
The Essence and Mechanisms of Mindfulness in Therapeutic Context L'essence et les mécanismes de la pleine conscience en contexte thérapeutique

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ABSTRACT

Based on classic Buddhist practices that do not assume pathology, mindfulness facilitates a shift in clients' relationship with suffering that mediates beneficial change. Neurological studies have demonstrated that this shift is both psychological and structural. In the 30 years since mindfulness first entered the lexicon of modern psychology, mindfulness-based interventions have emerged that depart from its historical, experiential roots. Such differences have led to uncertainty and confusion about the efficacy and essence of mindfulness, and its conceptualization. Unresolved, this confusion has implications for professional training, research, and therapeutic practice.

RÉSUMÉ

En se fondant sur la pratique bouddhiste classique, qui fait abstraction de la pathologie, la pleine conscience facilite la modification de la relation du client avec la souffrance, ce qui permet de susciter un changement bénéfique. Des études neurologiques ont permis de démontrer que cette modification est à la fois psychologique et structurelle. Depuis les 30 années d'existence de la notion de « pleine conscience » dans les lexiques de la psychologie moderne, on a vu naître des interventions fondées sur la pleine conscience qui sont de nature fort différente des racines historiques et expérientielles du concept d'origine. De telles différences ont engendré de l'incertitude et de la confusion quant à l'efficacité et à l'essence de la pleine conscience et à sa conceptualisation. Le fait que cette confusion ne soit pas dissipée a des répercussions sur la formation professionnelle, la recherche, et la pratique thérapeutique.

Since the late 1990s, interest and research into the mechanisms and benefits of mindfulness have grown exponentially (Carlson, 2012; Hickey, 2010; Williams & Kabat-Zinn, 2011). Peer reviewed articles have been published on mindfulness-based interventions for almost every type of clinical and physical disorder, and the principles and concepts of mindfulness are being integrated into mainstream medicine, neuroscience, health care, education, business, and other major societal institutions (Williams & Kabat-Zinn, 2011). The Royal College of Physicians and Surgeons of Canada has recognized its importance (Abbey, 2012), and in the United Kingdom, the National Institute for Clinical Excellence (NICE) has recommended mindfulness-based cognitive therapy (MBCT; Williams, Teasdale, Segal, & Kabat-Zinn, 2007) as a priority for national implementation (Crane &

Kuyken, 2012). Mindfulness courses are now being taught at 16 medical schools across North America, including McGill, Duke, and Harvard (Hutchinson & Dobkin, 2009).

Based on 2600-year-old Buddhist principles and meditation practice, mindfulness has been found to be culturally compatible with every nationality and culture (Kabat-Zinn, 2011), including, and specifically, those of Asian Americans (Hall, Hong, Zane, & Meyer, 2011) and First Nations peoples (Vickers, 2008). The current conversation between scientists and Buddhist contemplatives about the benefits of and the science behind mindfulness has been described as an “unparalleled episode in the history of science” (Goleman, 2007, p. vii).

What is it about mindfulness that is generating this plethora of interest and research? Could it be that scientists and practitioners are arriving at the same conclusion that contemplatives such as Mingyur Rinpoche (Mingyur Rinpoche & Swanson, 2007) and others have realized—that freedom from suffering is available to all of us, and that the key to this freedom is already within us? An ancient Buddhist principle, loosely translated as *dependent origination*, uses terms similar to *social constructionism* (Gergen, 2001) to describe an aspect of consciousness that interferes with accessing such freedom. The principle refers to how self and other perceptions are limited by “cultural conditioning, family upbringing, personal experience, and the basic biological predisposition toward making distinctions and measuring recent experience and future hopes and fears against a neuronal warehouse of memories” (Mingyur Rinpoche & Swanson, 2009, p. 265). It is in this complex and very personal realm that mindfulness practice and psychological intervention meet, and where much of the interest in mindfulness is generated.

Mindfulness training leads to a shift in consciousness that mediates a number of benefits to clients’ psychological, emotional, and physical well-being across a broad range of contexts. The current confluence of modern science and Buddhist explication of freedom from suffering appears to be creating a parallel shift, the result of which is a rapidly growing field of interest and research. The aim of this article is to differentiate mindfulness and its essential qualities from the expanse of research, definitions, and applications, and to describe how it works in various contexts. The explication of mechanisms and mediators involved in therapeutic change will lead to further understanding of why mindfulness is found to have such broad therapeutic applicability, and is followed by a discussion of the implications for future research and practice.

