meditation: A review and statistical meta-analysis. *Alcoholism Treatment Quarterly*, 11 (1-2), 13-87.
- Allen, B. A., & Armour-Thomas, E. (1991). Construct validation of meta-cognition. *Journal of Psychology*, 127, 203-211.
- Alterman, A. I., Koppenhaver, J. M., Mulholland, E., Ladden, L. J., & Baime, M. (2004). Pilot trial of effectiveness of mindfulness meditation for substance abuse patients. *Journal of Substance Use*, 9(6), 259-268.
- Avants, S. K., Warburton, L. A., & Margolin, A. (2001). Spiritual and religious support in recovery from addiction among HIV-positive injection drug users. *Journal of Psychoactive Drugs*, 33(1), 39-46.
- Avants, S. K., & Margolin, A. (2004). Development of spiritual self-schema (3-S) therapy for the treatment of addictive and HIV risk behavior: A convergence of cognitive and Buddhist psychology. *Journal of Psychotherapy Integration*, 14(3), 253-289.
- Bach, P., & Hayes, S. C. (2002). The use of acceptance and commitment therapy to prevent the rehospitalization of psychotic patients: A randomized controlled trial. *Journal of Consulting and Clinical Psychology*, 70(5), 1129-1139.
- Baer, R. A. (2003). Mindfulness training as a clinical intervention: A conceptual and empirical review. *Clinical Psychology: Science and Practice*, 10(2), 125-143.

- Baer, R. A., Smith, G. T., & Allen, K. B. (2004). Assessment of mindfulness by self report - the Kentucky inventory of mindfulness skills. *Assessment*, 11(3), 191-206.
- Baker, T. B., Morse, E., & Sherman, J. E. (1986). The motivation to use drugs: A psychobiological analysis of urges. *Nebraska Symposium on Motivation*, 257-323.
- Barnett, P. G., & Hui, S. S. (2000). The cost-effectiveness of methadone maintenance. *Mount Sinai Journal of Medicine*, 67, 365-374.
- Benson, H. (1975). *The relaxation response*. New York, NY: William Morrow.
- Benson, H., & Dusek, J. A. (1999). Self-reported health and illness and the use of conventional and unconventional medicine and mind/body healing by Christian scientists and others. *Journal of Nervous and Mental Diseases*, 187, 539-548.
- Benson, H., Malhotra, M. S., Goldman, R. F., Jacobs, G. D., & Hopkins, P. J. (1990). Three case reports of the metabolic and electroencephalographic changes during advanced Buddhist meditation techniques. *Behavioral Medicine*, 16, 90-95.
- Bishop, S. R., Lau, M., Shapiro, S., Carlson, L., Anderson, N. D., Carmody, J., Segal, Z. V., Abbey, S., Speca, M., Velting, D., & Devins, G. (2004). Mindfulness: a proposed operational definition. *Clinical Psychology: Science and Practice*, 11(3), 230-241.
- Boisvert, M. (1995). *The five aggregates: Understanding Theravada psychology and soteriology*. Waterloo: University Press.
- Breslin, F. C., Zack, M., & McMains, S. (2002). An information-processing analysis of mindfulness: implications for relapse prevention in the treatment of substance abuse. *Clinical Psychology: Science and Practice*, 9(3), 275-299.
- Brizendine, L. (2006). *The female brain*. Morgan Road Books.

- Brizer, D. A. (1993). Religiosity and drug abuse among psychiatric inpatients. *American Journal of Drug & Alcohol Abuse*, 19, 337-345.
- Bureau of Justice Statistics (1999). *Substance abuse and treatment, state and federal prisoners, 1997* (NCJ-172871). Washington DC: U.S. Department of Justice.
- Bureau of Justice Statistics Bulletin. (2000). *Prisoners in 1999* (NCJ-183476). Washington DC: U.S. Department of Justice.
- Calajoe, A. (1986). Yoga as a therapeutic component in treating chemical dependency. *Alcoholism Treatment Quarterly*, 3(4), 33-46.
- Campbell, D. T., & Stanley, J. C. (1996). *Experimental and quasi-experimental designs for research*. Chicago, IL: Rand McNally and Company.
- Carroll, K. M. (1996). Relapse prevention as a psychological treatment: A review of Controlled clinical trials. *Experimental and Clinical Psychopharmacology*, 4, 46-54.
- Chandirimani, K. (1994). Humanistic psychology and Vipassana. In: *Vipassana its relevance to the present world*. Igatpuri: VRI.
- Chandirimani, K., Verma, S., Dhar, P. L., & Aggarwal, N. (1994). Psychological effects of Vipassana on Thiar jail inmates: A preliminary report. In: *Vipassana its relevance to the present world*. Mumbai: Apollo Printers.
- Cleave, S. V., Byrd, W., & Revell, K. (1987). *Counseling for substance abuse and addiction*. Dallas: Word Publishing.
- Cook, C. H. (1988). The Minnesota model in the management of drug and alcohol dependency: miracle method or myth? Evidence and conclusions. *British Journal of Addiction*, 83, 735-748.

