

CHAPTER 24

Mindfulness and Meditation in Psychiatric Practice

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*Feelings come and go like clouds in a windy sky. Conscious breathing
is my anchor.*

*Thich Nhất Hạnh, Stepping Into Freedom:
Rules of Monastic Practice for Novices*

Mindfulness and meditation-based interventions shown to be beneficial in the treatment of psychiatric conditions and substance use disorders include mindfulness-based stress reduction (MBSR), mindfulness-based cognitive therapy (MBCT), and mindfulness-based relapse prevention (MBRP). Acceptance and commitment therapy and dialectical behavior therapy, which incorporate components of mindfulness, are often referred to as mindfulness-based approaches. In this chapter, I focus on underlying mechanisms and research evidence for MBSR, MBCT, and MBRP.

Originating in Buddhist spiritual practices, modern mindfulness interventions are secular, clinically based group therapies that use manuals and standardized techniques. MBSR provides education about stress and coping strategies, as well as cultivation of the following attitudes: becoming an impartial witness to one's own experience; acceptance of reality as it is in the present moment; and observing one's thoughts as they come and go. Developed specifically to prevent relapse of depression, MBCT builds on MBSR and combines principles and techniques of cognitive therapy with those of mindfulness. MBCT teaches recognition of and disengagement

from patterns of ruminative, negative thought that contribute to depressive symptoms. MBRP is similar to MBCT but focuses on relapse prevention of substance use disorders. The terms *mindfulness* and *mindfulness* are sometimes used interchangeably; however, they have distinct meanings.

Mindfulness

Mindfulness is a mental state in which one keeps attention focused on the present moment rather than allowing it to shift automatically. This includes awareness of visual and auditory stimuli as well as physical sensations, thoughts, and emotions as they occur. There are two fundamental differences between the mindful and the nonmindful states of mind. In the mindful state, attention is under conscious control and focused on the present moment. In the nonmindful state (i.e., *autopilot*), attention shifts from one thing to another without conscious control and is often focused on thinking about the past or future. Cognitive neuroscience would consider the nonmindful state to be one of automatic processing. Automatic mental processing includes stimulus-independent thought, which is commonly called *mind wandering*.

The practice of mindfulness entails avoidance of autopilot and the attentional focus on whatever is occurring at the moment: internal stimuli (thoughts, emotions, proprioception, pain, and interoception), external stimuli (auditory, olfactory, and visual stimuli), as well as general awareness of the environment, and current motor behaviors. For many people, this seemingly simple state of awareness is difficult to achieve. The key to developing a mindfulness practice is learning to recognize the autopilot state when it occurs and then shifting into mindful awareness.

Meditation

Meditation refers to numerous practices that can include mindfulness meditation. The word *meditation* stems from the Latin *meditari*, meaning to participate in contemplation or reflection. Many different meditation practices exist; however, most share the aim of bringing mental processes under voluntary control by intentionally focusing attention and awareness. The two general forms of meditation are *focused attention* and *open monitoring*. In focused attention, attention is typically focused on an anchor. In mindfulness training, attention is focused initially on the physical sensations of breathing or some other anchor for attention. In open monitoring meditation, an advanced mindfulness practice, attention is on open awareness and observation of external stimuli, thoughts, emotions, and physical sensations as they arise and as they pass. In open monitoring, an anchor generally is not used. However, focused attention and open monitoring are often combined during a single meditation session. Meditation can be practiced in a sitting posture, lying down, or during movement (e.g., walking meditation or yoga). In focused awareness during movement, the attention would be anchored on physical sensations as they occur with each step or pose.

The Practice of Mindfulness

Formal meditation, the process by which one trains the mind to practice mindfulness, is the foundation of an ongoing regular mindfulness meditation practice. Ideally, this is a daily practice and may include sitting meditation, walking meditation, or yoga. Although formal meditation is the foundational mindfulness practice, the overarching aim is to spend as much of one's life as possible in a state of mindful awareness. The goal of a mindfulness practice is not to completely avoid autopilot rather, it is to become more skilled at recognizing when it occurs and to return to the present moment. The consistent practice of focused attention meditation facilitates development of mindfulness skills and over time the ability to practice mindfulness even when one is not engaged in formal meditation. Other practices used to develop mindfulness include simple activities, such as brushing one's teeth mindfully or eating a meal mindfully, with attention fully focused on the physical sensations of the activity.

