Vadivale & Sathiyaseelan, *Cogent Psychology* (2019), 6: 1567090
https://doi.org/10.1080/23311908.2019.1567090

cogent psychology

HEALTH PSYCHOLOGY | REVIEW ARTICLE

Mindfulness-based relapse prevention – A meta-analysis

Anita Mary Vadivale[1]* and Anuradha Sathiyaseelan[2]

Received: 30 July 2018
Accepted: 06 January 2019
First Published: 09 January 2019

*Corresponding author: Anita Mary Vadivale, Department of Psychology, Christ Deemed to be University, Bangalore, India
E-mail: anita.vadivale@res.christuniversity.in

Reviewing editor:
Lucia Monacis, Universita degli Studi di Foggia, Italy

Additional information is available at the end of the article

Abstract: Addiction is of varied types and over the years the focus has not only been on the growing issues of addiction but also on how to prevent relapse on recovering clients. According to Buddhist teaching craving is the cause of suffering and suffering festers itself due to attachment. Once an individual is enlightened he will be able to find a path that ceases such suffering. Mindfulness helps bring about such enlightenment through being conscious and reflective of every moment's experience. Mindfulness does not stop at being aware alone but extends its teaching to accepting such experiences as they are and letting go. Relapse prevention has long been researched on and new therapies developed to facilitate the same. This conceptual paper looks at how Mindfulness-based relapse prevention therapy works to prevent relapses. The paper focuses on understanding each of the eight-week therapy process and how it progresses in changing thoughts and reducing stress. The paper shows how Mindfulness-based relapse prevention helps clients understand their craving and how to change thoughts in order to deal with a craving thus preventing relapse.

Subjects: Health Psychology; Psychiatry & Clinical Psychology – Adult; Mental Health

Keywords: relapse prevention; mindfulness-based relapse prevention therapy; addiction; substance abuse; meditation

1. Addiction and substance abuse

The World Health Organization (WHO) defines substance abuse as a "harmful or hazardous use of psychoactive substances". This could include alcohol use or drug use. Alcohol consumption patterns have been changing around the world. There have been increasing trends seen in general

Anita Mary Vadivale

ABOUT THE AUTHOR

Anita Mary Vadivale is an Adjunct Faculty member in the Department of Psychology at Christ, Bangalore, India. She has a Masters degree in Human Resources, Masters in Science in Applied Psychology and Advanced Organizational behaviour and an M.Phil in Psychology. She is currently pursuing her Doctoral degree in Clinical Psychology. Her core subjects of teaching being abnormal psychology, social psychology, health psychology, therapeutic interventions and research methodology. Her areas of research being health, clinical and sports psychology.

PUBLIC INTEREST STATEMENT

Addiction has been prominent from time in memorial. Over the years research shows that the levels of addiction have been on the rise with more substances being available and the age range for the same becoming lower. New methods of therapy are being developed to help with the same. Though an individual may work at quitting, relapse is one part which is difficult to avoid. Mindfulness is a form of meditation whose principals have been adapted from Buddhist form of meditation, that is seen to help individuals suffering from various addictions and also is seen to reduce rates of relapse.

alcohol consumption and more episodic consumption seen amongst the younger population. WHO also notes that there have been increased health problems noted due to alcohol consumption that includes liver diseases, mental health disorders and high-risk behaviours which in turn has led to amendments in the Health policy. Increased drug dependence with 148 countries reporting injecting drug use is seen of which 120 countries have reported increased HIV prevalence.

Addiction was seen to be an emerging issue from the days of The Buddha who had recognized such patterns and incorporated methods to restrain from such behavior (Groves, 2014). According to Buddhist teaching craving is the cause of suffering and suffering festers itself due to attachment. Once an individual is enlightened he will be able to find a path that ceases such suffering. Mindfulness helps bring about such enlightenment through being conscious and reflective of every moment's experience. Mindfulness does not stop at being aware alone but extends its teaching to accepting such experiences as they are and letting go. The art of letting go of experiences detaches a person from the feeling of a craving (Hussain, 2015).

Addiction has been defined in various ways by varied institutions. The American Society of Addiction Medicine defines addiction more in terms of a disease of the brain but does not consider environmental and social factors that contribute to the issue. (West & European Monitoring Centre for Drugs and Drug Addiction, 2013). The DSM 5 criteria for substance dependence abuse varied from the DSM IV-TR criteria for the same. According to the DSM 5 criteria which are categorized by the term substance use disorder only two or more criteria need to be present out of the eleven criteria within a 12 month period which also includes cannabis withdrawal which did not exist in the DSM-IV. (Hasin, O'Brien, Auriacombe, Borges, Bucholz, Budney, & Grant, 2013). NIDA defines addiction "as a chronic, relapsing brain disease that is characterized by compulsive drug seeking and use, despite harmful consequences" (NIDA, 2010). Science over time has altered its analysis on addiction. What started out to be thoughts on how people who had addictions were morally flawed and had no willpower is now being understood as a health problem which can be treated and also to a large extent prevented (NIDA, 2018c).

There are various factors that are involved in the initiation and maintenance of the habit of addiction. The first would be the biological factors where genetic vulnerability is most prominent. Depression and anxiety is another factor that is seen to be a reason for addiction. This is seen due to the fact that addiction has proved to stem from some form of emotional instability. People having predominant personality traits as sensation seekers or anti-social personalities have been seen to experiment and abuse substances more than others. Macrosocial factors such as advertising, legalisation of products, availability and accessibility and association of substance to recreation prove to be causes. Microsocial factors such as family/relationship issues, parenting style and communication also play a role. Personal factors as being ignorant about the effects of the same, favourable attitude towards alcohol and drugs (Espada & Lloret, 2011).

Addictions can be of various types, drug addiction being one form. Drugs are classified in various ways, most predominant being the way in which it affects the central nervous system(CNS). The depressants of the CNS include alcohol, hypnotics, anxiolytics, antipsychotics and narcotic analgesics like heroin, morphine, methadone etc. Substances that stimulate the CNS include alertness stimulants like cocaine, nicotine and mood boosters like anti-depressants. The final variant includes drugs that have a psychedelic effect on the CNS which are hallucinogens, cannabis, volatile solvents etc (Chalout, 1971). Though latest studies prove that plant-based substances do not necessarily have to be detrimental to mental stability and addiction to such is widely debated on as many such substances prove to have medical benefits (Pollen, 2018).