MINDFULNESS DIFFERENTIATED

Because mindfulness means many things in many contexts, a brief discussion of some of these definitions, interpretations, and applications is necessary to clarify and define the scope of this article. Mindfulness entered the lexicon of modern psychology primarily in response to a growing interest in the reported effects of the mindfulness-based stress reduction program (MBSR; Kabat-Zinn, 1990) at the University of Massachusetts Medical School. During the 30 years that MBSR

has become the focus of an ever-expanding medical, psychological, scientific, and mainstream audience, the Buddhist roots of the practice and essence of mindfulness that are so essential to the MBSR program have been de-emphasized. When Jon Kabat-Zinn first opened the MBSR clinic in 1979, he went to great lengths to represent the methods and benefits of the program in “commonsensical, evidence-based, and ordinary” language (Kabat-Zinn, 2011, p. 282). He did so to avoid the risk of linking a practice that he knew to be so beneficial to Buddhist religion or of having it considered as yet another New Age fad.

Kabat-Zinn’s (2011) diligence over the years has played a significant role in the development of a unique branch of the Department of Medicine at the University of Massachusetts: the Center for Mindfulness in Medicine, Health Care, and Society. The success of the MBSR program and emerging neuroscience research has further led to the integration of mindfulness meditation into mainstream medical care (Abbey, 2012; Crane & Kuyken, 2012), and to a growing list of other contexts. However, after 30 years and numerous interpretations, derivatives, and innovative applications, a new generation of mindfulness-based interventions (MBIs) has emerged, many of which depart from the classic roots of mindfulness.

Interventions such as acceptance and commitment therapy (ACT; Hayes, Strosahl, & Wilson, 1999) and dialectical behaviour therapy (DBT; Linehan, 1993) appear to be consistent with the origins of mindfulness because of their shared emphasis on the practice of observing, sustained attention to the present moment (Chiesa & Malinowski, 2011), being nonjudgemental, and regulating emotions. However, these interventions depart from the philosophical and practical roots of mindfulness through influences of unrelated psychological frameworks, such as behavioural science and contextualism (Chiesa & Malinowski, 2011). This shift in focus can lead to conceptualizing mindfulness, and to de-emphasizing the practice of mindfulness meditation (Shapiro & Carlson, 2009) and other principles that are central to MBSR and MBCT (Williams et al., 2007). Such fundamental differences amongst mindfulness-based approaches, in addition to differences in the contextual use of the term mindfulness, have led to confusion in the research and uncertainty about the efficacy of mindfulness. The focus of this article is on mindfulness-based interventions that emphasize the practice of meditation and that maintain the essence of the 2600-year-old traditions upon which MBSR and other, but not all, mindfulness-based approaches are constructed.

DEFINITION AND UNDERPINNINGS OF MINDFULNESS

Modern psychology and mindfulness, as defined by classic Buddhist philosophy and MBSR, share the goal of eliminating mental habits associated with psychological and emotional suffering and increasing those habits associated with happiness and compassion (Chambers, Gullone, & Allen, 2009). As far back as 1890, William James recognized the value of the underlying psychology of Buddhist thought, predicting that psychology would move in this direction within 25 years (Epstein, 1995). Commenting on the effects of attention, James wrote:

[T]he practical and theoretical life of the whole species, as well as of individual beings, results from the selection which the habitual direction of their attention involves.... [E]ach of us literally *chooses*, by his ways of attending to things, what sort of a universe he shall appear to himself to inhabit. (James, 1890, p. 424)

These habits of conscious or unconscious focus of attention are central to the practice, outcomes, and underpinnings of mindfulness.

Mindfulness is described in psychological terms that may be unfamiliar to many students and practitioners of modern clinical psychology. For one thing, the philosophy informing mindfulness does not assume pathology (Kabat-Zinn, 2011) or even goal attainment (Stauffer, 2007), but instead emphasizes the practice of mindfulness and the elimination of suffering (Chambers et al., 2009; Kabat-Zinn, 2005; Mingyur Rinpoche & Swanson, 2007; Thera, 1962). Mindfulness is also difficult to define because it involves an interweaving of processes and attitudes, and shifts in perspective, and it is a process, a practice, a state, and an outcome. In contrast to typical states of mind that are concerned with ruminating about past events, planning for the future, or impatiently judging present conditions and experiences (Carlson, 2012), mindfulness involves “paying attention in a particular way: on purpose, in the present moment, and non-judgementally” (Kabat-Zinn, 1994, p. 4). It is equally the awareness that arises from paying attention in this way (Kabat-Zinn, 2005). The cultivation of concentration, attention, and non-judgemental acceptance of whatever is being experienced in the present moment (Bishop et al., 2004) is central to the practice of mindfulness, and to retaining the awareness that arises from being mindful.

Acceptance

Nonjudgemental acceptance is not the absence of judging or evaluating, or an ideal mental or attitudinal state. Acceptance means that when judgements or opinions do arise in whatever context, it is not necessary to judge or react to those judgements (Kabat-Zinn, 2011). Acceptance is distinguished from resisting or clinging to a thought, feeling, ideal, or goal, and is often followed by an attitude of curiosity, friendliness, and compassion (Block-Lerner, Adair, Plumb, Rhatigan, & Orsillo, 2007; Coffey, Hartman, & Fredrickson, 2010; Kabat-Zinn, 1990).