Although mindfulness encourages accepting things as they are in the moment, the intent is not to become passive but rather to take appropriate, beneficial actions based on mindful awareness. For example, if one is experiencing symptoms of depression, mindfulness would facilitate acceptance of the emotion of sadness in the moment and taking appropriate action to decrease the symptoms, such as going for a walk, doing physical exercise, or engaging in an artistic activity. This is in contrast to autopilot-driven behaviors, such as self-medicating with substances of abuse, ruminating, or other negative behaviors.

Psychological Mechanisms of Mindfulness

A brief review of the origins of mindfulness will help explain neural and psychological mechanisms thought to underlie the benefits of mindfulness.

Origins of Mindfulness and the Concept of Resistance to Reality

Buddhism, a complex religion and philosophy encompassing many schools, is fundamentally a spiritual practice for the relief of suffering. Suffering is experienced through a range of mental states from vague dissatisfaction to persistent unhappiness as well as more intense physical or emotional pain. The Four Noble Truths, believed to represent the first instructions of the Buddha and the core teachings of Buddhism, explain the concept of relief of suffering.

The first truth says that all existence is characterized by suffering and dissatisfaction. In other words, unhappiness and suffering are a normal part of life for all people. The second truth indicates that the causes of suffering are craving and desire—that is, we suffer because we want things to be different from the way they are. Desire also includes wanting to avoid situations that cause pain. In mindfulness language, the concept of *resistance* is that our resistance to aspects of reality that we dislike causes much of our suffering.

The third truth is that elimination of craving and desire (resistance) can result in the end of suffering. Resistance, or wanting things to be different, is often an autopilot process.

The fourth truth indicates that Buddhist practice can bring an end to suffering.

General Psychological Mechanisms of Mindfulness

Shapiro et al. (2006) suggested that a fundamental psychological mechanism of mindfulness is *reappraisal*, or shifting perspective, enabling us to step back from, and be less identified with, our thoughts and emotions. Mindfulness practitioners discover that they are greater than their thoughts and emotions (Shapiro et al. 2006). Becoming less identified with one's emotions and cognitions reduces their power. One cannot avoid physical and emotional pain; however, by becoming less identified with one's thoughts and feelings, it is possible to experience the pain and move on rather than being caught up in autopilot-driven suffering.

Resistance to physical and emotional pain increases pain and suffering. For example, if one is experiencing physical pain, the natural tendency of the mind is to wish that the pain would go away and to think about ways to eliminate the pain. This can be beneficial if it leads to adaptive behaviors, such as completing rehabilitative exercises. However, the mind's desire to be free of pain often increases suffering. This is in part, because at the moment, the pain exists, and it is not possible to be free from it. The desire for it to be gone can result in increased frustration. Autopilot thinking is, by definition, focused on the past or the future rather than the present moment. When one is in pain, autopilot thinking often focuses on the future, with one perhaps worrying about how long the pain will last or how it will affect one's life.

Mindfulness helps practitioners better understand the workings of their minds by observing their mental processes. By paying very close attention to thoughts that come and go, practitioners may realize that autopilot thinking is almost always focused on the past or the future rather than the present moment. In the situation of chronic pain, thinking about the distress associated with past pain is not helpful, and worrying about future pain increases suffering. The ability to recognize when the mind is occupied with autopilot-driven thoughts allows practitioners to realize that, as indicated in the Second Noble Truth, suffering is a result of mental processes.

Another concept of mindfulness is that *thoughts are just thoughts*. This seems obvious, but the mind tends to perceive thoughts as representing truth and as being fundamental components of the self. Practitioners learn to "watch the mind," which allows them to observe the ephemeral nature of thoughts. Instructed to notice that thoughts and emotions come and go, practitioners see the transient nature of thoughts and recognize that thoughts are often irrational and unhelpful. This facilitates becoming less identified with thoughts and less likely to assume that they represent truth.