One of the theories of addiction is the neurological model which states the effects of each drug on the brain. Amongst various psychological theories, the behavioural theory states that an addiction is sustained due to the consequence of such behaviour which acts as a reinforcer. Reinforcers can be either the effect of the drugs on the brain or other secondary social reinforcers

like being part of a group etc (Altman et al., 1996). The classical conditioning theory also is used to describe addictive behaviour (Heather & Greeley, 1990). Cues are a prime source of addictive behaviour. For example, an emotional state could be a cue for an individual to want to drink (Drummond, Tiffany, Glautier, & Remington, 1995; Heather & Greeley, 1990). The cognitive theories explain dependence and addiction to the factor of self-regulation where there is inefficiency in planning or monitoring (Diaz & Fruhauf, 1991). The personality theories state individuals of certain personality types do seem to be more likely to fall into addictions. People scoring high on neuroticism and psychoticism are seen to be more prone to addictive behaviour. Also, individuals scoring high in openness to experience are more likely to experiment with different types of substances (Francis, 1996). The rational choice theory states that there is increased levels of self-destructive behaviour seen due to the impaired control individuals have due to abuse.

Over the years many models of addiction have been developed in order to understand the problem better. The moral model describes addiction as the outcome of individual choices that are made thus concluding that an individual who has an addiction is immoral and weak-willed. This model, in turn, brought a lot of stigma to the term addiction (Fisher & Harrison, 2009). The sociocultural model of addiction states that external factors such as cultural and environmental factors influence addiction. Some of the factors included in the model are family influences, peer pressure social norms, stress etc. (NIDA, 2007). The psychological model describes addiction as a secondary issue to other deeper psychological conditions. As a result of a greater problem that brings emotional pain, an individual alleviates the pain with the use of substances. The disease model, on the contrary, describes addiction as a primary disorder. This model describes addiction in the form of various stages (Fisher & Harrison, 2009). Another popular model is the biopsychosocial model of addiction that brings together seven variants to addiction which are biological, psychological, cognitive, social, developmental, cultural and environmental influences. Addiction can be due to any one or combination of all such variants, the treatment being altered accordingly (Durand & Barlow, 2007; Fisher & Harrison, 2009; Thatcher & Clark, 2008; Waterman, 2013).

Statistics show that alcohol use leads to 3.3 million deaths per year. 15.3 million are seen to have drug abuse disorders. Reports state that an estimated 275 million people have used illicit drugs at least once in the year 2016 (World drug report, 2018), pp. 129–190 million cannabis users have been reported making cannabis the most widely used drug. National studies show that India reports 21.4 per cent of the population used alcohol as a primary substance. Out of the population of consumers, 17–26 per cent were seen to qualify under ICD 10 diagnosis of dependence (Ray, 2004). In the year 2017, The National Survey for Drug Abuse and Health showed that rising trends in the prevalence of alcohol with around 80.90 per cent of the population ages 12 and older (NIDA, 2018c).

Cannabis is said to be the most commonly used addictive drug. Though legalized in many states of America, FDA has still not approved medical marijuana as researches have still not been able to prove the benefits of the substance can outweigh its risk factors and also for its lack of consistency that is needed for any drug to be approved. Recently though synthesized TCH based drugs have been approved to be used to reduce nausea due to chemotherapy and increase appetite in those suffering from AIDS (NIDA, 2018c).

When it comes to smoking cessation the psychological models that are applicable vary from the standard addiction models. The negative affect model has taken the source from conditioning, motivational and neurological models of addiction. The health models that pertain to smoking range from biological, psychological and social theories. Nicotine which is one of the main ingredients that one gets addicted to while smoking has various psychophysiological effects if taken in small doses (NIDA, 2018b). Some of them include weight loss, decreased irritability, acts as a tranquillizer, increases an individual's alertness and cognitive functioning. Repeated usage of the same causes tolerance to the substance. The nicotine paradox occurs whereby an individual smoke thinking it relaxes them when stressed, but the fact being the individual may be suffering

mild nicotine withdrawal which stabilizes itself out through the intake of nicotine. Nicotine enters the bloodstream and the brain very quickly, within seven to ten seconds of inhalation. Nicotine increases the dopamine levels hence increasing the feeling of pleasure. The state, not lasting long, results in the individual repeating the act of smoking. Monoamine oxidase which is responsible for the breakdown of dopamine decreases in its levels due to smoking. Thus, the level of dopamine increases resulting in the individual having high levels of satisfaction. Prolonged usage creates a dependency. The strength of addiction varies depending on the genetic markup.

The most basic of the psychological theories such as operant conditioning models, which form bases for smoking behaviour, comes from the learning theories which state that individuals tend to become dependent on smoking because of the positive reinforcement they obtain from the act. The affect management model by Tomkins describes six motivators to smoke: a reduction of negative affect which is seen to be the main motivator for women to smoke, habit, addiction, stimulation and sensorimotor manipulation. Personality also plays a role in an individual becoming dependant on smoking A sensation seeker or an extrovert is more likely to become addicted to nicotine. Stress is also seen to be associated with increased levels of smoking (Tomkins, 1966).

Nicotine dependence is developed by both, the mind linking smoking to positive and negative emotional states (Bevins & Palmatier, 2004; Brewer, Elwafi, & Davis, 2013). Environmental cues can in turn cause craving through positive and negative affective states. There also exist cues which are neutral that are conditioned to cause a craving.

Tobacco is said to kill up to half of its users (WHO, 2015). Over six million deaths a year result directly due to the use of tobacco and its products whereas almost 890,000 people who do not smoke are said to die every year due to exposure to second-hand smoke. In 2004, 28 per cent of the deaths caused by second-hand smoke was reported to be children. As reported by the World Health Organization (WHO), over 1.1 billion people were recorded as employees with nicotine dependence in the year 2015 (WHO, 2015). Though the numbers are reducing, there still seems to be a large smoking population (WHO, 2015). More people die each year from tobacco-related diseases than AIDS, use of other psychotropic drugs, alcohol etc. (Centres for disease control and prevention, 2018)

According to the WHO 2015 reports, 9.4 per cent men and 0.8 per cent of women in India above the age of 15 years are tobacco consumers (WHO, 2015). According to the General Agreement on Trade in Services (GATS) survey conducted in 2009–2010, 5.7 per cent of the adult Indian population constituted as cigarette consumers, 10.3 per cent being males and .8 per cent being females. GATS rendered training to IT professional managers to reduce smoking, as part of their strategies in the year 2009. Karnataka is seen to have 28 per cent current tobacco users, 39.8 per cent being male and 16.3 per cent being female . 12 per cent of the population smoke tobacco, out of which 17.2 per cent are males and 0.2 per cent are females.

