

## Article

# Ontological Addiction Theory and Mindfulness-Based Approaches in the Context of Addiction Theory and Treatment

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**Abstract:** Buddhist-derived interventions have increasingly been employed in the treatment of a range of physical and psychological disorders, and in recent years, there has been significant growth in the use of mindfulness-based interventions (MBIs) for this purpose. Ontological Addiction Theory (OAT) is a novel metaphysical approach to understanding psychopathology within the framework of Buddhist teachings and asserts that many mental illnesses have their root in the widespread mistaken belief in an inherently existent self that operates independently of external phenomena. OAT describes how different types of MBI can help undermine these beliefs and allow a person to reconstruct their view of self and reality to address the root causes of suffering. As well as proving effective in treating many other psychological disorders, MBIs based on OAT have demonstrated efficacy in treating conventional behavioural addictions, such as problem gambling, workaholism, and sex addiction. The goal of this paper is to (i) discuss and appraise the evidence base underlying the use of MBIs for treating addiction; (ii) explicate how OAT advances understanding of the mechanisms of addiction; (iii) delineate how different types of MBI can be employed to address addictive behaviours; and (iv) propose future research avenues for assessing and comparing MBIs in the treatment of addiction.

**Keywords:** addiction; addiction treatment; Buddhism; mindfulness; ontological addiction



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## 1. Introduction

Mindfulness is a Buddhist practice that has existed for around 2500 years. Interest in mindfulness has significantly increased over the course of the last four decades; however, given the broad origins of mindfulness within Buddhism and the way it is embedded within concepts that are generally unfamiliar within Western society, definitions and applications encompass a range of meanings (Van Gordon et al. 2015b). Much of the incongruence can be attributed to the way that, in Western society, mindfulness has been secularised and distanced from its Buddhist roots in order to better align with Western values. Thus, while many scholars have adopted a somewhat secular and denatured conceptualisation of mindfulness, others view mindfulness as inseparable from its spiritual roots within Buddhist teachings.

One widely used definition of this former, secularised form of mindfulness has been proposed by Kabat-Zinn, who described mindfulness as “paying attention in a particular way: on purpose, in the present moment, and non-judgementally” (Kabat-Zinn 1994, p. 4). On the other hand, formulations that explicitly embody the spiritual dimension of mindfulness, such as a definition proposed by Shonin and Van Gordon (2016), contextualise mindfulness as “the process of engaging a full, direct, and active awareness of experienced phenomena that is (i) spiritual in aspect and (ii) maintained from one moment to the next” (p. 845). This latter conceptualisation arguably represents a more authentic view of the practise, which highlights important distinctions in the form and function of different types of meditation and ones that are of particular relevance to processes in addiction.

Central to Buddhist teachings are the four noble truths (Chah 2011). The first noble truth is the truth of suffering (Pāli: *dukkha*) or dissatisfaction; the second noble truth is

the origin of suffering, which is craving; the third noble truth is the possibility of the cessation of suffering via attaining enlightenment or *nirvana*; the fourth noble truth is that there is a path to *nirvana* via extinguishing craving. In Buddhism, suffering is one of the three marks of existence, or fundamental and inescapable basic truths about the nature of the reality. The other two marks of existence are the truth of the impermanence of all things (Pāli: *anicca*) and the truth that everything, including human beings, are devoid of an inherently existing self (Pāli: *anattā*). Ignorance of these truths (Pāli: *avijjā*) is viewed as the principal mechanism through which the cycle of suffering or dissatisfaction (Pāli: *samsāra*) perpetuates. By failing to recognise these truths and allowing our happiness to be contingent on impermanent states and things, we bring about and maintain a cycle of craving, disillusionment, and pain (Chah 2011).