Watching one's mind may reveal that what one thinks of as self is a psychological construct made up of thoughts based on memories, beliefs, and ideas (Shapiro et al. 2006). Furthermore, this concept of self continuously changes as new memories are

acquired and older ones are forgotten. This is perhaps the most insightful idea expressed by mindfulness. Our thinking patterns based on memories of our experiences and beliefs about ourselves define how we see ourselves and who we see ourselves to be. Many practitioners develop the realization that these memories and beliefs, too, are just ephemeral thoughts, often without deep meaning, that are sometimes irrational. This enables de-identification with the cognitive representation of self. Decreased identification with the idea of self also may diminish distress when the concept of self is threatened, whether the perceived threat is to the physical self, such as medical illness, or to the psyche, such as negative comments made by another person.

A reduced identification with the concept of self can broaden the perspective of reality such that one may more readily see the perspectives of others, even if one disagrees with their views. This shift of perception can facilitate increased compassion and concern for both self and others. Enhancing compassion is an important component of mindfulness and contributes to the benefits of this practice. Compassion specifically includes patience and kindness directed toward the self. Self-compassion is a predictor of psychological health, and increased caring for self contributes to the effectiveness of mindfulness.

Psychological Mechanisms of Mindfulness Relevant for Psychiatric Conditions

Aberrant self-referential thinking plays a key role in the etiology of many psychiatric disorders, particularly depression. For example, many studies indicate an association between low self-concept and negative self-schemas and depression.

In addition to the content of thought patterns, narrative thinking about the self plays a role in the cognitive aspects of depression. *Narrative thinking* includes generalized autobiographical memory, memories of the past, and intentions for the future. Narrative thinking is the basis for the sense of self. Narrative self-reference is composed of stimulus-independent thought-driven thinking patterns, which may take the form of self-referential rumination, an aspect of autopilot thinking. Narrative stimulus-independent thought, particularly when thinking analytically about self and depressive symptoms, is often maladaptive. Importantly, it is frequently associated with negative self-judgments and dysphoria. Excessive self-focus is associated with negative affect, and self-focused rumination is specifically associated with depression.

Depression is associated with the extent of self-referential thinking as well as the narrative stimulus-independent thought type of cognition. In mindfulness language, narrative stimulus-independent thought cognitions occur during autopilot. Mindfulness specifically targets the recognition and avoidance of this autopilot-based thinking. In contrast to self-referential thinking based on narrative stimulus-independent thought, mindful awareness is an adaptive and experiential sense of the self: the experience of self in the immediate moment without a story or theme. The literature suggests that mindfulness works, in part, by facilitating the ability to spend more time in an experiential state of mind rather than the self-focused, analytical autopilot state. Studies indicate that by reducing rumination, mindfulness practices have ben-

official effects. Reprocessing and de-identification with self (Shapiro et al. 2006) may help individuals with psychiatric illness to be less focused on their symptoms and less likely to believe negative thoughts and schemas about the self.

Furthermore, research indicates that mindfulness is associated with enhanced emotional self-regulation and decreased emotional overreactivity. In mindful awareness, the ability to step back and observe rather than be controlled and carried away by emotions and thoughts improves self-regulation and adaptive coping skills while reducing maladaptive responses (Shapiro et al. 2006). Also, an increased ability to tolerate unpleasant emotions or sensations enables greater exposure to the discomfort and possibly eventual desensitization. The following case example illustrates some of these concepts.

John is a 35-year-old man with a long history of depression and chronic back pain caused by a motorcycle accident. Over the course of 10 years, he received multiple antidepressant trials and intermittently engaged in supportive psychotherapy. Neither his depression nor his pain symptoms were ever in full remission. One year ago, he completed an 8-week MBCT class that I facilitated. By developing a meditation practice and the ability to observe his thinking patterns, John discovered that he tended to ruminate about his depressive and pain symptoms. He was also able to see that he was frequently carried away with ruminative thinking. In the MBCT class, he learned about gaining distance from negative thoughts and emotions and the use of positive coping strategies rather than simply reacting. An analogy provided in the class was standing on the bank of a flooded river watching the torrent (thoughts) flow by as opposed to falling in and being swept away with the current. Mindfulness facilitates recognition of being carried away by autopilot thinking and instead enables movement into mindful awareness.