WHO, in their Framework Convention on Tobacco Control (FCTC), have brought about strategies that can be used by member nations to reduce and curtail increased tobacco consumption. These strategies include advertising bans, pictorial warnings on tobacco products, increased taxes, smoke-free zones in public, awareness campaigns, and so on which many member countries have adopted and benefited from. (Turner, McNeill, Coleman, Bee, & Agboola, 2013)

Researches show that employees are under stress and are prone to addictions. (Mishra, Majmudar, Gupta, Rane, Hardikar, & Shastri, 2010; Mohanty & Madhumita 2014). Addictions are seen to develop in such a population as there are high disposable incomes at a very young age, and smoking is looked at by many as a quick-fix solution to their stress problems.

Nicotine is seen to have properties that are similar to the abuse of drugs. It is seen to stimulate and give rewarding properties. According to the DSM-5, there is three criterion with 15 subfeatures,

and four specifiers to diagnose tobacco use disorder. The DSM-5 criteria states that tobacco use for the year should have settled in at least 2 of the following symptoms increased usage, failed quit or reduction attempts, increased time spent on thinking about or sourcing the substance, increased tolerance of the substance, withdrawal symptoms if not used and increased usage to feel the same effect amongst others.

The growing rates of addiction prove that there is an urgent need for increased intervention centres. The New York Times in the article titled effective addiction treatment it stated that out of over 23.5 million teenagers and adults who have been reported to be addicted to alcohol or drugs only 10 per cent of the same have access to treatments which also show relapses due to lack of use of reliable and valid intervention plans (Brody, 2013). The centre on addiction reviewed over 7000 publications and five national data sets and came to the conclusion that of the meagre number who receive treatment a fraction alone receives evidence-based care. They have thus recommended that addiction medicine is integrated into the healthcare system so quality help can be extended at the right time. Timely help will see people who have addictions survive the disease and live healthier lives making right choices (Center on Addiction, 2012).

Over time treatment outlooks have evolved when it comes to addiction. A more integrated approach is being looked at rather than the only substitute prescribing treatments. Various psychological therapies which have proven to be beneficial if administered effectively include Cognitive behavior therapy, contingency management interventions or motivational incentives, community reinforcement approaches. Motivational enhancement therapies, family behaviour therapy, stress reduction therapies and so on. Integrating two or more therapies have also proven to be fruitful (NIDA, 2018c). Mindfulness has been integrated into cognitive behaviour therapy and mindfulness-based CBT has not only proven to reduce levels of addiction but also prevent relapse in certain cases. In order to reduce stress which also acts as a cause to the disorder mindfulness-based stress reduction therapies have been introduced. Yoga and other alternate forms of therapy like meditation have also been included in the list of treatments that have proven to be beneficial (Marlatt, 2008).

2. Mindfulness

Mindfulness has been developed as a form of therapy from the meditative technique called Vipassana, an established Buddhist meditative practice. “It is the English translation of the Pali word Sati” (Gunaratana & Gunaratana, 2011) whose literal translation means to see things as they are. A typical Vipassana course would last for 11 days wherein students meditate for around10 to 11 hours a day. This practice has been adapted into different forms of therapies where fundamental techniques have been included and developed on in order to form holistic therapies that work for different kinds of problem situations. The idea of mindfulness is to decondition the mind where thoughts are not cluttered but thoughts remain as thoughts and are let go of (Goenka, 1997). Human beings attend to a fraction of all sensory stimuli (Gunaratana & Gunaratana, 2011; Zinn, 1994). Every individual is mindful at some point in time when they are conscious of their bodily sensations, thoughts or emotions. Mindful meditation helps increase the experience of such attention which in turn changes the way individual views the universe (Gunaratana & Gunaratana, 2011). The main aspect of mindfulness is paying attention to bodily sensations, non-judgmentally and objectively and letting them pass. Being objective in the way one looks at sensations does not raise scope to react to such sensations. “Knowing what you are doing while you are doing it is the essence of Mindfulness practice”. (Zinn, 1990). Mindfulness helps in moving into reality. It does not isolate a person from what they are actually feeling but teaches them to attend to such feelings- good or bad and to let go of them. This will become a coping mechanism to break unrealistic thoughts and beliefs one has of themselves (Gunaratana & Gunaratana, 2011). When one learns the art of paying attention to the present without holding onto preferences, feelings or wants one becomes free of such clutches and starts living consciously (Zinn, 1994).

According to Kabat Zinn, mindfulness practice leads to learning the art of non-doing. Non-doing does not mean doing nothing but means not acting on and letting things unfold as they should without having control over the same. Mindfulness also brings increased levels of patience. This, in turn, brings down the level of urgency, restlessness and agitation in the practitioner (Zinn, 1994). According to Goenka good mental health is got by avoiding the extremes of suppression and expression. The main part of mindfulness is the concept of letting go. (Goenka, 1997) According to the teachings of Buddha suffering starts with birth and is a part of life. Suffering springs from being attached, aversion and not learning to let go. The attachment could range from thoughts, sensations, feelings, physical things that are pleasurable and aversions to anything that is pleasurable. Attaching oneself to those things that bring pleasure and wanting to hold on to such a feeling grows into suffering. Being averse to any kind of situation or feeling that is un-pleasurable and trying to stay away from such a feeling also brings suffering (Goenka, 1997). Mindfulness teaches one the art of attending to such pleasurable and un-pleasurable experiences without attaching oneself to the same. This is done by the act of not judging the experience as good or bad but allowing the experience to pass and not holding on (Goenka, 1997, Kabat-Zinn, 2011). A mindful living helps individuals restrain from those elements that push away from living in the moment. A mindful living will, in turn, lead an individual to live a life where stress can be managed and life can be more peaceful (Sathiyaseelan & Sathiyaseelan, 2014).

In mindfulness training one is asked to keep their breath in mind, in other words, to concentrate on the breath at first. This acts as an anchor helping to increase one's level of attention on "just being" without any expectation that there would be an outcome at the end of the practice. Thus, the extra practice of mindfulness should not lead to an expectation of one getting better at the art, but rather committing fully to that moment alone (Kabat-Zinn, 1994).