Buddhist practises are therefore concerned primarily with the application of spiritual and meditative principles to understanding and transforming suffering, and key to this is cultivating nonattachment. Cultivating nonattachment in the context of Buddhist practise involves a deeper meditative enquiry into the nature of all phenomena as they arise and pass within the mind. This enquiry is intended to bring about a realisation of the lack of inherent existence not only of the self but of all manifest forms and the interdependence and interconnectedness of all phenomena. These practises are undertaken within the framework of the Noble Eightfold Path in which they are expressed as right view, right resolve, right speech, right conduct, right livelihood, right effort, right mindfulness, and right concentration. These are further organised within a tripartite, “three trainings” (Pāli: *tisikkhā*) principle under which they are classified into those concerned with (i) meditation (right effort, right mindfulness, right meditation); (ii) ethics (right speech, right action, and right livelihood); and (iii) wisdom (right view, right intention) (Van Gordon et al. 2019).

This tripartite division is reflected in the chronological order in which research and subsequent implementation of mindfulness-based interventions (MBIs) have unfolded (Van Gordon et al. 2019, 2020). In the 1980s, there was an examination of mindfulness as a construct and its applications as well as the meditative attentional processes involved (Shonin et al. 2015). This was followed at the turn of the 21st century with a phase in which empathic and ethical awareness predominated in compassion-based and loving-kindness research and practises. In the last few years, however, a third phase has evolved in which wisdom-based practises and their applications have been empirically investigated (Van Gordon et al. 2019). The first of these phases dealt with what have become known as first-generation MBIs (FG-MBIs), while the latter two phases, which more closely embody the practise of mindfulness within a traditional Buddhist framework, are now generally referred to as second-generation MBIs (SG-MBIs) (Van Gordon et al. 2015a).

The use of MBIs has undergone a significant proliferation in evidence-based treatments spanning a wide range of psychological disorders, including mood disorders, anxiety disorders, schizophrenia-spectrum disorders, personality disorders, and substance use disorders (Shonin et al. 2014). Furthermore, in recent years, a novel metaphysical model of psychopathology, Ontological Addiction Theory (OAT), has gained traction that has sought to express and elucidate mental illness within the framework of these Buddhist teachings (Shonin et al. 2016; Van Gordon et al. 2018). The goal of this paper is to (i) discuss and appraise the evidence base underlying the use of MBIs for treating addiction; (ii) explicate how OAT advances understanding of the mechanisms of addiction; (iii) delineate how different forms of MBI can be employed to address addictive behaviours; and (iv) propose future research avenues for assessing and comparing MBIs in the treatment of addiction.

## 2. First-Generation Mindfulness-Based Interventions in the Treatment of Addiction

Perhaps the most well-known early mindfulness intervention program is the eight-week Mindfulness-Based Stress Reduction (MBSR) developed at the University of Massachusetts Medical School (Kabat-Zinn 1982). This program consists of weekly, group-based classes with a trained teacher lasting around two to two-and-a-half hours supplemented by daily, audio-guided home practise lasting around 45 minutes per day and a day-long mind-

fulness retreat (Kabat-Zinn 1990). These interventions typically focus on cultivating and maintaining present-moment awareness; this can include breath awareness or awareness of bodily sensations or other perceptual experiences (such as sights and sounds), thoughts, and emotional reactions.

This mindfulness practise has been proposed to involve two main aspects: focused attention and open monitoring (Garland and Howard 2018). The first of these aspects has been termed “bare” attention or “lucid” awareness: a raw, immediate awareness of perceptions, thoughts, and feelings as they impinge upon the mind but unbiased by conceptual thought or judgement (Brown et al. 2007). The second aspect concerns the fact that this watchfulness or lucid awareness must also include an attitude of acceptance and openness even to experiences that may be distressing or difficult. MBSR was initially focused on the treatment of chronic pain and has proven to have positive effects on pain, anxiety, and stress in individuals with chronic disorders (Grossman et al. 2004). However, it has since also been applied to many other clinical and non-clinical populations (Creswell 2017; Ludwig and Kabat-Zinn 2008).