- Corby, J. C., Roth, W. T., Zarcone, V. P., & Kopell, B. S. (1978). Psycho-physiological correlates of the practice of Tantric Yoga meditation. *Archives of General Psychiatry*, 35, 571-577.
- Croswell, D. (1999). *Reflections of Buddha: The story of Buddhism*. Boston: Journey Editions.
- Davidson, R. J., Kabat-Zinn, J., Schumacher, J., Rosenkrantz, M., Muller, D., & Santorelli, S. F. (2003). Alterations in brain and immune function produced by mindfulness meditation. *Psychosomatic Medicine*, 65, 564-570.
- Deikman, A. (1971). A bimodal consciousness. *Archives of General Psychiatry*, 25, 481-489.
- Deleon, G., & Jainchill, N. (1981). Male and female drug abusers: social and Psychological status 2 years after treatment in a therapeutic community. *American Journal of Drug and Alcohol Abuse*, 8(4), 465-497.
- DelMonte, M. M., & Kenny, J. V. (1985). Models of meditation. *British Journal of Psychotherapy*, 1, 197-212.
- DelMonte, M. M. (1987). Constructivist view of meditation. *American Journal of Psychotherapy*, XII, 286-298.
- Dhar, P. L. (1994). Holistic education and Vipassana. In: *Vipassana its relevance to the present world*. Igatpuri: VRI.
- Dodge, K., & Potocky, M. (2000). Female substance abuse characteristics and correlates in a sample of inpatient clients. *Journal of Substance Abuse Treatment*, 18(1), 59-64.
- Donovan, D. M., & O'Leary, M. R. (1978). The drinking related locus of control scale:

- reliability, factor structure and validity. *Journal of Studies on Alcohol*, 39(5), 759-784.
- Dunn, B. R., Hortigan, J. A., & Mikulas, W. L. (1999). Concentration and mindfulness meditation unique forms of consciousness? *Applied Psycho-physiology and Biofeedback*, 24(3), 147-165.
- Earle, J. B. (1981). Cerebral laterality and meditation: a review of the literature. *Journal Of Transpersonal Psychology*, 13, 155-176.
- Easterlin, B., & Cardena, E. (1998). Cognitive and emotional differences between short- and long-term Vipassana meditators. *Imagination, Cognition and Personality*, 8(1), 69-81.
- El-Bassel, N., Gilbert, L., Witte, S., Wu, E., Gatea, T., & Schilling, R. (2003). Intimate partner violence and substance abuse among minority women receiving care from an inner-city emergency department. *Women's Health Issues*, 13, 16-22.
- Epstein, D. H., Hawkins, W. E., Covi, L., Umbricht, A., & Preston, K. L. (2003). Cognitive behavioral therapy plus contingency management for cocaine use: findings during treatment and across 12-month follow-up. *Psychology of Addictive Behaviors*, 17, 1, 73-82.
- Fals-Stewart, W., O'Farrell, T., & Birchler, G. (1997). Behavioral couples therapy for male substance-abusing patients: A cost outcomes analysis. *Journal of Consulting and Clinical Psychology*, 65, 5, 789-802.
- Farthing, G. W. (1992). *The Psychology of Consciousness*. N.J: Prentice Hall.
- Fennell, M. J. V. (2004). Depression, low self-esteem and mindfulness. *Behavior Research and Therapy*, 42(9), 1053-1067.

- Flavell, J.H. (1981). Monitoring social cognitive enterprises: Something else that may develop in the area of social cognition. In J. H. Flavell, & L. Ross (Eds.), *Social cognitive development* (pp. 272-287). London: Cambridge University Press.
- Fleischman, P. (1997). *The therapeutic action of Vipassana: why I sit*. Seattle, WA: Vipassana Research Publications of America.
- Fortuin Corsi, K., Kwiatkowski, C. F., & Booth, R. E. (2002). Predictors of positive outcomes for out-of-treatment opiate injectors recruited into methadone maintenance through street out-reach. *Journal of Drug Issues*.
- Frederikes, M. E., Lu, A., Aylward, E., Barta, P., & Pearlson, G. (1999). Sex differences in the inferior parietal lobule. *Cerebral Cortex*, 9(8), 896-901.
- French, M. T., Rachal, J. V., & Hubbard, R. L. (1991). Conceptual framework for estimating the social cost of drug abuse. *Journal of Health and Social Policy*, 2, 1-22.
- Fromm, E. (1981). Primary and secondary process in waking and in altered states of consciousness. *Academic Psychology Bulletin*, 3, 29-39.
- Galanter, M. (1997). Spiritual recovery movements and contemporary medical care. *Psychiatry*, 60, 211-223.
- Gelderloos, P., Walton, K. G., Orme-Johnson, D. W., & Alexander, C. N. (1991). Effectiveness of the Transcendental meditation program in preventing and treating substance misuse: A review. *International Journal of Addiction*, 26, 295-325.
- Gilligan, S. (1997). *The courage to love*. N.Y: W. W. Norton.
- Goenka, S. N. (1987). *Discourse summaries*. Igatpuri: VRI.

