

Mindfulness for Addiction Recovery: A Cognitive Disciplinary Preventive Approach to Avoid Relapse into Substance Abuse

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Abstract: The present paper is based on a literature review and a pilot study that observed a small group of participants in a bi-weekly substance abuse treatment program that employs mindfulness training to help subjects avoid relapse into substance abuse. "Mindfulness" is defined as a state of non-judgemental self-awareness. The program that we propose combines three treatment modalities: 1) yoga practice, 2) silent meditation practice, and 3) self-reflection, a peer-led discussion on issues affecting recovery from substance abuse. Discussion of issues affecting substance abuse employs "cognitive disciplines" derived from the 12 Steps of Alcoholics Anonymous and Buddhist teachings on "mindfulness" and "relief from suffering". The pilot study examines the effect of combining stress reduction and mindfulness of the body, induced by yoga practice; mindfulness of mental processes, aided by silent meditation, and self-awareness of one's emotional and behavioural responses to stress, learned using the "cognitive disciplines". This multi-disciplinary process is applied to influence one's experience of stress and addictive patterns of behaviour. The present case study examines whether the combination of the three treatment modalities improves the participants' ability to avoid relapse into substance abuse. This study follows an approach similar to the one used by Bryan and Zipp (2014) in their research involving the effects of mindfulness meditation during yoga and cycling from a physical-behavioural perspective and Groves' (2014) approach to mental wellness. Our preliminary findings of the participants' observations resulting from the pilot study and our literature review were combined into a theoretical framework which is comprised of a Three Pronged Cognitive Behavioral Therapy (TPCBT) for addiction recovery

Keywords: Mindfulness as a non-pharmacological method; transcendental meditation and yoga; addiction, recovery and relapse; cognitive discipline; 12-step recovery and spirituality/religiousness.

INTRODUCTION AND RATIONALE

Addictions are known to be related to chronic and severe pain and the statistics shows that 11.5% of pain sufferers are known to display some kind of addictive behaviours [1]. In 2013 11% of the Canadians reported using at least one illicit drug in the past 12 months of the year 2012 [2]. Though there is limited data on addiction behaviors in Canada, use of alcohol among adults (25 and older) in 2012 was 78% [3]. There are well-known harmful consequences of addiction to individuals, their families, and even to society as a whole, through increased crime and substance-related accidents; the research suggests this is a worldwide issue. The global burden of addiction includes the use of substances such as tobacco, alcohol and solvents [4]. The United Nations Office on Drug and Crime published a World Drug Report in 2014 in which they reported that the worldwide average of annual drug related deaths during the year 2012 was 183,000 (range 95,000-226,000 per country) [5]. In the World Drug report, drug overdose was regarded as the

primary reason for reported deaths. The psychosocial impact of drug addiction on individuals and families is a worldwide problem; the members of a family with an addict are more likely to have depression and trauma than those with other chronic conditions such as diabetes [6]. On an individual level, smoking cannabis and tobacco both independently increase the risk of lung disease related deaths. In addition, injection drug use increases the incidence of HIV and hepatitis C transmission [5]. The World Drug Report highlights the death rate associated with driving, crime or violence executed under the influence of alcohol and drugs [5].

Pharmacological approaches to addiction recovery have shown little success and therefore, a non-pharmacological approach such as cognitive behavioural therapy along with a 12-step approach may result in an improved, sustained recovery [7]. According to Hoppes (2006), Mindfulness Based Cognitive Behavioural Therapy (MBCBT) resulted in clinical outcome improvements confirmed by neuro imaging. MBCBT is a modified approach to the existing method of cognitive behavioural therapy (CBT), this approach is highly regarded as the most effective treatment approach for alcoholism [8]. Hodge (2011) suggests that incorporating spirituality and religion into CBT will result in optimal outcomes of addiction

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recovery for culturally diverse communities [9]. Though mindfulness can be associated with a religious context, a neutral approach that is not connected to one particular religion is proposed for this paper. Two of the components of the proposed three-pronged approach in this paper are meditation and yoga and they are based on mindfulness treatment modalities.

The recovery approach to addiction via mindfulness is explained using different pathways, one of which is through the surrender to a higher power (first step in the 12-step approach) through which mindfulness is expressed as a replacement to drug addiction by a higher-power [10]. A research study examining the effectiveness of five spiritual measures on addiction treatment outcomes [11] found that the strength of religious beliefs, attending religious services, the reading of religious books, watching religious programs and the frequency of participating in meditation all significantly lowered the odds of relapse [11]. Currently there is a debate surrounding the mechanism of change regarding spirituality and addiction recovery. The question remains whether it is a "high power" that takes control over a weakness in the cognitive processes which contributes to the addiction occurrence, or that religion itself provides a moral strength within a unified system of social connectivity. Social theory, more specifically structural functionalism, supports the connection between religion and mental wellbeing including addiction recovery. The social theory is an extension of the Durkheim theory on social connectivity in which religion is viewed as a unified system. The connection provided by the religious community with addicts offers moral strength to make behavioural changes [12].

In view of addiction recovery as a multi-faceted step-by-step process, Kriya Yoga (action-oriented yoga) was recommended as a complementary therapy that helps relapse prevention within the mindfulness based CBT process [13]. A research study conducted in India with a sample (n=10) of volunteer substance abusers showed positive results from a non-pharmacological therapeutic program that included a Kundalini yoga intervention (a method that includes mantras in addition to other methods described above) [14]. The outcomes measured included components of the Behavioural and Symptom Identification Scale (BSIS) and the Quality of Recovery Index (QRI). The positive results were shown through the BSIS total score and specifically through the impulsive addictive behaviour, daily living, role functioning, depression and anxiety, relation to self and others as well as psychosis

[14]. However, due to mixture of therapies used, authors were unable to isolate the effect of Yoga on Quality of Recovery Index (QRI) through which the behavioural change towards recovery was measured.

There is limited research based evidence on effectiveness of a religion-based mindful approach to addiction; two studies yield inconclusive results. A literature review on the relationship between spirituality and substance use reveal a lack of consensus on the direction and epistemology of this relationship and conclude that rather than contextualizing the relationship, more research is needed to understand the psychopathological pathways of spirituality and addiction recovery [15]. The present paper illustrates an approach for addiction recovery and maintenance supported by a pilot study conducted in Halifax, Nova Scotia, Canada, that will inform future research in this direction. The intervention predicated upon a combination of three mindfulness activities that combine yoga, meditation and self-reflection is highly focused on recovery maintenance. This paper includes the theoretical foundation for this approach, key definitions and concepts, literature based models, and the pilot-work-based-program delivery approaches utilized.

CONCEPTS AND DEFINITIONS

Mindfulness

In cognitive behavioural therapy (CBT) research and applications to addiction, mindfulness is contextualized as a trait characterized by the multi-dimensional brain functions of addictive behaviours that regulate cognitive, affective and autonomic functional mechanisms [16]. The most suitable definition of mindfulness, for the three-pronged approach, comes from mindfulness-oriented recovery enhancement (MORE) intervention research. Therein mindfulness is considered as a disciplinary training and is a meditative practice in which one concentrates on thoughts emotions, and body reactions in the present moment. The practice of mindfulness is effective in reducing rising negative thoughts and emotions that may lead to depression and anxiety [17]. In order to illustrate the current study paradigm, it is paramount to understand the Buddhist teachings on "mindfulness" within the concept of addiction recovery as a "relief from suffering". Therein addiction is considered as a craving ("thanha" in pali language) that fits into the Buddhist concept of suffering, a noble truth, which results from attachment to alcohol and substances. Within this

Buddhist approach of mindfulness for relapse prevention, Groves (2014) proposed a three-step process where triggers and relapse process are contemplated first, followed by a second step of learning to deal with emotions and finally making attempts to move away from mindless obsessions [18]. In the first step, mindfulness is used as a therapeutic modality for relapse prevention. Ascribing to the work of Kabat-Zinn, mindfulness is used as a way of paying attention to addiction “to the ways things really are” [19]. Further, the mindfulness practice in the first step is used to provide skills of coping with urges and cravings that arise during the recovery period [20]. In the second step, of the Groves’ (2014) mindfulness based process, learning is directed toward staying with negative thoughts related to addiction behaviour and then to break the link between those thoughts and relapse related thoughts [17]. The third step of Groves (2014) process is to help reduce mindless obsessions to addictive behaviour and to step out of the thinking pattern that lead to such behaviour. The mindfulness practice that expands over these three steps provides a fundamental basis upon which to build our theoretical model.

Transcendental Meditation and Yoga

Yoga is defined as a form of physical posture that combines mindfulness meditation practice with body movements. The technical components of yoga practice include meditation, breathing exercises and physical postures [14]. There is research-based evidence on mindfulness based yoga practices that shows it enhances health behaviours, emotional and physical wellbeing [21-23]. Yoga is also defined as a spiritual practice that originated in India and is related to bodily postures, breathing and relaxation exercises that combines concentration of body movements with meditation allowing for the establishment of inner peace [13].