In 2002, a new intervention, Mindfulness-Based Cognitive Therapy (MBCT), was formulated to target depression and relapse in chronic conditions. It combined MBSR with Cognitive Behavioural Therapy (CBT), and findings demonstrate that it has a positive effect on depression, anxiety, and fatigue in people with a range of chronic health conditions (Alsubaie et al. 2017).

Given the growing evidence for the utility of MBIs in effecting wide-ranging improvements in wellbeing, the exploration of mindfulness in the treatment of addictive disorders has come as a natural progression. Similar to depression, addiction is associated with high rates of relapse, and given the role of relapse prevention in MBCT, the structure and methods of MBCT were adapted into similar programs specifically targeting addictive behaviours. For example, programs such as Mindfulness-Based Relapse Prevention (MBRP) and Mindfulness-Oriented Recovery Enhancement (MORE) were tailored to target the mechanisms believed to underlie addiction.

Regarding their impact on the mechanisms of addiction, it is believed that focused attention allows for a grounding of attention onto physical sensations or other sensory awareness, while open monitoring promotes a metacognitive state of awareness in which observation of the contents of awareness is accompanied by a heightened sensitivity to the field of awareness itself as well as the processes that it contains. This can involve a radical reorganisation in attentional processes, memory, and emotion regulation, which, with practise, can effect permanent changes (Garland and Howard 2018).

From a neurological perspective, addiction is now generally understood to be a dysfunction of brain circuitry involved in reward processing and motivation. Bottom-up processes mediated by the basal ganglia area become strengthened by content repeated associations with substance-related reward cues, while top-down executive function processes—mediated by the dorsolateral prefrontal cortex (dPFC), dorsal anterior cingulate cortex (dACC), and parietal cortex—becomes weakened, causing diminished salience of natural reward cues. The *restructuring reward hypothesis* (Garland 2016) states that mindfulness may reduce addictive behaviour by adjusting the balance of salience of rewards away from the valuation of drug-related rewards and cues and back to valuation of natural rewards that were salient before the development of addiction. This occurs by augmenting the capacity of the prefrontal cortex to regulate subcortical networks, modulating activities involved in reward processing, cue reactivity, and stress reactivity (Garland et al. 2017b). This is supported by meta-analytic data from neuroimaging studies indicating changes at a neuroanatomical level (Fox et al. 2014), early functional magnetic resonance imaging (fMRI) evidence from a MORE intervention study for smoking cessation (Froeliger et al. 2017), as well as a MORE study targeting opioid use (Garland et al. 2017b).

Garland and Howard (2018) suggest five key mechanisms at play in restructuring reward processing in addiction: (i) enhancing executive functioning; (ii) increasing dispositional mindfulness; (iii) attenuating stress reactivity; (iv) decreasing cue reactivity; and

(v) reduction of thought suppression. This is consistent with a randomized control trial (RCT) examining working memory, selective attention, and decision making with a sample of polysubstance users, which found significant improvements in these measures in the condition which employed mindfulness meditation (Valls-Serrano et al. 2016). Furthermore, in RCTs employing MBRP and MORE, increases in aspects of dispositional mindfulness, such as acceptance, awareness, and nonjudgement, significantly mediated the effects on decreased craving following treatment (Garland et al. 2016; Witkiewitz et al. 2013).

The positive effects of MBIs on addiction may also result from improving response to stress. Several studies examining the impact of MBIs on stress recovery have used heart-rate variability (HRV) as an index of a person's capacity to regulate stress reactivity and recovery. Studies of MBRP interventions for individuals with substance abuse disorders have shown significantly greater increases in HRV responses to stress (Carroll and Lustyk 2018) and significantly attenuated HRV ratio during stress compared to a control group (Brewer et al. 2009). Similarly, another study found significant within-group decreases in cortisol levels (a marker of physiological stress) in smokers taking part in a mindfulness training program (Goldberg et al. 2014).