- Golstein, J., & Kornfield, J. (1987). *Seeking the heart of wisdom: The path of insight meditation*. Boston, MA: Shambhala.
- Goldstein, J. (2002). *One dharma: The emerging western Buddhism*. San Francisco: Harper Collins.
- Goleman, D. (1988). *The meditative mind*. Los Angeles: Tarcher.
- Gornik, M. (2001). Moving from correctional program to correctional strategy: Using proven practices to change criminal behavior. *Offender Substance Abuse Report*, 1(4), 60-64.
- Green, L. L., Fullilove, M. T., & Fullilove, R. E. (1998). Stories of spiritual awakening – The nature of spirituality and recovery. *Journal of Substance Abuse Treatment*, 15, 325-331.
- Griffith, K. (2007). Meditation eases pain of imprisonment. *Orlando Sentinel*.
- Groves, P., & Farmer, R. (1994). Buddhism and addictions. *Addiction Research*, 2, 183-194
- Gunaratana, H. (1985). *The path of serenity and insight*. Delhi: Motilal Banarsidass.
- Hamersley, R., & Cregan, J. (1986). *Drug addiction and Vipassana meditation*. Igatpuri: Vsanaipas Research Institute.
- Hart, W. (1987). *The art of living: Vipassana meditation as taught by S.N. Goenka*. New York, NY: Harper Collins Publisher.
- Hayes, S. C., Strosahl, K., & Wilson, K. G. (1999). *Acceptance and commitment therapy*. New York: Guilford Press.
- Hayes, S. C., & Wilson, K. G. (2003). Mindfulness: method and process. *Clinical Psychology: Science and Practice*, 10, 2, 161-165.

- Humphreys, K., Mankowski, E. S., Moos, R. H., & Finney, J. W. (1999). Do enhanced friendship networks and active coping mediate the effect of self-help groups on substance abuse? *Annals of Behavioral Medicine*, 21, 54-60.
- Isaac, S., Michael, W. (1997). *Handbook in research and evaluation*. San Diego, CA: Educational and Industrial Testing Services.
- Joseph, R. (2001). The limbic system and the soul: evolution and the neuroanatomy of religious experience. *Zygon*, 36(1), 105-136.
- Kabat-Zinn, J. (1982). An outpatient program in behavioral medicine for chronic pain patients based on the practice of mindfulness meditation: Theoretical considerations and preliminary results. *General Hospital Psychiatry*, 4, 33-47.
- Kabat-Zinn, J. (1990). *Full catastrophe living: using the wisdom of your body and mind to face stress, pain, and illness*. New York: Deacorte.
- Kabat-Zinn, J. (1994). *Wherever you go, there you are: Mindfulness meditation in everyday life*. New York: Hyperion.
- Kabat-Zinn, J. (2000). Indra's net at work: The mainstreaming of dharma practice in society. In G. Watson & S. Batchelor (Eds.), *The psychology of awakening: Buddhism, science, and our day-to-day lives* (pp. 225-249). ME: Weiser.
- Kabat-Zinn, J., Massion, A., Herbert, J., Rosenbaum, E. (1998). Meditation. In J.C. Holland (Ed.), *Psycho-oncology* (pp. 767-779). Oxford, England: Oxford University Press.
- Kabat-Zinn, J., Massion, A., Kristeller, J., Peterson, L. G., Fletcher, K. E., Pbert, L., Lenderking, W. R., & Santorelli, S. F. (1992). Effectiveness of a meditation-based stress reduction intervention in the treatment of anxiety disorders. *American*

Journal of Psychiatry, 149, 936-943.

Kadden, R. M. (2001). Behavioral and cognitive-behavioral treatment for alcoholism: research opportunities. *Addictive Behaviors*, 26, 489-507.

Kendler, K. S., Gardner, C.O., & Prescott, C. A. (1997). Religion, psychopathology, and substance use and abuse: A multimeasure, genetic-epidemiologic study. *American Journal of Psychiatry*, 154, 322-329.

Keyson, M., & Janda, L. (1985). *Untitled locus of drinking control scale*. Unpublished, St.

Luke's Hospital, AZ.

Khin, U.S. (1991). *Journal*. Igatpuri: Vipassana Research Publications.

Khurana, A., & Dhar, P. (2000). *Effects of Vipassana on quality of life, subjective well being, and criminal propensity among inmates of Tihar jail*. New Delhi: Indian Institute of Technology.

Kishore, C., Verma, S. K., & Dhar, P. L. (1996). *Psychological effects of Vipassana on Tihar jail inmates: Research report*. New Delhi: All India Institute of Medical Sciences.

Kjaer, T. W., Bertelsen, C., Piccini, P., Brooks, D., Alving, J., & Lou, H. C. (2002). Increased dopamine tone during meditation-induced change of consciousness. *Cognitive Brain Research*, 13, 255-259.

Kornfield, J. (1977). *Living Buddhist masters*. Kandy: Buddhist Publication Society.

Krasner, M. (2004). Mindfulness-based interventions: a coming of age? *Families, Systems, & Health*, 22, 2, 207-212.