Addiction Recovery within a 12-Step Approach

Addiction is, simply defined, in this paper, as the end of the continuum that started with illicit drug and alcohol use that ended up in misuse and abuse of these substances. The recovery takes place at the end stage of the continuum. Among several different definitions of addiction recovery, the following items provide the most suitable explanations for a cognitive behavioural self-directed and spiritually oriented method suggested in the current paper. This is based on a cognitive disciplinary approach that involves a 12 steps spirituality approach to recovery. The twelve

steps are: (1) self-admitting the problem, (2) believing that there is a higher power, (3) willingness to turn into this greater power, (4) encounter a moral inventory, (5) sharing the moral inventory with another person, (6) willingness to remove all of the defects of character, (7) believing that the higher power will remove the defects of character, (8) acknowledging harm done to others (9) making amends for harm done to others, (10) continuing to take a moral inventory and admit wrongs, (11) seeking through prayer and meditation to improve conscious contact with the higher power and finally (12) commitment to help other addicts [24, 25]. The 12 steps that are incorporated in to the addiction recovery approach are illustrated in the Figure 1. The 12 Step program identifies critical situations for the addict that trigger addiction, emotional dysregulation and maladaptive responses. It is a cognitive behavioural program that provides a “reconditioning” of one’s perception of these situations that helps the addict avoid relapse and make more rational responses to difficult situations. It is explicitly a “spiritual program” that suggests a positive faith in a “higher power” that provides a sense of security and confidence to meet life’s difficulties. Continued practice of the 12 Steps can result in a “spiritual awakening” in which one is free of delusion and self-deception, and develops a desire to help other suffering addicts. Here the “spiritual awakening” is self-defined and is a secular concept.

Conceptual understanding of recovery is complex and controversial due to lack of clear definition and accepted use of language among advocacy groups and clinicians. They grappled to understand when the recovery has occurred, lost and reoccurred [26]. White (2007) argues the terminology depends on the stages of recovery such as recovering, in recovery or recovered. Of the four definitions proposed by White (2007), this paper is situated at the intersection of the two, recovery is a lived experience of the individual as well as recovery is a mechanism that connects communities in recovery. Therein White (2007) argues recovery is a liberatory (self-defined) experience of abstinence [26]. The working definition of recovery herein is derived from a similar concept and is the state of maintenance of moral advancement of abstinence or relapse prevention through a 12 steps recovery program, with the person in recovery at the stage of development at which they desire to help others in similar situations through mindfulness practices.

The primary goal of this paper is to present a three-pronged cognitive behavioural approach to addiction recovery that has its bases in an existing 12-step

approach. In addition, the approach illustrated in this paper may serve as a model for future addiction recovery programming and research.

LITERATURE REVIEW

The proposed approach of this paper was derived from several years of addiction treatment models that have used meditation and/or yoga to facilitate recovery from addiction [27,28]. However, mindfulness based meditation and Yoga for recovery, combined approach for addictions, has not been researched. There are two main models under development by practitioners: Mindfulness-based Relapse Prevention (MBRP), and Yoga for Recovery [27, 29]. Yoga for recovery was pioneered by popular yoga instructors who have chosen to focus their yoga practice in the field of addiction treatment. Their teachings incorporate the 12 Steps of Alcoholics Anonymous with teachings from the Yoga Sutras of Patanjali, considered the "sacred scriptures" of yoga practitioners. Mindfulness-based Relapse Prevention was developed by leaders in the field of secular meditation practices who applied MBRP in the area of addictions [28]. Their work was based on the pioneering work of Kabat-Zinn, who developed Mindfulness-based Stress Reduction (MBSR) [19, 30, 31]. MBSR is supported by both scientific and evidence-based research investigating the practice of mindfulness meditation. A study was conducted in Iran among drug-dependent males who attended an addiction treatment clinic in the city of Tabriz. The research participants were randomly allocated to an MBRP group who received a treatment developed and based on Kabat-Zinn approach and to a no treatment group. The treatment group demonstrated improved scores on emotional and mental wellbeing as well social functioning scales of health related quality of life [32]. The MBRP approach was tested against a usual care 12-step program in a research study in Seattle, Washington, US, among individuals who have completed their initial treatment for substance use disorders in a private treatment facility. At a 12-month follow-up MBRP participants showed significantly fewer days of substance use and decreased drinking episodes compared to those who used a 12-step program [27]. Several published authors have attempted to describe their practice of recovery with the 12 Steps of Alcoholics Anonymous that combine meditation and Buddhist principles. Thus far here are no scientific findings that support these programs; therefore, our evidence is limited to books written by experts for a general audience [13,15].