MBIs might also help by decreasing craving and drug cue reactivity. For example, a study of an MBRP-based intervention resulted in a significantly reduced association between craving and cigarette smoking (Elwafi et al. 2013), and an RCT employing MORE showed significantly reduced attentional bias toward opioid cues (Garland et al. 2017a). In another study, an MBRP for substance use showed significantly reduced associations between postintervention depressive symptoms and craving two months after treatment and predicted reduced substance use at four-month follow-up (Witkiewitz and Bowen 2010). Furthermore, the mediating role of decreased craving was confirmed in a large clinical trial of the effects of a mindfulness-based treatment for smoking abstinence (Spears et al. 2017).

Finally, thought suppression, paradoxically, may actually amplify craving by depleting the very psychological resources necessary to maintain it, causing this strategy to be ultimately self-defeating (Garland et al. 2012; Moss et al. 2015). MBIs may help to ameliorate addictive behaviour by offering an effective alternative to thought suppression. Rather than attempting to suppress substance-related cognitions, the emphasis in mindfulness is on changing the relationship with thoughts, learning to stay with and transform cravings and the unpleasant experiences that accompany them (Groves 2014). A pilot RCT employing a MORE intervention for alcohol-dependent inpatients, for example, was found to effect a significant reduction in thought suppression, which was in turn associated with lower levels of alcohol attentional biases (Garland et al. 2010).

The findings of a large, controlled trial have demonstrated that MBRP can effect significant improvements in substance-abuse outcomes (Bowen et al. 2014). Because of its efficacy in improving wellbeing and tackling a variety of emotional difficulties, MBRP is increasingly finding use as an adjunct to support patients on their road to recovery, with some referring to such courses as "mindfulness-based addiction recovery" (MBAR) (Mason-John and Groves 2014).

### 3. Ontological Addiction Theory (OAT)

Just as early biomedical-based conceptualisations of mental illness eventually evolved to include psychological and sociological dimensions in the subsequent biopsychosocial paradigm, there is growing realisation that a complete account of the causes of human suffering must also include a spiritual dimension.

Metaphysics involves the examination of ontological questions, such as those concerning the nature of reality, existence, and selfhood. A new metaphysical model called *ontological addiction theory* (OAT) has recently been proposed, which advances current approaches to psychopathology by including this important aspect of human existence (Shonin et al. 2013; Shonin et al. 2016; Van Gordon et al. 2018). Based on the assumption that contemporary conceptualisations of mental illness overlook how individuals funda-

mentally conceptualise themselves and the way that they exist, OAT asserts that individuals are prone to forming implausible beliefs about their existence and that such beliefs can become addictive, resulting in functional impairment and mental illness. Specifically, ontological addiction is defined as “the unwillingness to relinquish an erroneous and deep-rooted belief in an inherently existing ‘self’ or ‘I’ as well as the impaired functionality that arises from such a belief” (Shonin et al. 2013, p. 64).

There is something of a strange contradiction in Western society regarding the prevailing conceptualisation of selfhood. With humanity’s growing understanding of the nature of the physical world, we have reached the realisation that things of the objective world are simply complex structures of particles existing in a state of constant flux. Within this paradigm, there is the commonly held characterisation of the mind or selfhood as an emergent biological software of sorts, which organises our behaviour to safeguard our survival and wellbeing. Within this traditional, predominately materialist worldview, and even at the forefront of modern physics (Van Gordon et al. 2017a), the principle marks of existence of Buddhism appear incontrovertibly true: all things, including ourselves, are subject to change (Pāli: *anicca*) and devoid of an inherently existing self (Pāli: *anattā*). Since phenomena are never fixed in time and space, then all things, including human beings, are of the nature of non-self (*anattā*) and are inherently “empty” because they exist only in a relative sense (Nagarjuna 2005). Yet, though modern psychology understands that selfhood is illusory and a construction of our own psyche, there remains the deeply ingrained habit of viewing the self as a fixed entity with inherent physical and behavioural attributes, and this perspective still dominates many established psychological and psychiatric models (Freud 1961; Maslow 1943; Roger 1959). This is despite the fact that controlled studies have demonstrated significant improvements to wellbeing and wisdom following acquaintance with the idea of a self that is empty of intrinsic existence (Van Gordon et al. 2019).