Understanding through Practice

Mindfulness cannot be understood as a concept or as a cognitive exercise, but must instead be experienced. The most common route to such experience is through formal meditation practice (Kabat-Zinn, 2011). Initial stages of practice often begin with participants sitting with eyes closed, purposefully focusing on the breath, and with a teacher’s voice gently guiding the direction of focus. By slowly shifting attention from the breath to the movement of the belly or nostrils, then to body sensations, and finally to noting—but not being carried away by—thoughts and feelings (Kabat-Zinn, 1990), practitioners learn to direct the attention of awareness. Later stages of skill development include resting in bare awareness

(Mingyur Rinpoche & Swanson, 2007) of whatever rises into consciousness moment by moment (Carlson, 2012) through the senses, including the mind sense (Mingyur Rinpoche & Swanson, 2007; Siegel, 2011). Mind sense has a quality of “pure observation of phenomena” (Stauffer, 2007, p. 20), and has been eloquently described as “an investigative awareness of observing the ever-changing flow of private experience” (Bishop et al., 2004, p. 234). The client’s moment-by-moment experience, facilitated and enhanced by the philosophical perspective described above, both requires and enhances self-regulation of attention.

MINDFULNESS IN THERAPEUTIC CONTEXTS

The kinds of difficult emotions that arise in therapy are often reflections of the internal losses an individual has experienced as he or she has struggled to cope with a difficult interpersonal situation (Epstein, 1995). Mindfulness reduces the suffering resulting from such struggles by building the capacity to know and accept one’s feelings (Kabat-Zinn, 1994) without having to act or be acted on by them (Epstein, 1995), whether consciously, automatically, or unconsciously (Siegel, 2011; Williams et al., 2007). The practice of mindfulness also increases an individual’s capacity to accept conditions or symptoms that are difficult or impossible to change (Fjorback, Arendt, Ørnbøl, Fink, & Walach, 2011). The development of such capacities and the psychological mechanisms involved in achieving a state of mindfulness are discussed in the contexts of MBSR, MBCT, and trauma work.

Mindfulness-Based Stress Reduction (MBSR)

Originally developed for the management of stress resulting from chronic pain (Kabat-Zinn, 1990), MBSR is now widely used to treat many forms of emotional, behavioural, and physical disorders (Boyce, 2012; Calderon & Goodman, 2012; Chambers et al., 2009; Shapiro & Carlson, 2009). The MBSR program is about cultivating interior resources of awareness that are available to everyone. The program consists of 8 weekly classes in which participants learn the practice and benefits of mindfulness through guided instruction in mindfulness meditation practices, gentle stretching, and mindful yoga (Kabat-Zinn, 1990). Two beliefs are fundamental to the teaching and practice of MBSR: (a) there is more going right with any individual than there is going wrong; and (b) the client knows far more than anyone else about what is going on for him or her, although perhaps without awareness or confidence about accessing internal resources (Kabat-Zinn, 2009b).

Operating from these foundational assumptions, clients are not treated as patients with diagnoses or problems, but are instead provided with support and guidance, as they learn to look with curiosity and acceptance directly into whatever pain or other sensations arise (Kabat-Zinn, 2011). In this way, the individual discovers that the mind has a life of its own, and when attention in the body is stabilized, even a little, he or she also becomes aware of the impermanent and ever-changing nature of all sensations (Kabat-Zinn, 2011).

Walking meditation and nightly homework of a 45-minute guided body-scan meditation are two practices used to teach mindful attention and the awareness of impermanence. The body scan meditation highlights the way in which awareness of sensations, pain, or body parts dissipates as attention shifts from one place and sensation to the next. In walking meditation, participants direct their attention to the slow and protracted sequence, movement, and intention involved in standing, lifting, moving, and placing one foot, then shifting, lifting, moving, and placing the other foot (Kabat-Zinn, 1990). Both of these practices help the individual to experience and develop a sense of continuity in mindful awareness (Levey & Levey, 2006).

Following the emerging awareness of the transient nature of experience, clients learn nonidentification with sensations, emotions, and thoughts (Kabat-Zinn, 2011). The difference between personalizing pain (or thoughts and feelings) and the experience of observing—and not identifying with—the sensations may seem conceptually insignificant, but on the experiential level, it is anything but insignificant. When space is created between the pain and the awareness of the pain, which is not in pain, a sense of freedom is experienced (Kabat-Zinn, 2005). This freedom, arising out of the awareness of space between sensory experience and awareness of experience, is a key mediator involved in the shift in consciousness linked to mindfulness.

Practices that cultivate joy and equanimity, and other activities that generate kindness and compassion toward self and others, are also integral to the MBSR program. Group interaction, which supports and acknowledges the challenges, stresses, and successes of integrating mindfulness into participants' lives, is one of those practices (Kabat-Zinn, 1994).