Another important effect of mindfulness practice for John was an increased ability to tolerate uncomfortable emotions and physical pain. In other words, he developed the ability to stay present with unpleasant sensations. This helped him avoid falling into negative and ruminative autopilot or stimulus-independent thought patterns that worsened both his pain and his depression. For example, he would think, "Oh no, another bout of depression. The last time this happened, it lasted for weeks." By watching his thoughts, he could see that these thinking patterns were not helpful and led to a vicious cycle of dysphoria leading to negative thoughts, which led to increased pain and rita, and so on. After completing the MBCT class, John still experienced chronic pain and intermittent depressive symptoms. However, he was able to better tolerate these symptoms and engage in more adaptive behaviors, and as a result, he experienced significantly less distress from his symptoms.

Although John benefited from MBCT, he experienced several challenges while trying to develop a mindfulness practice. One of these was his difficulty believing that mindfulness practice would actually be effective, because he had not found any previous treatments to be effective. Also, he thought of mindfulness as meditation as found rather than evidence-based treatments. However, during the class, his belief gradually changed as he learned about the evidence that mindfulness is effective for pain and depression. Another obstacle was establishing a consistent daily meditation practice. The class focused on the need to establish a regular practice in order to experience benefits from MBCT, but like most mindfulness practitioners, John found that it was challenging to fit a daily meditation practice into his busy schedule. Students discussed their individual situations and solutions, and this helped John find ways to practice consistently.

Neural Mechanisms of Mindfulness

A growing literature is describing the neural mechanisms of mindfulness on the basis of human structural and functional neuroimaging studies. A recent review (Marchand 2014) noted that the heterogeneity of methodologies and diversity of populations studied limited interpretation, but nevertheless the studies provided convincing evidence that mindfulness and meditation practice are associated with changes in brain activation or connectivity of several regions.

Brain imaging studies of mindfulness implicate the frontal cortex (Marchand 2014). The strongest evidence is for medial frontal regions, including anterior cingulate cortex and precuneus regions. Of the studies reviewed by Marchand (2014), a few indicated involvement of lateral frontal regions, including ventrolateral prefrontal cortex (VLPFC) and dorsolateral PFC. These studies provided very strong evidence that anterior and posterior cortical midline structures (CMS) play an important role in the neural mechanisms of mindfulness. The CMS are key components of the default mode network. In regard to noncortical regions, strong evidence indicates involvement of the insula and amygdala, and a few studies suggested involvement of the basal ganglia and thalamus.

Taken together, these studies provide convincing evidence that mindfulness mechanisms involve neural circuitry of the CMS/default mode network, insula, and amygdala (Marchand 2014), which is consistent with the psychological mechanisms outlined earlier. Mindfulness improves attention in general, which may involve CMS, parietal, and basal ganglia regions. Of note, mindfulness and meditation facilitate interoceptive attention, which is paying attention to visceral bodily sensations as they occur in the present moment. This probably involves CMS and insula regions. For example, one functional magnetic resonance imaging study found that mindfulness was associated with greater interoceptive resonance activity in anterior insula regions as well as decreased recruitment of CMS (Farb et al. 2013). This suggests that mindfulness engages neuroplasticity such that interoceptive attention is enhanced and attention to self-referential thinking based in the CMS may be decreased. Neural mechanisms involving the default mode network may contribute to objectification of thoughts, which facilitates the interpretation of thoughts as "just thoughts." Enhancement of emotional regulation associated with mindfulness may entail modification of processing in lateral frontal regions, regions involved with interoception and the amygdala (Marchand 2014).

Review of Research Evidence

Although a large literature supports mindfulness-based interventions as being effective, substantial methodological problems limit the effect of many studies. Methodological concerns include lack of high-quality randomized controlled trials (RCTs) with adequate comparators, absence of follow-up measures, small sample sizes, reliance on self-report instruments, and differences across interventions. Methodological

and conceptual challenges of mindfulness research were discussed in a recent review (Davidson and Kaszniak 2015). With these limitations in mind, a previous literature review (Marchand 2012) indicated that benefits associated with mindfulness practices and meditation may include better attention, enhanced self-compassion, decreased ruminative thinking, reduced cortisol levels, improved immune function, lower blood pressure, attenuated emotional reactivity, and enhanced cognition.