Kristeller, J. L., & Hallett, C.B. (1999). An exploratory study of a meditation-based

- intervention for binge eating disorder. *Journal of Health Psychology*, 4, 357-363.
- Kumar, T. (1994). Vipassana meditation course in Tihar jail. *In Vipanna it's relevance to the present world* (Ed.). Igatpuri: VRI.
- Kurtz, E., & Ketcham, K. (1992). *The spirituality of imperfection*. New York: Bantam.
- Langer, E. J. (1989). *Mindfulness reading*. MA: Addison Wesley.
- Lazar, S. W., Bush, G., Gollub, R. L., Fricchione, G. L., Khalsa, G., & Benson, H. (2000). Functional brain mapping of the relaxation response and meditation. *Neuroreport*, 11, 1581-1585.
- Ledi, S. (1999). *The manuals of dhamma*. Igatpuri: Vipassana Research Institute.
- Linehan, M. M. (1993). *Cognitive behavioral treatment of borderline personality disorder*. New York: Guilford Press.
- Linehan, M. M. (1993). *Skills training manual for borderline personality disorder*. New York: Guilford Press.
- Marlatt, G. A., (2002). Buddhist psychology and the treatment of addictive behavior. *Cognitive and Behavioral Practice*, 9(1), 44-49.
- Marlatt, G. A., & Gordon, J. R. (1985). *Relapse prevention: maintenance strategies in the treatment of addictive behaviors*. New York: Guilford Press.
- Marlatt, G. A., & Kristeller, J. L. (1999). Mindfulness and meditation. In W. R. Miller (Ed.), *Integrating spirituality into treatment* (67-84). Washington DC: American Psychological Association.
- Marlatt, G. A., & Marques, J. (1977). Meditation, self-control, and alcohol use. In R. B. Stuart (Ed.), *Behavioral self-management: strategies, techniques, and outcomes* (117-153). New York: Brunner and Mazel.

- Marlatt, G. A., Pagano, R. R., Rose, R. M., & Marques, J. K. (1984). Effects of meditation and relaxation training upon alcohol use in male social drinkers. In D. H. Shapiro & R.N. Walsh (Eds.), *Meditation: classic and contemporary perspectives* (105-120). New York: Aldine.
- Marlatt, G. A., & Witkiewitz, K. (2002). Harm reduction approaches to alcohol use: Health promotion, prevention, and treatment. *Addictive Behaviors*, 27, 867-886.
- Marlatt, G. A., Witkiewitz, K., & Dillworth, T. M. (2004). Vipassana meditation as a treatment for alcohol and drug use disorder. In S. C. Hayes, V. M. Follette, M. M. Linehan (Ed.), *Mindfulness and acceptance: Expanding the cognitive-behavioral tradition* (pp. 261-287). New York: Guilford.
- Marcus, J. B., (1974). Transcendental Meditation: A new method of reducing drug abuse. *Drug Forum*, 3, 113-136.
- Mathew, R. J., Georgi, J., Wilson, W. H., & Mathew, V. G. (1996). A retrospective study Of the concept of spirituality as understood by recovering individuals. *Journal of Substance Abuse Treatment*, 13, 67-73.
- Mcabee, M. S. (2000). A comparison of the theory and practice of Jungian, archetypal, and Buddhist psychology from a nondual and postmodern perspective. *Dissertation Abstracts International: The Sciences & Engineering*, 61(2), pp. 1089.
- Mckellar, J., Stewart, E., & Humpherys, K. (2003). Alcoholic Anonymous involvement and positive alcohol-related outcomes: cause, consequences, or just a correlate? A prospective 2-year study of 2,319 alcohol dependent men. *Journal of Consulting and Clinical Psychology*, 71(2).

- Meijer, L. (1999). Vipassana meditation at north rehabilitation facility. In: *American Jail*.
Seattle: American Jails Association.
- Messina, N., & Prendergast, M. (2001). Therapeutic community treatment for women in prison: some success, but the jury is still out. *Offender Substance Abuse Report*, 4, 49-56.
- Messina, N., Wish, E., & Nemes, S. (2000). Predictions of treatment out-comes in men and women admitted to a therapeutic community. *American Journal of Drug and Alcohol Abuse*, 26(2), 207-228.
- Mikulas, W. L. (1990). Mindfulness, self-control, and personal growth. In M. G. T. Kwee (Ed.), *Psychotherapy, meditation, and health* (pp. 151-164). London: East-West Publications.
- Miller, J. J., Fletcher, K., & Kabat-Zinn, J. (1995). Three year follow-up and clinical implications of a mindfulness meditation-based stress reduction intervention in the treatment of anxiety disorder. *General Hospital Psychiatry*, 17, 192-200.
- Miller, W. R. (1998). Researching the spiritual dimensions of alcohol and other drug problems. *Addictions*, 93(7), 979-990.
- Modak, U. (1994). *Vipassana – It's relevance to individual and society*. Igatpuri: Vipassana Research Institute.
- Morgenstern, J., Labouvie, E., McCrady, B. S., Kahler, C., & Frey, R. M. (1997). Affiliation with Alcoholic Anonymous after treatment: A study of its therapeutic effects and mechanisms of action. *Journal of Consulting and Clinical Psychology*, 65, 768-777.
- Murphy, M., & Donovan, S. (1997). *The physical and psychological effects of meditation*.

Sausalito, CA: Institute of Noetic Sciences.