The fundamental part of mindfulness is being aware of one's thoughts and emotions along with one's physical sensations and being able not to judge them (Kabat-Zinn, 2003). This process takes place in the metacognitive level through the three main components of metacognitive knowledge, experience and skill. Such skills bring about an individual's attention to physical sensations and emotions and the individual becomes more aware. The process of mindfulness also teaches the practitioner not to judge such feelings and sensations but to be aware of it and let it go allowing the next feeling or sensation to emerge. Such practise in time increases alertness and there are sustained attention levels. It helps to look at thoughts as thoughts which does not make up the individual self. Thus, thoughts are detached from the actual self which is seen to pass (Didonna, 2009). Longer the practice sees more change in the mindful meta-levels of cognition (Hussain, 2015). There are several components to mindfulness—to attend by being aware, an open, curious, and non-judgemental attitude, being non-reactive to inner experiences, to observe and attend to sensations by focussing on thoughts, sensations and feelings (Siegel, 2007). The non-judgemental attitude makes one detach themselves from the thought or emotion thus not letting them get affected by it by changing the association one has with that thought or emotion (Didonna, 2009).

The first step in mindfulness is to learn mindful breathing. This is a process of realizing ones in breath as air going in through your nose and ones out breath as the air coming out of our nose. All attention is focussed on one's breath. The second step in mindfulness is to concentrate. One concentrates all the way through on their in breath and then on their out breaths however long it may last. There is no alteration of breath in this process, the breath remains normal. The third step is to be aware of one's body. This makes the individual transcend to being fully in the present. Once awareness is created the next step would be to relax the body by releasing tension. Through being aware of one's breath tension can be released from one's body. The final exercise for mindfulness is what is called the walking meditation where one is aware while they move from one space to another. These exercises can help an individual develop on their levels of mindfulness (Sitzman & Watson, 2014).

Increased practise of mindfulness has seen to reduce levels of anxiety, depression, anger, dissociation, rumination, alexithymia, difficulties in emotion regulation, experiential avoidance, and intensity of psychotic delusions (Greeson, 2009; Keng, Smoski, & Robins, 2011; Luberto, 2013). Mindfulness though not seen to show immediate benefits in distress tolerance in smokers it has been seen to help in reducing the number of cigarettes smoked (Luberto, 2015a). Mindfulness is also seen to help significantly in substance abuse disorders (Brewer et al.,) In others mindfulness can reduce stress and also help in reduction of diabetes (Van Son et al., 2013), hypertension (Hughes et al., 2013) and relieve pain in patients suffering with cancer (Coronado-Montoya et al., 2016; Hoffman et al., 2012). Mindfulness teaches its practitioners the art of "voluntary simplicity". This happens when individuals stop multi-tasking but complete the activity they are doing with undivided attention. For example, if an individual is eating voluntary simplicity would kick in when the individual is aware of what he/she is eating, aware of the texture of the food when it hits the pallet, the taste of the food, change in texture when the individual chews the food and so on. The individual is not preoccupied with anything else apart for the act of eating. This is accomplished by training the mind to slow down and concentrate. Concentrating, in turn, develops a sense of calmness which in turn eases the mind of agitation (Kabat-Zinn, 1994). It also helps makes our minds more flexible and balanced (Thompson, 2010).

Mindfulness helps in dealing with anxiety. Anxiety is a fear response to the future. Mindfulness helps to reduce such anxiety by not working on the response in itself but by changing the attitude towards the response. This happens by looking at thoughts as thoughts which pass and by not judging the thought as an anxiety-provoking thought. Emotions are also not appraised as good or bad but as only observed as current experiences (Thompson, 2010). Similar effects are seen to help people suffering from depression or depressive symptoms. With difficult emotions like sadness or anger, mindfulness introduces a sense of calmness which forms through acceptance (Sitzman & Watson, 2014; Thompson, 2010). Mindfulness also helps with managing stress. Stress is the reaction that takes place towards a stressor. There are numerous physiological changes that take place due to stress. Mindfulness helps to observe the breath and such observation will help bring back the breath to normal. The body that becomes tense due to the stress reaction returns back to a state of normalcy and also body temperature is regulated. Increased practise makes the process of returning to normalcy faster and thus reduces the amount of time the individual experiences stress (Thompson, 2010).

Mindfulness works by allowing negative thoughts to lose their hold over an individual. This can be accomplished by staying in the moment as much as possible. Even when an individual becomes distracted they are aware of the distraction and they bring themselves back and not judging themselves for being distracted or not judging the distraction in itself. Thus negative or self-defeating thoughts are given no special attention but let go of. One becomes familiar with their trend of thoughts and becomes less reactive to the same. The feeling that the thought elicits is also recognized but not acted upon or appraised as good or bad (Thompson, 2010). Metaphors and paradoxes are a big part of the practice which helps one regulate thoughts and emotions (Thompson, 2010).

There are four foundations of mindfulness. Mindfulness of the body where one is aware of the breath, the four main body postures of being seated, standing, walking and lying down, a clear understanding of what is beneficial and what is not to the process and awareness through mindful scanning of the different parts of the body. Mindfulness of feelings which may be pleasurable or pleasant as well as painful or unpleasable. The third pillar being mindfulness of one's mind where one is able to understand their mind as being greedy or not, hateful or not, deluded, developed, liberated and so on. Mindfulness of life or Dhamma where individual practices not to cling onto anything that will make them survive but to survive by living and letting go (Gunaratana, 2012). Mindfulness works on three axioms, intention, attention and attitude. The intention for such practice is seen to shift from self-regulation, exploration to finally self-liberation. (Bishop, 2004; Shapiro, Carlson, Astin, & Freedman, 2006). The axiom of

attention looks into attending to or being conscious of the moment to moment experiences. Attitude is seen to be the way one reacts to what they are conscious of. The attitude that the practice looks to create is one of being curious, non-judgemental, non-striving and accepting (SShapiro et al., 2006). These three axioms bring about the change of perception where an individual reperceives the experience where there is a change where the subject becomes the object which nurtures the development process of the individual (Shapiro et al., 2006).

3. Mindfulness-based relapse prevention (MBRP)

The underlying cause for addiction could vary from one person to another. Satisfaction for the individual suffering from an addiction comes out of the feeling of pleasure, which in turn adds fuel to the addiction. Urges and cravings differ in meaning. Urges are the intention or impulse to consume alcohol or drugs whereas cravings are the subjective desire to experience an addictive substance (Larimer, Palmer, & Marlatt, 1999). Once the pleasure is reduced or no more one craves for the same feeling which in turn becomes an addiction which is difficult to get rid of. Tolerance develops towards the particular object of addiction and hence more exposure is needed for the same level of gratification to occur (Goenka, 1997). Practising mindfulness in MBRP may reduce the link between craving and substance use and increase resilience for relapse (Enkema, 2016).

Behavioural therapies are seen to work well with relapse prevention. Mindfulness has only recently been looked into as an intervention for addiction. Some methods of treatment being mindfulness-based cognitive behaviour therapy MCBT, mindfulness-based stress reduction MBSR and mindfulness to reduce depressive symptoms and also pain and anxiety. Controlled researches show that mindfulness helps in acceptance of craving and withdrawal and hence environmental cues do not affect relapse (Miller, 2014). One does not yield to craving and does not get affected by the withdrawal. Mindfulness practitioners are taught to recognize and accept their experiences and not change them or deny their existence. This transformation in one's contact to the minute's experience is called "re-perceiving" or "attentional control" and results in more mindful behavioural choices. Mindfulness techniques are taught not associating it with any religious or cultural backgrounds. Mindfulness training makes practitioners observe their craving through their bodily sensations, but not react to it though it may seem unpleasant. This is a two-fold process where practitioners are made to understand that cravings are physical sensations and that such cravings are impermanent and it passes after reaching its peak. Over time though cravings may arise the fact that the individual is pausing to observe it and not react immediately will result is a breakdown of the associative learning process which in turn disrupts the automated response. There is a certain form of discipline that goes into the practice of mindfulness and one question would be if individuals who practice mindfulness are more predisposed to benefit out of the practice. (Brewer et al., 2013).

Stress is a major component that cases addiction or relapse. Stress normally is elicited due to conditions that are not within the control of the individual. The stressor is unpredictable. Mindfulness helps an individual to understand that stress is inevitable and learn that thought one does not control over the stressors one can learn how to go through the stressful situation and survive. "One cannot stop the waves but one can learn to surf" (Kabat-Zinn, 2001). The mindfulness-based stress reduction programme MBSR was introduced in the year 1979 but popularised through the book the full catastrophe of living by Jon Kabat Zinn in the '90s. In MBSR one is taught the basics of mindfulness and how to be mindful. One is made to understand how the individuals body reacts to stress and how through the practise of mindfulness one is aware of the stressors and also the reaction of the body and mind to such stressors, awareness of the pain that is caused by stress be it both physical and emotional, how anxiety creeps in during stressful situations and how to heal through mindfulness (Kabat-Zinn, 2013). MBSR is seen to help in various ways for individuals suffering from addictions. MBSR is seen to be an effective intervention in order to alleviate pain during detoxification amongst substance abusers (Hosseini, 2017). MBSR is also seen to increase the health-related quality of life amongst individuals who are dependent on

drugs (Hosseinzadeh Asl & Hosseinalipour, 2014). MBSR is used as an intervention on individuals who are dependent on alcohol or any other substance helping them by increasing their awareness of "triggers, habitual- patterns and automatic reactions" that take control of their everyday experiences (Marlatt et al., 2008).

Research has been done on using different mindfulness techniques on different types of addiction. Mixed results were noted on each type. Brief mindfulness training which happens in a single session does not have an impact on distress tolerance amongst individuals dependent on nicotine, but more sessions need to be administered to have an actual effect. The results also showed that the brief mindfulness training has seen to increase levels of state mindfulness and lower levels of distress significantly (Luberto, 2015a). There was seen to be a significant cut in the consumption of cigarettes after mindfulness training and practise though there was no complete cessation that took place (Daunter, 2013). Mindfulness strengthens being conscious of thoughts, feelings and bodily sensations as they arise and accepting and recognizing their impermanence. In addition to MBSR, mindfulness-based interventions, used in a context of addictive disorders, include Mindfulness-Based Cognitive Therapy (MBCT), Dialectical Behavior Therapy (DBT) and Acceptance and Commitment Therapy (ACT). Recent modifications of these approaches, developed specifically for substance abusing populations, include Mindfulness-Based Relapse Prevention (MBRP) and Mindfulness-Based Therapeutic Community (MBTC) treatment (Zgierska & Marcus, 2010).

MBRP is seen to have greater rates of relapse prevention than other treatment (Bowen, Chawlam & Marlatt, 2008). MBRP has been developed by Bowen, Chawla, Marlatt by integrating three different therapies which are, Mindfulness-based stress reduction by Zinn. Mindfulness-based cognitive therapy by Segal, Williams and Teasdale and the relapse protocol by Daley and Marlatt. The programme runs for eight weeks and can have group sizes to a maximum of six to 12 participants. Each session can take place for a maximum of two hours. The group sessions are of a closed format as rolling groups will not work well with MBRP. Several research studies on different groups prove the eight-week MBRP programme beneficial for relapse prevention in addictive behaviour. It was seen to be effective in the case of opioid-dependent clients (Imani et al., 2015), mothers with substance use disorders (Hicks, 2016) in non- suicidal self injury (Kholodkov, 2015) and mostly in alcohol and substance abuse (Witkiewitz, Marlatt,& Walker2005).Each session of MBRP is developed in progression and has a specific purpose and outcome. Home Work is structured in such a way as to include those parts from Mindfulness-based Cognitive behaviour therapy.

The first session looks into the idea of the automatic pilot where participants are given an understanding of how one acts without thinking and how this is related to relapse. Mindfulness is introduced in order to bring this understanding where the participant is made to realise what is taking place with his/her mind and body. The raisin exercise helps participants understand the idea of mindfulness after which the body scan meditation is introduced to the participants. The first session includes detailed discussions on any kind of doubts that the participant has on the process. The participants are then asked to pick one daily activity and to carry it out mindfully and record their experiences.

The second session introduces triggers to the participant. Triggers are those events that form cravings in the participants. Participants are trained on how not to react to such triggers. The thoughts, emotions and behaviour of triggers are introduced as a chain of sensations and reactive behaviour is given light to. Triggers are dealt with using urge surfing where participants are thought to stay with the craving and not succumb to it. Mountain meditation is introduced to bring instability to any discomfort that was brought in by urge surfing. The challenges faced such as aversion to meditation due to physical discomfort, craving an desire, restlessness and agitation, drowsiness and sleepiness while meditation and doubts are all addressed in this session.

During the third session, the participants are encouraged to practise mindfulness throughout the day by paying attention to their breath which brings them to focus on the here and now. This develops lower levels of reactivity and higher levels of awareness of emotions, sensations and

thoughts, in turn, bringing down reactive behaviour. SOBER (Stop, Observe, Breath, Expand, Respond) breathing space is introduced to the participants.

The fourth session looks into situations where the participant has succumbed to substance use in the past. Participants are taught how to look at pressures causing such urges differently and practise how not to respond to such demanding situations. This is done through sitting meditation where mindfulness to sound, breath, sensation and thoughts are introduced to the participants. The participants are taught to use SOBER breathing space in challenging situations.

The fifth session is called acceptance and skilful action where one looks into how a participant can bring in acceptance to situations which may be stressful or frustrating, which may in the past have brought about triggers for substance use. Acceptance includes self-acceptance which in turn will help to bring about change in thoughts and behaviour. Participants are taught how to act in such circumstances using their sober breathing space.

Participants over sessions have been taught how to look into their breathing and bring their attention to bodily sensations. Participants in the sixth session are made to understand that thoughts are thoughts and one does not become their thoughts and hence do not have to behave or act on the same. Participants are also made to look at thoughts and beliefs as a part of the relapse cycle.

Participants in the seventh session are made to look at their lives in a broader perspective looking into a healthier lifestyle. Looking into a lifestyle that engages in nourishing activities may help the participants in recovery. The participants are prepared for the end of therapy and become more comfortable with practising mindfulness on their own.

The final session is titled social support and continuing practice. The participants are made to understand how important a support system is and how continuing practice is essential to avoid relapse. Recovery is a lifelong journey and participants are made to understand the importance of commitment and diligence. Having a support system will help the participant to continue such practice (Marlatt et al., 2008).

MBRP therapy was used as an aftercare approach for chronic substance abusers after completing treatment for the same and results proved to be effective (Bowen, Chawla, & Marlatt, 2011). Amongst nicotine dependent individuals mindful attention was seen to reduce negative affect outcome expectancies and anxious arousal and anhedonic depression symptoms (Gonzalez, Vujanovic, Johnson, Leyro, & Zvolensky, 2009).

Summary

Given levels of addiction are seen to be rising if left unattended to it could lead to an epidemic. Treatments of the same would help in the rehabilitation of individuals into society thus increasing levels of adaptation without substances as well as lower relapses of the same. Mindfulness helps individuals understand their cravings as well as relieves the stress caused due to a craving which in other situations the individual would have the need to indulge in the substance in order to reduce the stress. Changes in cognition through therapy would help individuals understand destructive thoughts and turn them into more constructive thoughts. The combination of Mindfulness-based stress reduction therapy with mindfulness-based cognitive behaviour therapy makes mindfulness-based relapse prevention most effective in terms of reducing the number of relapse cases in addiction.

Funding
The authors received no direct funding for this research.

Competing Interests
The authors declare no competing interest.

Author details
Anita Mary Vadivale[1]
E-mail: anita.vadivale@res.christuniversity.in
Anuradha Sathiyaseelan[2]
E-mail: anuradha.sathiyaseelan@christuniversity.in

[1] Department of Psychology, Christ (Deemed to be University), Bangalore, India.
[2] Psychology, Christ, Bangalore, India.

Citation information
Cite this article as: Mindfulness-based relapse prevention – A meta-analysis, Anita Mary Vadivale & Anuradha Sathiyaseelan, *Cogent Psychology* (2019), 6: 1567090.

References

Addiction Medicine: Closing the Gap between Science and Practice. (2012, June 14). Retrieved from https://www.centeronaddiction.org/addiction-research/reports/addiction-medicine-closing-gap-between-science-and-practice

Addiction medicine: Closing the gap between science and practice. (2017, April 14). Retrieved from https://www.centeronaddiction.org/addiction-research/reports/addiction-medicine-closing-gap-between-science-and-practice.

Altman, J., Everitt, B. J., Robbins, T. W., Glautier, S., Markou, A., Nutt, D., & Phillips, G. D. (1996). The biological, social and clinical bases of drug addiction: Commentary and debate. *Psychopharmacology*, *125* (4), 285–345. doi:10.1007/bf02246016

American Psychiatry Association. (1996). Practice guideline for the treatment of patients with nicotine dependence. *The American Journal of Psychiatry*, *153* (10), 1–33.

Bevins, R. A., & Palmatier, M. I. (2004). Extending the role of associative learning processes in nicotine addiction. *Behavioural and Cognitive Neuroscience Reviews*, *3*(3), 143–158. doi:10.1177/1534582304272005

Bishop, S. R. (2004). Mindfulness: A proposed operational definition. *Clinical Psychology: Science and Practice*, *11*(3), 230–241. doi:10.1093/clipsy/bph077

Bowen, S., Chawla, N., Collins, S. E., Witkiewitz, K., Hsu, S., Grow, J., … Marlatt, A. (2009). Mindfulness-based relapse prevention for substance use disorders: A pilot efficacy trial. *Substance Abuse*, *30*(4), 295–305. doi:10.1080/08897070903250084

Bowen, S., Chawla, N., & Marlatt, G. A. (2011). *Mindfulness-based relapse prevention for addictive behaviours: A clinician's guide* (pp. 20–24). New York: NY, Guilford Press.

Brewer, J. A., Elwafi, H. M., & Davis, J. H. (2013). Craving to quit: Psychological models and neurobiological mechanisms of mindfulness training as treatment for addictions. *Psychology of Addictive Behaviours*, *27* (2), 366. doi:10.1037/a0028490

Brody, J. E. (2013, February 4). Effective addiction treatment. Retrieved from https://well.blogs.nytimes.com/2013/02/04/effective-addiction-treatment/

CDC - Fact Sheet - Fast Facts - Smoking & Tobacco Use. (2018, February 20). Retrieved from https://www.cdc.gov/tobacco/data_statistics/fact_sheets/fast_facts/index.htm

Chalout, L. (1971). Revue de la litterature: les solvants organiques. *Canadian Psychiatric Association Journal*, *16*(2), 157–160. doi: 10.1177/070674377101600210

Coronado-Montoya, S., Levis, A. W., Kwakkenbos, L., Steele, R. J., Turner, E. H., & Thombs, B. D. (2016). Reporting of positive results in randomized controlled trials of mindfulness-based mental health interventions. *PloS one*, *11*(4), e0153220. doi:10.1371/journal.pone.0153220

Daunter, K. D. (2013). *The effects of mindfulness on smoking behaviour and craving* (Doctoral dissertation). Union Institute and University.

Diaz, R. M, & Fruhauf, A. G. (1991). The origins and development of self-regulation: Adevelopmental model on the risk for addictive behaviours. In N. Heather, W. R. Miller, & J. Greeley (Eds.), *Self-control and the addictive behaviours* (pp. 83–106). Botany, NSW, Australia: Maxwell Macmillan..