Mindfulness-Based Stress Reduction

A previous review of 35 studies of MBSR found evidence indicating effectiveness for depressive and anxiety symptoms, posttraumatic stress disorder, pain, insomnia, enhancing general mental health, and improving psychological functioning among individuals with a variety of medical disorders (Marchand 2012). Two rigorous randomized studies of a combined 240 participants, either healthy (MacCoon et al. 2012) or with fibromyalgia (Schmidt et al. 2011), that used an active control condition (for nonspecific effects of MBSR) found benefit equivalent to, but not better than, the active control condition. The active control condition was the Health Enhancement Program, which is structurally equivalent to MBSR. One meta-analysis of MBSR studies (Khoury et al. 2015) concluded that MBSR provides only relatively small effects on the reduction of depression, anxiety, and psychological distress in people with chronic medical illness. Effect sizes for MBSR were 0.26 for depression, 0.47 for anxiety, and 0.32 for psychological distress. For anxiety, quality of the studies was found to moderate the effect size, and when the studies of lower quality were excluded, an effect size of 0.24 was found. Khoury et al. (2015) concluded that MBSR was moderately effective in reducing stress, depression, anxiety, and distress and in improving the quality of life of healthy individuals. Finally, a systematic review and meta-analysis of systematic reviews of RCTs that used the standardized MBSR or MBCT programs concluded that evidence supports the use of MBSR and MBCT to alleviate psychiatric and physical symptoms in the adjunct treatment of cancer, cardiovascular disease, chronic pain, depression, and anxiety disorders (Gotink et al. 2015).

Mindfulness-Based Cognitive Therapy

Among the many studies of MBCT, the strongest evidence is for relapse prevention in major depression, particularly for individuals with three or more previous episodes (Chiesa and Serretti 2010). Several studies indicated that MBCT offers protection against relapse equal to that of maintenance antidepressant pharmacotherapy. However, one study found that adding MBCT to maintenance antidepressant medication did not further reduce the risk for relapse or residual depressive symptoms (Huijbers et al. 2015). Two studies, including one RCT, reported efficacy for acute depression. The first, a recent open, nonrandomized 8-week pilot study ($N=43$), compared MBCT monotherapy with sertraline monotherapy as a first-line intervention for acute major depressive disorder (Eisendrath et al. 2015). Findings indicated similar levels of symptom improvement on the primary measure (Hamilton Rating Scale for Depression). However, the MBCT group showed significantly ($P<0.0001$) greater improvement on a secondary measure (Quick Inventory of Depressive Symptomatology—Self-Report). The authors considered the results to suggest that an 8-week course of MBCT monotherapy may be effective in treating major depressive disorder and may offer a viable alternative to antidepressant medication. The second, a randomized study ($N=45$), reported MBCT to be as effective as cognitive-behavioral therapy in the treatment of acute depression (Manicavasagar et al. 2011). Finally, a recent randomized study ($N=274$) indicated that MBCT training can help to weaken the association between depressive symptoms and suicidal thinking (Barthofer et al. 2015). A review of 23 studies indicated that this intervention also may be beneficial for anxiety associated with bipolar disorder, generalized anxiety disorder, panic disorder, hypochondriasis, and social phobia (Marchand 2012).

MBCT studies have had methodological shortcomings, including lack of adequate control groups. A recent randomized study of 43 patients (Chiesa et al. 2015) attempted to address this limitation by comparing MBCT with a psychoeducational control group designed to be structurally equivalent to the MBCT program but excluding mindfulness meditation practice for patients with major depression who did not achieve remission following at least 8 weeks of antidepressant treatment. Results suggested the superiority of MBCT over psychoeducation for nonremitted major depression. In contrast, a randomized study of 92 participants (Shallicross et al. 2015) comparing MBCT with an active control condition, which was structurally equivalent to MBCT, included instruction in physical activity, nutrition, and music therapy and controlled for nonspecific effects, including interaction with a facilitator, perceived social support, and treatment outcome expectations. Results indicated that MBCT did not differ from the active control condition on rates of depression relapse, symptom reduction, or life satisfaction.