OAT contends that it is this flawed belief in an inherently existing self that is the main cause of many forms of mental illness. By harbouring mistaken ontological beliefs, individuals reify their sense of selfhood to the extent that they fall into narrow and egotistical response modes (Shonin et al. 2016), pathologically pursuing self-interest and expending disproportionate amounts of energy in furthering self-interest or protecting the self from perceived threats (Van Gordon et al. 2016a). The rewards and punishments associated with such behaviour, furthermore, can exacerbate a person’s self-fixation to the extent that it meets the criteria of a clinical addiction (Shonin et al. 2016). Put simply, ontological addiction is when a person becomes self-addicted, placing themselves at the centre of the world, separate from everything around them.

The concept of addiction is largely synonymous with the Buddhist notion of attachment or craving (Pāli: *rāga*). However, the meaning of attachment here is distinct from its use in psychological parlance concerning human relationships and instead refers to the undesirable tendency to cling to transient forms or experiences (Sahdra et al. 2010). As has been discussed, grasping at what brings pleasure and rejecting its opposite creates the cycle of dissatisfaction, disillusionment, and pain that is *samsara*. OAT thus views addiction and its treatment not in terms of understanding and remedying every possible instance or sub-category of behavioural addiction (e.g., drugs, food, gambling, sex, work, etc.) but on tackling the root cause of all addictive impulses. From a Buddhist perspective, this root cause of addiction is of the same nature as the attachment that drives the karmic cycle (i.e., *samsara*) and the preoccupation with what are called mundane concerns. These mundane concerns centre on an individual’s preoccupation with the pursuit of pleasure, wealth, fame, possessions, and other things concerning the advancement of the self. That is not to say that Buddhism opposes such concerns per se but only the attachment to such concerns and the dysfunctional ego reification that belies pathological forms of such attachment. In this respect, addiction is viewed as stemming from a kind of spiritual malnutrition; the deluded mind, unaware of its own nature, attempts to concretise the ego-self, blindly chasing material pleasures and rewards that can never bring lasting fulfilment. Release from this cycle of suffering in *samsara* can only be achieved by the extinction of these

cravings through transcendence of ego in *nirvana*. Behavioural addiction, then, has its origin in the deeper and more pernicious self-addiction that is the root of all addictions (Shonin et al. 2013).

OAT asserts that without a fixed belief in an independently existing “me” or “I”, the conceptual and emotional entanglements that propagate this cycle can no longer gain traction and that treatment strategies should target ontological addiction at its source, undermining self-attachment, deconstructing the ego-self, and dismantling the maladaptive addictive beliefs that have accumulated. This approach is supported by studies showing that lower self-attachment is associated with improved physical and psychological health (Pande and Naidu 1992), enhanced well-being (Sahdra et al. 2010), and reduced psychological distress and chronic pain (Van Gordon et al. 2017b). Furthermore, qualitative studies have shown that acceptance of the self’s lack of inherent existence can promote personal, professional, and spiritual development (Shonin and Van Gordon 2015; Van Gordon et al. 2019).

#### 4. The New Wave: Second-Generation Mindfulness-Based Interventions in the Treatment of Addiction

As described earlier, FG-MBIs, with their relatively secularised implementation of mindfulness, have invited concern over the way mindfulness has been removed from its traditional Buddhist roots and the *tisikkhā* (three trainings) principle within which meditation is traditionally taught. Indeed, this apparent denaturalisation of mindfulness has raised criticisms over the question of authenticity in these practices, provoking much debate (Grossman 2015; Monteiro et al. 2015; Purser 2019; Purser 2015; Repetti et al. 2016). Some researchers, practitioners, and Buddhist experts believe that mindfulness as it is practised in FG-MBIs has been so altered from its traditional Buddhist conceptualisation that it may even be misleading to refer to the practice as mindfulness (Van Gordon et al. 2019).