Didonna, F. (2009). Introduction: Where new and old paths to dealing with suffering meet. In F. Didonna & J. Kabat-Zinn (Eds.), *Clinical handbook of mindfulness* (pp.1–17). New York: Springer.

Drugs, brains, and behavior: The science of addiction. (2007). *PsycEXTRA* [Dataset]. doi:10.1037/e596722007-001

Drummond, D. C., Tiffany, S. T., Glautier, S., & Remington, B. (1995). Cue exposure in understanding and treating addictive behaviours. In D. C. Drummond, S. T. Tiffany, S. Glautier, & B. Remington (Eds.), *The Wiley series in clinical psychology. Addictive behaviour: Cue exposure theory and practice* (pp. 1–17). Oxford: John Wiley & Sons.

Durand, V. M., & Barlow, D. H. (2007). *Essentials of abnormal psychology* (5th ed.). Belmont, CA: Thomson Wadsworth.

Enkema, M. C. (2016). Mindfulness practice moderates the relationship between craving and substance use in a clinical sample (Order No. 10138425). Available from ProQuest Central; ProQuest Dissertations & Theses Global. (1820916911). Retrieved from https://search.proquest.com/docview/1820916911?accountid=38885

Espada, J. P., & Lloret, D. (2011). In Basic concepts in drug abuseD. Lloret, J. A. Moriano, & A. Vazquez, (Eds..), *Early detection drug-consumption in Europe* (21–70). Madrid: UNED. ISBN: 978-84-362-6380-0

Fisher, G., & Harrison, T. (2009). *Substance abuse: Information for school counsellors, social workers, therapists, and counsellors* (4th ed.). Boston: Pearson.

Francis, L. (1996). The relationship between Eysenck's personality factors and attitude towards substance use among 13 ± 15-year-olds. Personality and Individual Di erences, in press.

Goenka, S. N. (1997). *The art of living: Vipassana meditation*. Maharashtra: Vipassana Research Institute.

Gonzalez, A., Vujanovic, A. A., Johnson, K. A., Leyro, T. M., & Zvolensky, M. J. (2009). The role of mindful attention in regard to the relation between negative affect reduction outcome expectancies and emotional vulnerability among adult cigarette smokers. *Cognitive Therapy and Research*, *33*(6), 645–656. doi:10.1007/s10608-009-9246-x

Greeson, J. M. (2009). Mindfulness research update: 2008. *Complementary Health Practices Review*, *14*(1), 1–8. doi:10.1177/1533210108329862

Groves, P. (2014). Buddhist approaches to addiction recovery. *Religions*, *5*(4), 985–1000. doi:10.3390/rel5040985

Gunaratana, B., & Gunaratana, H. (2011). *Mindfulness in plain English*. New York: NY, Simon and Schuster.

Gunaratana, H. (2012). *The four foundations of mindfulness in plain English*. Boston, MA: Wisdom Publications.

Hasin, D. S., O'Brien, C. P., Auriacombe, M., Borges, G., Bucholz, K., Budney, A., … Grant, B. F. (2013). DSM-5 criteria for substance use disorders: Recommendations and rationale. *American Journal of Psychiatry*, *170*(8), 834–851. doi:10.1176/appi.ajp.2013.12060782

Heather, N., & Greeley, J. (1990). Cue exposure in the treatment of drug dependence: The potential of a new method for preventing relapse. *Drug and*

Alcohol Review, *9*(2), 155–168. doi:10.1080/09595239000185211

Hicks, S. (2016). Mindfulness-based relapse prevention for mothers recovering from substance use disorders: A grant proposal (Order No. 10007422). Available from ProQuest Central; ProQuest Dissertations & Theses Global. (1763003378). Retrieved from https://search.proquest.com/docview/1763003378?accountid=38885

Hoffman, C. J., Ersser, S. J., Hopkinson, J. B., Nicholls, P. G., Harrington, J. E., & Thomas, P. W. (2012). Effectiveness of mindfulness-based stress reduction in mood, breast- and endocrine-related quality of life, and well-being in stage 0 to III breast cancer: A randomized, controlled trial. *Journal of Clinical Oncology: Official Journal of the American Society of Clinical Oncology*, *30*, 1335–1342. doi:10.1200/JCO.2010.34.0331 PMID: 22430268

Horta, B. L., Victora, C. G., Menezes, A. M., & Barros, F. C. (1997). Environmental tobacco smoking and breast-feeding duration. *American Journal of Epidemiology*, 146, 128–133. doi:10.1093/oxfordjournals.aje.a009243

Hosseini, M. (2017). The effectiveness of MBSR intervention in alleviating pain during detoxification among substance abusers: An experimental study. *neuroquantology*, *15*(4), 107–113. doi:10.14704/nq.2017.15.4.1152

Hosseinzadeh Asl, N. R., & Hosseinalipour, F. (2014). Effectiveness of mindfulness-based stress reduction intervention for health-related quality of life in drug-dependent males. *Iranian Red Crescent Medical Journal*, *16*, 9. doi:10.5812/ircmj.12608

Hughes, J. W., Fresco, D. M., Myerscough, R., van Dulmen, M. H., Carlson, L. E., & Josephson, R. (2013). Randomized controlled trial of mindfulness-based stress reduction for prehypertension. *Psychosomatic Medicine*, *75*, 721–728. doi:10.1097/PSY.0b013e3182a3e4e5. PMID: 24127622

Hussain, D. (2015). Meta-cognition in mindfulness: A conceptual analysis. *Psychological Thought*, *8*(2), 132–141. doi:10.5964/psyct.v8i2.139

Imani, S., Vahid, M. K. A., Gharraee, B., Noroozi, A., Habibi, M., & Bowen, S. (2015). Effectiveness of mindfulness-based group therapy compared to the usual opioid dependence treatment. *Iranian Journal of Psychiatry*, *10*(3), 175–184. https://search.proquest.com/docview/1728137623?accountid=38885

Kabat-Zinn, J. (1990). *Full catastrophe living: using the wisdom of your body and mind to face stress, pain, and illness*. Dell Publishing; New York.

Kabat-Zinn, J. (1994). *Wherever you go, there you are: mindfulness meditation in everyday life*. New York: Hyperion.