Historically, the first known use of meditation and Buddhist principles for recovery from addiction was the Wat Tham Krabok monastery in Saraburi Province, Thailand. Beginning in 1959, the monastery became a detox and rehabilitation facility for recovery from heroine and opiate addiction, in which the combination of therapies included meditation, dharma teachings, and Asian herbal medicines. Today, there are several forms of Buddhist recovery groups that are connected with every modern lineage of Buddhism and secular Buddhist traditions. Some other model programs that used the same secular approach are The Fifth Precept, Refuge Recovery, Heart of Recovery, Eight Steps to Recovery, White Lotus Recovery, and Against the Stream [33]. These programs combine 12-Step style meetings in which participants meet, sit in silent meditation for a short period, listen to a teaching that combines 12 Step and Buddhist principles, and discuss their recovery in a peer support format. However, the use of Buddhist principals do not emphasise one to follow Buddhism as a theist and the proposed approach for this paper is based on a secular tradition.

The authors of this paper use an emic perspective in the following interpretations in the sense that both authors used their lived experience, or evidence based practice, within a Buddhist culture where the mindfulness based cognitive behaviour is situated. The basic approach of these programs is to use the 12 Steps of Alcoholics Anonymous to identify the patterns of thinking and behaviour that are associated with addiction. This includes examining attitudes toward addictive substances, but goes well beyond the addictive substance or behaviour, which is considered merely a "symptom" of a deeper and more pervasive disorder. The 12 Steps prescribe a practice of intense self-examination with which the addict identifies the patterns of thinking, feeling and behaviour that are associated with addictive behaviour. This includes examining the addict's psychic states, moods, feelings, memories, ego defences and delusions. Moreover, the addict carefully examines his or her intimate and social relationships with family, work, and social groups. The addict identifies where dysfunctional responses such as fear, dependence, control, resentment, jealousy and dishonesty have caused problems in relationships. The proposed program is designed for activation once the addict has identified these dysfunctional patterns of behaviour, he/she resolves to "use the principles of the program" to recondition their emotional, cognitive and behavioural responses until they exhibit less dysfunction and become more resilient and adaptive to

the whole range of life situations. The 12 Steps calls this “acceptance of life on life’s terms.” For the purposes of this paper, this process of training is referred to as “cognitive discipline”, because the addict is using a set of principles that he or she does not create, but addicts, who were successful in maintaining long-term abstinence from addictive substances, developed them over time. It is thus a kind of “received wisdom” that the addict uses to recondition attitudes towards addiction, the self, relationships, and his or her life-world [34].

One can argue what has been problematic for many addicts is that the 12 Step program alone, historically, has been the emphasis on faith in a “higher power”, which is recommended as way to provide a sense of security and confidence to meet life’s difficulties. The 12 Steps program does not dictate what sort of “higher power” upon which the addict should rely. Rather, 12 Step literature insists that the addict relate to a higher power of “one’s own understanding”. However, the literature consistently refers to this “higher power” as “God”, which many addicts find overly theistic and problematic [35, 36, 37].

Buddhist practitioners who use the 12 Step program have sought to substitute theistic notions of reliance on a “God” with a non-theistic concept of a “higher power” derived from Buddhist teachings. For some, the “higher power” can be the Buddha himself, Buddhist teachings (the dharma), the recovery help group (sangha), or the practitioner’s own “Buddha nature”, i.e. spiritual sensibilities [35]. Buddhist recovery programs adopted the 12 Step practice of intense self-examination. Those programs use the cognitive discipline of training one’s thoughts, feelings and behaviours to become not only less dysfunctional and more adaptive, but also more in line with Buddhist teachings of the eightfold path (ethics, wisdom and concentration), the five precepts, and the positive mental states known as the “Bhavanas”: loving-kindness, compassion, joyful appreciation, and equanimity [25, 33]. Levine (2014) in his book emphasizes that recovering addicts need to attend 12 Step programs in addition to Buddhist recovery meetings, to ensure that they have the best chance of avoiding relapse and maintaining abstinence [35]. Practitioners of yoga for recovery advocate that recovering addicts participate in both 12 Step programs and yoga for recovery programs [29]. To our limited knowledge, there are no research studies conducted on the success of the programs based on Buddhist recovery approach to addictions.

The 12 Step program includes the 11th Step, which is: “seek through prayer and meditation to improve our conscious contact with God as we understood Him”. There are recommended prayers throughout the 12 Step literature, but there is no training in the practice of meditation mentioned. Buddhist recovery and MBRP programs focus on comprehensive training in one or more meditation techniques, making meditation a feature of the program from the beginning (rather than later in the “11th” step), and providing ongoing support for development of a meditation practice. The practice of meditation develops the mental state of “mindfulness”, in which the practitioner becomes more aware of both problematic and healthy mental states. Meditation and mindfulness training becomes the most prominent feature of Mindfulness Oriented Recovery Enhancement (MORE) [1,16].

The pilot work that lead to the proposed approach is explained next. The observations included in this paper were collected using a naturalistic approach in a public location (see the setting below) where the pilot program was delivered. We did not collect any individual demographic or other data. The naturalistic approach does not require ethics approval [38]. We did not collect personal demographic data and therefore only the views and observations of the two researchers (co-authors of this paper) are presented below in a manner that preserve anonymity and confidentiality of the program participants. The purpose of the pilot study was to build rapport with the participants and to understand the development of a program delivery approach. Therefore, a formal research study protocol was not followed.

DESCRIPTION OF THE PROPOSED APPROACH

Figure 1 illustrates the proposed intervention framework, Three Pronged Approach to Cognitive Behavioural Therapy (TPCBT) that involves three treatment modalities, Yoga, meditation and discussion (self-reflection). This is presented as an extension to the 12 steps approach from the existing CBT model. In Figure 1, the expected health outcomes were derived from the literature and the participant observations. The mindfulness pathways to recovery are described below from the Buddhist perspective to understand the theoretical underpinning of mindfulness aspect for recovery. Nevertheless the proposed program is non-religious in nature and by no means does it refer to the high power in the 12 steps as power of God, but rather invokes the self-empowerment approach by uncovering the higher power within the individual.

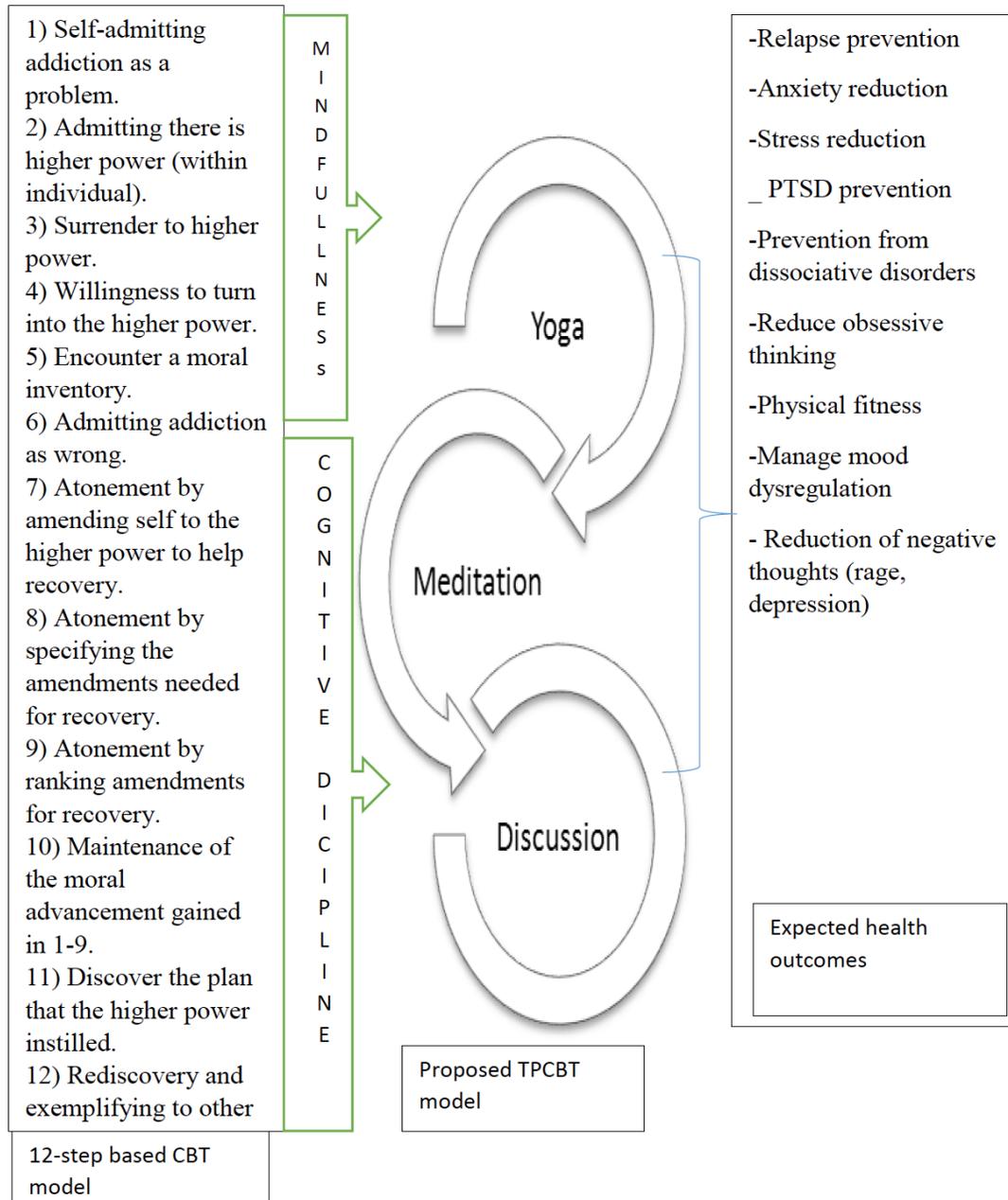


Figure 1: Proposed framework for a Three Pronged Cognitive Behavioral Therapy (TPCBT).

Note: CBT stands for cognitive behavioural therapy, TPCBT stands for three pronged cognitive behavioural therapy

Three Pronged Treatment Modalities

Yoga and Meditation

In the Yoga for recovery model, practitioners engage in three treatment modalities in succession: yoga, followed by meditation, and peer discussion of the “cognitive disciplines”. The first treatment modality employs the practice of yoga. The yoga asanas, or poses, are utilized to relieve tension and stress in the body, and to help the participant focus on sensations in the body. This is a practice of “mindfulness of the body” that helps the addict be aware of physical tension and

pain that can trigger emotional distress, that may then be followed by a desire to use addictive substances to relieve physical and emotional pain. In addition, the meditative act of focusing on the body during yoga allows for the practice of directing the mind to something tangible (the body). The more proficient an individual can become at directing the mind through this practice of focusing on the body, the more likely they may be able to capture this ability of mindfulness and use it when they need to observe the urges that arise towards substance use and then direct their mind away from the urge to break their recovery. It may be

viewed as an ability that may be honed or a “muscle that may be flexed” when necessary.

Meditation on the body also helps the practitioner develop a relationship with his or her body that is oriented toward healing, self-care and well-being. The discussions revealed that many addicts suffer from PTSD and other psychic disorders that involve dissociative disorder, in which addicts feel “numb” or “disconnected” from their bodies. Yoga helps the addict develop positive psychic connections with the body. Practitioners engage in twenty minutes of yoga, after which practitioners often report that they feel relaxed and calm. The practitioner is then ready to engage in the second treatment modality, which is meditation.

The second treatment modality is sitting meditation, which is employed to help the practitioner become aware, or “mindful”, of the patterns of thoughts and feelings that race through one’s mind during the day. Practitioners are taught to simply “watch” or “notice” the thoughts that pass through their minds, but not to focus on any of them, simply to let them go. One of the difficulties that many addicts have is obsessive thinking, in which the person repeats the same thoughts, memories and feelings over and over again, in a way that is often disturbing and emotionally painful. Meditation helps the addict detach from and release those thoughts. The practice is not to try to “not think” or get rid of thoughts, but to simply let them pass away on their own without effort. The practice of meditation helps the addict to learn that he or she does not have to “follow” every thought or impulse. This practice is designed to help the addict identify and let go of “triggers”, e.g. disturbing thoughts, memories, or feelings, thoughts of using drugs, alcohol or other addictive behaviours. This fosters impulse control that helps prevent addictive relapse. The practice of meditation also helps the addict manage mood dysregulation. One meditation technique involves “dropping the story” or narrative thought patterns that are connected to one’s feelings of rage, depression, or emotional excitement. The meditator then simply “feels the feelings” as they are experienced in the body, without thinking about them, judging them, repressing them or acting them out. Meditators are taught that the effect of this technique is to find a “middle way” with regard to moods and emotions: not repressing and not acting out. The addict develops the capacity to let the mood or emotion emerge, crest, and pass without incident. This meditation technique allows addicts to self-regulate their moods and emotions in order to maintain emotional balance. Practitioners engage in

ten to fifteen minutes of sitting meditation, led by the meditation instructor.

Cognitive Disciplines

The third treatment modality is peer support using what we are calling the “cognitive disciplines” of self-examination and training one’s mental states (as described above). This part of the program might involve a short teaching by the group leader, a short reading from recovery literature, or the choice of a topic for discussion. Each member of the peer group then discusses the offered topics in relation to his or her own recovery. Each participant speaks one at a time, with no “cross-talk” or commentary on what another person has said, until everyone has had a chance to speak. The peer discussion allows the participants to safely reveal some aspects of themselves, in confidence. Sharing allows the participant to overcome a sense of isolation and fear, to develop trust with other members, to discuss one’s thoughts and feelings “out loud” in order to examine them from a group perspective. We observed when the participation in the group is consistent and stable over time, addicts develop a sense of trust, belonging, and connection with others, which is otherwise very difficult for them.