Mindfulness for Trauma

Preliminary research has also revealed that mindfulness skills, such as those learned in MBSR, can be beneficial to clients who have experienced trauma. According to the American Psychiatric Association (APA; 2000) *Diagnostic and Statistical Manual of Mental Disorders* (4th ed., Text Rev.) a traumatic event involves “actual or threatened death or serious injury, or other threat to one’s physical integrity; or witnessing an event that involves death, injury, or a threat to the physical integrity of another person” (p. 467). For the purposes of this article, a traumatic experience may also include societal trauma or other uncontrollable negative circumstances that may also be associated with symptoms of re-experiencing, hyperarousal, avoidance (APA, 2000), and emotional numbing (Follette, Palm, & Pearson, 2006).

Because individuals who have experienced trauma often perceive commonplace situations as threats, present-moment situations or events often become distorted (Calderon & Goodman, 2012; Williams et al., 2007). Applying mindfulness skills in the safety of the therapeutic environment enables the client to focus intentionally on present reactions, rather than past trauma, and to practice experiencing thoughts and feelings that had previously been avoided (Follette et al., 2006).

Additionally, by rehearsing grounding practices such as breathing exercises and the body scan, the client develops, gains, and is supported by immediate access to skills that anchor him or her in the present, thereby reducing the likelihood of emotional avoidance and re-experiencing (Calderon & Goodman, 2012; Follette et al., 2006).

This intentional shifting of attention away from the objects of attention, whether memories, thoughts, emotions, or other somatic experience, and toward the reactions to those objects (Calderon & Goodman, 2012) enables nonjudgmental, body-mind, moment-by-moment awareness and attunement. Calderon and Goodman (2012) have demonstrated that this intentional shifting and re-focusing has the potential to address the psychological, neuropsychological, and somatic symptoms of trauma through the brain's limbic system, which regulates both stress and trauma responses.

Brain function and trauma. Memory begins to develop in utero and is mediated by the amygdala, which contains emotional and sensory information derived from repeated past events, and which uses the brain's capacity to construct schema needed for responses to future events (Calderon & Goodman, 2012; Siegel, 2011). Explicit memory, which begins to develop around age 2, is mediated by the hippocampus, which makes sense of experience (Calderon & Goodman, 2012; Siegel, 2011). Trauma, brain injury, excessive amounts of alcohol, and severe emotion can temporarily shut off the hippocampus (Siegel, 2011), and because the implicit memory is intact but explicit memory has been disrupted, the emotional intensity of the trauma is remembered, but the actual event is not (Calderon & Goodman, 2012).

Even in the absence of any real threat, individuals who experienced trauma reported emotional and somatic arousal when stimulated by contextual associations such as smell, sound, and mood (Calderon & Goodman, 2012; Williams et al., 2007). For many of these people, the natural response is a tendency to avoid experiences and emotions, and instead participate in activities that numb their feelings, such as drug and alcohol use, or disconnect from self and others. The result of such withdrawal is psychological inflexibility (Follette et al., 2006).

The mindfulness practice of sustaining nonjudgmental and compassionate attention to moment-by-moment experience—whether of the breath passing by the nostrils or a vague memory that elicits an overwhelming sense of sadness—helps clients to become familiar and increasingly more comfortable with their internal and external experience. As clients learn to observe and experience the impermanence of sensation, thought, and emotion, they are also learning to self-regulate experiences of memories. Under the care of a skilled mindfulness-based therapist, memories can be rebuilt as the client becomes more able to review memories as they arise, at his or her own pace (Calderon & Goodman, 2012).

By recreating and recontextualizing formerly traumatic memories, clients become less reactive and feel more in control of both the past and the possible future (Follette et al., 2006). Reduced reactivity, increased clarity, and nonattachment lead to a reduction in rumination (Coffey et al., 2010; Hickey, 2010). Since rumina-

tion often involves repetitive focusing on distress and on its possible causes and consequences (Coffey et al., 2010, p. 237), and nonattachment is the sense that situations and events no longer have to occur in a particular way for the individual to be happy, the sum of the effect on the client is reduced psychological distress (Williams et al., 2007) and greater psychological flexibility (Follette et al., 2006).

Mindfulness-Based Cognitive Therapy

Mindfulness-based cognitive therapy is an effective depression prevention program for people with a history of recurrent depression (Crane & Kuyken, 2012; Williams et al., 2007). MBCT has been found to be as effective as maintenance antidepressant medication for those clients needing continued intervention (Segal et al., 2010, p. 1262). As mentioned in the introduction, MBCT was recommended in 2009 as a priority for national implementation in the UK for treatment of recurring depression (Crane & Kuyken, 2012).

The structure of MBCT is the same as that of the MBSR program, with 8 weekly psychoeducational-style sessions, and the same sequencing and introduction of mindfulness practices. The main difference between the two programs is that the MBCT dialogic curriculum is informed by aspects of cognitive behaviour therapy (CBT; Beck, Rush, Shaw, & Emery, 1979) for depression, and shaped towards the participants, for whom the program is designed. This may also include other action-oriented strategies for preventing or dealing with depression (Crane, 2008).