Kabat-Zinn, J. (2003). Mindfulness-based interventions in context: Past, present, and future. *Clinical Psychology: Science and Practice*, *10*(2), 144–156. doi:10.1093/clipsy/bpg016

Kabat-Zinn, J. (2011). Some reflections on the origins of mbsr, skillful means, and the trouble with maps. *Contemporary Buddhism*, *12*(1), 281–306. doi:10.1080/14639947.2011.564844

Kabat-Zinn, J. (2013). *Full catastrophe living: Using the wisdom of your body and mind to face stress, pain, and illness*. New York: Bantam Books Trade Paperbacks.

Keng, S.-L., Smoski, M. J., & Robins, C. J. (2011). Effects of mindfulness on psychological health: A review of empirical studies. *Clinical Psychology Review*, *31*(6), 1041–1056. doi:10.1016/j.cpr.2011.04.006

Kholodkov, T. (2015). Mindfulness-based relapse prevention for non-suicidal self-injury (Order No. 3731900). Available from ProQuest Central; ProQuest Dissertations & Theses Global. (1732366316). Retrieved from https://search.proquest.com/docview/1732366316?accountid=38885

Larimer, M. E., Palmer, R. S., & Marlatt, G. A. (1999). Relapse prevention: An overview of Marlatt's cognitive-behavioral model. *Alcohol Research and Health*, *23*(2), 151–160.

Luberto (2015a). *An experimental test of the effects of a brief mindfulness exercise on distress tolerance among adult cigarette smokers committee* (A Dissertation Project, Proquest).

Marlatt, G. A., Bowen, S., Chawla, N., & Witkiewitz, K. (2008). mindfulness-based relapse prevention for substance abusers: Therapist training and therapeutic relationships. In S. Hick & T. Bien (Eds.), *Mindfulness and the therapeutic relationship* (pp. 1–21). New York, NY: Guilford Press.

Miller, M. C. (2014). *Using Mindfulness to control addictions. Harvard commentaries on health*. Boston: Harvard Health Publications.

Mishra, G. A., Majmudar, P. V., Gupta, S. D., Rane, P. S., Hardikar, N. M., & Shastri, S. S. (2010). *Call centre employees and tobacco dependence: Making a difference.* Indian Journal of Cancer, 47(5), 43. doi:10.4103/0019-509x.63860.

Mohanty, M., & Chowdhury, O. P. (2014). Occupational stress and personality factors of substance abusing employees of business process outsourcing/information technology sector. *International Journal of Arts & Sciences*, *7*(2), 265.

National Institute on Drug Abuse. (2007). Topics in brief: Drugs, brains, and behavior: The science of addiction. Retrieved from http://www.drugabuse.gov/tib/soa.html

National Institute on Drug Abuse. (2010). Drugs, brains, and behavior: The science of addiction. Retrieved from http://www.nida.nih.gov/scienceofaddiction.

National Institute on Drug Abuse. (2018b). Tobacco, Nicotine, and E-Cigarettes. Retrieved from https://www.drugabuse.gov/publications/research-reports/tobacco-nicotine-e-cigarettes.

National Institute on Drug Abuse. (2018c). Drugs, brains, and behavior: The science of addiction. Retrieved from https://www.drugabuse.gov/publications/drugs-brains-behavior-science-addiction

Pollan, M. (2018). *How to change your mind: what the new science of psychedelics teaches us about consciousness, dying, addiction, depression, and transcendence*. Random House Large Print.

Ray, & India. (2004). *Ministry of Social Justice and Empowerment, United Nations Office on Drugs and Crime. Regional Office for South Asia*. The Extent, Pattern and Trends of Drug Abuse in India: National Survey. Ministry of Social Justice and Empowerment, Government of India & United Nations Office on Drugs and Crime, Regional Office for South Asia.

Sathiyaseelan, A., & Sathiyaseelan, B. (2014). Integrating 'mindful living' for a peaceful life. *Research Journal of Social Science and Management*, *4*, 187–192.

Shapiro, S. L., Carlson, L. E., Astin, J. A., & Freedman, B. (2006). Mechanisms of mindfulness. *Journal of Clinical Psychology*, *62*(3), 373–386. doi:10.1002/jclp.20237

Siegel, D. J. (2007). The mindful brain: Reflection and attunement in the cultivation of well-being. New York: W. W. Norton

Sitzman, K., & Watson, J. (2014). Caring Science, Mindful Practice: Implementing Watsons human caring theory. New York: Springer Publishing Company, LLC.

Thatcher, D., & Clark, D. (2008). Adolescents at risk for substance use disorders. *Alcohol Research & Health*, *31*(2), 168–176.

Thompson. (2010). *Everyday mindfulness A guide to using mindfulness to improve your well being and reduce stress and anxiety in your life*. http://www.stillmind.com.au/Documents/Everyday%20Mindfulness.pdf.

Tomkins, S. S. (1966). Psychological model for smoking behavior. *American Journal of Public Health and the Nations Health*, *56*(12_Suppl), 17–20. doi:10.2105/ajph.56.12_suppl.17

Turner, J., McNeill, A., Coleman, T., Bee, J. L., & Agboola, S. (2013). Feasibility of offering nicotine replacement therapy as a relapse prevention treatment in routine smoking cessation services. *BMC Health Services Research*, *13*(1), 38. doi:10.1186/1472-6963-13-438

Van Son, J., Nyklicek, I., Pop, V. J., Blonk, M. C., Erdtsieck, R. J., Spooren, P. F., et al. (2013). The effects of a mindfulness-based intervention on emotional distress, quality of life, and hba1c in out-patients with diabetes (Dia- Mind): A randomized controlled trial. *Diabetes Care*, *36*, 823–830. doi:10.2337/dc12-1477. PMID: 23193218

Waterman, C. H. (2013). Exploring substance abuse counsellors' use of psychological assessments in substance abuse treatment planning (Order No. 1550484). Available from ProQuest Dissertations & Theses Global. (1496773968). Retrieved from https://search.proquest.com/docview/1496773968?accountid=38885

West, R., & European Monitoring Centre for Drugs and Drug Addiction. (2013). *Models of addiction*.

WHO report on the global tobacco epidemic, 2015. (2015, October 09). Retrieved from https://www.who.int/tobacco/global_report/2015/report/en/

World Drug Report. (2018). Analysis of drug markets. *World Drug Report 2018*, 1–72. doi:10.18356/dc023cb1-en

Zgierska, A, & Marcus, M. T. (2010). Mindfulness-based therapies for substance use disorders: part 2. *Substance Abuse*, *31*(2), 77-78. doi: 10.1080/08897071003641248

Cogent Psychology **(ISSN: 2331-1908) is published by Cogent OA, part of Taylor & Francis Group.**