Proposed Program Delivery

The Setting

Yoga for Recovery was a pilot program delivered which was supported by MOSH: Mobile Outreach Street Health, a program of the Capital Health system of the Province of Nova Scotia. MOSH is a network of innovative health-promotion programs delivered in a low-income neighbourhood of Halifax, Nova Scotia, known as “the North End” and “the Gottingen Street” neighbourhood. This neighbourhood is characterized by a diverse, racialized population of Black Nova Scotians, indigenous Nova Scotians, in particular members of the Mi’kmaq First Nations, and persons with disabilities. Gottingen Street is also known for its three gay bars that serve residents who are members of the LGBTIQ community. This neighbourhood is the site of the largest concentration of public housing in the city. In addition, there are a number of health and social service organizations situated in the area that provide a variety of services for its residents. MOSH operates a health clinic, dental clinic, and community space at a location known as “the JBO.” This neighbourhood was chosen because of a perceived high prevalence of substance abuse in the population.

Pilot Program Delivery

Only limited data were available from the naturalistic observations that we collected in the public place of program attendance. The program was attended by 8 men and women who were in recovery. The program attracted mixtures of genders and age groups.

Yoga and meditation for Recovery pilot program was conducted over 10 weeks, as one 60 minute session, for a total of five sessions, offered every other week at the JBO at the above mentioned setting. Participants were invited through emailing flyers to social service organizations associated through the MOSH network. As well, members were invited from Halifax 12 Step programs that uses mindfulness as the focus of its recovery practice (See Figure 1 box one existing CBT). Indeed, most of the ten participants had also been participants in other meditation recovery group, it is clear they attended because they also had an interest in yoga. The extent of meditative experience varied and none had attended formal meditation retreats. Those who were invited to the pilot program expressed interest and enthusiasm in the concept of combining yoga and meditation for recovery from addiction.

The group was led by a team of three instructors: a certified yoga instructor who was in recovery, a meditation instructor who was in recovery, and a community health instructor. Two of the researchers who co-authored this publication attended all sessions. Participation rates varied over the five classes; there were generally three or four participants at each class. Every class included the yoga instructor and the meditation instructor, and otherwise, participation of other members varied with each class. Community health instructor attended 4 of the five sessions. During four of the classes, the method proceeded from yoga to meditation and then peer discussion; in one session, we began with peer discussion, and then proceeded with yoga and meditation. Topics for discussion were chosen by the meditation instructor. Topics of discussion included were; issues lead to addiction such as stress due to family and work place issues, childhood abuse and marital relationships as well as difficulties in being mindful.

Cognitive Discipline – Naturalistic Observations

The discussion period allowed participants to reflect on their experiences of recovery and also to share success stories. Only a few participants had practiced Yoga and meditation prior to program. However, it was

revealed that all of the participants felt the need for meditation. We maintained a friendly atmosphere where participants introduced themselves by their first name only no other affiliations were disclosed so that anonymity was preserved. The program was open to people from different faiths and races. All of our participants are also regular participants in a weekly 12 Step programs, which focuses on cognitive and behavioural changes necessary to “recover” from drug and alcohol abuse and other addictive behaviours, and maintain abstinence or recovery from addiction on a daily basis. It was revealed that the 12 Step program has identified critical situations for the addict that trigger addiction, emotional dysregulation and maladaptive responses. It is a cognitive program that provides a “reconditioning” of one’s perception of these situations that help the addict avoid relapse and make more rational responses to difficult situations. It is explicitly a “spiritual program” that suggests a positive faith in a “higher power” that provides a sense of security and confidence to meet life’s difficulties. Continued practice of the 12 Steps is supposed to result in a “spiritual awakening” in which one is free of delusion and self-deception, and develops a desire to help other suffering addicts.