Mindfulness-Based Relapse Prevention

Fifteen studies of MBRP have been published in regard to various aspects of this intervention. Some examined mechanisms of MBRP. However, five outcome studies indicated effectiveness for relapse prevention among individuals with substance use disorders. The strongest evidence was from a large RCT of 286 individuals that compared MBRP with treatment as usual (12-step programming and psychoeducation) and cognitive-behavioral relapse prevention (Bowen et al. 2014). Compared with treatment as usual, participants assigned to an 8-week MBRP and cognitive-behavioral relapse prevention reported significantly lower risk of relapse to substance use and heavy drinking and, among those who used substances, significantly fewer days of substance use and heavy drinking at 6-month follow-up. Cognitive-behavioral relapse prevention showed an advantage over MBRP in time to first drug use. At 12-month follow-up, MBRP participants reported significantly fewer days of substance use and significantly decreased heavy drinking compared with cognitive-behavioral relapse prevention and treatment as usual.

Risks and Contraindications

Mindfulness-based interventions are considered to be low risk, and potential risks have received little attention in the literature. Feelings of distress can be associated

with mindfulness practice. I have observed MBCT participants experience short-term increases in anxiety during meditation exercises. Also, one study (Wilson et al. 2015) found that a potential unintended consequence of mindfulness meditation was that memories become less reliable. Contraindications and screening procedures for potential participants have not been well studied. However, common sense can serve as a guide such that individuals who have significant impairments of their cognitive function (e.g., psychosis) are not good candidates for mindfulness training. Patients who experience dissociation also may be at risk for increased symptoms when practicing mindfulness, but this has not been formally studied. Mindfulness requires dedication to the practice and thus is most appropriate for those who are highly motivated to practice regularly.

Clinical Guidelines for the Use of Mindfulness-Based Interventions

Although further research is needed, sufficient evidence exists to guide the use of MBCT, MBSR, and MBRP in clinical practice. MBCT can be strongly recommended as an adjunctive intervention or as monotherapy for maintenance treatment and relapse prevention in unipolar depression. It also should be considered as an adjunctive approach for acute and residual unipolar symptoms. MBCT also can be considered as an adjunctive intervention for anxiety associated with bipolar disorder, generalized anxiety disorder, panic disorder, hypochondriasis, and social phobia. MBSR is recommended as an adjunctive treatment for anxiety symptoms and pain management and for general psychological health and stress management among persons with medical or psychiatric illness and healthy individuals. Finally, MBRP is recommended for relapse prevention for persons with substance use disorders.

Evidence is currently limited in regard to patient characteristics that may be associated with a good response to these mindfulness-based interventions. Patient preference is always important, especially for mindfulness-based interventions. It is recommended to refer only patients who are enthusiastic about trying these approaches. Evidence suggests that meditation-associated changes in brain function may require extensive practice, and research indicates that greater meditation practice is associated with more improvement on some outcome measures. Thus, the most important considerations may be desire to try mindfulness and willingness to engage in a regular practice of meditation. However, the minimum effective doses of mindfulness are unknown. When teaching mindfulness, I recommend at least 15 minutes of practice for 6 of every 7 days.

Conclusion

Mindfulness-based interventions have been studied extensively in recent years. Although much of the literature has methodological limitations, recent studies have been more rigorous. Current evidence is adequate to recommend the use of MBCT,

MBSR, and MBRP. In addition to symptom management, these approaches have the potential to improve psychological well-being, compassion, and life satisfaction.

KEY POINTS

- Secular mindfulness-based interventions originated in Buddhist spiritual practices.
- Self-referential rumination contributes to the persistence of psychiatric symptoms.
- Mindfulness meditation is used to develop the skill to keep attention focused on the here and now and to avoid self-referential rumination.
- Focus on the present moment facilitates realization that thoughts and emotions come and go and have no real substance.
- Mindfulness-based cognitive therapy is effective for psychiatric symptoms and mindfulness-based relapse prevention for substance use disorders.

References

- