BEYOND ADDICTION: KUNDALINI YOGA AND MINDFULNESS MEDITATION FOR RECOVERY FROM OPIOID DEPENDENCE

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Dedication

This project is dedicated to Dr. Jeffery Tirengel, for gently guiding and encouraging me to follow my heart and remain true to my passion. I also dedicate this project to Dr. Tama Sogoian for challenging me to go deeper and expand my ideas in a way that forever enriched how I think and express myself.

I also dedicate this dissertation to the countless people searching for relief from addiction and the people who do their best to offer compassion and support to those who suffer. My hope and prayer is for a meaningful path to healing and serenity for all who seek recovery from self-defeating habits coupled with a life of true freedom and happiness.

"You are what you relate to. If you relate to an infinity, you are an infinity. But if you limit yourself, then you are limited." Yogi Bhajan

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Abstract

Opioid dependence has reached epidemic proportions in the United States and has been attributed to the abuse of prescription pain relievers. To better understand and create effective interventions for individuals seeking recovery from their dependence on drugs, the underlying neurobiological and psychological mechanisms of addiction were explored and described in a critical literature review. Advances in neuroscience have allowed for the identification of specific networks in the brain that were damaged by chronic drug abuse and the ways in which the brain's natural, delicately balanced chemistry was disrupted. Further, the chronic relapsing nature of addiction has been explained by research that has shown areas of the brain responsible for learning and behavior to be physically damaged. Research has demonstrated the brain's ability to create new neural pathways and heal areas of the brain damaged by chronic drug abuse through mindfulness practices. Given that drug addiction is a multi-dimensional problem and chronic relapsing disease often marked by multiple treatment failures, there is a need for innovative ways to reach those who suffer from addiction and to create change on many levels. Kundalini Yoga was introduced as a novel and effective technology that built upon mindfulness techniques in order to support individuals who are healing from addiction. Preliminary research on the use of yoga and meditation for recovery was presented and a detailed curriculum, *Beyond Addiction: The Yogic Path to Recovery* was introduced.

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CHAPTER I

Introduction

A common societal misperception has been that prescription drugs were less harmful than illicit drugs for those who sought a quick fix and were amenable to popping pills for instant relief (Manchikanti et al., 2012; National Institute on Drug Abuse, 2011). This erroneous belief may help to explain the opioid epidemic in the United States. According to the National Institute on Drug Abuse [NIDA (2011)], opiate abusers were often introduced to the euphoric, calming effects of opioids through a prescription written by their doctor following an injury or surgical procedure. Other addicts were introduced to the pleasurable drug-induced state by a friend or family member who shared a prescribed medication with their loved one in hopes of providing them with temporary pain relief. The latter seemingly innocent actions of well intentioned others served as gateways to addiction for the vulnerable individual who suddenly discovered instant relief from all discomfort (mental, emotional, and physical) in a convenient, socially acceptable pill form. As compulsive drug-seeking behaviors and obsessive thinking about ways to maintain the euphoria and avoid physical withdrawal became more consuming, these individuals' daily functioning became progressively impaired. After pathological cravings, tolerance, and withdrawal replaced the initial euphoria, what may have started with harmless intentions now qualified as a substance use disorder (American Psychiatric Association, 2013).

Opioids

Opioids belong to a class of pharmaceuticals designed to reduce the awareness of pain by decreasing the impact of an unpleasant stimuli such as dental pain, injury-related pain, or pain caused by a terminal illness (Mate, 2010; NIDA, 2011). Although the drugs effectively served their purpose of reducing awareness of suffering, they did not heal pain. Therefore, when pain

relievers wore off, the underlying discomfort remained. Moreover, not only did ongoing drug use create dependence on external manufactured pharmaceuticals to cover up underlying pain, it also enabled users to avoid engaging in deeper healing at the source of the pain and the possibility of developing more effective, long-term coping mechanisms with more promising outcomes (Brewer, Elwafi, & Davis, 2013). Although there was ongoing debate regarding the effectiveness of long-term opioid use among medical patients who suffered from chronic pain (Institute of Medicine, 2011; Manchikanti et al., 2012), the scope of the current dissertation addresses the non-medical use of opioids. It specifically focuses on existential pain without a physical cause experienced by individuals dependent upon prescription pain relievers in an attempt to avoid emotional suffering.

Drug Abuse

Drug addiction has been operationally defined as a multi-dimensional problem that creates additional suffering on top of the underlying pain that initially makes some people more vulnerable to substance abuse than others. It has been suggested that an inability to cope effectively coupled with an aching emptiness and lack of quality human connection contributes to this vulnerability (Mate, 2010). Rather than suffer, opioid addicts use physical painkillers as an "emotional anesthetic" and an "antidote to emptiness" (Mate, 2010, p.33). The complex relationship between the causes of addiction and the physical, psychological, spiritual, and social consequences of ongoing abuse call attention to a developing crisis and the need for powerful interventions to specifically address the multi-layered problem of addiction to pain relief in the United States.

Prescription drug abuse has been the fastest growing problem in the United States- a country where in 2007, 182 million prescriptions were written for pain medication (NIDA,

2011), and, according to the Centers for Disease Control and Prevention [CDC (2012)], more people have recently died from accidental prescription opioid overdose than heroin and cocaine combined. Growing concerns about the abuse of prescription pain medication have been marked by correlations between increased opioid sales, treatment admissions, and opioid-related fatalities (Blum et al., 2012; CDC, 2012; Manchikanti et al., 2012; NIDA, 2011). For every unintentional overdose, nine people entered substance abuse treatment for opiate dependence, 35 visited emergency rooms, 161 admitted they had a drug problem, and 461 people reported non-medical use of opioids (CDC, 2012). Data from the National Institute on Drug Abuse and the Substance Abuse and Mental Health Services Administration [SAMHSA (as cited in NIDA, 2011)] provided evidence that concretely showed widespread opioid addiction in the United States and a need to expand treatment efforts (NIDA, 2011). The dangers of prescription opioid dependence coupled with rising prevalence rates has created a demand for powerful, innovative interventions to address the multi-dimensional needs of individuals addicted to the dangerous painkillers.

Cognitive-Behavioral Therapy (CBT), 12-step programs, mindfulness-based interventions, and medication replacement therapy have been common approaches in treating opioid dependence (Blum et al., 2012; Bowen, Chawla, & Marlatt, 2011; Center for Substance Abuse Treatment, 2012; Kabat-Zinn, 1990). Due to the chronic relapsing nature of opioid addiction (American Psychiatric Association, 2013; Bowen et al., 2009; Zgierska et al., 2009), multiple treatment episodes are often required (NIDA, 2011). A variety of approaches are available to treat the individual's unique range of needs from abstinence-based models to harm reduction. The one-size-fits-all approach to treating opioid addiction overlooks the unique needs of the individual and contributes to the chronic relapsing nature of the disease because not all

approaches work the same for everyone. Therefore, to be most effective, treatment of opioid use disorder must fit the patient and his or her unique circumstances. For example, a homeless older adult IV drug user with a lengthy history of poly-substance abuse and involvement in illegal activities to support his drug habit may be best served by a harm-reduction approach that utilizes medication replacement therapy. A successful outcome with this individual would be determined by whether or not he remains illicit drug free, shows up to a methadone clinic on a daily basis, and stops committing crimes to sustain his addiction. On the other hand, inpatient detoxification followed by an intensive inpatient rehabilitation program, sober living program, and involvement with an abstinence-based 12-step program may be a realistic treatment plan for a young person who recently started abusing prescription opiates. Success for this patient would be determined by whether or not he remains clean and sober, graduates from college, and maintains steady employment. Because of this, the incorporation of several treatment components such as abstinence-focused rehabilitation and 12-step meetings or harm-reduction and medication replacement in treating this population has been recommended (Blum et al., 2012; Center for Substance Abuse Treatment, 2012; NIDA, 2011).

Practicing the ancient Eastern-based technology of Kundalini Yoga combined with other interventions such as mindfulness-based relapse prevention and cognitive behavioral therapy supports ongoing recovery for those who suffer from the powerful grips of opioid dependence. Therefore, the current dissertation specifically builds upon evidence that supports mindfulness-based interventions (Brewer et al., 2012; Witkiewitz, Lustyk, & Bowen, 2012) and recent neuroscience research on the effects of drugs and meditation on the brain (Volkow & Li, 2004). The reason for this focus was to 1) gain a better understanding of the chemicals and pathways involved in addiction, 2) conceptualize addiction as a disease of the brain (Mate, 2010; Volkow

& Li, 2004), and 3) recognize that healing the brain is a necessary component to treatment (Siegel, 2007). Moreover, evidence supported the efficacy of mindfulness-based practices with regard to healing the addictive loop (Brewer, Elwafi, & Davis, 2013). The increasing openness and acceptance of yoga and meditation by Westerners who have experienced the benefits of Eastern-based practices (Goldberg, 2010; Kabat-Zinn, 2003; Khalsa, 2004; Khalsa, 2007; Khalsa, 2012; Khalsa & Bhajan, 2000; Khalsa & Michon, 1997; Khalsa & Stauth, 1997; Lohman, 1999; Shannahoff-Khalsa, 2006, 2010) has contributed to a cultural readiness for the integration of yoga and meditation into the field of recovery. Kundalini Yoga serves as a powerful complimentary intervention for long-term recovery from opioid dependence because it increases awareness and "unlike a painkiller, its purpose isn't to mask our pain. It heals our pain" (Khalsa & Michon, p. xxxvi, 1997). In other words, despite the habitual tendency for an individual to rely on drugs to avoid discomfort, practicing yoga increases awareness of the pain while developing the ability to tolerate it and consciously respond to dis-ease in a constructive manner.

Purpose of the Current Study

The purpose of the current study was to clearly describe the growing opioid epidemic in America and to introduce Kundalini Yoga as an effective intervention for a chronic relapsing condition that has often been marked by multiple treatment failures (APA, 2013; NIDA, 2011). It was a response to a cultural readiness and dire need for comprehensive, holistic interventions to help people recover from opioid addiction in a way that instills hope, reduces relapse rates, and is easily accessible to a diverse and growing population. Current research builds upon what was already known about the practice of mindfulness and expands into an ancient Eastern science and tradition that incorporates physical, mental, and spiritual aspects of yoga into a

cohesive system that develops awareness among those who practice (Shannahoff-Khalsa, 2010). In addition, findings from the current study could be used to connect recovery communities with the seemingly esoteric teachings of Bhajan (2003) in order to show how mindfulness meditation and Kundalini Yoga promote health and ongoing recovery. The contents of the critical literature review will be accessible to the growing network of certified Kundalini Yoga teachers working toward the development and implementation of a curriculum for use in a variety of settings including hospitals, correctional facilities, community centers, yoga studios, and substance abuse treatment centers. Finally, the dissertation will contribute to the foundation of a larger research project aimed at gathering data to determine the efficacy of the curriculum.

Goals and Objectives

Goals. The goals of the current study were to increase clinicians' awareness of the biopsychosocial mechanisms underlying opioid use disorder, increase clinicians' understanding of mindfulness-based interventions for recovery, introduce clinicians' to Kundalini Yoga as an accessible, effective intervention for individuals who suffered from a chronic relapsing condition that often included multiple treatment failures, and to expand the reach of Kundalini Yoga within the field of addiction and recovery. The reason for these goals was to increase clinical knowledge around addiction and to provide information about emerging alternatives in treatment to support a growing population in need of relief from suffering.

Objectives. In order to achieve these goals the current research met five specific objectives: review the existing literature on opiate dependence in the United States; review the existing literature on mindfulness-based interventions for recovery; review the existing literature on the use of yoga and meditation to support recovery from addiction; gather additional information by consulting with licensed clinical psychologists, therapists, and licensed Kundalini

Yoga teachers regarding their experience with yoga, meditation, mindfulness, and recovery from addiction; and deliver a presentation to mental health professionals regarding the multifaceted nature of opioid dependence and Kundalini Yoga as a complimentary intervention to traditional modalities for the treatment of addiction.

CHAPTER II

Literature Review

This study was a selective literature review of opioid dependence in the United States that addressed the underlying mechanisms of addiction and useful interventions for treatment. The purpose of the literature review was to clearly define terms and identify the problem of prescription drug abuse, present research that described and supported mindfulness meditation as an intervention, and to introduce Kundalini Yoga for recovery from addiction. This chapter includes a summary of the history of opioid use and treatment, a review of the psychological and neurobiological mechanisms involved in addiction, and mindfulness-based interventions and Kundalini Yoga are presented as viable components of integrated treatment. To begin, the definition of the concept of drug addiction was established in a clinical sense of the term and therefore how it was used in the current study.

Substance Abuse/Addiction

The American Psychiatric Association in the *Diagnostic and Statistical Manual of Mental Disorders 5th Edition* (2013) identified the concept of drug addiction as a *"Substance Use Disorder"* defined by a "cluster of cognitive, behavioral, and physiological symptoms indicating that the individual continues using the substance despite significant substance-related problems" (5th ed.; DSM-5, 2013, p.483). Due to the intense interaction between drugs and the brain, the problems associated with substance abuse include the phenomenon of craving, compulsive drug-seeking behaviors, impaired control over use, and chronic relapse (APA, 2013; Blum et al., 2012; Mate, 2010). Specifically, individuals diagnosed with opioid use disorder are powerless over a class of narcotic drugs that produce pleasure by reducing the physical intensity and

emotional perception of pain, and their lives become unmanageable as a result of their dependency on drugs for relief.

History of opiate use. The first documented history of opiate use in the United States dates back to the 1700's to the original colonies and the arrival of *patent medications* (i.e., opium-laced preparations) from London. Newspapers advertised them as *painkillers*, *soothing syrups*, and *women's friends* and with that, immediate relief of physical discomfort quickly became a part of American culture (Inciardi, 1990). According to Inciardi (1990), American pharmaceutical manufacturing began when the Revolutionary War caused the suspension of the importation of medicines from London. In 1803, morphine was created and named after the Greek god of dreams because it induced sleep (Inciardi, 1990). Soon after the opiate derivative was developed, the hypodermic needle was invented which allowed intravenous morphine use for pain relief during the Civil War. In the absence of legal restrictions or government regulations, doctors prescribed opiates for conditions ranging from diarrhea, colds, and pelvic disorders, to athlete's foot and baldness, and opiate abuse quickly became a serious public health concern (White, 1998).

In 1898, German chemist Friedrich Bayer created heroin to treat morphine addiction and named it after the German word for heroic and powerful (Inciardi, 1990). Bayer's narcotic was marketed as non-addictive and the United States government permitted the unrestricted use of it; soon thereafter, the medical community started to address drug addiction for the first time. In 1914, the government attempted to take control of opiate addiction in the United States by passing the Harrison Narcotics Act declaring opiates illegal and addiction a criminal matter.

Prevalence. Despite the growing numbers of overdose deaths and admissions into treatment centers and emergency rooms, doctors have continued to write prescriptions at a

steadily increasing rate since the early 1990s. Non-medical opiate use has become such a widespread occurrence in the United States that it has moved into the national spotlight; interest has grown as the number of overdose deaths has increased. To illustrate the magnitude of this growing problem, the Substance Abuse and Mental Health Services Administration (2011) sponsored a comprehensive report published by the National Institute on Drug Abuse focusing on the assessment of prescription drug abuse and the non-medical use of opioids such as hydrocodone (e.g. Vicodin), oxycodone (e.g. OxyContin, Percocet), and morphine. Solid data gathered from the 2010 National Survey on Drug Use and Health (NSDUH) and the Drug Abuse Warning Network (DAWN) illustrated the relationship between steadily increasing opioid prescription dispensing trends and the adverse consequences of prescribing practices that include addiction to prescription drugs and drug-related deaths. Specifically, the DAWN data showed that rates of emergency department visits due to opioid pain relievers more than doubled in five years. Information from the 2010 National Survey on Drug Use and Health (NSDUH) indicated that 5.1 million Americans ages 12 and older currently or previously abused opiates and an additional 2.0 million Americans were starting to use pain relievers for non-medical use for the first time. This was a 178% increase from 1998 to 2010. SAMHSA also cited the 2010 Monitoring the Future national survey that found Vicodin and OxyContin to be among the most commonly abused drugs in high schools.

In a descriptive analysis, McNeely, Gourevitch, Paone, Shah, Wright, and Heller (2012) analyzed datasets in order to estimate the prevalence of illicit opioid use in New York City. Analyzing records from correctional health services, emergency room and hospital inpatient admissions, drug treatment and detoxification services utilization, population surveys, prescription records, and drug overdose deaths showed that more than 69,000 illicit opioid users

lived in New York City in 2006. However, the authors found that less than one third of the illicit opioid users received drug treatment suggesting a substantial unmet need existed among a growing population. McNeely et al. concluded that there was an insufficient drug treatment system available to opioid addicts and recommended expanding the scope and reach of treatment to better serve the community. Although datasets captured individuals more deeply entrenched in the consequences of addiction (i.e. hospitalization, incarceration, or death), McNeely et al. also recognized the potential benefit of early intervention programs for non-dependent and early-stage users.

In their assessment of the opioid epidemic, Manchikanti et al. (2012) provided evidence for extreme rates of opioid consumption in the United States and challenged the safety and effectiveness of prescribing practices. Specifically, the authors compared retail sales of opioid medication from 1997 to 2007 and found hydrocodone sales increased 280%, methadone sales increased 1293%, and oxycodone sales increased 866%. Moreover, they found that Americans consumed more narcotic medication than any other country accounting for 99% of the world's supply of hydrocodone and 83% of the world's oxycodone supply (Manchikanti et al., 2012). In addition, more than 238 million prescriptions were written for narcotic pain relievers in a single year and patients obtained multiple prescriptions from multiple doctors in order to support their addiction (Manchikanti et al., 2012).

Underlying Mechanisms of Addiction

Given the chronic nature of drug addiction, it is important to understand the various mechanisms underlying the condition in order to better treat those who struggle with relapse and require multiple treatment episodes. As a chronic relapsing condition, addiction is defined by reinstatement of drug-taking behavior following a period of abstinence (APA, 2013; Bowen et

al., 2009; Zgierska et al., 2009). With recent advances in neuroimaging technology, the neurobiological mechanisms underlying addiction have been investigated and new treatment models targeting the biological processes have emerged. A better understanding of the psychology of addiction contributes to better treatment outcomes whereby effective interventions reduce the frequency and intensity of relapse among addicts suffering from a chronic relapsing disorder.

Neurobiological mechanisms of addiction. Research showed that significant neurobiological networks in the brain have been damaged and manipulated as a direct result of drug exposure, therefore, when an individual takes drugs, the physiological state in the brain is altered (APA, 2013; Mate, 2010; Volkow & Li, 2004) making it impossible to completely understand the multi-dimensional problem of addiction without looking at the brain circuits and chemicals involved. To begin, the impact of impaired brain neurobiology systemically causes diminished emotional, cognitive, and behavioral functioning (APA, 2013; Mate, 2010; Volkow & Li, 2004). According to Mate (2010), given that drugs are manufactured to resemble the brain's natural chemistry, pharmaceuticals easily occupy receptor sites on the surface of cells which in turn allows drugs to immediately interact with the brain's sensitively balanced messenger system. In other words, the brain is extremely vulnerable to the onslaught of manmade chemicals that quickly disrupt a very delicate part of the human nervous system. For example, when a person injects or inhales a synthetic heroin derivative, the drug quickly enters the bloodstream and artificially stimulates opioid receptors in the brain thereby producing a fast, intense euphoria exceeding that which the brain naturally produces. Ultimately, entire networks in the brain are recruited to serve addiction (Mate, 2010). In addition to hijacking the brain's endorphin-based pain relieving system and the dopamine-based reward system, drug abuse also

gravely impairs the brain's prefrontal cortex (PFC) -the area of the brain that controls executive functioning and includes the ability to self-regulate behaviors and emotions (Mate, 2010).

Opioid receptors. Neurons are cells responsible for information processing throughout the nervous system. They produce and transmit chemical messengers called neurotransmitters that enable communication between neurons in a lock and key manner i.e. neurotransmitters are uniquely shaped and fit into corresponding key-shaped receptors on the receiving neuron's receptor site. Endogenous opiate-like substances and exogenous man-made substances including morphine and heroin fit into the receptors and are able to stimulate transmission of chemical messengers. Once opioids reach any number of opioid receptors found throughout the nervous system, a combination of electrical and chemical messages stimulates the production of dopamine, reduces the experience of pain, and a state of euphoria is experienced. With chronic drug abuse, the brain has been remodeled which leads to long-lasting changes that undermine voluntary control and contributes to the relapsing nature of addiction (Volkow & Li, 2004).

Endorphins. Endorphins are endogenous opioid neurotransmitters that function as catalysts for experiencing emotions, feeling intense pleasure, and decreasing the perception of pain. The brain's innate pain relieving system naturally produces endorphins that alleviate physical pain and ease emotional suffering (Mate, 2010); this same system is responsible for the pleasure seeking aspect of addiction. According to Mate (2010), on a molecular level, because opiates resemble endogenous *natural* narcotics, they easily fit into endorphin receptors to produce physical and emotional relief. A positive expectation of relief will also activate the endorphin system; the mere thought of relief will ease the experience of pain (Mate, 2010). Prescription opioids provide a more intense version of pain relief by introducing a man-made chemical into the delicately balanced opioid receptors found in the human brain.

Dopamine. In addition to acting on endorphin receptors, opioids trigger the release of dopamine, a neurotransmitter responsible for motivation, learning, habit formation, feelings of pleasure, and a general sense of well-being (Blum et al., 2012; Mate, 2010). Blum et al. (2012) explained that the dopamine reward system provides the neurological basis of conditioning by reinforcing the effects of drugs. Specifically, as soon as dopamine receptors are exposed to opioids, chemical messengers are activated and travel down the pathway from the ventral tegmental apparatus (VTA) along nerve fibers to the nucleus accumbens (NA) and prefrontal cortex (PFC) where dopamine is released. A drug-induced, unnaturally magnified feeling of elation and desire results (Blum et al., 2012). Classical conditioning, meaning the type of learning that occurs when associations form between a neutral environmental stimulus and a naturally occurring response, takes place as stimuli associated with drug use and the initial pleasure caused by drug intake are learned during the initiation phase (Blum et al., 2012; Volkow & Li, 2004). For example, a metal spoon and a disposable lighter are neutral items until they become part of the ritual around preparing heroin for injection. The mere sight of a spoon and lighter may remind a person of the euphoria they experience from injecting heroin and trigger a person in early recovery to relapse.

Although the dopamine reward system is most active during the initiation phase of drug use when stimuli such as drug paraphernalia, people, and places associated with the drug-induced euphoria are learned, the same system is also very involved in the relapse process and subject to diminished sensitivity to natural reward due to drug abuse (Blum et al., 2012; NIDA, 2010). When a recovering drug addict is exposed to environmental cues reminiscent of past drug use such as a former friend he or she formerly used drugs with, a type of music he or she listened to while using, and/or a place where drugs were purchased, this activates the dopamine reward

system and motivates drug-seeking behavior in order to satisfy the craving for drug-induced elation (Volkow & Li, 2004). The same dopamine neurotransmitter responsible for stimulating the NA is also responsible for the motivational property of opioids over time because the dopaminergic circuits adapt to artificial stimulation by becoming less sensitive to natural rewards (Blum et al., 2012; Volkow & Li, 2004). Blum et al. (2012) described the process where overwhelming surges of dopamine eventually cause a reduction in the production of dopamine and the number of dopamine receptors. Chronic opioid use results in a breakdown of the brain's natural reward system resulting in a diminished sense of well-being and the inability to experience pleasure or desire. These feelings are magnified when a recovering addict is triggered by environmental stimuli leading to cravings and drug-seeking behavior (Blum et al., 2012; Mate, 2010).

Self-regulation system (gray matter/cortex). The prefrontal cortex (PFC) is responsible for executive functioning including decision making, impulse control, and emotional processing; the behavioral consequences of chronic drug abuse are directly linked to drug-related neuroadaptation in the central area of the brain (Blum et al., 2012; Goldstein & Volkow, 2011; Mate, 2010). For example, heroin addicts often have difficulty resolving conflicting ideas, suppressing urges, planning ahead, and choosing between right and wrong due to PFC damage. In the case of a chronic drug abuser on probation for a drug-related offense who was required to provide drug-free urinalyses (UA) as a condition of staying out of jail, despite the strong possibility of getting caught and losing his freedom, rather than suppress the urge to use in order to produce a clean UA, he violated the conditions of his probation and used drugs anyway. The area of the brain that requires healthy connections and input from other areas of the brain such as the hippocampus, ventral tegmental apparatus, and nucleus accumbens was likely impaired

(Mate, 2010). According to Goldstein and Volkow (2011), the PFC is damaged with chronic drug abuse, which makes it easy for addicts to emotionally overvalue drugs and accept short-term gains while undervaluing the risks and consequences associated with drug abuse. The PFC is equipped with an abundant supply of opioid and dopamine receptors and once it has been compromised it is easily stimulated by drug use or the mere thought of drug use (Blum et al., 2012). Cravings for relief develop and the area of the brain responsible for regulating impulses is unable to support responsible decision-making because it has already been damaged by chronic drug abuse (Mate, 2010). In the end, un-moderated cravings triumph and drug-seeking behaviors ensue with little consideration for long-term consequences.

Default mode network. Neuroscience researchers have identified a *default mode network* (DMN) consisting of interconnected brain regions—medial prefrontal cortex, parietal and temporal cortices, the anterior and posterior cingulate cortices —and linked the DMN to addiction (Brewer et al., 2012; Holzel et al., 2011; Jang et al., 2011). The addict's altered DMN neuroanatomy manifests as increased emotional reactivity, mind-wandering, and difficulty with the process of self-identity formation and has been linked to hypoactive prefrontal activation and hyperactive limbic system activation (Brewer et al., 2012). The prefrontal region has been implicated in several unfavorable qualities often associated with individuals who are substance dependent including decreased empathy, poor sense of self, and heightened self obsession (Siegel, 2007).

Having established the DMN as a brain-based biomarker for substance abuse, researchers have targeted specific regions of the brain and the neuro-connections implicated in addiction thereby allowing them to explore the effectiveness of interventions and improve treatment outcomes. For example, in consideration of the growing use of meditation as an intervention for

various psychiatric disorders, Jang et al. (2011) were interested in how meditation related to changes in the DMN. They compared fMRI scans of 35 meditation practitioners and 33 non-meditation practitioners and discovered altered functional connectivity in the DMN among meditators, specifically, heightened medial prefrontal cortex activation. Findings from this research suggest meditation could be associated with beneficial changes in areas of the brain implicated in addiction.

Psychological Mechanisms of Addiction

To better understand and treat the psychological mechanisms underlying addiction, research has focused on operant and classical conditioning processes and the complex formation of what has been referred to as the *addictive loop* [i.e. the associative learning process (Brewer et al., 2012)]. Pavlov (1927) discovered classical conditioning when he realized dogs can learn to associate the ringing of a bell with an approaching meal. Specifically, with repeated training dogs can involuntarily and unconsciously salivate before the arrival of food having learned their hungry would soon be satisfied following the sound of the bell. This same process occurs when a person addicted to drugs learns to associate neutral environmental stimuli with relief. For example, kitchen items such as a metal spoon, a roll of aluminum foil, or baking soda were once neutral objects until the drug addicts used them as drug paraphernalia. For those addicts who have used the items as paraphernalia for drug preparation and administration, the mere sight of these items will trigger a craving that leads to using due to a conditioning process whereby drug paraphernalia reminds them of a drug-induced high. Similarly, Skinner (1953) showed how operant conditioning strengthened or weakened behaviors depending on whether or not the behavior was associated with positive or negative consequences. Once addicts learn to associate drug use with feeling good, they will repeatedly use drugs because they are rewarded with

pleasurable feelings. Simply stated, positive reinforcement loops are established when individuals learn that drug use maintains or improves positive states; negative reinforcement loops are established when individuals learn that drug use reduces negative states (Brewer et al., 2012). The addictive loop model identified by Brewer et al. (2012) is one way of looking at how learned cues triggers cravings and motivates drug-seeking behavior among addicts.

Brewer et al. (2012) described the formation of a habitual, addictive loop created by repeated drug use whereby an external, cue-induced substance triggers behaviors intended to increase pleasant feelings and decrease unpleasant feelings. Once conditioning occurs, encountering the conditioned stimulus could trigger a craving and lead to drug-seeking behavior to satisfy the underlying desire for relief of suffering. For example, if a person who was addicted to prescription opioids repeatedly used the pharmacy at the supermarket to fill a prescription, simply walking in for groceries could trigger a craving and activate the drug-seeking *addictive loop*. Addicts who repeatedly turn to drugs as a way to handle discomfort form a behavioral pattern of avoidance that interferes with the development of effective coping skills rendering them unequipped to cope or self-regulate in the absence of drugs. An individual in early recovery might go to a new store or go so far as to avoid all supermarkets and drugstores to avoid triggering the addictive loop and putting oneself in harm's way.

According to Brewer et al. (2012), for long term, sustainable recovery, treatment must extend beyond teaching avoidance of triggers or substitution. Although techniques to effectively manage triggers are often taught in treatment, the dormant addictive loop could be reactivated without warning and trigger a habitual, drug-seeking reaction. Effective interventions would dismantle the addictive loop and permit the recovering addict to enter the store without incident. Because of this, researchers have made a case for the implementation of innovative treatments

that would extinguish the loop by bringing the automated, unconscious processes into consciousness and allow the individual to disengage from the thought pattern by mindfully attending to unpleasant sensations (Brewer et al., 2012; Witkiewitz et al., 2012). Using the supermarket scenario, the recovering addict would walk past the pharmacy aware that her desire to use drugs would be triggered, continue to the dairy case for a gallon of milk, proceed to the check-out counter, make her purchase, and drive away without using drugs despite her desire. With practice, she would develop a sense of self-efficacy and grow increasingly able to go to the same store where she once filled her opioid prescriptions without being overpowered by the *addictive loop*.

Addiction has been conceptualized as *cognitive distancing* (Mate, 2010) and *self-medicating* (Bowen et al., 2011) engaged in by individuals who are unable to cope with intolerable psychological pain. They suffer so much from such unbearable discomfort that they rely on physical painkillers to ease their psychological suffering. Unequipped to be fully present and cope with life, strong negative emotional states such as anger, anxiety, and depression trigger drug use due to an internalized belief that the only way to deal with discomfort is to use drugs (Bowen et al., 2011; Mate, 2010). Effective interventions therefore must address the psychological aspects of addiction that reinforce the addictive loop and contribute to chronic relapse in addition to teaching alternative coping responses.

Treating Addiction

Passage of the first federal anti-drug legislation, The Harrison Narcotics Act, criminalized drug use and brought attention to the need for addiction treatment (Brown, 1990; McWilliams, 1990; White, 1998). Addicts were committed to state-sponsored hospitals with special wards that were more like jails than hospitals. In the 1930s, the Federal Prison System

opened two “narcotic farms” and although many were sent as prisoners, hundreds of addicts voluntarily sought treatment in the controlled residential setting provided by the penitentiaries where withdrawal was carefully regulated using methadone and lengthy rehabilitation was provided (McWilliams, 1990; White, 1998). Methadone has been used to assist in opioid detoxification since 1947 and remains a controversial form of medication replacement therapy for opioid dependence (White, 1998). Narcotics Anonymous originally formed as Addicts Anonymous in 1947 as an adaptation of the 12-step Alcoholics Anonymous program where members received community-based support (Brown, 1990; White, 1998). The first therapeutic community, Synanon, formed in Santa Monica, California in 1958 and gave rise to the ongoing residential program movement (Brown, 1990; White, 1998). In 1966 the Narcotic Addict Rehabilitation Act made treatment of addicts compulsory, turned hospitals into institutional bases for the program, and authorized federal funds for the National Institute of Mental Health to establish community-based treatment programs (Brown, 1990; White, 1998).

Researchers agree that a multi-dimensional treatment approach is needed for the growing population of pain avoidant pleasure seekers (Blum et al., 2012; McNeely, 2012; Volkow & Li, 2004). With a better understanding of the mechanisms involved in addiction, the range of treatment options available to members of the addiction treatment community has expanded and complimentary interventions are being implemented. Blum et al. (2012) called for holistic modalities such as meditation and yoga that stimulate the release of dopamine along with the ongoing utilization of self-help groups, psychological, behavioral, and spiritual therapies. Volkow and Li (2004) identified the need to strengthen inhibitory control, decrease conditioned responses, and enhance the value of natural reinforcement. McNeely et al. (2012) called for innovative solutions and the expansion of services in terms of venue, types of interventions

offered, and a greater number of service providers to engage those who want relief from addiction. As the practice of mindful awareness becomes increasingly popular, it is integrated into treatment for drug addiction.

Mindfulness

As neurobiologists shed light on the inner workings of the brain, clinicians open to incorporating alternative interventions in an effort to better serve patients. This has encouraged a shift that grants the Eastern-based concept of mindfulness entrance into the field of Western psychology. The systematic cultivation of awareness emerged from the 2500-year old Buddhist tradition of meditation and provides the foundation for contemporary mindfulness-based practices (Kabat-Zinn, 1990; Siegel, 2007). The following "Four Noble Truths" were outlined by the Buddha and comprise the core of mindfulness practices: NT1) suffering is a universal part of the human experience; NT2) the cause of suffering is attachment to pleasure and avoidance of what is actual and real; NT3) there is a way to alleviate the suffering; and NT4) the way to alleviate suffering is through developing a practical lifestyle of right understanding, thought, speech, action, livelihood, effort, mindfulness, and concentration collectively referred to as the *eight-fold path* (Bowen et al., 2011; Rahula, 1974).

Although the conceptual basis of mindfulness originated in Buddhism, it has been translated into a secular, Western context that psychologists and addiction professionals use to inform mindfulness-based interventions in therapeutic settings. Kabat-Zinn (1990) defined mindfulness as "a way of paying attention in a particular way: on purpose, in the present moment, and nonjudgmentally" (p.4). In other words, rather than dwelling on the past or projecting into the future, the mindfulness practitioner focuses on what is happening in the here and now without trying to change it. This mental state involves a specific way of paying

attention while suspending judgment and adopting a neutral, interested curiosity. Enhancements to physiology, mental functioning, and relationships are experienced and scientifically recognized among those who practice mindful awareness (Siegel, 2007). Through the process of looking deeply into the self with the intention of developing self-understanding, individuals become increasingly aware of their physical and emotional sensations and learn to experience a range of sensations without reacting automatically (Bowen et al., 2011; Kabat-Zinn, 1990; Siegel, 2007). Although seemingly paradoxical, by attending to uncomfortable sensations rather than trying to push them away or avoid them, the relationship to pain and suffering shifts and loses its hold.

History of mindfulness-based interventions. In 1979, Jon Kabat-Zinn introduced Mindfulness-Based Stress Reduction (MBSR) to chronic pain patients in an attempt to help them find relief (Kabat-Zinn, 1990). His comprehensive, whole-person approach was inspired by Thich Nhat Hanh, the Buddhist monk credited with bringing mindfulness to the West, and draws from the ancient Eastern traditions of self-inquiry and healing. He taught his patients to acknowledge pain as a natural, inescapable aspect of the human condition. They learned how to face their pain during an eight-week program that consisted of meditation, physical postures, and breathing exercises in the Hatha tradition of yoga. According to Kabat-Zinn (1990), physical- or psychological-focused treatment alone was insufficient and as a result, he taught his patients how to consciously work with pain to regulate their well-being rather than to avoid it with pain medication. Through conscious breath work, movement, and focused attention, patients learned how to relax, develop awareness, pay attention, and develop insight in order to promote healing and create inner peace. The mindfulness training pioneered by Kabat-Zinn (1990) teaches patients how to cultivate stillness and a greater acceptance of the moment leading to increased

resiliency and self-efficacy. Kabat-Zinn (1990) taught his patients how to meditate and deeply relax in their hospital beds and created an in-house television network to increase their capacity for healing. Rather than watching mainstream, network television to escape the moment, specialized programming encouraged the captive audience to be present in the moment. Kabat-Zinn (1990) initiated a paradigm shift toward deep healing and a recognition of the interconnectedness of the mind and body through mindfulness practices.

Coinciding with an increased regard for mind-body therapies, interest among researchers has grown around investigating the effects of meditation in a range of clinical contexts including substance abuse and recovery (Bowen et al., 2009; Brewer et al., 2012; Witkiewitz et al., 2012; Zgierska et al., 2009). Kabat-Zinn (1990) anchored the benefits of meditation in Western mainstream medicine and his work has inspired the mindfulness-based movement in schools, prisons, and modern healthcare settings that is now well underway (Boyce, 2005; Boyce, 2010; Jewkes, 2010; Pintak, 2008). The concept of mindfulness has been embraced by Western medical and psychological communities because mindfulness interventions teach patients how to respond more effectively to the ever-changing nature of life rather than getting carried away by a temporary, passing sensations or stuck in an illusion of permanence (Kabat-Zinn, 1990). Therefore, by introducing the Eastern practice of mindfulness meditation to the world of modern science with MBSR, Kabat-Zinn (1990) paved the way for the growing field of mindfulness-based interventions for treating substance abuse.

Mindfulness and addiction. As researchers continue to gather evidence that supports the profound effectiveness of mindfulness (Holzel et al., 2011), it has been increasingly recognized as a useful intervention that offers relief from suffering to those who practice this way of thinking and being in the moment. From the Buddhist perspective of suffering, drug

addiction could be conceptualized as an effort to hold on to positive states and avoid negative states in order to avoid suffering. Mindfulness practices are especially relevant to individuals suffering from substance dependence because the meditations bring awareness to pain and suffering, promote an awareness of the ever-changing impermanence of life, and teach students how to observe the process of change without reaction or judgment. Students of mindfulness learn more effective ways of coping and how to make better choices in the spaces that exist between habituated, conditioned behaviors (Bowen et al., 2011). In his treatise on the search for meaning while imprisoned in a World War II concentration camp, Frankl (1946) stated, "between stimulus and response, there is a space. In that space is our power to choose our response. In our response lies our growth and freedom." In other words, a momentary still point exists between the inhalation and the exhalation where the individual can consciously pause and choose to respond from a quiet, neutral space. Mindfulness interventions increase awareness of this space and teach those who are recovering from drug addiction to pause and experience discomfort without relying on an external substance to instantly gratify a desire.

Although it may seem counterintuitive that relief would lie in experiencing the very pain recovering addicts habitually escape and avoid, mindfulness paves the way to an internal wellspring of resources that support a drug-free ability to tolerate discomfort while remaining steady and stable in the present, here and now moment. Likewise, given the tendency of the untrained mind to hold on to the past, the dwelling place of resentment and regret, or project into the future, prompting worry, fear, and anxiety, mindfulness practices facilitate the healing process. Instead of using drugs to create the illusion of control or trying to change an uncomfortable situation or feeling, mindfulness cultivates the skill of non-reactive present moment awareness thus allowing individuals to gain insight and respond with awareness.

Ideally, those who practice will develop the ability to make less impulsive choices that support their recovery. Going back to the supermarket example, the recovering addict knew that passing the pharmacy where opioids were once purchased would be uncomfortable. Having learned to lean into her mindfulness skills and experience the discomfort without reacting impulsively while knowing the experience was temporary and tolerable, she could successfully accomplish her task of purchasing milk from the nearby daily case without succumbing to her desire.

Mindfulness meditation changes the addict's relationship with cravings by helping her develop a non-judgmental awareness. It also could be used to extinguish Brewer et al.'s (2012) addictive loop overtime because mindfulness disrupts conditioning and when cravings are not reinforced, they begin to subside. Simply stated, rather than habitually reacting to an internal or external cue-induced trigger or craving, mindfulness practices will dismantle the addictive loop over time as individuals who are opioid dependent learn to become aware of their automatic responses to painful stimuli while observing negative states without reacting. Mindfulness practices include techniques for the identification and reassessment of emotional distortions and inaccuracies that would have once automatically led to drug-seeking behavior. Eventually, mindfulness practitioners develop their ability for improved self-control, emotional regulation, and more adaptive responding. This occurs because sitting with discomfort and consciously observing pain without judgment provides a space for exploring feelings and understanding at the root of the pain along with the opportunity to allow cravings to pass. As a result, individuals gain insight and the relationship to cravings shifts.

In the first systematic review of mindfulness meditation-based interventions (MM), Zgierska et al. (2009) reviewed research from 1995 to 2008 in order to assess the efficacy and safety in treating substance abusers with MM. Their comprehensive search included electronic

databases such as PubMed and PsycINFO, databases of relevant institutes such as National Institute on Drug Abuse and National Center for Complementary and Alternative Medicine using the keywords *meditation* and *mindfulness*. Reference lists of relevant articles were also searched and the researchers attempted to contact authors or Principle Investigators as needed. After assessing for internal validity by extracting data and evaluating the quality of the methodology used in the studies, each prospective study was scored. The full-texts of 224 articles were reviewed out of 500 original abstracts. Following further systematic elimination, 25 published studies remained.

Zgierska et al. (2009) concluded that it was not possible to pool the data due to the wide variety of conditions treated, a lack of randomization, inter-rater disagreement on quality of methodological scoring, the variety of treatment protocols, and the variety of possible outcome measures. Nevertheless, Zgierska et al. (2009) did find that several studies were of clinical, theoretical, and research interest with regard to mindfulness meditation and substance abuse disorders. Specifically, most of the studies reviewed by the authors showed positive outcomes for participants treated with MM using pre-test and post-test measures. Also, those treated with MM interventions showed more positive outcomes than participants who received other therapy (Zgierska et al., 2009). Overall, Zgierska et al. (2009) found that participants reported positive outcomes and general satisfaction with mindfulness treatment and no adverse side effects were reported. Although conclusive data were lacking and more rigorous studies with more formal methodologies and adequately powered clinical trials were needed, findings from Zgierska et al.'s (2009) literature review suggested that MM was a promising treatment for substance use disorders.

Mindfulness-based relapse prevention. Successful treatment of substance use disorders is commonly measured by a person's ability to sustain ongoing recovery. *Relapse* is generally defined as a return to the addictive behavior following a period of abstinence and *addiction* is considered a chronic relapsing disorder (Bowen et al., 2009; Witkiewitz et al., 2012; Witkiewitz et al., 2013; Zgierska et al., 2009). Marlatt (as cited in Bowen et al., 2009; Bowen et al., 2011; Witkiewitz et al., 2012; Witkiewitz et al., 2013) was interested in finding methods in which to decrease the risk of relapse among substance abusers by teaching them alternative coping responses that combined mindfulness practices with evidence-based cognitive behavioral interventions. He developed mindfulness-based relapse prevention (MBRP) based on the understanding that people relapse due to their inability to tolerate cravings and the desire to avoid negative feelings. By paying attention in the present moment with an attitude of acceptance and non-judgment toward the experience, mindfulness allows those who practice it to take a step back, pause, pay attention, appraise the situation, and respond with awareness (Bowen et al., 2011; Witkiewitz et al., 2012; Witkiewitz et al., 2013).

Marlatt (as cited in Witkiewitz et al., 2012) defined *craving* as a subjective, complex experience of an urge or desire and an essential component of substance dependence, and *negative affect* as an unpleasant, subjective evaluative feeling in response to a stimulus. MBRP interventions were designed to teach people in recovery to accept uncomfortable or negative states and challenging, unpleasant situations without reacting automatically to cravings (Witkiewitz et al., 2012). For example, by paying attention to the discomfort and engaging with it in a nonjudgmental manner, individuals learn to respond with constructive alternatives to their habitual stimulus-response patterns. Marlatt's 8-week, group-based MBRP aftercare program was designed to provide psychoeducation to addicts following their initial substance abuse

treatment. It helps participants to better tolerate challenging experiences by teaching them to identify internal and external triggers, to train their attention on acceptance rather than avoidance, and to modify automatic habituated reactions (Bowen et al., 2009). Like other mindfulness interventions such as mindfulness-based stress reduction (MBSR) developed by Kabat-Zinn (1990), MBRP does not teach avoidance of pain or discomfort. Rather, it teaches practitioners to be intentionally present and aware of the pain and discomfort while developing a nonjudgmental approach to the experience.

Bowen et al. (2009) conducted the first randomized-controlled efficacy trial on mindfulness-based relapse prevention (MBRP). Bowen et al. (2011) evaluated the effects of Marlatt's eight week structured MBRP treatment protocol by comparing MBRP participants with a control group of patients who received treatment as usual [TAU (e.g., participants remained in standard outpatient aftercare designed to promote abstinence-based 12-step recovery)]. All 168 participants were between the ages of 18 and 70 from a private, non-profit treatment agency who had completed inpatient or intensive outpatient treatment for substance use disorders just prior to beginning the study. The following measures were administered onsite via a web-based assessment program at baseline, immediately after the eight-week intervention, two months post-intervention, and four months post-intervention. Specifically, the Timeline Followback was used to assess daily alcohol and drug use, the Penn Alcohol Craving Scale (PACS) assessed frequency, intensity, and duration of cravings for drugs and alcohol, The Short Inventory of Problems assessed impulse control, social responsibility, and consequences of drug use, the Five Factor Mindfulness Questionnaire (FFMQ) assessed factors of mindfulness, and the Acceptance and Action Questionnaire (AAQ) compared levels of acceptance and avoidance. MBRP participants were assigned homework and expected to practice mindfulness-based outside of

group on a daily basis. The control group was not assigned homework and received standard outpatient aftercare consisting of 12-step treatment and psychoeducation groups that met one to two times per week for 1.5 hour sessions on topics such as grief and loss, self-esteem, and goal-setting (Bowen et al., 2009).

Bowen et al. (2009) hypothesized that MBRP participants would show increased mindfulness, increased acceptance, and decreased substance use compared to the TAU control group. The researchers found significantly lower rates of substance use up to four months after completing the MBRP program compared to members of the control group. Specifically, MBRP participants reported a decrease in the number of days they experienced craving, decreased substance use, and increased awareness and acceptance in comparison to the TAU participants. Similarly, MBRP participants did not report increased craving or substance use when they experienced negative affect therefore suggesting that practicing mindfulness techniques helped recovering addicts to tolerate negative affect. The MBRP pilot efficacy trial (Bowen et al., 2009) showed MBRP as a viable alternative to 12-step-based aftercare programs.

In their comprehensive review of MBRP studies, Witkiewitz, Lustyk, and Bowen (2012) summarized findings from Bowen et al. (2009) and Witkiewitz and Bowen (2010) who analyzed data obtained in a controlled trial of MBRP. In their analysis of the 2009 Bowen et al. study, Witkiewitz et al. found significant affects of MBRP among participants in the experimental group who used drugs or alcohol at a rate of five times less than the control group. The MBRP group reported significant decreases in cravings but the control group did not. In a secondary analysis of Bowen et al.'s (2009) data, Witkiewitz and Bowen (2010) found reductions in cravings among those who received the eight-week intervention and suggested this was due to greater mindful acceptance, awareness, and nonjudgment. Witkiewitz et al. (2012) stated that

the results of both Bowen et al.'s studies and the follow-up by Witkiewitz and Bowen showed that MBRP worked to prevent relapse by reducing craving and changing the way individuals responded to negative affect. These findings suggest MBRP helps people recovering from addiction by teaching them how to experience uncomfortable situations without automatically reacting to avoid discomfort.

In a follow-up study, Witkiewitz, Bowen, Douglas, and Hsu (2013) worked with the data from Bowen et al.'s (2009) study in order to assess the effectiveness of MBRP in reducing cravings. They hypothesized that awareness, acceptance, and non-judgment were interdependent, essential processes that worked together to reduce the craving response. Witkiewitz et al. (2013) used the Penn Alcohol Craving Scale (PACS), the Five Factor Mindfulness Questionnaire (FFMQ) to measure awareness and non-judgment and the Acceptance and Action Questionnaire (AAQ) to measure acceptance. They hypothesized that the ability to respond to an experience with awareness, acceptance, and non-judgment would predict lower levels of craving for participants assigned to the MBRP group. Witkiewitz et al. (2013) found that they did have lower PACS scores during and following treatment suggesting that MBRP group members experienced less craving. Likewise, AAQ scores were higher and the nonjudgmental awareness subscale scores on the FFMQ were higher among participants assigned to MBRP compared to the TAU group members. These findings suggest an increased level of awareness, acceptance, and non-judgment among those who practice MBRP. Witkiewitz et al. (2013) concluded that mindfulness was a descriptive label for the interdependent factors of awareness, acceptance, and non-judgment that decreased craving.

Neurobiology of mindfulness. Neurobiological research has added to the understanding of addictive behavior and explains how mindfulness meditation supports recovery. Researchers

looked at the impact of drug addition and mindfulness on the pleasure and habit circuits and ways in which brain structure and brain function varied among meditators and nonmeditators (Brewer et al., 2012; Holzel et al., 2011; Teper & Inzlicht, 2013; Witkiewitz et al., 2012). Drug abuse alters the brain's inherent ability for reward-related processing and conditioned learning and presents as deficits in motivation, lack of inhibitory control, and poor decision-making. The same systems that have been implicated in addiction are supported by mindfulness meditation practices designed to support positive behavioral change and reduce the risk of relapse (Brewer et al., 2012; Holzel et al., 2011; Teper & Inzlicht, 2013; Witkiewitz et al., 2012).

In a longitudinal study comparing differences in gray matter concentration among meditators and nonmeditators, findings from anatomical magnetic resonance neuroimaging revealed increased cortical thickness and higher concentrations of gray matter in brain regions related to emotional awareness and behavioral inhibition among meditators (Holzel et al., 2011). In addition to neuroimaging, the 39-item Five-Facet Mindfulness Questionnaire was administered pre-test and post-test to measure aspects of mindfulness. Investigators looked for any significant changes after individuals participated in Kabat-Zinn's (1990) 8-week MBSR program. 16 healthy, meditation naïve individuals were compared to 17 individuals who were assigned to a control group and placed on a waiting list. Formal mindfulness training exercises included body scanning, mindful yoga, and sitting meditation complemented by audio recordings of the same for daily home practice. Compared to the control group, those who practiced 8 weeks of MBSR showed significant increases in the posterior cingulate cortex, temporo-parietal junction, and cerebellum as well as increased gray matter in the hippocampus, the regions involved in learning, memory, and emotional regulation. A significant interaction for three mindfulness subscales showed improvement in acting with awareness, observing, and non-

judging. Significant pre-test and post-test changes supported the idea that the brain has a capacity to heal and change as a result of mindfulness-based interventions and suggested even a minimal exposure to mindfulness meditation modifies the brain and positively impacts well-being.

In their review of the neurobiological mechanisms of mindfulness and addiction, Brewer et al. (2012) identified a "default mode network" (DMN) in the brain responsible for perpetuating addiction and found that with practice, mindfulness practices modified and disengaged the network. The medial prefrontal cortex and posterior cingulate cortex were identified as the primary nodes of the DMN and the dorsal anterior cingulate cortex and dorsolateral prefrontal cortex made up the peripheral nodes. These nodes correlated with areas of the brain associated with self-monitoring, cognitive control, and treatment outcomes. Likewise, mindfulness meditation was found to improve self-monitoring and cognitive control and decreased emotional reactivity leading to better treatment outcomes. Brewer et al. (2012) cited findings from Farb et al. (2007), Taylor et al. (2011), and Brewer et al. (2011) who all found mindfulness practices disengaged the DMN and improved functional connectivity with areas of the brain involved in affective responses, attention, and self-referential processing. Moreover, participants who learned to mindfully attend to cravings and refrain from automatic, habituated reactions to triggers could eventually deactivate the addictive loop (Brewer et al., 2012). Preliminary studies of the neural mechanisms of mindfulness suggested that developing the capacity to practice mindfulness is a useful intervention because it works directly on areas of the brain that have been compromised by chronic drug abuse.

In a review of the neurobiological mechanisms of MBRP, Witkiewitz et al. (2012) built upon the results of Bowen et al.'s (2009) original pilot efficacy trial that showed MBRP

prevented relapse by reducing craving and changed the way individuals responded to negative affect. Witkiewitz et al. identified the neural mechanisms of mindfulness meditation and the neural mechanisms of addiction in order to better explain the mechanisms involved in mindfulness and addiction. Specifically, they found that the pleasure circuit, which includes the ventral tegmental area, nucleus accumbens, amygdala, and prefrontal cortex, was disregulated in addiction, and mindfulness meditation works directly on this area. Similarly, mindfulness meditation works directly on the habit circuit, a network in the brain known for reward-based and conditioned learning, by disrupting the pathway from the ventral tegmental area to the dorsal striatum. Because neuroimaging studies have shown that mindfulness works directly on the pleasure and habit circuits, Witkiewitz et al. (2012) concluded that MBRP compensates for and supports the reversal and repair of addiction-related damage.

Teper and Inzlicht (2013) compared the executive functioning abilities of meditators and non-meditators to identify differences between research participants' ability to plan, follow rules, pay attention and respond appropriately to stimuli. Because chronic drug abusers often struggle with regulation of attention and inhibition of impulses, it is understood that executive functioning has been impaired among individuals who abuse drugs. Therefore, researchers were interested in learning if meditation could reduce relapse by improving the ability to regulate attention and inhibit impulses. To test this theory, 20 meditators and 18 non-meditators completed the 20-item Philadelphia Mindfulness Scale followed by a Stroop task that measured the inhibition feature of executive functioning. At the same time, brain activity was measured using an EEG. Results confirmed the researcher's hypothesis that meditators have better executive functioning than non-meditators. Teper and Inzlicht (2013) explained that people who meditate have an enhanced ability to accept emotional states and effectively attend to the emotions associated with making

mistakes. These findings supported the use of mindfulness interventions with addicts because mindfulness helps develop the ability to acknowledge and accept thoughts and feelings. This is beneficial because if addicts learn to tolerate discomfort, they are less likely to react impulsively and relapse.

Based on research supporting the efficacy of mindfulness meditation (Bowen et al., 2009; Brewer et al., 2012; Holzel et al., 2011; Teper & Inzlicht, 2013; Witkiewitz et al., 2012; Witkiewitz et al., 2013; Zgierska et al., 2009), the ongoing increase in prevalence rates for addiction in the United States, and the widespread practice of yoga, the door has opened to further integrate Eastern-based practices to support recovery from addiction. The multiple systems involved in the chronic relapsing, often deadly disorder of addiction requires an innovative approach for long-term recovery. Given the growing acceptance of meditation in clinical and secular treatment settings, the focus of this project shifted to providing evidence to further support the integration of yoga and meditation for recovery from addiction.

Yoga and Meditation

Having reviewed the psychological and neurobiological mechanisms underlying mindfulness and addiction and given the cultural readiness for integrated, innovative interventions, the next section explores the application of ancient yogic knowledge and techniques to support recovery from addiction in clinical and community-based settings. Although many yogic concepts have not been contained by the Western scientific viewpoint, positive outcomes have been experienced and the benefits of yoga and meditation support recovery from addiction. As opioid dependency increasingly threatens the well-being of those who initially sought relief from suffering in pharmaceuticals, the growing epidemic coupled with mainstream acceptance of yoga and meditation presents an opportunity to expand the reach of

Eastern-based practices. The intention is not to replace traditional treatment modalities, rather to include yoga and meditation as complementary interventions tools that have proven useful in helping others gain insight and find relief from their suffering.

Beginning in the 1970's, researchers Chopra, Cooperstock, Haaga, Moyers, and Russell (as cited in Shaffer, LaSalvia, & Stein, 1997) have been looking at the effects of nontraditional Western medical treatments on stress, anxiety, and drug use. Collectively, their findings suggest that yoga releases physical and emotional tension and makes it possible for the nervous system to renew itself by activating the body's inherent memory of balance. It also supports the exchange of abnormal cellular receptors for more normal patterns. In addition to the physical benefits associated with yoga that include improved strength, flexibility, and balance, those who practice yoga also experience an opportunity to practice self-care, learn to regulate their affect in supportive group settings, and show increased levels of self-efficacy (Shaffer et al., 1997).

In an earlier effort to develop a drug treatment model that integrates mind and body, Shaffer et al. (1997) investigated the effectiveness of practicing gentle yoga postures in a randomized clinical trail with patients at an outpatient methadone clinic. In order to qualify for the 5-month treatment, prospective participants completed an intake and orientation period and the 59 men and women who met criteria for the study were randomly assigned to either Hatha yoga in a group setting or conventional psychodynamic group therapy. The revised Symptom Check List, the Addiction Severity Index, and the Global Severity Index evaluated addictive behaviors in addition to other psychological, sociological, and biological measures. Although a number of participants reported that practicing yoga was pivotal in their recovery, the evidence did not show yoga was more effective; there was no meaningful difference between groups and both groups showed significant reductions in drug use and criminal activities. This original

research suggests yoga was equally as effective as group psychotherapy and supports the inclusion of yoga as a complementary treatment modality.

Recognizing the need for innovative addiction treatment, researchers investigated yoga as a complementary treatment for smoking cessation (Bock et al., 2010; Bock et al., 2012). A randomized, controlled pilot study explored yoga as a mechanism of change associated with reduced relapse rates, decreased measures of depression and anxiety, and increased confidence in quitting smoking and perceptions of health. Fifty-five women received weekly group-based CBT during the 8-week program and half were randomly assigned to either attend yoga twice a week or a general wellness group that watched videos on various health topics. All participants received pretest, posttest, 3-month follow-up, and 6-month follow-up assessment packets to assess changes in smoking characteristics, anxiety, depression, and overall well-being. Higher abstinence rates, reduced anxiety, and improvements in perceived health and well-being were reported among the women assigned to yoga compared to the women assigned to the wellness control group. The findings from Bock et al. (2012) support the efficacy of yoga as a complementary therapy for smoking cessation and suggest yoga is an effective intervention that supports recovery.

Bowen et al. (2006) investigated the effectiveness of mindfulness meditation as a way to treat substance abuse in an incarcerated population. Male and female inmates volunteered to participate in a 10-day silent meditation course and were compared with a treatment as usual (TAU) control group who received chemical dependency treatment and substance use education. 173 participants completed baseline pretest and posttest assessments followed by 3-month and 6-month post-incarceration assessments to determine the relationship between participation in a 10-day meditation course and post-incarceration substance abuse. The Daily Drinking

Questionnaire and the Daily Drug-Taking Questionnaire assessed quantity and frequency of substance use and an adapted measure from the Drinker Inventory of Consequences assessed impulse control, social responsibility, and consequences. Other instruments were used including the 25-item Drinking-Related Locus of Control scale, the White Bear Suppression Inventory, the Brief Symptom Inventory, and the Life Orientation Test. Comparisons between those who took the meditation course and the TAU group led Bowen et al. (2006) to conclude that taking the meditation course predicted significantly less substance use post-incarceration. Similarly, there was a significant relationship between course participation and increased optimism and decreased psychiatric symptoms. This study provided preliminary support for mindfulness meditation as a treatment for substance abuse.

Prevalence. The Harris Interactive Service Bureau collected data from the consumer yoga market (http://www.yogajournal.com/press/press_release/40) and found a 29% increase in the number of people practicing yoga in 2012 compared to the number of people practicing in 2008. Their *Yoga in America* study showed 20.4 million Americans were practicing yoga in 2012 compared to 15.8 million in 2008 (http://www.yogajournal.com/media/originals/YJ_PR_YogaAmerica.pdf). In addition to the 8.7% of Americans who reported practicing in 2012, 44.4% called themselves *aspirational yogis* meaning they were interested in trying yoga. Based on emerging research on yoga as an effective therapeutic tool, yoga industry professionals predicted these numbers would continue to increase. According to the editor in chief of Yoga Journal, "Yoga as medicine represents the next great yoga wave." In other words, she expects more people to practice yoga as a way to feel better and as a way to heal the body and mind. Similarly, nearly 14 million Americans reported that a doctor or therapist recommended yoga. The publisher of Yoga Journal stated, "Yoga is no

longer simply a singular pursuit but a lifestyle choice and an established part of our health and cultural landscape." In other words the widespread acceptance and practice of yoga suggests it is no longer considered a foreign concept among Westerners and is increasingly respected as an accessible way to establish and maintain well-being in daily life.

History of Kundalini Yoga. The origin of Kundalini Yoga dates back at least 2500 years to ancient India where stories of individuals practicing altered states of consciousness and achieving states of transcendence and enlightenment were not uncommon (Shannahoff-Khalsa, 2006). Approximately 2000 years ago, the sage Patanjali presented the Yoga Sutras and identified eight limbs of yoga as a dynamic, interactive system designed to develop the entire body, mind, and soul system (Bhajan, 2003; Prabhavananda & Isherwood, 1981). Patanjali outlined the following eight *limbs* for living a meaningful and purposeful life: L1) ethical disciplines; L2) individual observances; L3) posture; L4) breath control; L5) withdrawal of senses; L6) concentration; L7) meditation; and L8) self-realization. The vast potential within the individual was discovered and ways to achieve this potential were taught openly until limits were imposed and the technology became shrouded in secrecy. Western seekers traveled to India where the technology was passed from teacher to selected students until a master of Kundalini Yoga brought the teachings to the West in 1968.

The Siri Singh Sahib, often referred to as Yogi Bhajan, arrived in the United States at a time when drug abuse had become a symbol of the *counterculture* and a way for individuals to show rebellion against the *establishment.* Pained by the self-destruction he witnessed, Yogi Bhajan was compelled to share an ancient technology he knew was the way to heal the mental, spiritual, emotional, and physical bodies that had been damaged by drugs (Kaur, 2013). He

shared an alternative to the drug culture and gave the seekers an experience of their pure, inner potential through Kundalini Yoga (Bhajan, 2003).

Mechanisms of Kundalini Yoga. Yoga was originally taught as a discipline to develop the body, mind, and spirit of those who practiced in support of a union with the universal, transcendental, or God consciousness (Bussing, Khalsa, Michalsen, Sherman, & Telles, 2012). Although the practice of yoga in the West tends to focus on the physical benefits of increased strength and flexibility, the practice of Kundalini Yoga remains a more sacred, spiritual practice intended for complete transformation. Kundalini Yoga, referred to as the *Yoga of Awareness* (Bhajan, 2003) focuses on developing self-awareness to elevate and empower individuals to live their full potential (Shannahoff-Khalsa, 2006). In other words, the rewards offered by the "comprehensive, technical, and highly integrated system" include but are not limited to the physical benefits of improved flexibility, detoxification and rebuilding the body, balancing and strengthening the glandular, nervous, circulatory, and digestive systems (Bhajan, 2003), and stimulating the production of endorphins (Khalsa & Stauth, 1997).

Chakras. In addition to allowing Western concepts of psychology and neurobiology to inform treatment of addiction, the dynamic chakra system may be incorporated as part of a multidimensional understanding and treatment of addiction. The kundalini energy has been described as dormant, pure potential situated at the base of the spine that when awakened, rises up through eight primary energy centers of the body called *chakras* to produce a sense of balance, wholeness, and connection (Bhajan, 2003; Khalsa, 2000; Shannahoff-Khalsa, 2006). The degree of activity in each chakra "imparts an effect that reflects a world perspective, understanding of cause and effect, and source of motivation and desire that is unique to each center" (Shannahoff-Khalsa, 2006). In other words, what has been conceptualized as a subtle,

non-physical aspect of the individual plays a very significant role in how she shows up in life and is a mechanism of change that can be consciously manipulated to support well-being. The paradigm of mind-body medicine that originated in the East and continues to emerge in the West works with the chakra system and recognizes the role of this system in determining modes of behavior, personality structure, and levels of awareness (Khalsa, 2000; Shannahoff-Khalsa, 2006).

According to Khalsa (2000) and Shannahoff-Khalsa (2006), much of the pain and suffering in society is due to imbalances in the first three chakras, often referred to as the *lower triangle*, and a great challenge in human development is to consciously shift from survival and self-centered behaviors to higher centers of compassion and awareness. Shannahoff-Khalsa (2006) referred to the *lower triangle* as the *nature of the beast* and explained that the actions and values of individuals with imbalances in the first three chakras are motivated by survival and often manifest as addictive tendencies, poor willpower, and self-centered behaviors. According to yogic philosophy, once the energy centers are activated and balanced, energy will circulate to the higher centers and the individual will experience expanded awareness and all suffering and duality will be removed. Kundalini Yoga teachers are trained to teach specific techniques to activate each chakra and correct imbalances in this dynamic energy system (Bhajan, 2003).

Pranayama. Conscious breathing is another mechanism of change included within the practice of Kundalini Yoga. In addition to increasing oxygen levels in the brain and providing a sense of mental clarity, proper breathing supports the ability to make better decisions, elevates mood, and provides a sense of relaxation (Khalsa & Bhajan, 2000). Fried and Weil (as cited in Khalsa & Bhajan, 2000) and Khalsa (2000) emphasized the importance of teaching proper breathing to alleviate emotional problems and support health and balance. The

breath has been described as “the most powerful way to, in a natural and quick way, intervene in the autonomic nervous system in the basic level” and is the foundation for all yogic interventions (Khalsa & Bhajan, 2000). For example, manipulating breathing rhythms and learning to control the breath rebalances the nervous system and helps break old, unconscious, automatic patterns. Specifically, the *Basic Breath Series,* originally taught by Yogi Bhajan in 1969, supports the release of habitual patterns of emotion and attention as the individual consciously learns to alter the breath (Bhajan, 2003).

Mantra. Sacred sound and chanting are utilized as part of the technology of Kundalini Yoga to support change. According to Bhajan (2003) and Shannahoff-Khalsa (2006), 84 meridian points, located on the palate behind the teeth and encrypted like a computer keyboard, contain information about self-perception and include deeply rooted belief systems, automatic personality traits, and habits. When the tongue struck the meridians, this stimulates the endocrine system and the hypothalamus, pituitary, and pineal glands respond. By using this built-in technology, habits can be re-formulated by chanting mantra.

Menin and Levitin (as cited in Morse et al., 2011) used results from fMRI tests to show that listening to music changed the networks in the brain that were involved in processing rewards and reducing stress including the nucleus accumbens, the ventral tegmental area, and hypothalamus. To show the effects of music on withdrawal symptoms of patients at an inpatient treatment center for substance abuse, Morse et al. (2011) invited residents to participate in a group therapy treatment where they listened to a vibrational sound program designed to promote deep relaxation over headphones or ear buds. All 76 patients rated the intensity of their symptoms before and after the audio therapy sessions and showed significant improvements in 10 symptoms including cravings, depression, stress, anxiety, resentment, anger, fear, and

physical discomfort. Morse et al. (2011) concluded that audio therapy was a useful adjunct to treatment for individuals in recovery from addiction and co-occurring disorders. The meditative quality of mantra used in Kundalini Yoga would likely produce similar results.

Kriya. Kriyas have been defined as orchestrated patterns of physical movements, static postures, sacred sounds, breathing patterns, and hand positions combined with concentration and meditation with the intention of creating steady, predictable progress and rapid, sustainable personal growth and healing (www.kundaliniresearchinstitute.org). Popular kriyas taught in Kundalini Yoga classes geared toward helping people recover from addiction include *Flexibility and the Spine*, *Kriya for Elevation*, *Stress Set for Adrenals and Kidneys*, *Kriya for Disease Resistance*, and *Pituitary Gland Series* (Bhajan, 2003; Kaur & Kaur, 2014). Carefully orchestrated patterns guide the energies of the body, mind, and emotions into balance to enable specific results or changes of consciousness (Bhajan, 2003).

Kirtan Kriya and the brain. Researchers at the Alzheimer's Research and Prevention Foundation spent more than a decade investigating the effects of Kirtan Kriya on risk factors for Alzheimer's disease and overall brain fitness (www.alzheimersprevention.org/research/journal-articles). Kirtan Kriya emerged from within the Kundalini yoga tradition and is comprised of a 4-syllable mantra (Saa Taa Naa Maa) that is chanted in sync with repetitive, coordinated finger movements, referred to as mudras, for 12 minutes. Using specialized brain scans and sophisticated memory and blood tests, researchers determined that Kirtan Kriya reduced stress levels, improved blood flow in areas of the brain central to memory, and reversed memory loss. Khalsa's research exemplified how the mechanisms of Kundalini Yoga work together to support positive change while contributing to

the emerging research in support of the integration of Eastern-based practices and mind-body interventions.

Kundalini Yoga for recovery from addiction. In 1973, a Kundalini Yoga-based treatment center for addiction called *SuperHealth* opened in Tucson, Arizona and was one of the first documented programs to utilize yoga as an intervention for treating drug and alcohol addiction (Lohman, 1999). Treatment included three, one hour Kundalini Yoga classes per day where participants chanted mantra and practiced physical postures and controlled breathing. According to Lefton (1989) as cited in Lohman (1999), based on self-report surveys completed by graduates of the program, the recovery rate was 91% from 1983 to 1986. The program had full accreditation and was rated in the top 10% of programs in the United States by the Joint Commission Accreditation Healthcare Organizations prior to closing in 1990 with the inception of health management organizations (HMOs) and limited coverage for substance abuse hospitalization.

A pilot project in India investigated the effects of a comprehensive yogic lifestyle-based program for treating addiction using Kundalini Yoga and Meditation as taught by Yogi Bhajan (Khalsa, Khalsa, Khalsa, & Khalsa, 2008). Eight men with extensive histories of poly-substance dependence entered the 90-day residential treatment program after completing medical detoxification. In addition to three daily Kundalini Yoga classes taught by certified Kundalini Yoga instructors, the participants attended individual, group, and family counseling, and were provided with addiction and relapse prevention psychoeducation. Psychological self-report questionnaires were administered at baseline, mid-treatment, at the end of treatment, and post-treatment at one, three, and 12-months. The Behavior and Symptom Identification Scale was used to assess treatment outcomes based on psychiatric and substance abuse symptoms in

addition to measures of overall functioning. Results from the 32-item self-report questionnaire showed statistically significant improvements from baseline to follow-up. The Quality of Recovery Index, a 38-item self-report instrument, reflected quality of recovery by measuring changes in behaviors that accompanied recovery from substance-related disorders. Average scores showed clear declines in negative behaviors and statistically significant improvements from baseline to follow-up. The Perceived Stress Scale, a 10-item self-report, measured current stress levels but did not show significant effects despite contrary expectations and findings from other studies that showed yoga and meditation reduced stress (Kabat-Zinn, 1990). In addition to the results from the self-report questionnaires, at the conclusion of the program, participants reported increased energy, appeared more focused and alert, expressed fewer complaints about pain or sleep difficulty, and were less emotionally reactive. Although there were several variables involved in the comprehensive, residential group yoga lifestyle intervention that made it difficult to determine which elements contributed to the clinical improvements, Khalsa et al. (2008) concluded that Kundalini Yoga supported the treatment of substance abuse.

Researcher Shannahoff-Khalsa (2006, 2010) applied Kundalini Yoga-based meditation techniques to specific psychiatric disorders including but not limited to anxiety disorders, major depressive disorders, sleep disorders, and substance use disorders. He developed a 7-part meditation protocol for overcoming substance use disorders that included the *Medical Meditation for Habituation*, a technique Yogi Bhajan predicted would become "one of a class of meditations that will become well-known to the future medical society…but it may be as many as 500 years before the new medical science will understand the effects… well enough to delineate all of its parameters in measurable factors" (Shannahoff-Khalsa, 2006). In other words, the technology is powerful and effective, but quantifying it presents a challenge to conventional

science. Yogi Bhajan (1976) as cited in Shannahoff-Khalsa (2006) explained how the meditation corrects the imbalance directly below the stem of the pineal gland that makes mental and physical addictions seem unbreakable; because the pineal gland regulates the rest of the glandular system, when it is out of balance, the body and mind are too. The *Medical Meditation for Habituation* corrects the problem and would effectively treat drug dependence and mental illness. Another meditation, *Meditation for Treating Impulsive Behavior* (Shannahoff-Khalsa, 2006) helps balance the psyche and increases the "ability to remain stable and secure and help develop temperament, tolerance and restraint." In other words, when an individual maintains the posture and chants the prescribed mantra for the designated length of time, those who practice the technique will develop the ability to tolerate discomfort and resist impulses. Shannahoff-Khalsa recommended trained therapists and yoga teachers to administer randomized, controlled clinical trials in institutionalized settings in order to establish solid evidence to support the efficacy of Kundalini Yoga as an intervention for substance dependence (Shannahoff-Khalsa, 2006).

Recovery 2.0. The perspectives of respected Kundalini Yoga teachers were included in *Recovery 2.0*, a two-part online conference organized in 2013 by Tommy Rosen with the intention of sharing yoga and meditation with people in recovery (http://www.tommyrosen.com/yoga/about-yoga-for-addiction-recovery/). Gurmukh Kaur Khalsa, Sat Dharam Kaur Khalsa, and Gurucharan Singh Khalsa, original students of Yogi Bhajan who are dedicated to training the next generation of teachers, shared their perspectives on addiction and the process of recovery (Kaur, 2013; Khalsa, 2013).

In her interview *Reclaiming the Soul: The Ultimate Recovery*, Gurmukh Kaur Khalsa described the technology as "a road map of how to live" that works by changing the brain and

reaching the subconscious (Khalsa, 2013). Over the course of more than 40 years of teaching in prisons, mental hospitals, expensive retreat centers, and third world countries, she has seen many lives improve as a result of practicing Kundalini Yoga. According to Gurmukh, addiction emerges from a sense of separation from the soul or one's destiny that is so painful that the addict must find a way to manage the pain. She stated, "Everybody has an addiction until they can merge with the oneness of their own soul, and that's my premise." Further, she believes Kundalini Yoga "is one of, if not the biggest element that can carry you across that world ocean and fill that gap." She believes the teacher's job is to deliver the technology of Kundalini Yoga and Meditation as taught by Yogi Bhajan to bridge the gap that exists between the individual and his or her pain in order to free the addict from the pain and suffering that exists in this sense of separation. Gurmukh acknowledged the current epidemic of pharmaceutical addiction and explained that Kundalini Yoga works quickly and powerfully and is especially effective when paired with traditional 12-step programs.

Sat Dharam Kaur Khalsa, a naturopathic doctor, Kundalini Yoga teacher, and creator of *Beyond Addiction, The Yogic Path to Recovery (*Kaur & Kaur, 2014), designed a curriculum to support recovery by breaking addictive patterns using Kundalini yoga and meditation. Sat Dharam operates from the premise that "our ultimate identity is a spiritual identity" and those who suffer from addiction must free themselves in order to move forward. Each module in her 16-module recovery program includes a breathing exercise, a yoga set, and a meditation that coincide with a specific theme. Her program looks at understanding body rhythms and brain chemistry, the individual's psyche and history, and promotes a mindfulness-based, non-judgmental and compassionate approach. Sat Dharam promotes Kundalini Yoga as a discipline that strengthens, balances, and revitalizes the systems of the body and supports moving forward

in recovery by changing self-defeating patterns and replacing them with more productive ways of being (Kaur, 2013).

In his interview, *Meditation and Transformation of the Addictive Mind*, Gurucharan Singh Khalsa, international yoga teacher trainer, Director of Training at the Kundalini Research Institute and affiliate of MIT and Harvard, spoke of the value of using yoga techniques as effective interventions for recovery (Khalsa, 2013). He started practicing Kundalini Yoga in 1969 and went on to train his students to help others refine their emotions, develop consciousness, and expand their potential. According to Gurucharan, people who abuse drugs to achieve a temporary sense of freedom from "some pain, some memory, a person, a relationship, any number of things… life. Just a freedom to have less pain." In other words, addicts have lost their freedom, limited their choices, muted their capacities, and are living in a lower dimensional self where they are disconnected and unable to clearly perceive reality. Meditation provides "a taste of freedom" and other yogic interventions support the individual in breaking through and finding an enduring sense of satisfaction. The practice of Kundalini Yoga promoted the cultivation of consciousness, broadened perspectives, and taught addicts how to generate healthy habits.

Spirituality. According to Carl Jung in a letter he wrote to one of the founders of AA, "Your craving for alcohol was a spiritual thirst for wholeness, (an attempt at a) union with God" (as cited in Appel & Kim-Appel, 2009). In other words, a deep longing for conscious contact with a comforting presence in one form or another exists within the addict. Similarly, Grof and Grof (1993) as cited in Appel and Kim-Appel (2009) referred to addiction as a *spiritual emergency* and a sign of *profound spiritual yearning* and ironically, the very substances addicts count on to fill their emptiness creates behaviors and lifestyles that further wound them. While

some search for relief in drugs or alcohol, others find it by making conscious contact with something greater than themselves in the 12-step program or by practicing yoga and meditation. The experience of feeling *spiritually bankrupt* is often voiced among individuals reflecting on the emptiness they felt prior to entering recovery and it is through recovery that they begin to feel whole.

Although spirituality is often a significant component of recovery for many people, this dimension is beyond the scope of this dissertation. Likewise, whereas Kundalini Yoga and mindfulness meditation practices have been conceptually rooted in spiritual or religious traditions, they may be understood and practiced in a secular manner without the religious or cultural traditions of their origins (Appel & Kim-Appel, 2009). Not unlike the 12-step program, the spiritual component is available but not included. For the reader interested in exploring Eastern-based spirituality further, the following resources are recommended: *Play of Consciousness* (Swami Muktananda, 1978), *Autobiography of a Yogi* (Pramahansa Yogananda, 1998), *American Veda: From Emerson and the Beatles to yoga and meditation- How Indian spirituality changed the West* (Goldberg, 2010), and *Mystics, Masters, Sages, and Saints: Stories of Enlightenment* (Ullman & Reichenberg-Ullman, 2001).

Substance abuse and a tireless search to find ways to cope with the stress and demands of daily life have challenged great civilizations throughout history. Kundalini Yoga and Meditation as taught by Yogi Bhajan has been presented as a technology that strengthens the multidimensional aspects of the person that have been weakened and compromised by drug addiction while supporting ongoing recovery from addiction. Treatment of substance use disorders traditionally requires addicts to give-up the very substance they depend on to numb their pain and cope with life at the same time they are expected to face their physical, mental,

emotional, and spiritual wreckage. A vast, empty space remains in place of the time, money, and energy spent acquiring the next fix, getting high, staying high, recovering, and doing it all over again. Kundalini Yoga was presented as a comprehensive lifestyle that provides a technology to support recovery from addiction. It is not intended to replace other conventional treatments and is recommended in addition to other interventions as one way to experience relief from suffering.

CHAPTER III

Method

Design

This doctoral dissertation has been categorized as a critical literature review. The methodology involves a critical review of relevant literature, interviews with field consultants, presentation development, presentation delivery, and presentation evaluation. The PowerPoint (APPENDIX A) was created to provide mental health professionals with an overview of opioid addiction including the various neurobiological and psychological mechanisms involved in addiction and recovery. The presentation included relevant data regarding opioid abuse in the United States, preliminary findings that supported the use of mindfulness-based interventions, and ways in which Kundalini Yoga supported recovery from addiction. The presentation included two experiential exercises and concluded with time for interns, practicum students, and clinical supervisors to ask questions, offer feedback, and to complete the anonymous evaluation/feedback form (APPENDIX B).

Procedures

The first step in completing the project was an assessment of the severity of opioid addiction in the United States. I sensed the severity of the problem after completing a yearlong practicum at an outpatient narcotics treatment center. I used the Alliant library research databases to obtain current statistics on the growing epidemic. Due to the increasing popularity of mindfulness interventions and research in neurobiology, information was readily available using EBSCO host, ERIC, ProQuest, PsychINFO, and Google Scholar. The following keywords were used alone and in various combinations: mindfulness, opioid dependence, addiction, substance abuse, meditation, Kundalini Yoga, and neurobiology. I often further investigated

references cited in articles I read using Encore on the Alliant library website. Several books were requested through interlibrary loan and the majority of references for Kundalini Yoga came from a personal library I built over the years as a student and teacher of the ancient practice. In addition, Dr. Khalsa, a field consultant for the dissertation project, generously offered to share his archive of yoga and meditation-related research.

Target Audience

My target audience consisted of interns, practicum students and clinical supervisors at Sovereign Health of California in Culver City, an intensive outpatient, partial hospitalization treatment program for patients diagnosed with substance dependence and/or severe mental health disorders. At intake, patients were assigned to either the *Dual Diagnosis* track or *Mental Health* track depending on their primary diagnosis. A licensed clinical psychologist supervised 15 graduate students, including myself, whose primary duties included facilitating individual and group therapy during a yearlong training program. All students were required to attend weekly didactic trainings and my dissertation Power Point was presented during didactic training on April 28, 2014 from 4-5pm.

Field Consultants

Field consultants were carefully selected leaders in the field of clinical psychology, Kundalini Yoga and Meditation as taught by Yogi Bhajan, substance abuse treatment, and mind-body medicine. I interviewed five highly esteemed professionals who represented a range of perspectives that were very relevant to the range of contexts addressed throughout the project.

Dr. Sat Dharam Kaur, naturopathic physician and international yoga teacher trainer, began practicing Kundalini Yoga in 1971 and developed a 16-module curriculum called *Beyond Addiction: The Yogic Path to Recovery* (Kaur & Kaur, 2014). Dr. Sat Bir Singh Khalsa, Harvard

University neuroscientist and practitioner of yoga for over 35 years, studied the clinical applications of yoga and meditation by investigating the effects of Kundalini yoga on insomnia (Khalsa, 2004), anxiety (Khalsa, Butzer, Shorter, Reinhardt, & Cope, 2012), and stress in the workplace (Hartfiel, Havenhand, Khalsa, Clarke & Krayer, 2011) in addition to the integration of yoga into high schools (Conboy, Noggle, Frey, Kudesia, & Khalsa, 2012; Noggle, Steiner, Minami, & Khalsa, 2012). Dr. Lobsang Rapgay, research psychologist at UCLA Semel Institute for Neuroscience and Human Behavior and former Buddhist monk, was my professor in a year-long advanced elective course on the neuroscience of mindfulness and anxiety. Jasmine Rogg, clinical supervisor at Sovereign Health and therapist in private practice, used mindfulness in her work with clients recovering from addiction. Dr. Peter Theodore, licensed clinical psychologist in private practice also specialized in substance abuse treatment and was my professor for an advanced elective course on substance abuse treatment.

I initially asked my professors, Dr. Theodore and Dr. Rapgay, if each would be willing to consult on the dissertation project at the time I was enrolled in their respective classes. Jasmine Rogg was a supervisor at the drug and alcohol treatment center where I trained during my practicum and pre-doctoral internship years; Rogg agreed to set aside time and meet on-site. Mutual contacts in the Kundalini Yoga community facilitated my initial contacts with Khalsa and Kaur. After introducing myself as a graduate student in clinical psychology writing a dissertation on mindfulness and Kundalini Yoga for recovery from addiction, I asked potential field consultants if they were willing to be interviewed as part of my dissertation. I emailed consent forms (APPENDIX C) and interview questions (APPENDIX D) in advance and conducted the interviews in person, over the phone, and via SKYPE.

CHAPTER IV

Results

Field Consultant Interview Results

Question 1. What is your general reaction to the clinical dissertation topic "Beyond Mindfulness: Kundalini Yoga and Mindfulness Meditation for Recovery from Opioid Dependence?"

Field consultants were unanimously in favor of yoga and meditation as an intervention for recovery from substance dependence. Specifically, Kaur, Khalsa, Rapgay, and Theodore (personal communications, February 13, 2014; January 31, 2014; March 27, 2014; April 24, 2014) acknowledged the powerful interaction between the mind and body facilitated by the practice of yoga and meditation. According to Rapgay, the combination of cognitive, mental training with yoga was most beneficial and outcomes exceeded the benefits of mindfulness meditation alone. He added that one of his greatest challenges as a researcher has been determining which specific components of yoga and/or meditation contributed to the outcome measures. In addition to recognizing the benefits of the mind-body connection, clinical psychologist Theodore acknowledged the general effectiveness of yoga and meditation in helping individuals addicted to various substances to achieve a state of tranquility. He identified the practice of yoga and meditation as a much healthier way for opiate users to feel sedated, tranquil, and relaxed. For individuals who were addicted to opiates, yoga and meditation would be a form of counter-conditioning given they were already conditioned to use drugs in order to experience an altered state. Although he did not personally practice the Eastern-based techniques, Theodore agreed that the process of gaining control over the body and breath would certainly be an effective way to help clients slow down the thought process and decrease

obsessive thinking while helping them be more present and centered in the moment.

Khalsa and Kaur (personal communications, January 31, 2014; February 13, 2014) provided insight and re-direction by encouraging me to re-consider the original title, *Beyond Mindfulness*, and explained it implied judgment and potentially came across as derogatory toward mindfulness. Given the increased awareness around the effectiveness of mindfulness practices, my intention was to use the popular term to intrigue readers and inspire an interest in learning more about mindfulness meditation and the vastness of Kundalini Yoga and Meditation. Kaur graciously offered to share the title from her curriculum *Beyond Addiction: The Yogic Path to Recovery* (Kaur & Kaur, 2014) and suggested I substitute *Beyond Addiction* for *Beyond Mindfulness*.

Question 2. Please share any relevant insights from your professional experiences regarding how to bridge the gap between Eastern practices (i.e. yoga, meditation, and mindfulness) and Western institutions (i.e. academia, clinical, and community-based settings).

Field consultants recognized the gap between Eastern and Western-based practices along with a narrowing of the gap and growing acceptance in institutional settings in the West. As part of the community at Harvard Medical School, Khalsa (personal communication, January 31, 2014) observed the active bridging of the gap between traditional medicine and mind-body medicine at Harvard's Mind-Body Medical Institute and Alternative Medicine Center. According to Khalsa, the belief in institutional resistance was a philosophical myth and there was no shortage of people who wanted to do research. The greatest barrier between mind-body medicine and conventional healthcare was funding for the research according to Khalsa.

Theodore (personal communication, April 24, 2014) spoke to the growing acceptance of Eastern-based practices in expensive treatment programs often associated with the higher SES

individual who went to Malibu, California for drug and alcohol rehabilitation. He suggested an element of classism existed whereby the higher SES person could afford to pay for yoga classes and had the time to learn and practice. Similarly, he expanded the concept of classism to high-end treatment centers that provided services to higher SES clientele where yoga and meditation was offered as a part of treatment. Further, he expected yoga and mindfulness practices would be less utilized in community-based, state funded programs that served a lower SES thereby denying these individuals access to the benefits of yoga and meditation made available in more expensive rehabilitation programs.

Kaur described her experiences working in a town of 21,000 people in Canada and her difficulties in helping community members gain access to *Beyond Addiction: The Yogic Path to Recovery* (personal communication, February 13, 2014; Kaur & Kaur, 2014). She offered her yoga- and meditation-based program at her center and found most people had no money to pay and many would not commit to the time involved. She then took her program into hospitals and substance abuse detoxification centers but experienced obstacles in delivering the program (i.e. clients could not pay, there were transportation issues getting to the clinic, and attendance was inconsistent due to the chaotic nature of the addicts' lives). Determined to disseminate her program, she organized a team of teachers who were willing to teach at a treatment center for free. The program's participants reported that the yoga and meditation was the best part of their treatment program and they wanted more. As a result of this experience, volunteers continued to take Kaur's program (Kaur & Kaur, 2014) into institutional settings throughout their communities with the hope that the valuable program would start to pay one day.

In her ongoing effort to bridge the gap, Kaur trained yoga teachers to take *Beyond Addiction* (Kaur & Kaur, 2014) back to their own communities having acknowledged students

may feel safer learning from an accepted and respected community member as opposed to learning from an outsider who might elicit resistance and fears of indoctrination. For example, after completing yoga teacher training, a first nation's woman took the *Beyond Addiction* course (Kaur & Kaur, 2014) and returned to her reservation to teach. In order to bridge the gap with health professionals, Kaur recommended advertising the program with mental health professionals and presenting the training in different venues to meet them on their own terms and give them some techniques to try with patients. Despite the interest and openness of mental health and addiction workers in clinical settings, unless they were certified Kundalini Yoga teachers, they were not qualified to teach Kaur's program (Kaur & Kaur, 2014). However, they could partner with a teacher to bring the program to their facility. Kaur considered forming partnerships with corporate sponsors who would pay teachers a lump sum to teach the course.

Rapgay (personal communication, March 27, 2014) spoke to differences between the clinical application of an Eastern-based intervention and conducting research around an Eastern-based intervention. Specifically, in order for Eastern techniques and their subcomponents to be successfully integrated into clinical treatment protocols, they must be modified accurately to suit the conditions of the disorder being treated. Likewise, he saw a significant difference between using an Eastern-based practice in a clinical setting compared to using it in a religious or spiritual context. According to Rapgay, the clinical application must be congruent with the overall Western tradition and add to it, without being redundant. Because compliance was a critical element, interventions must be simple enough and easily understood by participants, yet challenging and moderating enough to be effective.

As a therapist in private practice and supervisor at a drug and alcohol treatment center, Rogg (personal communication, April 30, 2014) recognized the need for assisting the newly

recovering addict with establishing new habits. Similarly, she saw the treatment setting as the place for patients to be guided and "to get a rhythm going" either in a group or one-on-one. Her work with patients began with focusing on the breath. Acknowledging that patients in early recovery were often unmotivated and had difficulty focusing or concentrating, she did not push time limits for meditation. She added, "If they do it, it always works."

Question 3. Please share any clinical observations you have made regarding the benefits of Kundalini Yoga and/or Mindfulness meditation with your patients/clients.

According to Rogg (personal communication, April 30, 2014), the addict likely experienced an adverse, traumatic childhood and as a result, resorted to various means of self-medicating for emotional regulation and survival. Whether the addiction manifested as an eating disorder, drug or alcohol dependence, or sex and love addiction, she spoke to the importance of offering techniques and tools to bridge the gap that existed between waking up in the morning and getting to a 12-step meeting. In addition to practicing conscious breathing techniques and mindfulness exercises, Rogg recommended prayer, reading and writing assignments, and being of service to the recovering addicts she worked with. She encouraged her patients to practice in the presence of another person in a safe and encouraging environment in preparation for continuing on their own in the future.

Kaur (personal communication, February 13, 2014) reflected upon an individual who successfully freed himself from chronic substance dependence using her 16-module curriculum and individualized, daily support. He achieved abstinence from daily crystal methamphetamine abuse. Kaur also shared about four women who formed their own support group after completing *Beyond Addiction* (Kaur & Kaur, 2014) and continued to stay in touch as they moved through the course together a second time. Kaur was inspired by their check-in emails and

delighted in continuing to witness the ways in which the women changed in relation to themselves and their addictions over time.

Rapgay (personal communication, March 27, 2014) spoke of integrating mindfulness within the context of psychotherapy. He found that when working with clients who spoke too fast, were impulsive, or easily distracted, it was very useful to integrate mindfulness concepts. Likewise, he used mindfulness techniques with clients who over-processed their problems and ruminated on their stressors. He introduced and incorporated mindfulness practices by encouraging patients to reflect within the parameters of regular therapy. He used similar techniques with patients who were initially resistant to mindfulness and suggested introducing and incorporating yoga in a similar way within the context of psychotherapy. Rapgay reported that overall, mindfulness practices were well received by patients and who also tended to find practicing mindfulness very helpful.

Question 4. What is your experience with the receptivity of and responses to Eastern practices (i.e. mindfulness, meditation, yoga) in academic and clinical settings?

Overall, field consultants had experienced the growing receptivity to Eastern practices in their respective professional settings. According to Kaur and Khalsa, (personal communications, February 13, 2014; January 31, 2014) the popularity of yoga had facilitated an opening to Eastern practices in academic and clinical settings. Kaur predicted that receptivity would continue to increase as people became increasingly familiar with yoga and began recognizing it as a therapy. According to Khalsa most conventional scientists were to some degree open and for those individuals who viewed Eastern-based practices as something foreign, “They end up loving it once they are exposed to it.” Khalsa stated that the integration process was moving forward and “There is nothing stopping this moving forward.” He added, “It is time to bridge

the gap, and it is happening."

Kaur (personal communication, February 13, 2014) shared the history of Kundalini Yoga along with the thriving tradition that continued to flourish. The practice originated at least 2000 years and was brought to the West in 1968 by Yogi Bhajan. Although at times there had been criticism around the "cult-like aspect" of Kundalini Yoga, Kaur emphasized the importance of remaining focused on the tradition that continued to flourish decades after the technology was introduced to Westerners. Although Kaur noted the importance in differentiating Kundalini Yoga "as taught by Yogi Bhajan" from other yogas, there had been controversy around Yogi Bhajan which provoked resistance toward the practice.

Theodore, an associate professor at California School of Professional Psychology, acknowledged Jon Kabat-Zinn's work as the reason more academics had started to embrace Eastern-based practices (personal communication, April 24, 2014). Whereas he did not see yoga therapies as commonly accepted or practiced, he did see this dissertation project as part of an evolution that had become more mainstream. He added that there was no need to be guarded or scared that this specialized niche would be limiting due to the growing number of academics who accepted and embraced the functionality of mindfulness within academia. Theodore recommended trying to incorporate and integrate Eastern-based practices into work that already had a strong empirical foundation and added that any illness with an empirical basis of incorporating mind-body work would lend itself to yoga therapy. Rather than working alone, he suggested I connect with people who were already doing the work in progressive, major metropolitan areas including Southern California where Theodore sensed openness to this type of work.

Rapgay attributed his experiences with acceptance and tolerance to advances in cognitive

neuroscience research and a growing public interest in mindfulness (personal communication, March 27, 2014). As a research scientist at UCLA, he made significant modifications and adjustments to Eastern mindfulness techniques in order to conform to the demands of clinical research paradigms. He embraced the challenge of objectively understanding clinical research from a Western perspective and noted, "It would have been especially difficult to hold onto the bias that Eastern techniques had to be practiced as taught in the Eastern tradition." Nevertheless, students and colleagues frequently associated him with the culture of monks due to his background and often assumed his primary focus was on meditation.

Rogg shared that whereas her colleagues usually appeared receptive and acted as if they knew about various Eastern-based practices, few actually practiced yoga, meditation, or mindfulness (personal communication, April 30, 2014). She added that in order to best support patients in early recovery from substance abuse, the therapist must be physically present and create a safe space where patients feel supported and protected rather than giving them a recorded mindfulness exercise and expecting them to practice alone. Rogg believed that yoga, meditation, and mindfulness exercises were effective with patients in early recovery who were establishing new habits.

Question 5. Do you have any advice or guidance for bridging the gaps that exist between more traditional, conservative approaches to treatment and my vision of extending and expanding the reach of yoga and meditation in clinical settings?

According to Khalsa, good research that supported the effectiveness of yoga and meditation should bridge the gap and would begin with quantities of quality research leading to a critical mass of information and increased knowledge followed by practice (personal communication, January 31, 2014). He recommended isolating five specific techniques and

looking at each technique individually by having participants perform each technique for 40 days. He specifically referred to *Beyond Addiction: The Yogic Path to Recovery* (Kaur & Kaur, 2014) and spoke to the necessity of focusing on the entire program, "because all the pieces come together to aid in transformation." For example, "the yoga gave participants momentum and changed their state and the writing and videos made them think differently about themselves." Khalsa recommended the following steps as a starting point for designing a research project to investigate the effectiveness of yoga and meditation as an intervention for recovery from addiction: locate a facility to work with, recruit volunteers, create a control group to compare with those who would go through the program and/or practice the individual techniques, administer pre-test and post-test questionnaires to measure the success of the program, and collect written testimonials to compliment the statistics.

Similarly, Rapgay recommended the development and implementation of a scientific protocol that would be offered to patients at a particular clinic where data would be collected for years to gain support for the protocol (personal communication, March 27, 2014).

Rogg found that providing patients with psychoeducation about the physiology of addiction and how yoga and meditation helped re-wire the brain was very effective and would be helpful in integrating yoga and meditation into more traditional treatment settings (personal communication, April 30, 2014). Although she found it difficult to implement major behavioral changes with the patients due to the brief time insurance companies allowed them to receive treatment at her site, she witnessed a reduction in shame among patients once they understood more about the impact of addiction on the brain. She utilized psychoeducation interventions to instill hope and invoke curiosity and interest among her patients with the intention that they might explore yoga or meditation as a means of sustaining recovery following discharge.

Theodore thought the integration of yoga and meditation into traditional clinical settings was a "great idea" and explained there were many opportunities to create a niche in the field of substance abuse due to the degree of openness and acceptance to new ideas in an area where "the same model does not work for everyone" (personal communication, April 24, 2014). He recommended using the dissertation project as a launching pad due to the natural opening it created for conversations with people who were already doing the work. Similarly, Theodore suggested the maintenance and strengthening of existing relationships while networking and marketing to foster new relationships with other professionals in the field. As a college professor, Theodore experienced the value in working with students and recommended finding an adjunct teaching position and introducing students to non-traditional approaches to treatment to compliment traditional curricula.

Question 6. Do you have any ideas about expanding and developing this project after I complete my dissertation?

Khalsa encouraged the careful consideration and clarification of goals while recommending movement in the direction of greatest passion and interest because "there will always be obstacles and if you are not passionate you will not have the interest and effort to over come obstacles" (personal communication, January 31, 2014). He identified the following areas for professional exploration: private practice, running a program, or teaching workshops around the United States. Khalsa recommended getting in touch with his colleagues, Dr. Richard Gevirtz, a psychologist and researcher who used yogic breathing techniques as a clinical intervention, and Dr. Shanti Shanti Kaur Khalsa, yoga therapist, founder, and director of Guru Ram Das Center for Medicine and Humanology, a Kundalini Yoga-based center in New Mexico.

Rapgay recommended developing the dissertation project into post-doctoral research and offered several suggestions for designing an effective protocol (personal communication, March 27, 2014). The protocol must include well-defined elements that were selected to clearly bring about certain, specific changes and be demanding enough, yet not too demanding that it detracts from compliance. Given the critical nature of compliance by participants, researchers must obtain an accurate sense of the effort and moderation required for the average patient with addiction problems to perform the protocol.

Theodore recommended pulling sections from the dissertation to submit for publication (personal communication, April 24, 2014). In addition to writing articles for scientific journals and other academic publications for career development, he recommended writing for the general public and submitting a less academic series of articles to community-based newspapers. He saw the dissertation as "an instant tool to talk about and network around" and emphasized the doctoral candidate's professional responsibility to those who will assume and expect her to be an expert on the dissertation topic. Similarly, Theodore encouraged ongoing affiliation and networking with local, regional, and national organizations including Los Angeles County Psychological Association, California Psychological Association, the Health Psychology division of the American Psychological Association, and the Society of Behavioral Health Medicine.

Kaur shared her global vision for *Beyond Addiction: The Yogic Path to Recovery* (Kaur & Kaur, 2014) and extended an invitation to train with her in Canada (personal communication, February 13, 2014). She was actively forming a global community of trainers to disseminate her program and explained that collaboration between experienced Kundalini Yoga teachers and therapists could be very powerful and effective in working with individuals struggling with addiction.

Rogg advocated for an approach to treating addiction that was grounded in personal experiences of suffering and relating to patients through love and the power of bonding (personal communication, April 30, 2014). She believed that because insecure attachment and childhood adversity were the source of addiction, and that addicts were simply reaching for various ways to survive and experience some pleasure in life, the solution was to provide healthy opportunities for bonding and attachment. Rogg encouraged the ongoing expansion and continuation of the dissertation project "in anyway that might help recovering addicts experience relief from a lifetime of suffering and begin to feel connected with self and others."

Although Rogg described her approach as *radical* (personal communication, April 30, 2014), her philosophy aligned with the intention of Kaur's *Beyond Addiction* program (Kaur & Kaur, 2014), and Kundalini Yoga and mindfulness meditation practices; In order for recovering addicts to transcend their self-defeating habits and experience true serenity, they must find ways to relieve their suffering and connect with self-promoting habits and people who support the healing process. Rapgay and Khalsa (personal communications, March 27, 2014; January 31, 2014) focused on using scientific research to raise awareness and emphasized the importance of ongoing research and data collection. Theodore (personal communication, April 24, 2014) emphasized the importance of networking, teaching, and publishing. Together, field consultants offered valuable contributions to the dissertation project.

Presentation Evaluation and Feedback

At the conclusion of the presentation, all attendees completed the anonymous Evaluation and Feedback Form consisting of 10-Likert scale questions and three qualitative questions (Appendix B). Likert scale questions were used to evaluate the degree of familiarity attendees had with 1) opioid dependence, 2) mindfulness meditation, and 3) Kundalini Yoga and

meditation prior to the presentation and how much the presentation increased their knowledge. The questions also assessed how helpful the presentation slides were and how useful the information would be to their work in a clinical setting. Additional questions asked attendees to rate the presenter's ability to communicate the information and answer questions. In addition to measuring objectives and the overall quality of the presentation, the information gathered from the evaluation and feedback forms will be used to make improvements for future presentations.

The presentation was well-received by practicum students, pre-doctoral interns, and clinical supervisors at Sovereign Health of California. Based on their responses to the Evaluation and Feedback Form distributed at the conclusion of the presentation, respondents showed increased knowledge of 1) opioid dependence, 2) mindfulness meditation, and 3) Kundalini Yoga and Meditation as a result of the presentation. For example, participants were asked to rank how familiar they were with Kundalini Yoga and Meditation prior to the presentation and several participants marked "Not at all." At the end of the presentation, their responses indicated the presentation increased their knowledge "Very Much." Everyone who attended the presentation was at least "somewhat" familiar with opioid dependence prior to the presentation, which made sense considering the setting where they worked provided intensive outpatient and partial hospitalization services to several patients diagnosed with opioid dependence. Nevertheless, by the end of the presentation, most attendees responded that the presentation increased their knowledge of opioid dependence. Their responses were similar pertaining to their levels of familiarity with mindfulness meditation prior to the presentation, which also came as no surprise due to the fact mindfulness meditation was an integral part of treatment offered at the center. Despite being at least "somewhat" to "very familiar" with

mindfulness meditation, all but two attendees noted the presentation increased their knowledge "very much."

Respondents noted the information provided by the presentation was "very useful" to their work as mental health professionals in a clinical setting. They unanimously marked the presenter's ability to communicate the information and answer questions as "superior" on the anonymous questionnaire. Most found the presentation slides "very helpful" with the exception of one person who reported she could not see the slides from where she was sitting.

When asked to identify what attendees liked most and least about the presentation, most reported enjoying "demonstration of techniques," "opportunity to try the techniques," and "practicing meditation" but overall would have liked "more time for demonstrations and interactions," "more exercises and hands on content," "more time to practice the skills," and "more time for presentation and more interactive exercises." In addition to enjoying the exercises, attendees also noted that they enjoyed the "informative slides" and current research that was referenced throughout the presentation in support of using mindfulness meditation and yoga in providing treatment for addiction.

CHAPTER V

Discussion and Conclusion

This chapter focuses on the author's evaluation of the dissertation project overall in addition to recommendations and thoughts on developing the project in the future.

Personal Reflections and Critique

Because I chose to blend several topics that I am very passionate about and interested in, the dissertation project was a very enjoyable process that kept me engaged from start to finish. Having completed a year-long practicum at an outpatient narcotics treatment center, commonly referred to as a methadone clinic, I recently became aware of the devastating trajectory of the growing opioid epidemic. I witnessed powerlessness, humility, and hopelessness around addiction. At the same time, I was introduced to *In the Realm of Hungry Ghosts* (Mate, 2010) and began to understand and gravitate toward harm-reduction and the disease model of addiction. I also remembered hearing stories of my teacher's arrival in the West from India decades ago, and how compelled he was to share the technology of Kundalini Yoga in an attempt to intervene in the wasting of young lives he witnessed as a result of drug addiction. Having had my own experiences with the powerful technology of Kundalini Yoga and recovery from addiction, I knew my doctoral dissertation would be the ideal opportunity to explore the mechanisms of neuroscience, mindfulness, and addiction to see where Kundalini Yoga might fit in.

The most enjoyable part of the project was interviewing field consultants and the highlight was travelling to Canada to train with Dr. Sat Dharam Kaur who later invited me to join her international team of trainers in implementing her curriculum throughout the United States. As a result of my involvement in the Kundalini Yoga community for more than ten years, I have formed many friendships, but never expected what developed through the

dissertation-writing process; I was introduced to Dr. Sat Bir Khalsa at Harvard University who was already collaborating with Dr. Sat Dharam. She contacted me from Canada to see if I was available to work with a man in Los Angeles who suffered from chronic drug addiction. She provided me with supervision and her developing curriculum *Beyond Addiction: The Yogic Path to Recovery* (Kaur & Kaur, 2014) and I started working with her program. I was delighted to find she and Dr. Gabor Mate (Mate, 2010), whose book had already deeply impacted my professional development and was a part of my literature review, were already collaborating and he was an integral part of her program.

The support and willingness of the busy, successful professionals who readily shared their resources inspired and motivated me. As a result, a desire to share and help others to connect and grow professionally blossomed within me. Looking back at the start of my doctoral program, I also recognized I gained fluency and comfort in neuroscience and concepts that intimidated me a few years ago when I first studied *Advanced Psychopathology* and *Biological Aspects of Behavior*. The information I learned from research and the unique perspectives offered by my field consultants, dissertation chair, and academic consultant made this process incredibly enriching both personally and professionally.

Recommendations

Field consultants provided a wealth of recommendations ranging from writing articles to teaching and future research. As a result, I started writing and published in a journal and started teaching at a small, private college in Los Angeles where I am able to introduce undergraduates to some of the ideas and findings from my dissertation. Fortunately, I do not have to write a curriculum or establish the foundation for creating a network of teachers to implement the curriculum because Dr. Sat Dharam Kaur has already done so and we are now working together.

Dr. Lobsang Rapgay and Dr. Sat Bir Khalsa shared invaluable information about research design that will guide me as I begin gathering data to quantify the experiences and successes we are having with the *Beyond Addiction* program. I am working with the curriculum at my pre-doctoral internship site in addition to teaching the curriculum and will co-facilitate a 9-day intensive immersion with Dr. Sat Dharam Kaur in Los Angeles in the spring of 2015. I knew this was my life work going into it and sitting down to write my dissertation was only the beginning.

Conclusion

Addiction has been a problem in the United States dating back to the original colonies (Inciardi, 1990) and continues to plague the lives of millions who are caught in the grips of a chronic disease centuries later (CDC, 2012; NIDA, 2011). In fact, recovery has been considered a life-long process (Volkow & Li, 2004) that frequently requires multiple treatment components and multiple treatment episodes (NIDA, 2011). By definition, individuals who suffer from substance dependence frequently relapse and are prone to multiple treatment failures (APA, 2013; NIDA, 2011). Therefore, a space exists for the introduction of Kundalini Yoga as a novel, complementary intervention intended to instill hope and bring relief to individuals who hunger for relief from their pain. The pain referred to throughout the dissertation extends beyond seemingly unbearable physical discomfort and touches the depths of an existential suffering wherein the individual feels so disconnected and apart from oneself and others, that regardless of the risks, drug use seems like the only solution (Blum et al., 2012; Bowen et al., 2011; CDC, 2012; Manchikanti et al., 2012; Mate, 2010; NIDA, 2011).

A one-size-fits-all approach to treatment limits and minimizes the vastness of human needs and experiences. Therefore, based upon the growing interest and availability of

neuroscience research describing the underlying mechanisms of addiction (Blum et al., 2012; Brewer et al., 2012; Goldstein & Volkow, 2011; Holzel et al., 2011; Jang et al., 2011; Mate, 2010; Volkow & Li, 2004) and quantitative research supporting the effectiveness of mindfulness meditation (Brewer et al., 2012; Kabat-Zinn, 1990; Siegel, 2007; Teper & Inzlicht, 2013; Witkiewitz et al., 2012), Kundalini Yoga and Meditation is presented as an complimentary intervention. Although seemingly counterintuitive, mindfulness practices have been found to be especially relevant in building resiliency and teaching skills that support ongoing recovery by teaching individuals to pause and experience their pain in the moment, rather than to habitually avoid discomfort (Bowen et al., 2009; Brewer, et al., 2012; Witkiewitz et al., 2012; Zgierska et al., 2009). Similarly, leading authorities in the field of Kundalini Yoga encourage individuals to increase their awareness by going to the source of pain and developing skills for living a conscious, disciplined life committed to health and wholeness (Bhajan, 2003; Khalsa & Stauth, 1997; Khalsa, 2000; Shannahoff-Khalsa, 2006). The ancient Eastern science and tradition has been presented as an accessible, cohesive system that could be integrated into a variety of settings where individuals seek relief from their addictions.

A powerful, ancient technology that was once limited to the realm of praxis, supported by positive outcomes experienced by those who taught and practiced Kundalini Yoga, has started to shift toward demonstrated efficacy with the *Beyond Addiction* (Kaur & Kaur, 2014) curriculum, dissemination of the program, and emerging research designs that will measure the program's effectiveness. Implementation of the curriculum by way of manualized protocols and data collection in clinical trials will follow this doctoral dissertation and build upon the information that has been provided by field consultants with the intention of one day ushering Kundalini Yoga into the realm of evidence-based practice. Indeed, the abuse of opioids in the United States

presents a problem and with that, the need for effective, novel interventions. Fortunately, advances in neuroscience research have made it possible to better understand how addiction impacts the brain and how meditation can be part of the solution. Hopefully, this dissertation contributes to an increased openness to new ideas and ways of compassionately working with individuals who suffer from the dis-ease of addiction and will support the integration of Kundalini Yoga and meditation as complimentary interventions for recovery from addiction.

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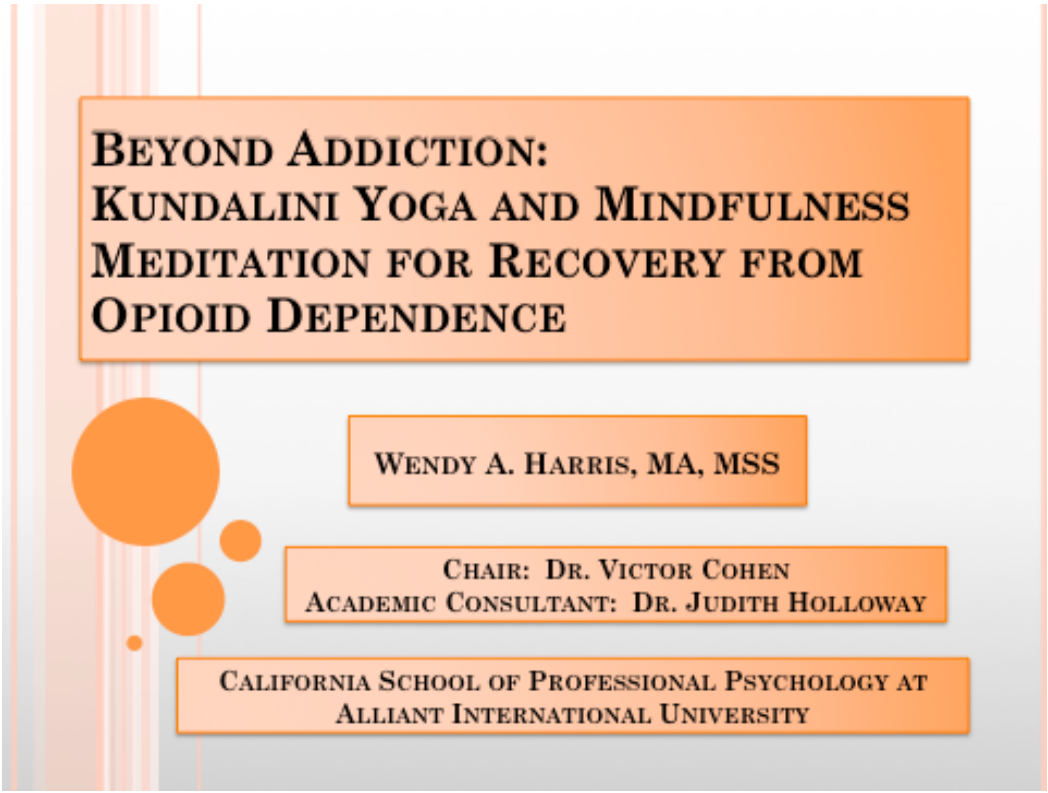
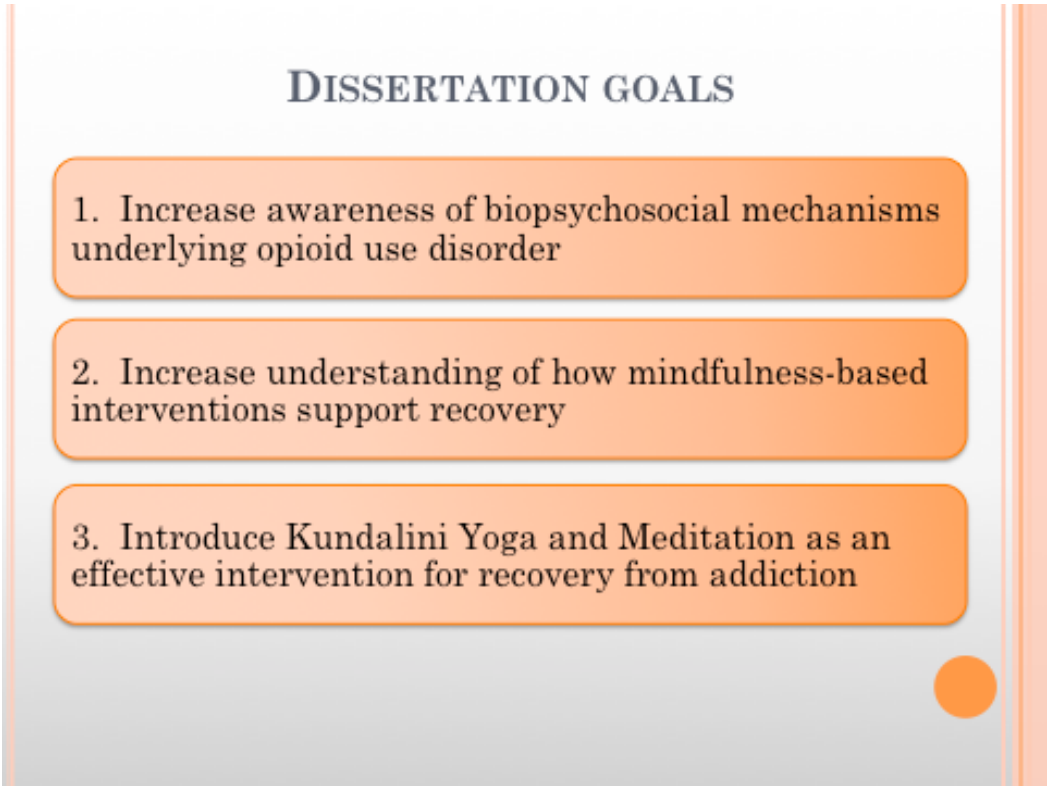
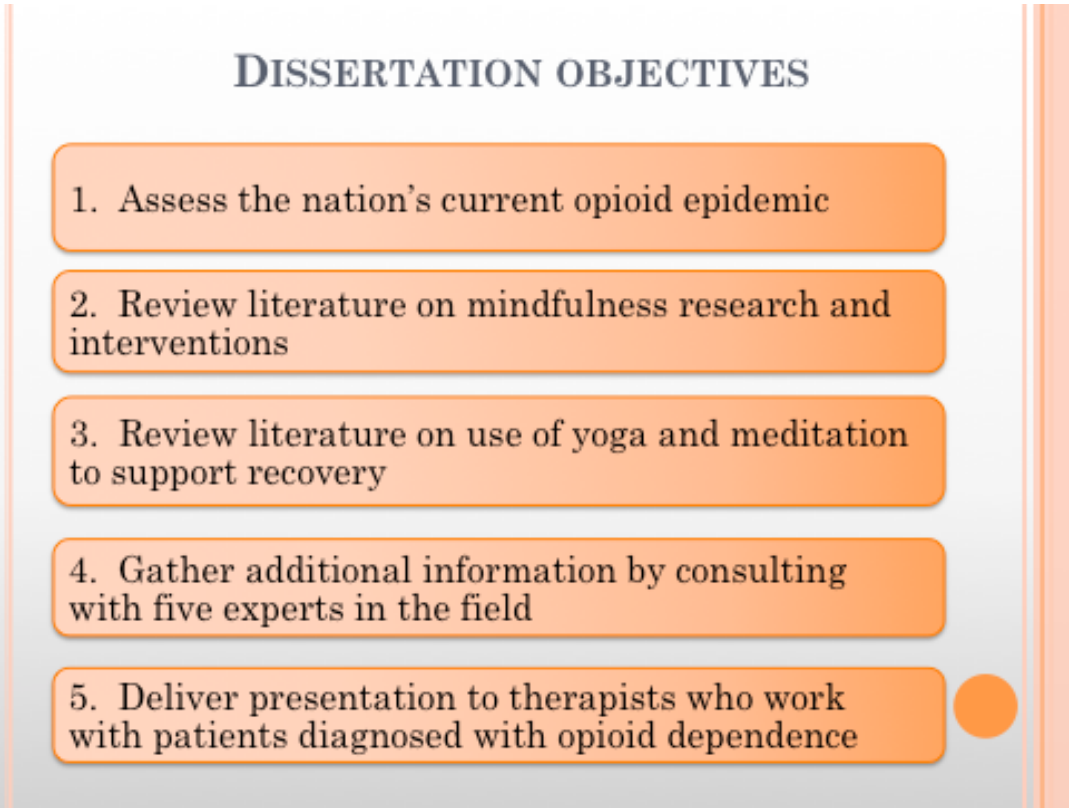
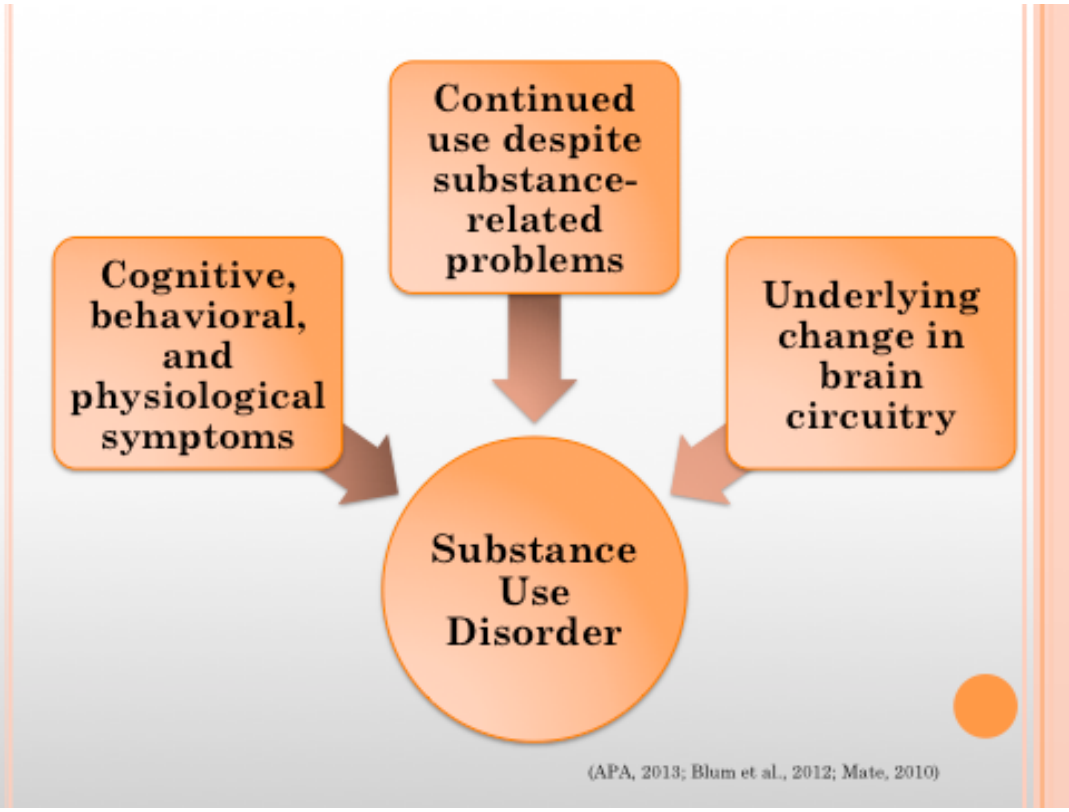
APPENDIX A

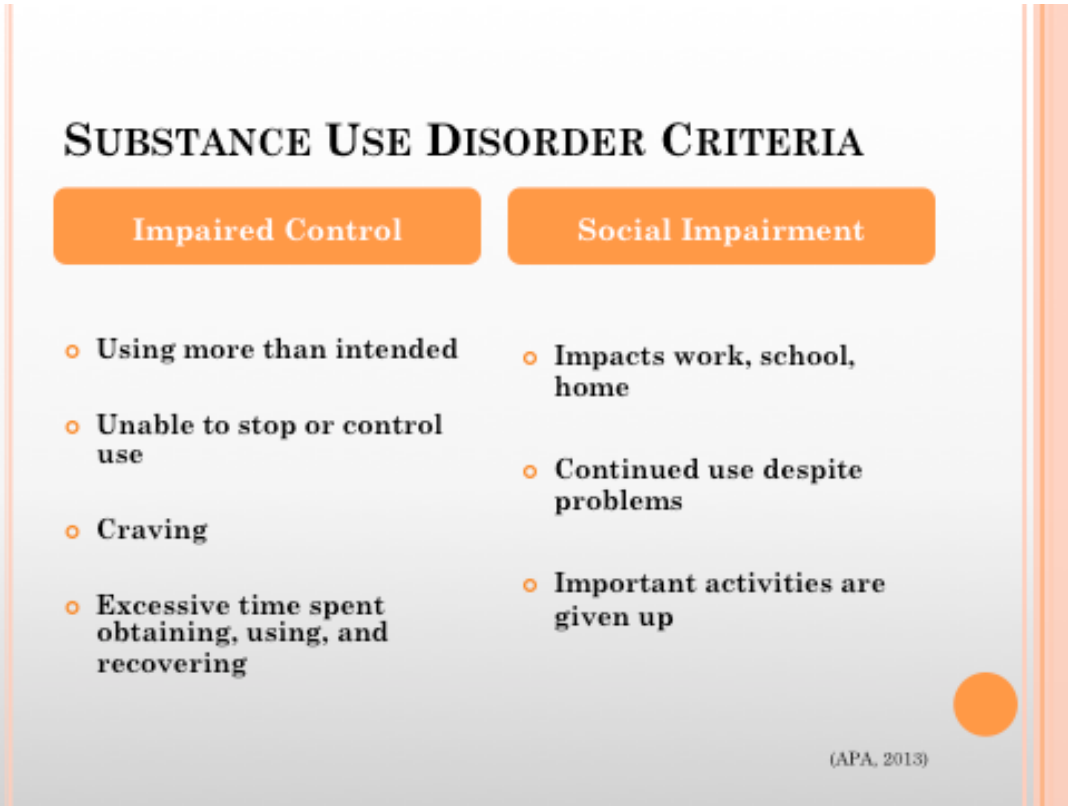
Presentation PowerPoint

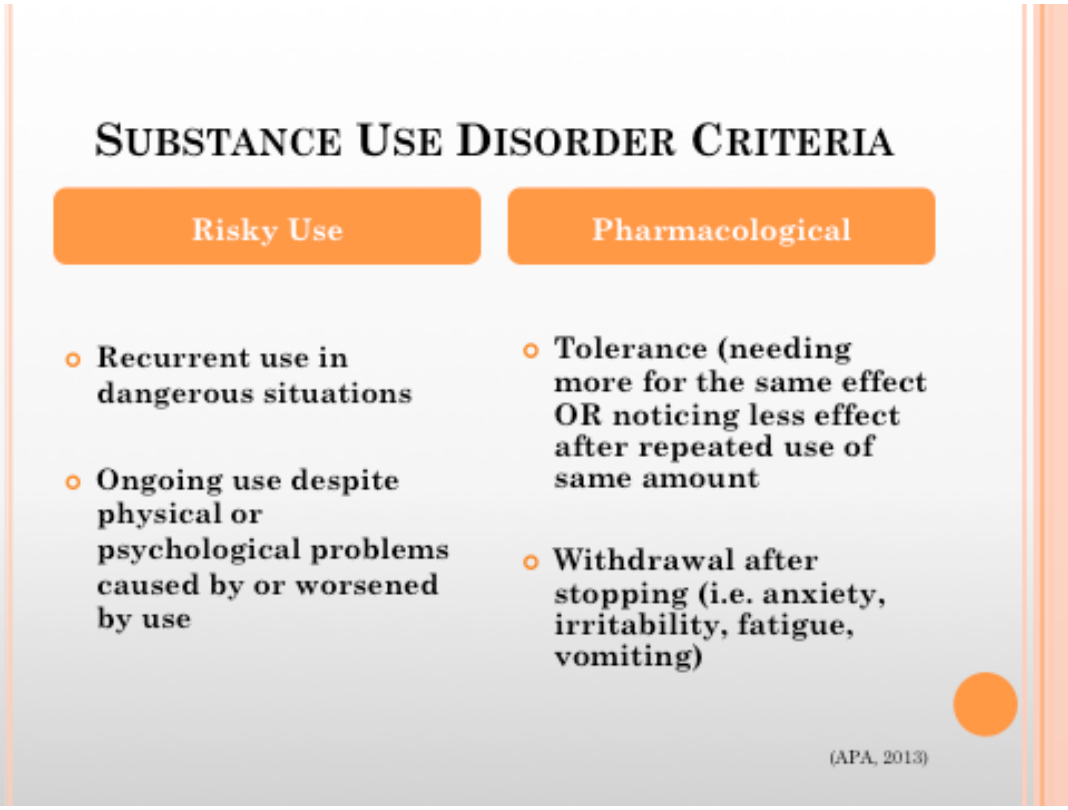

BEYOND ADDICTION:
KUNDALINI YOGA AND MINDFULNESS MEDITATION FOR RECOVERY FROM OPIOID DEPENDENCE
WENDY A. HARRIS, MA, MSS
CHAIR: DR. VICTOR COHEN
ACADEMIC CONSULTANT: DR. JUDITH HOLLOWAY
CALIFORNIA SCHOOL OF PROFESSIONAL PSYCHOLOGY AT ALLIANT INTERNATIONAL UNIVERSITY


DISSERTATION GOALS
1. Increase awareness of biopsychosocial mechanisms underlying opioid use disorder
2. Increase understanding of how mindfulness-based interventions support recovery
3. Introduce Kundalini Yoga and Meditation as an effective intervention for recovery from addiction

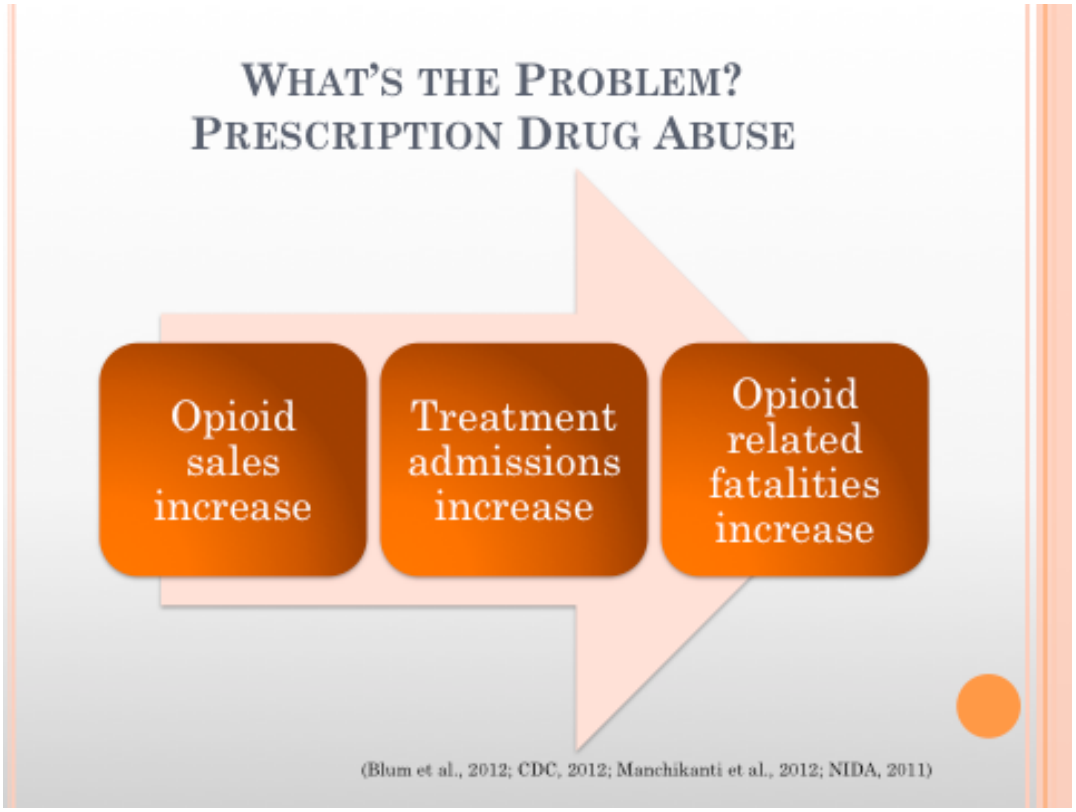

DISSERTATION OBJECTIVES
1. Assess the nation's current opioid epidemic
2. Review literature on mindfulness research and interventions
3. Review literature on use of yoga and meditation to support recovery
4. Gather additional information by consulting with five experts in the field
5. Deliver presentation to therapists who work with patients diagnosed with opioid dependence

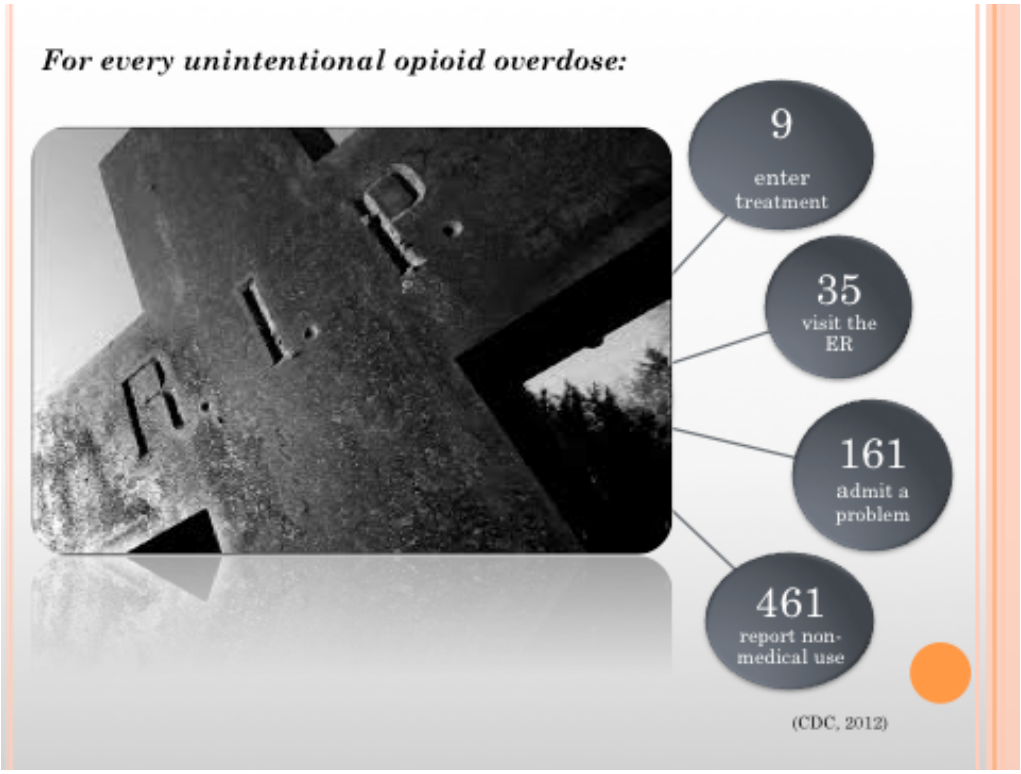

Continued use despite substance-related problems
Cognitive, behavioral, and physiological symptoms
Underlying change in brain circuitry
Substance Use Disorder
(APA, 2013; Blum et al., 2012; Mate, 2010)


SUBSTANCE USE DISORDER CRITERIA
Impaired Control
Using more than intended
Unable to stop or control use
Craving
Excessive time spent obtaining, using, and recovering
Social Impairment
Impacts work, school, home
Continued use despite problems
Important activities are given up
(APA, 2013)


SUBSTANCE USE DISORDER CRITERIA
Risky Use
Recurrent use in dangerous situations
Ongoing use despite physical or psychological problems caused by or worsened by use
Pharmacological
Tolerance (needing more for the same effect OR noticing less effect after repeated use of same amount
Withdrawal after stopping (i.e. anxiety, irritability, fatigue, vomiting)
(APA, 2013)


WHAT ARE OPIOIDS?
Fentanyl
Fentora
Oxycodone
OxyContin
Endocet
Hydrocodone
Vicodin
Opana


WHAT'S THE PROBLEM?
PRESCRIPTION DRUG ABUSE
Opioid sales increase
Treatment admissions increase
Opioid related fatalities increase
(Blum et al., 2012; CDC, 2012; Manchikanti et al., 2012; NIDA, 2011)


For every unintentional opioid overdose:
R.I.P.
9
enter treatment
35
visit the ER
161
admit a problem
461
report non-medical use
(CDC, 2012)


HISTORY OF OPIOID USE
DR BELL'S
ANTI-PAIN
A PAIN KILLER
INTERNALLY
EXTERNALLY
DIARRHOEA

NEUROBIOLOGICAL MECHANISMS OF ADDICTION

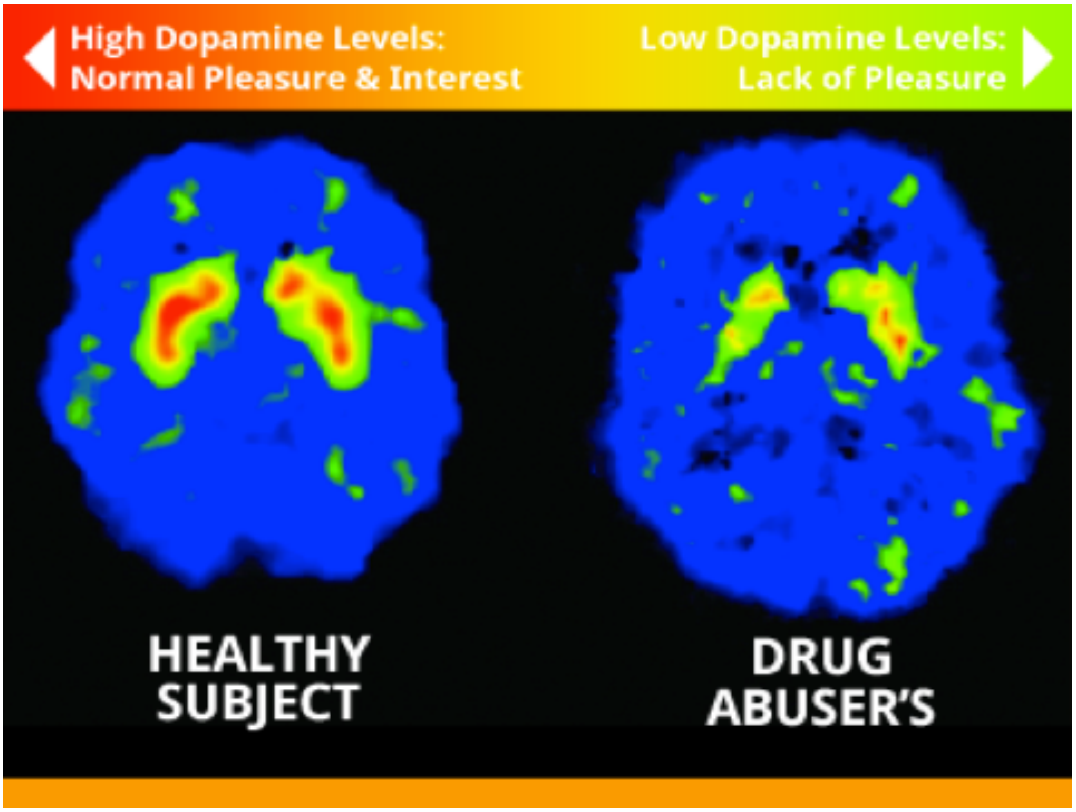
Endorphins
- Endogenous opioid neurotransmitter (natural pain reliever)

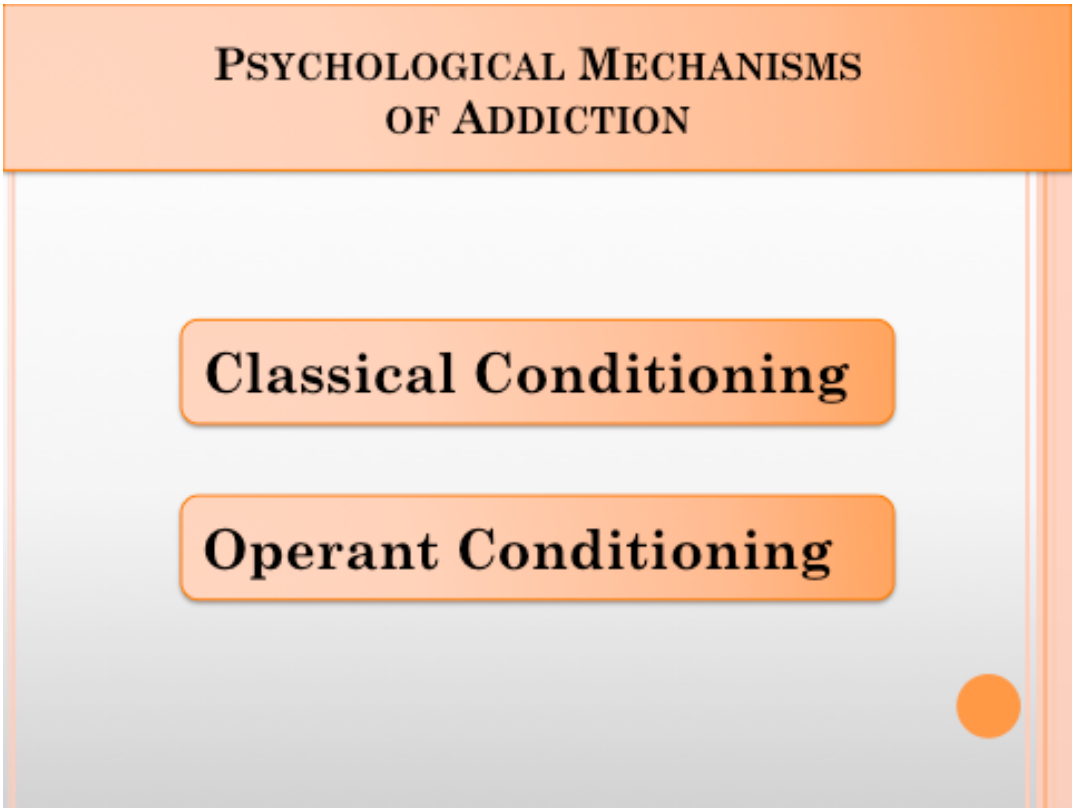
Dopamine
- Responsible for feelings of pleasure and reinforcing effects of drugs (natural reward system)

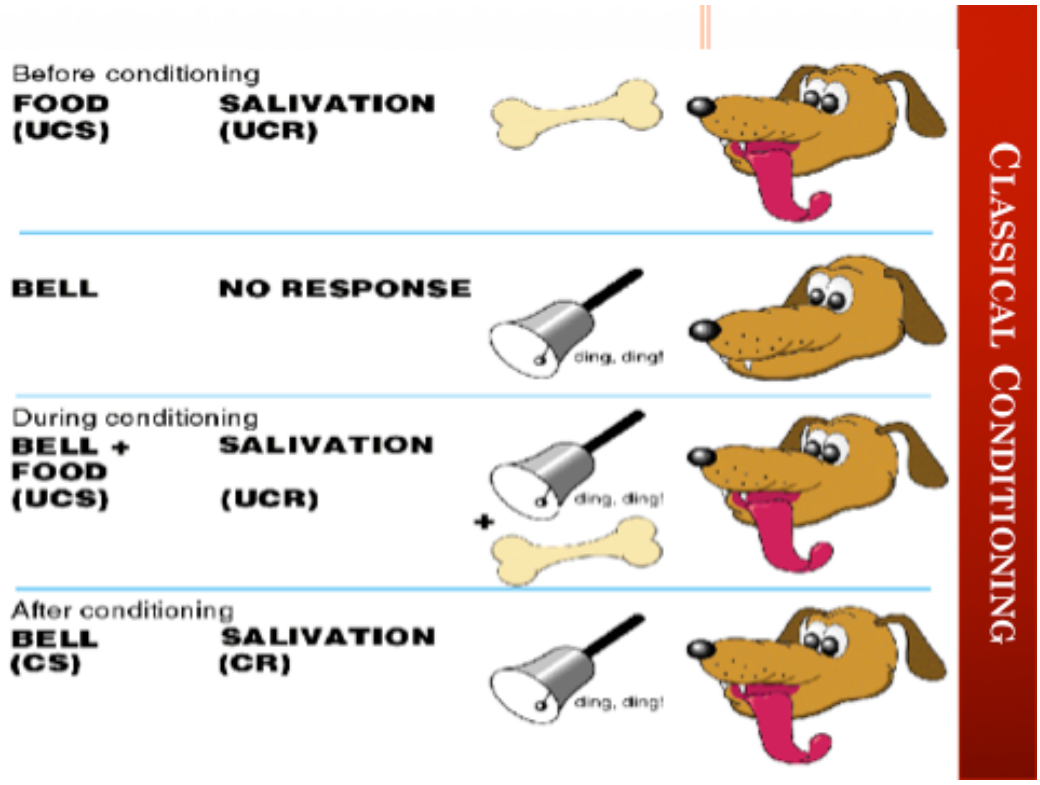
PreFrontal Cortex
- Self-regulation system (responsible for decision making, impulse control, processing emotions)

Default Mode Network
- Brain based biomarker for substance abuse made up of interconnected regions

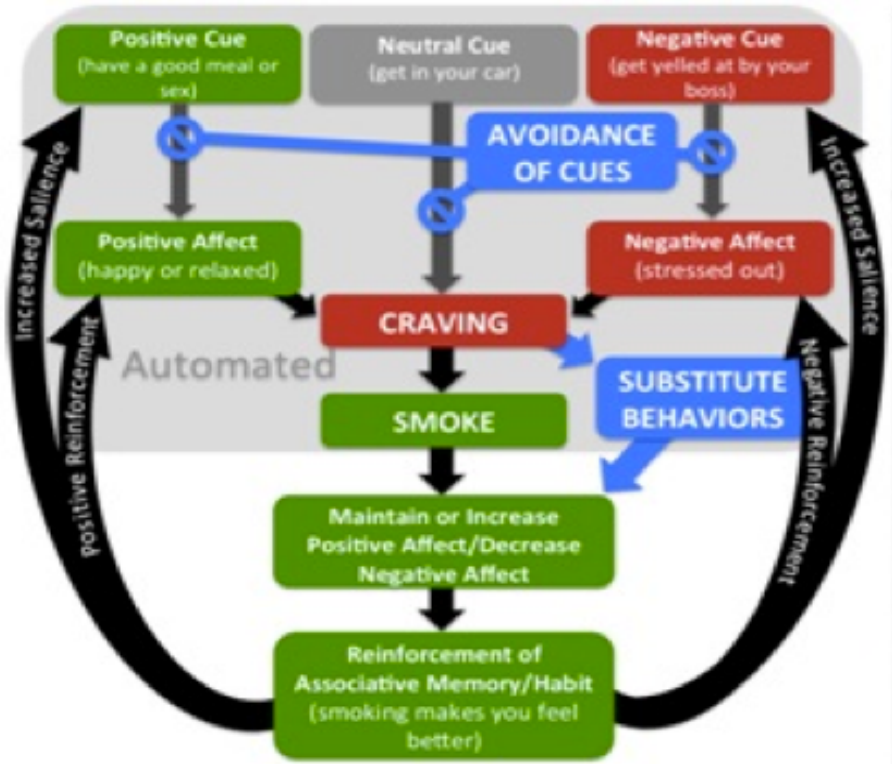
(Blum et al., 2012; Brewer et al., 2012; Holzel et al., 2011; Jang et al., 2011; Mate, 2010, Volkow & Goldstein, 2011; Volkow & Li, 2004)


High Dopamine Levels:
Normal Pleasure & Interest
Low Dopamine Levels:
Lack of Pleasure
HEALTHY SUBJECT
DRUG ABUSER'S


PSYCHOLOGICAL MECHANISMS OF ADDICTION
Classical Conditioning
Operant Conditioning



Classical Conditioning



Operant Conditioning
The Addictive Loop (Brewer et al., 2012)

Treatment: Opioid Use Disorder

- Chronic relapsing condition
- Multiple treatment failures
- Multi-system involvement
- Multi-dimensional approach
- Mind-Body Interventions
  - Mindfulness
  - Kundalini Yoga and Meditation

What is Mindfulness?

- Paying Attention
- In the Moment
- Without Judgment

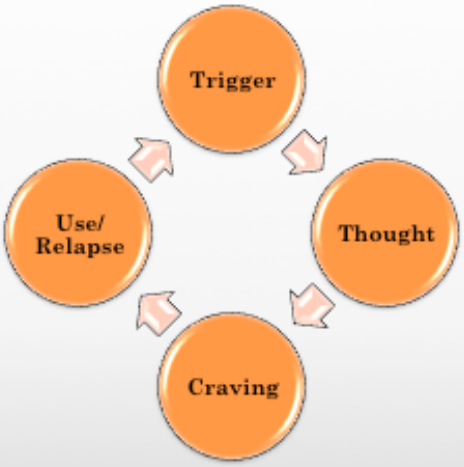
(Kabat-Zinn, 1990)

Mindfulness and Addiction

Mindfulness	Addiction
Bring awareness to pain and suffering	Avoid pain and suffering
Accept life as ever-changing and impermanent	Hold on to positive states and avoid negative states.
Practicing non-judgment creates space to respond with awareness	Coping as automatic, habitual conditioned reaction
Builds Self-Efficacy	Low Self-Efficacy

(Bowen et al., 2011; Holzel et al., 2011; Kabat-Zinn, 1990; Siegel, 2007)

Mindfulness Based Relapse Prevention (MBRP)



BODY SCAN ~ CONSCIOUS BREATHING ~ URGE SURFING

(Bowen, Chawla, & Marlatt, 2010)

How Mindfulness Dismantles the Addictive Loop

- Providing a space for exploring feelings w/o reacting can increase the ability to tolerate challenging experiences
- Individuals gain insight as awareness of automatic responses increases
- Increases ability for improved self-control, emotional regulation, and more adaptive responding
- Provides an opportunity to accept cravings and allow cravings to pass
- Disrupts conditioning (when cravings are not reinforced,
they eventually subside)

Research MBRP

- **Bowen et al., (2009)**
  Pilot Efficacy Trial Evaluated the effects of Marlatt's 8-week structured MBRP treatment protocol. Lower relapse rates, less cravings, increased awareness and acceptance among participants compared to TAU control

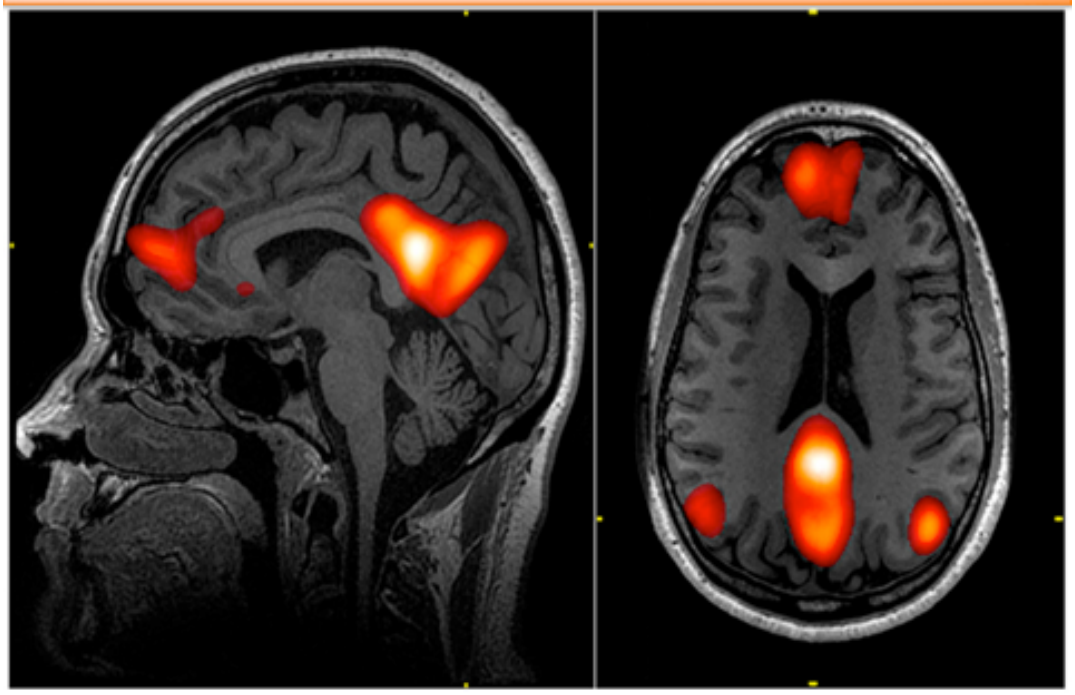
- **Witkiewitz et al., (2013)**
  A follow-up study identified awareness, acceptance, and non-judgment as interdependent, essential processes that work together to reduce the craving response.

Research
Neurobiology and Mindfulness

- **Holzel et al., (2011)**
  Compared gray matter of participants who completed 8-week MBRP with non-meditating control group. Pre-test/post-test fMRIs confirmed increases among meditators.

- **Brewer et al., (2012)**
  Default Mode Network- compromised by addiction and responsible for perpetuating it. With practice, mindfulness practices modify and disengage the network

Default Mode Network



RESEARCH
NEUROBIOLOGY AND MINDFULNESS

- **Witkiewitz et al. (2012)**
  Reviewed the neurobiological mechanisms of mindfulness and the neurobiological mechanisms of addiction. Neuroimaging studies showed the same circuits (pleasure and reward) that were disregulated in addiction were repaired with MBRP

- **Teper and Inzlicht (2013)**
  Used EEGs to compared executive functioning of 20 meditators and 18 non-meditators and concluded meditators have an enhanced ability to accept and attend to emotional states

MIND-BODY MEDICINE

- Since the 1970's researchers have investigated the effects of nontraditional Western medical treatment on reducing stress and anxiety and the subsequent reduction of drug use among addicts. Collectively these findings suggested that yoga released physical and emotional tension and thereby made it possible for the nervous system to renew itself by activating the body's inherent memory of balance and supported the exchange of abnormal cellular receptors for more normal patterns.
- In addition to the physical benefits associated with yoga (i.e. improved strength, flexibility, and balance) those who practiced yoga also experienced an opportunity to practice self-care, learned to regulate their affect in a supportive group setting, and showed increased levels of self-efficacy.

(Shaffer et al., 1997)

Yoga In America

- 20.4 million Americans practiced yoga in 2012 compared to 15.8 million in 2008 (29% increase)
- Yoga industry professionals predict ongoing increases due to emerging research on yoga as an effective therapeutic tool.
- "Yoga as medicine represents the next great yoga wave."
- Nearly 14 million Americans reported that a doctor or therapist recommended yoga.
- Yoga is no longer a singular pursuit. It is a lifestyle choice and an established part of our health and cultural landscape.

(www.yogajournal.com, 2012)

What is Kundalini Yoga?

- A "comprehensive, technical, and highly integrated system" focused on developing self-awareness to elevate and empower individuals to live their full potential."

(Shannahoff-Khalsa, 2006)

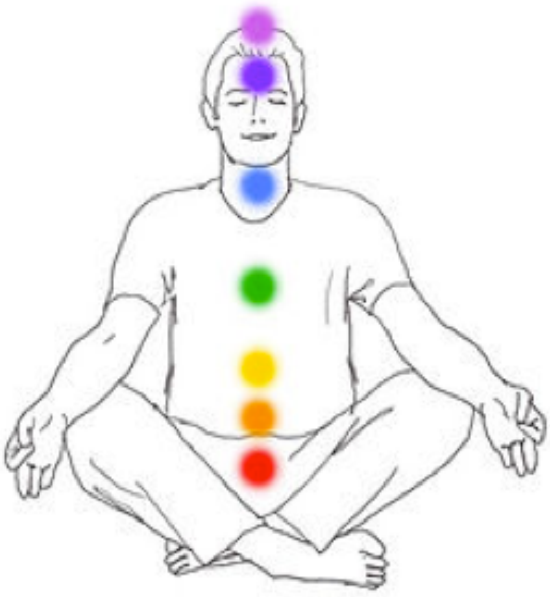
- Potential rewards include and are not limited to the physical benefits of improved flexibility, detoxifying and rebuilding the body, balancing and strengthening the glandular, nervous, circulatory, and digestive systems, and stimulating the production of endorphins. (Bhajan, 2003; Khalsa, D. S., & Stauth, C., 1997)

Mechanisms of Kundalini Yoga: The Chakra System

-Paradigm of mind-body medicine that originated in the East and continues to emerge in the West

-Modes of behavior, personality structure, and levels of awareness determined by chakra system

(Shannahoff-Khalsa, 2006; Khalsa, 2000)



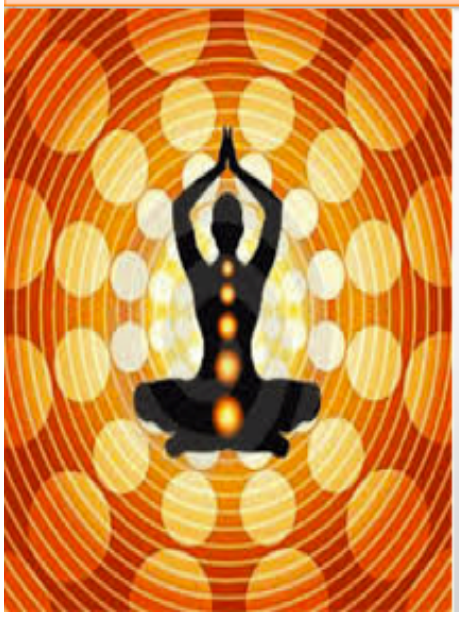
Mechanisms of Kundalini Yoga: Pranayama

Conscious Breathing:

- Increasing oxygen levels in the brain provides a sense of mental clarity
- Proper breathing can elevate mood
- Provides a sense of relaxation
- Unconscious habit
- Left nostril breathing for relaxation

(Bhajan, 2003; Khalsa & Bhajan, 2000)

Mechanisms of Kundalini Yoga: Mantra



Sacred sound and chanting:

- 84 meridians
- Tongue stimulates hypothalamus, pituitary, and pineal glands
- Activates endocrine system
- fMRI research: listening to music changed networks in the brain

(Bhajan, 2003; Morse et al., 2011; Shannahoff-Khalsa, 2006)

Mechanisms of Kundalini Yoga: Kriya

An orchestrated pattern that includes physical movements, static postures, sacred sound, breathing patterns, hand positions, concentration and meditation in order to create steady, predictable progress and rapid, sustainable personal growth and healing

(www.kundaliniresearchinstitute.org)

KIRTAN KRIYA

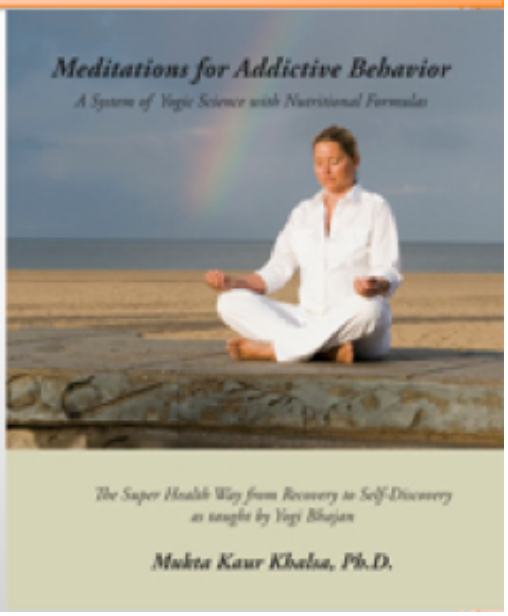
SA TA NA MA

FOR EMOTIONAL BALANCE
BREAK NEGATIVE HABITS AND ADDICTIONS
ELIMINATES THE FEELING OF BRAIN FOG
CLEAR YOUR PSYCHE & BALANCE YOUR BODY, MIND AND SOUL

KUNDALINI YOGA AND MEDITATION FOR RECOVERY FROM ADDICTION: SUPERHEALTH

- Established in Tucson, AZ (1973)
- Outpatient and residential treatment
- Based on KY and meditation
  (3) 1 hour yoga classes/day
- Fully accredited by Joint Commission Accreditation Health Organizations
- Top 10% of US programs
- 91% recovery rate (1983-1986)
- 1990 HMOs and funding changes

(Lohman, 1999)



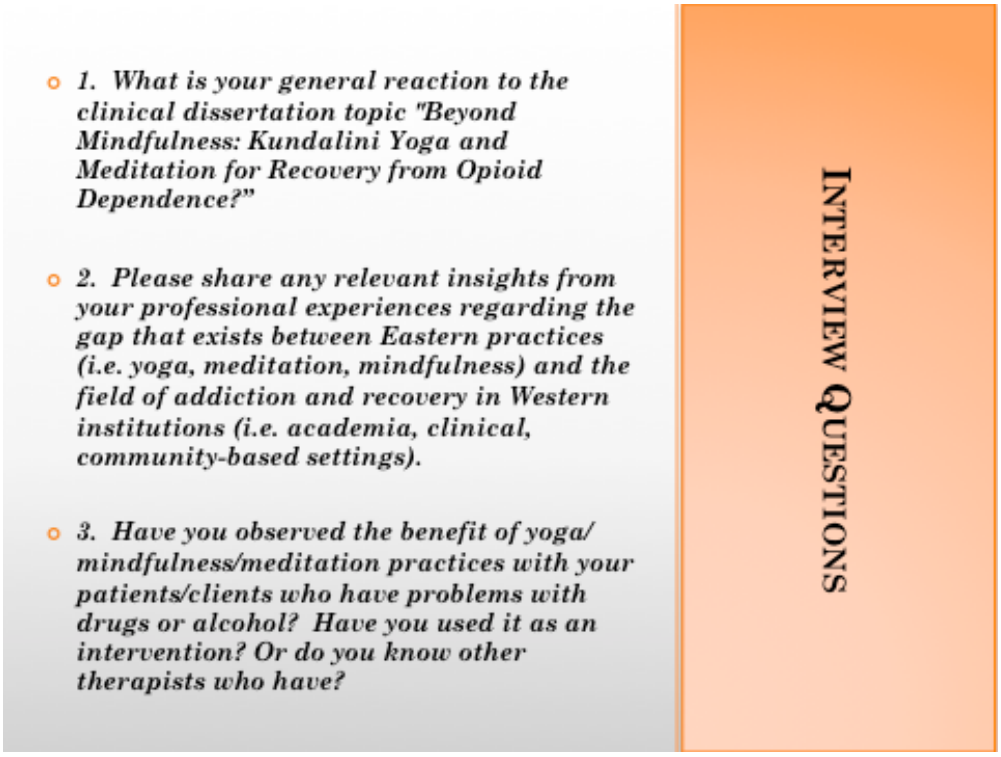
BEYOND ADDICTION: THE YOGIC PATH TO RECOVERY

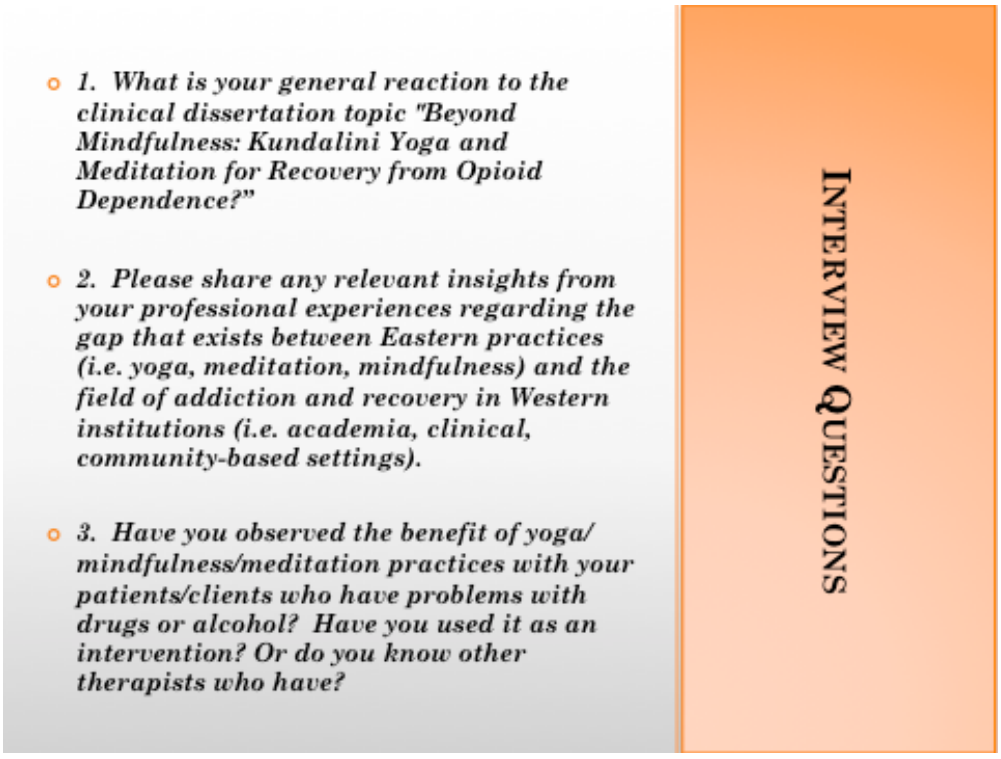
- 16 progressive, theme-based modules
- Kundalini yoga
- Breathing techniques
- Meditation
- Relaxation
- Self-reflection
- Lifestyle and Dietary Guidelines
- Group Support

(Kaur & Kaur, 2014)

FIELD CONSULTANTS

- Sat Dharam Kaur, N.D.
- Sat Bir Khalsa, Ph.D.
- Lobsang Rapgay, Ph.D.
- Jasmine Rogg, MA, MFT
- Peter Theodore, Ph.D.


1. What is your general reaction to the clinical dissertation topic "Beyond Mindfulness: Kundalini Yoga and Meditation for Recovery from Opioid Dependence?"
2. Please share any relevant insights from your professional experiences regarding the gap that exists between Eastern practices (i.e. yoga, meditation, mindfulness) and the field of addiction and recovery in Western institutions (i.e. academia, clinical, community-based settings).
3. Have you observed the benefit of yoga/ mindfulness/meditation practices with your patients/clients who have problems with drugs or alcohol? Have you used it as an intervention? Or do you know other therapists who have?
Interview Questions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Interview Questions

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APPENDIX B

Evaluation/Feedback Form

Presentation Evaluation and Feedback Form

Beyond Addiction:
Kundalini Yoga and Mindfulness Meditation for Recovery from Opioid Dependence

1. Prior to the presentation, how familiar were you with:

   A. Opioid Dependence:

1	2	3	4	5
Not at all		Somewhat		Very familiar

   B. Mindfulness Meditation:

1	2	3	4	5
Not at all		Somewhat		Very familiar

   C. Kundalini Yoga and Meditation:

1	2	3	4	5
Not at all		Somewhat		Very familiar

2. How much did the presentation increase your knowledge about:

   A. Opioid Dependence:

1	2	3	4	5
Not at all		Somewhat		Very much

   B. Mindfulness Meditation:

1	2	3	4	5
Not at all		Somewhat		Very much

   C. Kundalini Yoga and Meditation:

1	2	3	4	5
Not at all		Somewhat		Very much

3. How useful is this information to you as a mental health professional working in a clinical setting?

1	2	3	4	5
Not at all		Somewhat		Very much

4. How would you rate the presenter's ability to communicate the information?

1	2	3	4	5
Poor		Average		Superior

5. How would you rate the presenter's ability to answer questions?

1	2	3	4	5
Poor		Average		Superior

6. How helpful were the presentation slides?

1	2	3	4	5
Not helpful		Somewhat		Very helpful

7. What did you like most about the presentation?

_____

_____

_____

8. What did you like least about the presentation?

_____

_____

_____

9. What suggestions do you have for improving the presentation?

_____

_____

_____

APPENDIX C

Informed Consent Form for Field Consultants

Informed Consent Form for Field Consultants

I have been informed that Wendy Harris, M.A. a graduate student at the California School of Professional Psychology at Alliant International University, Los Angeles, will conduct this doctoral dissertation interview.

I understand that this project is designed to study Kundalini Yoga and mindfulness meditation for recovery from opioid dependence and that I have been contacted by the above student to offer input as a Field Consultant because I have some expertise and/or clinical/professional knowledge about the stated project topic. The purpose of the interview is to not only fill the informational "gaps" that exist in the professional literature about this topic, but to also examine if what is discussed in the research literature is actually being practiced/observed in the community by field professionals.

I am aware that my participation as one of the Field Consultants will involve answering some interview questions designed to understand Kundalini Yoga and mindfulness meditation for recovery from opioid dependence. The amount of response to these interview questions can be as lengthy or brief as I see appropriate for myself, and I can choose to respond only to those questions that I feel qualified to answer, if needed. The interview process may take approximately 30 to 60 minutes of my time to complete, and the interview will be audiotaped to ensure its quality and accuracy.

I have been informed that my participation in this study is voluntary and I can withdraw at any time. I understand that this is a professional interview/contact where I will be asked to share my clinical/professional expertise on the stated project topic. Some of the interview contents may be used within the project report as personal communication citations, and my contribution to this study will be appropriately cited within this project. I understand that I may request to review and approve the specific citations and/or contributions of my interview to the Doctoral Dissertation. Such a request should be made at the time of the interview.

I am aware that although I may not directly benefit from this study, my participation in this project will further increase knowledge and awareness in the field of psychology—specifically, pertaining to substance abuse and recovery from addiction.

I understand that I may contact Wendy Harris, M.A., at wharris1@alliant.edu OR her dissertation chair, Victor Cohen, Ph.D., at 1000 S. Fremont Ave. Unit #5, Alhambra, CA 91803 or (626) 284-2777 if I have any questions regarding this project or my participation in this interview as a Field Consultant. I understand that at the end of this study, I may request a summary of the results or additional information about the study from the above student.

*NOTE: If you are receiving this document via email please reply: I agree to the above stated conditions.

_____

Field Consultant's Signature Date

_____

Student's Signature Date

APPENDIX D

Field Consultant Interview Questions

Field Consultant Interview Questions

1. What is your general reaction to the clinical dissertation topic "Beyond Mindfulness: Kundalini Yoga and Meditation for Recovery from Opioid Dependence?"

2. Please share any relevant insights from your professional experiences regarding how to bridge the gap between Eastern practices (i.e. yoga, meditation, and mindfulness) and Western institutions (i.e. academia, clinical, and community-based settings).

3. What clinical observations have you made regarding the benefit of Mindfulness/Kundalini Yoga and meditation practices with your patients/clients (Perhaps share an example of a success story)?

4. What is your experience with the receptivity of and responses to Eastern practices (i.e. mindfulness, meditation, yoga) in academia and clinical settings?

5. Do you have any advice or guidance for bridging the gaps that exist between more traditional, conservative approaches to treatment and my vision of extending and expanding the reach of mindfulness/yoga and meditation in clinical settings?

6. Do you have any ideas about how I might expand and develop this project after my dissertation is complete?

Wendy A. Harris, M.A., M.S.S.
Los Angeles, CA 90019
Phone: (323) 836-5793 ~ E-mail: wharris1@alliant.edu
www.YogiWendy.com

EDUCATION

Doctoral Candidate in Clinical Psychology, APA-accredited PsyD program
California School of Professional Psychology at Alliant International University, Los Angeles, Anticipated Date of Graduation, June 2015

Master's Degree in Clinical Psychology, APA-accredited PsyD program
California School of Professional Psychology at Alliant International University, Los Angeles, 2013

Master's Degree in Social Science
University of Colorado, 2000
Thesis Title: The Construction of Adolescent Self-esteem: Investigating Perceptions of the Parental, Peer, and Academic Domains

Bachelor of Arts in Psychology, Magna Cum Laude
University of Denver, 1993

SUPERVISED CLINICAL EXPERIENCE

Pre-Doctoral Internship
Sovereign Health of California
Culver City, CA
7/2014-7/2015
Facilitate individual and group therapy in an Intensive Outpatient/Partial Hospitalization Program (IOP/PHP) for men and women diagnosed with substance dependence and/or severe mental health disorders. Responsibilities include treatment planning, case conceptualization, consulting with psychiatrists and other members of the treatment team, crisis intervention, completing biopsychosocial assessments, supervision of practicum students, utilization reviews for ongoing insurance coverage to determine medical necessity.

Advanced Doctoral Practicum II
Sovereign Health of California
Culver City, CA
9/2013-7/2014
Facilitated individual and group therapy in an Intensive Outpatient/Partial Hospitalization Program (IOP/PHP) for men and women diagnosed with substance dependence and/or severe mental health disorders. Responsibilities included treatment planning, case conceptualization, consultation with treatment team, crisis intervention, assess patients using the addiction severity index (ASI)

Advanced Doctoral Practicum I
Aegis Medical Systems
Simi Valley, CA; Inglewood, CA
9/2012 -9/2013
Facilitated individual and group therapy at an Outpatient Narcotics Treatment Center for a diverse population of men and women diagnosed with opioid dependence in addition to anxiety, mood, and other psychiatric disorders. Responsibilities included administration of the Addiction Severity Index (ASI) and Depression Anxiety Stress Scale (DASS), treatment planning, case consultation. Gained an understanding of the harm reduction model and medication replacement therapy.

RESEARCH EXPERIENCE

Principal Investigator
Clinical Dissertation: Beyond Addiction: Mindfulness Meditation and Kundalini Yoga for Recovery from Opioid Dependence.
Dissertation Chair: Victor Cohen, Ph.D.
Additional Committee Members: Judith Holloway, Ph.D.
Field Consultants: Lobsang Rapgay, PhD, Sat Dharam Kaur, ND, Sat Bir Khalsa, PhD, Peter Theodore, PhD, Jasmine Rogg, MA, MFT
Summary: In a critical literature review, opioid addiction is identified as a serious problem marked by chronic relapse and multiple treatment failures. Neurobiological and psychological mechanisms of addiction and meditation are explored and research presented that supports the use of mindfulness-based interventions. Building upon the systematic cultivation of awareness taught through mindfulness meditation, Kundalini yoga and meditation is introduced as an effective complementary intervention in response to a cultural readiness and dire need for comprehensive, wholistic treatment.

NON-PRACTICUM WORK EXPERIENCE

Mount Saint Mary's University
Adjunct Professor
Los Angeles, CA
Fall 2014-Present
Teach undergraduate psychology at a top-ranked, small private college. Courses taught include Introduction to Psychology and Child/Human Development.

Kundalini Yoga and Meditation Teacher
Golden Bridge, Hollywood, CA
2006-Present
Facilitate workshops and weekly classes. Specializing in Kundalini Yoga and Meditation for recovery from addiction.

Beyond Addiction: The Yogic Path to Recovery
Teacher Trainer
2013-Present
As a member of the International team of trainers, I plan and facilitate weekend courses and 9-day immersions where students receive a 400-page, 16-module curriculum. Participants learn

yoga, breathing techniques, meditation, relaxation, self-reflection, and stress management. The program includes ongoing weekly group support via SKYPE and conference calls.

Senior Therapist/Program Manager
Gay and Lesbian Adolescent Social Services (GLASS)
West Hollywood, CA
2001-2005
Facilitated individual and group therapy and charted progress according to DMH standards for high-risk LGBTQ youth who were dependents and/or wards of the court. Supervised group home staff and youth residing in transitional living, interacted with county placement workers, court officials, and other service providers, maintained client files and physical plant resulting in zero deficiency audits. Conducted client assessments and detail-oriented treatment planning.

SPECIALIZED WORKSHOPS AND COURSES ATTENDED

Neuroscience of Mindfulness and Anxiety, Advanced Seminar
Lobsang Rapgay, PhD, Fall 2013-Spring-2014

Group Counseling in Community Settings
Theodore Burnes, PhD, Summer 2013

Substance Abuse Treatment Practice Seminar
Peter Theodore, PhD, Spring 2014

Cognitive-Behavioral Approaches to Interventions
Jackie Parke, PhD, Spring 2013

Distance Learning Center for Addiction Studies
Completed 270 education hours requirement for CAADAC (California Association of Alcoholism and Drug Abuse Counselors), 2013

Psychodynamic Approaches to Interventions
Bruce Brodie, PhD, Fall 2012

MEMBERSHIPS/PROFESSIONAL AFFILIATIONS

2012-present Breining Institute, Registered Addiction Specialist (RAS)
2011-present American Psychological Association, Student Affiliate
2011-present California Psychological Association, Student Member
2011-present Los Angeles County Psychological Association, Student Member
2004-present International Kundalini Yoga Teachers Association