- Murphy, T. J., Pagano, R. R., & Marlatt, G. A. (1986). Lifestyle modification with heavy alcohol drinkers: Effects of aerobic exercise and meditation. *Addictive Behaviors*, 11, 175-186.
- National Institute on Drug Abuse (2000). *Principles of drug addiction treatment: A research-based guide* (NIH Publication No. 00 - 4180, 4). Rockville, MD: U. S. Department of Health and Human Services, National Institute on Health.
- National Institute on Drug Abuse (2005). *Drug abuse treatment methods: Fact sheet*. U.S. Department of Health and Human Services.
- Newberg, A., Alavi, A., Baime, M., Pourdehnad, M., Santanna, J., & d'Aquili, E. (2001). The measurement of regional cerebral blood flow during the complex cognitive task of meditation: A preliminary SPECT study. *Psychiatry Research: Neuroimaging*, 106, 113-122.
- Ornstein, R. E. (1972). *The Psychology of Consciousness*. San Francisco: W. H. Freeman.
- Pardini, D. A., Plante, T. G., Sherman, A., & Stump, J.E. (2000). Religious faith and Spirituality in substance abuse recovery: Determining the mental health benefits. *Journal of Substance Abuse Treatment*, 19, 347-354.
- Pargament, K. I. (2000). *The psychology of religion and coping: Theory, research, practice*. New York: Guilford.
- Pethe, M. B., & Chokhani, R. M. (1994). *Vipassana meditation: A positive mental health measure*. Igatpuri: Vipassana Research Institute.
- Powledge, T. M. (1999). Addiction and the brain. *Bioscience*, 49(7), 513-520.
- Project MATCH (1997). Matching alcoholism treatments to client heterogeneity: Project

MATCH post-treatment drinking out-comes. *Journal of Studies on Alcohol*, 58, 7-29.

Prochaska, J. O., & DiClemente, C. C. (1986). Toward a comprehensive model of change. In W. R. Miller & N. Heather (Eds.), *Treating addictive behaviors. Processes of change* (pp. 3-27). New York: Plenum Press.

Reibel, D. K., Greeson, J. M., Brainard, G. C., & Rosenzweig, S. (2001). Mindfulness-based stress reduction and health-related quality of life in a heterogeneous patient population. *General Hospital Psychiatry*, 23, 183-192.

Romer, L., & Orsillo, S. M. (2002). Expanding our conceptualization of and treatment for generalized anxiety disorder: integrating mindfulness/acceptance-based approaches with existing cognitive behavioral models. *Clinical Psychology: Science & Practice*, 9, 54-68.

Roth, B., & Creason, T. (1997). Mindfulness-based stress reduction: Experience with a bilingual inner-city program. *The Nurse Practitioner*, 22, 150-176.

Santorelli, S. F. (2004). *The pull of the soul toward the possible: The emerging vision and work of the center for mindfulness*. Retrieved from <http://www.umassmed.edu/cfm/vision/>

Schilling, R., Doring, K., & Lungren, L. (2006). Treatment of Heroin dependence: Effectiveness, costs, and benefits of methadone maintenance. *Research on Social Work Practice*, 16, 1, 48-56.

Scholz, G., & Studer, U. (1999). *Start Again: Addiction therapy center for drug dependents*. www.vrl.dhamma.org.

Segal, Z. V., Williams, J. M. G., & Teasdale, J. D. (2002). *Mindfulness-based cognitive*

- therapy for depression: A new approach to preventing relapse*. New York: Guilford Press.
- Shah, K. (1977). *Impact of Vipassana on prisoners*. Bombay: University of Bombay.
- Shah, S., & Katakam, S. (1994). Education and children's courses. In: *Vipassana its relevance to the present world*. Igatpuri: Vipassana Research Institute
- Shapiro, D. H. (1982). Overview: Clinical and physiological comparisons of meditation With other self-control strategies. *American Journal of Psychiatry*, 139, 267-274.
- Shapiro, D. H., & Walsh, R. N. (1984). *Meditation: classic and contemporary perspectives*. New York: Aldine.
- Shapiro, S. L., Schwartz, G. E., & Bonner, G. (1998). Effects of mindfulness-based stress reduction on medical and premedical students. *Journal of Behavioral Medicine*, 21, 581-599.
- Singh, R. (1994). Vipassana in jails: An historical review. In: *Vipassana its relevance to the present world*. Igatpuri: Vipassana Research Institute.
- Sobell, L. C., Ellingstad, T. P., & Sobell, M. B. (2000). Natural recovery from alcohol and drug problems: Methodological review of the research with suggestions for future directions. *Addiction*, 95, 749-764.
- Sole-Leris, A. (1986). *Tranquility and insight*. Boston: Shambala.
- Spicer, J. (1993). *The Minnesota Model: The evolution of the multidisciplinary approach to addiction recovery*. Minneapolis: Hazelden.
- Tacon, A. M., Caldera, Y. M., & Ronaghan, C. (2004). Mindfulness-based stress reduction in women with breast cancer. *Families, Systems & Health*, 22, 193-203.
- Tandon, S. N. (1994). Pali - A brief overview. In: *Vipassana its relevance to the present*

world. Igatpuri: VRI.

- Taub, E., Steiner, S. S., Weingarter, E., & Walton, K. G. (1994). Effectiveness of broad spectrum approaches to relapse prevention in severe alcoholism: A long-term, randomized controlled trial of transcendental meditation, EMG biofeed back and electronic neurotherapy. *Alcoholism Treatment Quarterly*, 11, 187-220.
- Teasdale, J. D. (1999). Emotional processing, three modes of mind and the prevention of relapse in depression. *Behavior Research and Therapy*, 37(1), 53-77.
- Teasdale, J. D., Segal, Z. V., & Williams, M. G. (1995). How does cognitive therapy prevent depressive relapse and why should attentional control (mindfulness training) help? *Behavior Research and Therapy*, 33, 25-39.
- Tesdale, J. D., Williams, J. M., Soulsby, J. M., Segal, Z. V., Ridgeway, V. A., & Lau, M. A. (2000). Prevention of relapse/recurrence in major depression by mindfulness-based cognitive therapy. *Journal of Consulting and Clinical Psychology*, 68, 615-623.
- The Schneider Institute For Health Policy. (2001). *Substance abuse: The nation's number one problem*. Brandeis University: The Robert Wood Johnson Foundation.
- Theosophical University Press (1980). *Dhammapada* (H. Kaviratna, Trans.; English - Pali, Ed.). Pasadena, CA: Author.
- Tiffany, S. T. (1990). A cognitive model of drug urges and drug-use behavior: Role of automatic and nonautomatic processes. *Psychological Review*, 97, 147-168.
- Tiwari, M. (1994). *Pali tipitaka as the source of Vipassana*. Igitpuri: Vipassana Research Institute.

- Toneatto, T. (2002). A metacognitive therapy for anxiety disorder: Buddhist psychology applied. *Cognitive and Behavioral Practice, 9*, 72-78.
- United Nations Office for Drug Control and Crime Prevention (2002). *Global illicit drug trends 2002*. New York: United Nations.
- Vora, R. L. (1994). Jail course and Vipassana. In: *Vipassana its relevance to the present world*. Igatpuri: Vipassana Research Institute.
- Wegner, D. M., & Zanakos, S. (1994). Chronic thought suppression. *Journal of Personality, 62*, 615-640.
- Wilber, K. (1982). Odyssey: A personal enquiry into the humanistic and transpersonal psychology. *Journal of Humanistic Psychology, 22*(1), 57-90.
- Witkiewitz, K., Marlatt, G. A., & Walker, D. E. (2005). Mindfulness-based relapse prevention for alcohol and substance use disorders. *Journal of Cognitive Psychotherapy, 19*(3), 211-228.
- Wolfe, C. T., & Stevens, P. (2001). Integrating religion and spirituality in marriage and family counseling. *Counseling and Values, 46*, 66-75.
- Wolfsdorf, B. A., & Zlotnick, C. (2001). Affect management in group therapy for women With posttraumatic stress disorder and histories of childhood sexual abuse. *Journal of Clinical Psychology, 57*(2), 169-181.
- World Health Organization (1999). *Global Status Report on Alcohol*. Geneva, WHO, Substance Abuse Department, WHO/HSC/SAB/99.11.
- Zimmer, H. (1951). *The philosophies of India*. New York: Pantheon.

APPENDIX A

Request to Conduct Research

Oct 4,2007

Ms. Liz Singer
Deputy Director
Specialized Treatment,
Education and Prevention
Services, Inc.
Apopka, Fl 32703

Dear Ms. Singer,

This is to request to conduct my dissertation research in mental health counseling within the S.T.P.S. Inc. I am currently a doctoral student at Barry University. The Barry Institutional Review Board has reviewed my dissertation protocol, and the letter of approval will be submitted prior to conducting my study. The IRB point of contact, Mrs. Nildy Polanco can be reached at 305-899-3020. My dissertation chair, Dr. Eeltink at Barry University, Orlando, can be reached at 321-235-8401. I can certify that procedures are in place to assure, that female participants are provided with informed consent, are voluntary and may elect to discontinue participation without consequences, and that confidentiality will be strictly upheld. No experimental or invasive procedures of any manner will be used in conjunction with this research and it is not expected that there will be any risks to participants. Further there will not be any form of compensation offered for participation during this project.

The purpose of the present study is to develop effective clinical interventions, for the female residents in the substance abuse treatment, to increase their locus of control and decrease thought suppression tendencies in relation to addictive behaviors. At the present time Cognitive Behavioral approaches are utilized extensively for drug abuse treatment. Although successful to some extent, the out come studies have not been able to establish a substantial improvement in relapse to alcohol and drugs. The treatment needs to be tailored to the needs of this population, which includes brief, low cost, more tolerant, non-stigmatizing, widely available and affordable alternative to the current substance abuse treatments.

It is the intent of this study to utilize Mindfulness meditation based intervention as an alternative adjunct therapy to prevent drug abuse. The foundation for this intervention was established at the University of Massachusetts at their Stress Reduction Clinic led by renowned Dr. Jon Kabat-Jinn. Dr. Avants and Dr. Margolin at Yale University School of Medicine founded another significant study utilizing similar theoretical framework and Mindfulness meditation intervention. Recently, the Addictive Behaviors Research Center at the University of Washington, utilized Mindfulness Meditation as a stand-alone treatment for alcohol and drug problems, at a county jail in Seattle. The results from these studies are very promising and support the feasibility and clinical effectiveness of the Mindfulness meditation approach.

The research intervention program is modeled on the work of Segal and Colleagues' (2002), Mindfulness-based Cognitive Therapy. The study will begin by recruiting volunteer females from the substance abuse program for experimental group, who will be provided with initial measures without providing any interventions. The second set of measures will be obtained after the application of clinical interventions at the end of the study, which will last for four weeks. After a lapse of 4 weeks a new batch of volunteer females will be recruited from the new admissions to the program for control group. These participants will take pre and posttest measures without receiving any interventions for four weeks, but will be given the opportunity to receive Mindfulness meditation training from the researcher, after the completion of the study.

Your time and attention to this matter is greatly appreciated. If there are any questions please feel free to contact me at the number below.

Thank you.