SG-MBIs were introduced to place mindfulness back within the *tisikkhā* structure of traditional Buddhist teaching where meditation (right effort, right mindfulness, right meditation) is practised alongside ethics (right speech, right action, and right livelihood) and wisdom (right view, right intention) (Van Gordon et al. 2019). Furthermore, mindfulness has been reframed as an active, enquiring process that is openly spiritual in nature (Van Gordon et al. 2015a). This is because the non-judgemental aspect of Kabat-Zinn’s (1994) definition, some believe, does not properly depict the discerning aspect of mindfulness as traditionally practised in Buddhism that prevents the practitioner from becoming morally indifferent (Shonin et al. 2014). SG-MBIs typically follow a similar structure as their predecessors but have been expanded to more fully embody mindfulness as it is practised in a traditional Buddhist setting. For example, the eight-week Meditation Awareness Training (MAT) intervention (Van Gordon et al. 2015a) is openly spiritual in nature, includes ethics as a core aspect of its syllabus, and requires instructors to have several years of supervised practice.

Consistent with the ethics component, MAT integrates meditative techniques that cultivate loving-kindness, compassion, and moral equanimity, while for the wisdom component, insight meditation—such as *vipassanā* or *suññatā* meditation—focuses on cultivating penetrating insight into the nature of selfhood and reality. The rationale for this is that while meditative focus is a prerequisite for attaining the stability of awareness necessary for cultivating deeper insights and ethical and socio-empathic awareness, a fundamental enquiry into the nature of phenomena and reality is also necessary to bring about the spiritual growth required to undermine the powerful self-fixations which have accrued (Chah 2011). In other words, loving-kindness and compassion-based meditation allows the individual to transcend selfhood at an affective/emotional level (e.g., through equanimity, empathy, and compassion), while insight meditations cultivate the deeper awareness associated with non-dual states of being (e.g., insights such as interconnectedness, impermanence, and emptiness of phenomena) (Shonin et al. 2014; Van Gordon et al. 2019).

Within the framework of OAT, Shonin et al. (2016, p. 666) propose a three-phase approach to the treatment of ontological addiction that is held to underlie manifestations of conventional addictions (e.g., drugs, work, sex etc.): “(i) becoming aware of the imputed

self, (ii) deconstructing the imputed self, and (iii) reconstructing a dynamic and non-dual self". The first phase is to become aware of the fact that the self is a construction of mind and that there are no credible grounds for believing that there is an inherently existing "I" that operates independently of everything else. This stage therefore focuses upon enhancing self-awareness and laying out the logical foundations for the principles of non-self (or emptiness) which can foster deeper realisation of the inner nature of phenomena. The second phase is to cultivate and practice a variety of spiritual capabilities centring on the aforementioned ethics and wisdom components of Buddhist training. Here, qualities such as compassion, loving-kindness, generosity, and patience are practised alongside insight meditation—such as *vipassanā* or *suññatā* meditation—with the aim of challenging and uprooting the concept of an inherently existent self. As a result, the deep-rooted beliefs that fuel ontological addiction can gradually be eroded as insight into the nature of selfhood evolves and transforms.