In accordance with the 12 steps, participants discussed surrender to higher power as a self-empowerment approach that the meditation part of the program covered. Participants discussed the last 2 steps of recovery with regard to how they might be role models to the others. The suggestions toward that end included, having programs for seniors and a university base program. Buddhism is considered as a spiritual system with Buddhist spirituality teaching a “path out of suffering”, where “suffering” and “the root cause of suffering” is called “tanha” (Pali) or “craving”, “thirst” (English). The traditional Buddhist teaching is that suffering is caused by the “three poisons”, “greed, hatred and ignorance” can be translated in the recovery language of the 12 Steps as “addiction, resentment and denial.” The Buddhist “greed” becomes the “addiction” of recovery language; “ill-will or hatred” becomes “resentment”, which 12 Step literature frequently cites as the emotional trigger for drug and alcohol abuse; and “ignorance” becomes “denial” (of one’s addiction), “delusion” or “delusional thinking” in recovery language. The Buddhist path is designed to engender “wisdom” or profound insights into the true nature of the self and one’s experience of “reality,” thus enabling a spiritual “awakening.” The program considered Buddhism as a philosophy rather than a spiritual pathway or a super

natural belief system. The proposed approach is laid out in the figure and the TPBCT process is listed in the middle under proposed TPBCT process and in the last box the expected health outcomes are listed. The two overlapping TPBCT process components, mindfulness and cognitive discipline were aligned with the 12-step program.

Though the TPCBT program was non-religious based, the participants' discussion led to early Indian practices of Yoga and meditation. The third psycho-spiritual system that operates "in the background" is the spiritual philosophy of Yoga. The Yoga asanas (poses) are part of complex system of ancient Hindu philosophy, which draws from ayurvedic medicine, the Hindu Vedas and Upanishads, early Buddhist philosophy (the Pali canon), and the Yoga Sutras of Patanjali. These "wisdom traditions" offer a different way to interpret and cope with difficult life situations, providing a physical and cognitive discipline that regulates one's physical and psychic reactions to stressful situations. This combination of physical and psychic practices enables one to be released from a sense of self that is constricted and self-defeating to one that is expansive and empowering, enabling one to feel connected to a "divine spirit", which is "moksha" [8,9].

No formal individual level data collection and analyses were used in this pilot study. The health outcomes that were summarized in Figure 1 in the third box were from the literature review and from the public venue general discussion summary of the pilot study. Some members who participated in the Yoga for Recovery pilot program reported a sense of well-being after completing the yoga portion of the program, similar to the findings of Bryan and Zipp (2014). There was general sense, after completing the sessions, that there is a need to do more meditation, indicating that the meditation session had a pronounced effect. Responses to the peer support part of the program did not elicit any verbal evaluation from members, although all members participated in the discussion without hesitation.

The cognitive aspect of the Yoga for Recovery is highlighted during the "discussion period" that took place during the session, either before the yoga asanas or after meditation. The discussion takes the form of an intense self-examination, where the person analyses and describes to the group his or her mental processes, emotional responses and behavioural reactions to difficult or threatening situations, including

stimulus that prompts addiction. The program includes the combination of the three cognitive disciplines and the practice of intense self-reflection. These three psycho-spiritual practices can be defined as "cognitive disciplines" that enable one to generate "insights" into one's addictive and maladaptive reactions and aids in the self-regulation of responses to stressful life situations.

The cognitive behavioural outcomes, from the discussion and the literature review can be summarized as follows. Both mediation practices and Yoga asanas developed awareness of the body and awareness of one's emotional states and thoughts, also called "mindfulness." Both induce states of relaxation and calmness, which reduce reactivity. Even more than inducing calm, reducing reactivity is the most critical outcome of this practice. "Reactivity" is the tendency to be over-stimulated by stimulus from the environment that induces craving or addiction and emotional dysregulation. "Reactivity" manifests as a "hyper-sensitivity" to emotional stimulus in social situations: fear, social anxiety, sensitivity to criticism, resulting in low self-esteem and resentment toward others who are seen as ego-threats. Both meditation and Yoga asanas slow down the reaction time to disturbing stimulus, so that a person can "think through" the situation and make better choices. They also de-escalate the intensity of the reaction so that a person views these situations as less threatening, requiring a low-intensity response, rather than an emotionally-charged "reaction." Both meditation and Yoga asanas slow-down the person's mental processes, reducing confusion, promoting rational thinking and clarity of thought.

CONCLUSION AND NEXT STEPS

Our proposed program is presented as a three pronged intervention framework (Figure 1 middle circle). The program aligned mindfulness based activities Yoga, Meditation and self-reflection that participants reflected in the effects with mental body and physical body. Our observations and literature review revealed that the first two-mindfulness activities yoga (physical body) concentration and meditation (mental body concentration) were interconnected and were aligned with the first 6 steps of the 12-steps program. The last 6 steps of the 12-step program can be aligned with the self-reflection activity.

Because this was a pilot program, there were not enough sessions to allow for a full evaluation of the

model, nor for systematic follow-up with the participants. The near epidemic-levels of substance abuse globally necessitate the development and execution of effective programming to support sustained recovery. Future research should support the full execution of this program over an extended period with a number populations to ascertain the program's efficacy.

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