Mental processes of depression. Williams et al. (2007) described the mental process of depression as a pattern that is “triggered so automatically by unpleasant emotion that it is hardly noticeable when it is happening” (p. 31). In the presence of danger, automatic reactivity can be life-saving, and under normal circumstances when danger has passed the negative emotions pass, too (Williams, 2010). However, when negative emotions are reacting to an internal experience of danger, such as thoughts, feelings, or sense of self, the body reacts in the same protective manner (Williams et al., 2007), with aversion and tension; these negative emotions frequently do not pass. When this internal experience is intertwined with judgements of the negative feelings as bad or undesirable, the result is an experience of contraction. The individual’s “experience of life narrows and choices seem to dwindle” (Williams et al., 2007, p. 36). Memories and reactive thinking patterns from the past, such as conditions that led to feelings of loneliness or discouragement, can also be triggered by mood or other stimuli quite unconsciously (Williams et al., 2007).

Williams et al. (2007) described the common response to recurring low mood, unlike the avoidant behaviour of the trauma client, as an evaluative, critical, comparative process of cognition. Rather than recognizing familiar feelings as an old, familiar, and unhelpful pattern, familiarity suggests to the individual that the critical, evaluative, comparative thoughts are true. The ensuing pattern of the mind “insisting on sorting it all out—identifying, critiquing, and solving the problem” (Williams et al., 2007, p. 43) can lead to obsessive rumination, which exacerbates the problem.

MBCT intervention. Some clinical interventions successfully interrupt this process by recommending reappraisal that views affective distress as problematic and needing cognitive correction (Farb et al., 2010). Like CBT, MBCT provides instruction on how the mind triggers negative thought patterns, rumination, and depressive relapse (Crane, 2008), but rather than presenting the experience of negative emotions as a problem needing correction, MBCT refers to such patterns as changes in body-state sensations (Farb et al., 2010).

Mindfulness exercises, such as the body scan and focusing on the breath, raise awareness of these fluctuations in somatic experiencing, and help clients to understand and become familiar with the impact and habitual patterns of reactivity, such as intrusive negative thoughts and judgements. In much the same way as all MBSR participants are taught acceptance, MBCT clients are taught nonjudgemental acceptance of thoughts and feelings, and compassion toward self when judgements do arise (Williams et al., 2007). Rather than habitually reacting to their feelings, clients begin to turn toward their emotions with compassion and growing acceptance. As new understanding emerges, so too does a new way of responding, followed by a shift to a different state of mind (Chambers et al., 2009) and a new relationship with their feelings (Kuyken et al., 2010).

Increased familiarity with mental processes, and practice in shifting from one focal point to another, helps the client learn when to make the shift to an alternate response. By shifting attention away from “subjective affect-laden threat toward more innocuous sensory information, chronic reactivity is reduced” (Farb et al., 2010, p. 31). Once the individual learns to make such shifts, and the shift has been experienced repeatedly, the sense of contraction is replaced by one of spaciousness and intention, and the individual is freed from the grip of recurrent depression (Williams et al., 2007).

CLIENTS’ EXPERIENCES OF MINDFULNESS

Through mindfulness-based interventions such as those described above, clients build the capacity to step back and observe inner commentary about internal and external past, present, and imagined future experience (Malpass et al., 2012), including experience and beliefs about self (Shapiro & Carlson, 2009). In a meta-ethnography of personal experiences of MBSR and MBCT programs, Malpass et al. (2012) described the processes that led many participants to develop a new relationship with their illness. Participants included cancer survivors, acute mental health inpatients, adults over 65 years old with back pain, HIV-positive youth, patients with Parkinson’s disease, cardiac rehabilitation patients, and individuals with depression and terminal cancer. Several common themes were revealed.

In the first stage of the 8-week program, participants described having been exposed to seeing themselves and their illness in a new way. In the second stage, they struggled to let go of old coping methods and to trust the process of “turning toward” their fears, pain, and emotion (Malpass et al., 2012, p. 65). In this stage they met the observing self, or the awareness of awareness, and experienced the

freedom that arises from discovering that “the awareness of pain is not in pain” (Kabat-Zinn, 2005, p. 89). The final stage was described as a period of transformation in their sense of self, and transformation in their relationship with their illness (Malpass et al., 2012). For most participants, the group itself was credited with enhanced learning, normalization, fellowship, and a reduced sense of stigma. Other key themes and language included self-regulation, choice, calmness, kindness, grounding, and flexibility (Malpass et al., 2012).

One client, who learned mindfulness techniques and perspectives through trauma counselling, reported being more accepting and appreciative of her feelings surrounding the trauma. While still painful, she recognized her feelings as appropriate and no longer felt the need for them to go away. Furthermore, the knowledge she gained from the information gleaned from her mind and body grounded her in the awareness that she was not currently in any danger (Calderon & Goodman, 2012).