Cordially,

Lekha Gandhi

Department of Counseling
Barry University
Orlando, FL 32826
407-929-2695

APPENDIX B

Research study Flyer

Do You Have a Substance Use disorder?

If so, please read the following...

A doctoral research study is being conducted to find out

*The Effect of
Mindfulness meditation on Locus of Control and
Thought Suppression in Relation to Substance Use.*

- *Mindfulness meditation practice is a specific way of first focusing your attention on the breath and then shifting the attention to your thoughts, emotions, and body sensations. This may create relaxation, serenity and insights into how our mind works: our thoughts creating feelings, which lead to our actions.*
- *Mindfulness meditation practice will be conducted on Tuesdays between 7:00 pm to 9:00 pm and on two Fridays between 7:00 am to 9:00 am- total of 6 sessions in 4 weeks.*
- *The training will be conducted during your free time.*
- *The volunteers for the study will be assigned to an experimental group. Upon completion of the study second group of volunteers will be recruited from the new admissions to the program for control group. If in experimental group you will participate in the study right*

away. If in control group you will continue with the regular substance abuse treatment and will be given the opportunity to participate in Mindfulness meditation practice at the end of 4 weeks.

- *The Deputy Director of your Institution has approved this study.*

Study requirements:

- *Participation in one 1-hour group orientation, and completion of a demographic data sheet and two surveys.*
- *Practice Mindfulness meditation one to two times a week, for 4 weeks, with a qualified meditation instructor.*
- *Continue to practice Mindfulness meditation on your own each day for 40 minutes between 7:00 am to 8:00 am as your homework assignment.*

Eligibility criteria:

- *Must be 18 years of age and currently involved in a residential substance abuse treatment program.*
- *Not currently diagnosed with a serious, medical condition, which may cause problem in daily meditation practice.*

** The study participation is entirely voluntary.*

** Confidentiality will be carefully protected.*

To participate or for more information please contact the researcher:

*Lekha Gandhi, LMHC, Ph.D. candidate, Barry University
at 407-740-0383*

APPENDIX C

Barry University Informed Consent

Your participation in a research project is requested. Lekha Gandhi, a Ph.D. student in the Counseling Department at Barry University, is conducting the research. This study will examine the effect of Mindfulness meditation on Locus of Control and Thought Suppression in relation to substance abuse. 15 voluntary females who are interested in the study will participate in six, 2 hours sessions of Mindfulness meditation for a period of four weeks, and will also be asked to meditate on their own as a homework assignment for 40 minutes each day.

The Mindfulness meditation techniques will be explained in detail and also demonstrated. All the volunteers will be asked to complete: (a) A Demographic Data Sheet and (b) Two Surveys - before and after the completion of the study. The estimated time required for this will be 30 minutes.

There are no known psychological risks associated with this experiment. If there is emotional distress, you will be referred to the licensed clinicians assigned to your program for individual counseling.

The inclusion criteria for the study will consist of: female participants with a minimum age of 18 involved in a residential substance abuse treatment program. The exclusion criteria for the study will include: current diagnosis of a serious, medical condition, which may cause problem in practicing meditation daily for 40 minutes.

Your participation is completely voluntary, and you have a right to withdraw from the study at any time without any penalty. You will not receive compensation of any sort for participating in this research. Participation in the study will not affect your treatment time in the residential program.

Your participation may be beneficial to the science of psychology by helping to find out the effect of Mindfulness meditation on substance use disorder. There is some evidence from past research showing positive results from the Mindfulness meditation practice in relation to substance use but there may not be a direct benefit to you as a participant. You can know the results of the study by contacting the researcher in approximately sixteen weeks.

You may be selected for the experimental or control group. If you are selected for control group you will be given the opportunity to participate in Mindfulness meditation practice for a period of four weeks at the conclusion of the study.

As a research participant, information you provide will be held in confidence to the extent permitted by law. Any published results of the research will refer to group averages only and no names will be used in the study. You will be requested to maintain confidentiality regarding all of the participants. The raw data will be kept in a locked file cabinet in the researcher's office, which is occupied only by the researcher, and only the researcher has the key to this office. Your signed consent forms will be kept separate from the data. All data will be available only to the researcher and the researcher's supervisor. All raw data, including Demographic Data Sheets will be destroyed after five years in accordance with Florida laws and university policies and procedures.

If you have any questions or concerns regarding the study or your participation in the study, you may contact me, Lekha Gandhi, at 407-740-0383, my supervisor, Dr. Kitty Eeltink, at 321-235-8401, or the Institutional Review Board point of contact, Mrs. Nildy Polanco, at 305-899-3020. If you are satisfied with the information provided and are willing to participate in this research, please signify your consent by signing this consent form.

Voluntary Consent

I acknowledge that I have been informed of the nature and purpose of this experiment by Lekha Gandhi and that I have read and understand the information presented above, and that I have received a copy of this form for my records. I give my Voluntary consent to participate in this study.

Signature of Participant

Date

Signature of Researcher

Date

APPENDIX D

DEMOGRAPHIC SURVEY

Please complete this demographic survey so that the researcher may obtain some general information about you. Please circle the response or fill in the blanks.