It should be stressed, however, that this deconstruction of self is not intended as a deliberate attempt at psychological dissociation or denial of existence but to foster a profound recognition of its constructed, impermanent, and relative nature. Thus, terms such as "non-self" are expedients for shifting focus from awareness-of-self to awareness of the totality of self and other. The final, third phase of this treatment, then, involves reconstructing a self that is dynamic and non-dual in nature. At this stage, though individuals recognise the illusory nature of selfhood, they also understand that they must still operate in an adaptive manner in a world in which they are embodied as distinct entities surviving in a potentially hostile environment. Having recognised the emptiness of inherent existence, however, a true self can be assumed for the purposes of functioning in the world. This reformed self, being based on the insights derived from the first two phases, however, exists as a deeply interconnected entity with a recognition of its ultimate inseparability from the conditions and phenomena around it. By understanding that we, and the situations in which we find ourselves, are inseparable phases of the same whole, it is argued that we can respond more fluidly, spontaneously, and constructively to life's challenges. Being less concerned with self, we are thereby better able to see the big picture, are less prone to narrow self-interest, and less susceptible to the maladaptive cognitive-affective processes in which the ego can become entangled (Shonin et al. 2016).

The importance of this spiritual dimension in addiction theory and treatment is reflected in the widespread adoption of the notion of a higher power within traditional, 12-step programmes for recovery from addiction. Indeed, Groves (2014) has drawn comparisons between these steps, the noble truths of Buddhism regarding the origins and root causes of suffering (attachment or craving), and the role of ethics in recovery from addiction. Consistent with this, Shonin and Van Gordon (2016) list increased spirituality, greater situational and self-awareness, values clarification, and letting go as key mechanisms through which mindfulness can effect positive changes in mental health and addiction recovery.

The formulation of OAT described herein emerged from an analytical review of Buddhist-derived interventions for the treatment of problem gambling (Shonin et al. 2013), and with OAT being so aligned with the concept of addiction—albeit in Buddhist terms—the application of SG-MBIs, such as the MAT intervention to conventional addictions, has been a natural development. MAT intervention studies have since been conducted in respect of (for example) sex addiction (Van Gordon et al. 2016b) and workaholism (Van Gordon et al. 2017c), with the results revealing clinically significant positive changes that were maintained at six-month follow-up. Though these results are encouraging, however, to date there have only been a small number of comparison studies examining whether FG-MBI or SG-MBI approaches are more effective for particular populations (e.g., Bayot et al. 2020; Chen and Jordan 2020).

## 5. Conclusions and Future Directions

As things stand, it is unclear whether some elements of the MAT intervention (e.g., mindfulness, ethics, or wisdom-based practices) are more useful than others in effecting positive changes in addictive behaviours and whether such advantages may depend upon characteristics of the population under examination. As a result, SG-MBIs might be criticised as being overly reliant on expert opinion regarding best practice in Buddhist-derived interventions. Nonetheless, regardless of the specific types of mindfulness practice to be explored and critically appraised as part of future research (e.g., compassion, loving-kindness, or insight meditation), the growing popularity of MBIs will likely present implications for the training of psychiatrists and other health professionals involved in the treatment of addiction. It is therefore recommended that professionals in this occupation develop a working knowledge of meditational theory and psychospiritual perspectives on addiction aetiology (Van Gordon et al. 2018; Van Gordon et al. 2015a).

There also remain many questions regarding the dose-response relationship, that is, how much treatment is necessary to effect positive clinical outcomes. Related to this, there is also the question of the amount of clinical training required in order to be able to practice effectively in a clinical setting (Garland and Howard 2018) and whether the more stringent training requirements for instructors of some of the SG-MBI interventions are reflected in more positive clinical outcomes than for conventional FG-MBIs.

Finally, most studies of FG-MBIs for addiction have thus far focused mostly on substance misuse, and more studies are needed in respect of behavioural addictions, such as workaholism and sex addiction (Kathirasan 2018). However, the opposite situation seems to currently apply to SG-MBIs, where studies of addiction have tended to focus on behavioural addictions. Thus, future research should return to the question of efficacy of SG-MBIs in the treatment of a variety of addictions—including substance abuse—with the use of more qualitative and longitudinal studies to reveal a clearer picture of the long-term impact of SG-MBIs on relapse prevention.

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