In a study of 11 participants’ experiences of MBCT and their relationships with others, clients reported that when they were able to relate mindfully to their own experiences, their relationships with others changed profoundly (Bihari & Mullan, 2012). These clients reported being more aware of their triggers in difficult interpersonal situations, and this awareness gave them the space to respond mindfully, instead of reacting habitually. Other changes reported by Bihari and Mullan (2012) included increased empathy and mutual enjoyment of life in general, as clients learned to live in the moment.

A professor of psychiatry at Oxford University and an international expert on depression who referred several of his patients to one of the early MBCT programs observed similar experiences in his patients. He reported that many of his patients said they had never felt better, and had found “a way of dealing with their difficulties that is completely different from anything else they have ever come across ... that something had completely transformed their lives” (Williams, 2008, p. xii). The following section offers a discussion of the literature about the processes involved in such changes.

MECHANISMS AND MEDIATORS OF MINDFULNESS

As the efficacy of mindfulness-based interventions has become more widely accepted, research has turned toward the mediators and mechanisms of mindfulness. Mediators are variables that transmit change, such as emotion or cognition; mechanisms explain how or why that change came about. An example of a mechanism would be the intervening steps between cognitive change and reduced stress or anxiety (Kazdin, 2007). Although the process of determining mediators and mechanisms has been complicated by disparity in terminology, application of mindfulness, and variations in types of meditation studied (Chiesa & Malinowski, 2011), the relationship between psychological distress and reactivity has been found to be one common denominator. Numerous studies of mindfulness have found that it is not the emotion, thought, or other external or internal stimulus

that leads to psychological distress, but how the individual reacts to what might otherwise be a temporary mental, emotional, or physical state (Kabat-Zinn, 1990, 2005; Mingyur Rinpoche & Swanson, 2007; Shapiro & Carlson, 2009; Thera, 1962; Williams et al., 2007).

In a study of a stressed but otherwise healthy nonclinical population of college students, Sears and Kraus (2009) found that longer periods of mindfulness meditation modified distorted cognitive processes. Without such distortions, conditions were perceived more realistically and were approached with greater acceptance, kindness, and optimism. Decreased rumination, which was found to be a mediator in Sears and Kraus's study, has also been found by others to mediate depression (Coffey et al., 2010; Davis & Hayes, 2011; Williams et al., 2007). Farb et al. (2012) found that nonattachment also mediates negative emotions and is associated with reduced rumination, which has also been linked to a reduction in psychological distress (Coffey et al., 2010).

While there continues to be much debate about the mechanisms of mindfulness (Carmody, Baer, Lykins, & Olendzki, 2009; Coffey et al., 2010), Kuyken et al. (2010) provided what they believed to be the first evidence of the mediators of treatment effects in MBCT. Building on recent findings that reactivity in patients receiving maintenance antidepressant medication (mADM) predicted a recurrence of depression (Segal et al., 2006), Kuyken et al. found that reactivity did not predict a depressive outcome following MBCT support (p. 1106). While CBT led to a marked decrease in reactivity compared to patients receiving mADM treatment (Segal et al., 2006), MBCT patients showed higher reactivity, but the increase in reactivity was not predictive of a depressive outcome. Kuyken et al. found that MBCT treatment "changed the nature of the relationship between cognitive reactivity and depressive outcome and that increases in mindfulness and self-compassion through MBCT continued to mediate the effect of MBCT on depressive symptoms at 15-month follow-up" (p. 1110). These findings are consistent with those of Chambers et al. (2009), who observed increased compassion and acceptance in individuals, preceding a shift away from reactivity and toward a choice of responses to potentially emotional stimuli.

Shapiro and Carlson (2009) used the term *reperceiving* to describe a *meta-mechanism* of action in mindfulness that leads to such a reduction of symptoms, and that delineates the shift in perspective leading to the capacity to observe the experience of one's mind in the moment and nonjudgmentally. Chiesa and Malinowski (2011) described this mechanism similarly as the client's direct experience of learning "when adaptive and maladaptive experiences arise and when they do not" (Chiesa & Malinowski, 2011, p. 418). Shapiro and Carlson (2009) proposed that reperceiving overarches additional mechanisms "that are also outcomes in and of themselves, including (a) self-regulation; (b) values clarification; (c) cognitive, emotional, and behavioral flexibility; and (d) exposure" (p. 94). Coffey et al. (2010), who also found an inverse relationship between trait mindfulness and psychological distress, suggested that the internal state of mindfulness triggers processes that increase psychological flexibility. In other words, this inverse

relationship may be due to the impact that mindfulness itself has on regulation of emotion, and on nonattachment and rumination.

Neuroscience and Mindfulness

Reminiscent of James's early comments on the relationship of the habitual direction of attention and perceptions of reality, evolving neuroscience reflects a corresponding agreement with Buddhist conceptions of the mind as "an evolving occurrence arising through the interaction of neurological habits and the unpredictable elements of immediate experience" (Mingyur Rinpoche & Swanson, 2007, p. 30). Recent studies have shown that both mindfulness and psychotherapy target areas of the brain related to emotion and self-regulation (Chiesa, Brambilla, & Serretti, 2010; Siegel, 2007), and that mechanisms of mindfulness and psychotherapy are able to dampen exaggerated limbic responses to negative stimuli as needed (Chiesa et al., 2010; Davidson & Lutz, 2008). Structural neuroimaging revealed these inhibitory connections to the amygdala and found that repeated activation of specific areas in the brain, such as occurs through mindfulness and psychotherapy, is linked to "enduring macroscopic modifications of brain areas" (Chiesa et al., 2010, p. 112).

High-resolution MRI data have also revealed significant correlation between changes in perceived stress, and morphological changes in the hippocampus (Hölzel et al., 2011) and amygdala (Davidson & Lutz, 2008; Hölzel et al., 2010). Recent research found that the amygdala, one of the most important limbic structures involved in stress states and anxiety disorders (Hölzel et al., 2010), showed decreases in density of grey matter as stress levels decreased (Davidson & Lutz, 2008; Farb et al., 2012). Such findings suggest that mindfulness practice may increase the capacity for encoding moment-by-moment experience, while reducing the tendency to react to emotionally arousing stimuli (Farb et al., 2012). Furthermore, neuroplastic change associated with change in a measure of a psychological state also indicates that MBSR training may lead to grey-matter changes in the amygdala (Hölzel et al., 2010), which is positively associated with mental health and well-being.

As a method for training and developing the mind, mindfulness has been portrayed as the "master key for knowing the mind, the perfect tool for shaping the mind, and the lofty manifestation of achieving freedom of the mind" (Thera, 1962, p. 25). Not only is this description consistent with individual experiences of mindfulness, it also appears to be supported by the results of current psychological and neuroscience research.

GAPS AND FUTURE RESEARCH

As with any new exploration, a period of confusion and uncertainty inevitably follows the surge of activity and new information. In the case of mindfulness, confusion has arisen around its multiple definitions and applications (Chiesa & Malinowski, 2011; Coffey et al., 2010; Mikulas, 2011). In addition, a lack of

rigour and conflicting results in some of the research have led to uncertainty about the efficacy of mindfulness-based interventions (Chiesa & Malinowski, 2011). Early studies of MBSR did not use randomized comparison groups to control for baseline comparability or for effects such as the passage of time, during which symptoms often abate on their own (Bishop et al., 2004). Between a historical lack of rigour, confusion about which definition or aspects of mindfulness were being studied, and a general lack of clarity (Fjorback et al., 2011), it was inevitable that questions would arise as to whether or not mindfulness does what it purports to do (Carmody et al., 2009; Chiesa & Malinowski, 2011; Hickey, 2010). Studies that did actively control for attention, time in the group, and social support, found MBSR to be equal to CBT in terms of improved mood, functionality, and quality of life, while CBT was found to be superior in terms of specific measures of the severity of social anxiety (Shapiro & Carlson, 2009, p. 65).

A recent review of MBSR and MBCT research that used only randomized controlled trials and adequate sample size found that MBSR improves mental health in both nonclinical and clinical populations (Fjorback et al., 2011). Fjorback et al. (2011) concluded that in clinical populations, MBSR supports medical disease management by mitigating associated distress and strengthening well-being, and MBCT reduces the risk of depressive relapse. These authors also found that MBSR reduces symptoms of distress, anxiety, and depression, or provided patients with coping skills to handle these symptoms. Finally, Fjorback et al. determined that “MBSR meets the APA Division 12 Task Force criteria for well-established and empirically supportive therapies” (p. 117).

Recommendations for Future Research

Regarding questions of how mindfulness works, specific recommendations for future research include broadening the base for understanding the mechanisms of mindfulness (Carlson, 2012; Coffey et al., 2010), rigorously designing research on MBSR for psychological problems (Shapiro & Carlson, 2009), and matching interventions to individual clients (Carlson, 2012). Additional neuroimaging studies are also needed to better understand how meditation is linked to the integration of neural circuitry and behavioural and mental changes (Davidson & Lutz, 2008), and how these changes compare to the neural correlates of other types of treatments, such as antidepressants, psychotherapy, and placebo in psychiatric populations (Chiesa et al., 2010; Farb et al., 2012). Another area for future exploration is the degree to which outcomes are due to nonspecific factors such as concentration, time out, group support, or therapist enthusiasm, rather than to the cultivation of mindfulness (Fjorback et al., 2011; Kabat-Zinn, 2009a). Perhaps the most compelling questions for future exploration, however, are those associated with a greater understanding of the mind-body-health connection, and the possible generalizability in the mechanisms and underlying processes across psychological conditions.