1. Age: _____
2. Race:
 1. African American
 2. Caucasian
 3. Hispanic
 4. Asian
 5. Other: _____
3. Education:
 1. Less than high school
 2. High school graduate
 3. Some college
 4. College degree
4. Work Status:
 1. You were employed
 2. You were not employed
 3. Retired
 4. Other: _____
5. Do you have any experience practicing Mindfulness meditation?
 1. No
 2. Yes: How long _____
6. Check all methods of treatment in which you currently participate.
 1. Residential substance abuse treatment program
 2. Psychiatric medication
 3. Group counseling
 4. Individual counseling
 5. Other: _____
7. Number of years of alcohol/drug abuse: _____
8. Do you suffer from a serious medical condition, which may cause Problem in daily meditation practice for next 4 weeks.
 1. No
 2. Yes

APPENDIX E

Program Outline

Based on Mindfulness-based Cognitive Therapy approach by Segal, Z.V. and Colleagues.

Session 1:

- Establish the orientation of the class.
- Discussion: Mindfulness Practice and the tendency of the mind to be on automatic pilot.
- Mindfulness practice for thirty-minutes – by observing physical sensations in body (Body Scan) as the attention is moved to various parts of the body.
- Feedback and Discussion of Mindfulness practice.
- Homework: Discuss and assign for the coming session: (i) Mindfulness practice tape for 40-minutes each day. (ii) Performing a routine activity such as eating, dressing, walking etc with Mindfulness.
- End the session with a short, 2-3 minutes focus on the breath.

Session 2:

- Discussion: The chatter of the mind, and how it tends to control our reactions to everyday events.
- Mindfulness practice for forty-minutes – by observing physical sensations in body.
- Review of practice and homework.
- Thoughts and Feelings Exercise: establishing the link between thoughts and feelings and responding mindfully to inner monologue.
- Discussion of becoming more fully aware of the way a situation is classified by the mind as “pleasant” or “unpleasant” and the thoughts, feelings, and bodily sensations that accompany such judgment.
- Ten-minute of sitting meditation with awareness of breathing as the primary focus of attention.
- Homework assignment: (i) 40-minutes Mindfulness practice tape. (ii) Identification of one pleasant event with accompanying thoughts, feelings, and bodily sensations. (iii) Mindfulness of a routine activity.

Session 3:

- Discussion: with a greater awareness of how the mind can often be busy and scattered, learning to take awareness intentionally to the breath offers the possibility of being more focused.
- Five-minutes “hearing” exercise: asking people to listen to sounds in the room non-judgmentally by letting go of the categories normally used to make sense of what is heard, just hearing the patterns of pitch, tone, and volume.

- Thirty-minutes Sitting Meditation: awareness of breath and body.
- Review of Practice and the Homework.
- Three-minutes Breathing Space (mini-meditation): First becoming aware, of what is going on with you right now (stepping out of auto-pilot). Secondly focusing attention on movements of breath, and thirdly expanding awareness to include sensations in body, following the breath as if your whole body is breathing.
- Explaining Recording of Unpleasant Events: notice the thoughts, feelings and bodily sensations without avoidance or judgment, possibly to learn to relate differently to them.
- Homework assignment: (i) 40-minutes Mindfulness meditation Practice tape. (ii) Unpleasant Event identification. (iii) Three-minute Breathing Space, three times daily.

Session 4:

- Discussion: Mind is most scattered when it tries to cling to some things and avoid/escape other things. Mindfulness offers a way of staying in present and relate differently to experience.
- Five-minutes “hearing” exercise.
- Forty-minutes Sitting Meditation—awareness of breath, body, sounds, and then thoughts.
- Practice and Homework Review.
- Defining the Addiction Cycle: denial, cravings, and relapse.
- Three-minutes Breathing Space practice: as a way to pause and gather one-self in the midst of troubling situations, to allow the chance of seeing a problem more clearly, rather than getting caught up in older ways of viewing things.
- Homework assignment: (i) 40-minutes Mindfulness meditation tape. (ii) Three-minutes Breathing Space—Regular (three times a day). (iii) Three-minutes Breathing Space--Coping (whenever you notice cravings or any unpleasant feelings).

Session 5:

- Discussion: Relating differently involves bringing to experience a sense of “allowing” it to be, just as it is, without judging it or trying to make it different. Such an attitude of acceptance is a major part of taking care of one-self and seeing more clearly what, if anything, needs to change.
- Forty-minutes Sitting Meditation--awareness of breath, body, sounds, thoughts; noting how we relate to our experiences through the reactions we have to whatever thoughts, feelings, or bodily sensations arise; introducing a difficult thought, feeling or experience in the practice and noting its effects on the body and reactions to it.
- Practice and Homework Review.
- Homework assignment: (i) 40-minute Mindfulness meditation tape. (ii) Three-minutes Breathing Space--Regular (3 times a day). (iii) Three-minutes Breathing Space--Coping (whenever you notice unpleasant feelings).

Session 6:

- Discussion: Each person has his or her own unique warning signs of relapse, participants can help each other in making plans for how best to respond to the signs.
- Forty-minutes Sitting Mindfulness meditation.
- Practice and Homework Review.
- Exercise to explore links between activity, mood and relapse.
- Three-minutes Breathing Space as the “first step” before choosing whether to take mindful action.
- Identifying relapse signatures.
- Identifying actions to deal with threat of relapse/recurrence.
- Discuss how best to keep up momentum and discipline developed in past four weeks.
- End the classes with a short concluding meditation.