When considering recommendations for future research, it is important to bear in mind that attempts to understand and articulate the mechanisms at work

in mindfulness may continue to be plagued with inconsistencies and oversimplification (Crane, 2008). Because of the inherent tendency to conceptualize something that can only be understood from personal experience, from the inside out (Kabat-Zinn, 2011), the results of such analysis may inevitably discount the many essential qualities and possible untold benefits of mindfulness (Crane, 2008; Kabat-Zinn, 2011).

DISCUSSION

The research has clearly demonstrated that mindfulness training mediates a number of benefits to clients' psychological, emotional, and physical well-being across a range of contexts and conditions. Through concentrated attention and nonjudgemental acceptance of moment-by-moment experience, participants in MBSR and MBCT experienced a shift in the relationship with their psychological or physical conditions that led to a reduction in psychological and physical distress (Chambers et al., 2009; Kuyken et al., 2010; Malpass et al., 2012). Furthermore, this change is sustainable over a period of at least 15 weeks (Kuyken et al., 2010). Studies have shown that because individuals are able to learn to identify their own stress responses and associated symptoms, mindfulness skills can be taught and implemented in different contexts for a variety of outcomes. As a result, the benefits of mindfulness are being realized across a range of therapeutic (Carlson, 2012; Shapiro & Carlson, 2009) and healthy populations (Fjorback et al., 2011; Hutchinson & Dobkin, 2009; Kabat-Zinn, 2005).

This universality of results across conditions suggests the possibility of shared mechanisms that rely on the same underlying processes, regardless of disease (Carlson, 2012; Malpass et al., 2012) or psychological presentation (Shapiro & Carlson, 2009). Regardless of cultural, societal, or family influences, and despite biological predispositions and personal experience, mindfulness can help clients step back from and even develop a sense of compassion for their own suffering (Malpass et al., 2012). Furthermore, neurological studies showing linkages between mindfulness meditation and grey-matter changes in the brain have demonstrated that such a shift is not only psychological but also structural (Hölzel et al., 2010).

The intriguing results of these studies have several implications for professional training, future research, and therapeutic practice. As the range and variety of mindfulness-based interventions continues to grow, so too does the potential for reducing mindfulness to a concept to be read about, instead of a way of being that needs to be experienced. For this reason, adequate training in mindfulness also grows in importance (Carlson, 2012). One significant danger of teaching mindfulness as a concept, rather than as a shared practice grounded in specific historical and philosophical principles, is that those who teach it this way do not practice mindfulness, may believe themselves to be experts, and may inadvertently pass on limited expertise (Kabat-Zinn, 1990).

For those who wish to become teachers of mindfulness, the guidelines for teacher certification in MBSR from the University of Massachusetts' Center for Mind-

fulness are stringent. In addition to specific training in mindfulness, professional experience, and a graduate degree, teachers in training are required to practice daily meditation and body-centred awareness, and are required to commit to the integration of mindfulness into everyday life. Other requirements include regular participation in teacher-led mindfulness meditation retreats and teaching at least four 8-week MBSR courses (University of Massachusetts Medical School, n.d.).

Of course, not every therapist who appreciates the benefits of mindfulness and who wishes to integrate it into therapeutic practice will wish to become a teacher of MBSR or be able to take such rigorous training. In such cases, ethical practice and standards of professionalism will apply when determining where the therapist or trainer falls on the spectrum of MBSR guidelines, and what level of skill is available to be passed on to clients (Stauffer, 2007).

CONCLUSION

Through this discussion of the essence and mechanisms of mindfulness in the context of MBSR, trauma work, and MBCT, I hope to have clarified some of the confusion inherent in this rapidly growing form of therapeutic intervention. Perhaps one of the keys to sustaining the essence and potential benefits of mindfulness is an understanding of mindfulness not as something a clinician does to the client, but rather as a set of capacities that an individual learns to do from within, at his or her own pace, with the support of others or alone. It is a way of being that can be taught, and that can transform a client's relationship with suffering—no matter how great or seemingly insignificant the individual's distress. Moreover, it is available to everyone and can be practiced anywhere.

While clinicians and teachers of mindfulness continue “to elucidate the nature of suffering and its root causes, and to provide a practical path to liberation from suffering” (Kabat-Zinn, 2011, p. 288), Steven Hickman (n.d.), Director of the University of California, San Diego, Center for Mindfulness, offers a perspective designed, I believe, to cultivate compassion, joy, and equanimity.

The Hippo

The hippo floats in swamp serene,
 Some emerged, but most unseen.
 Seeing all and only blinking,
 Who knows what this beast is thinking.
 Gliding, and of judgment clear,
 Letting go and being here.
 Seeing all, both guilt and glory,
 Only noting. But that's MY story.
 I sit here hippo-like and breathe
 While inside I storm and seethe.
 Would that I were half equanimous
 As that placid hippopotamus.

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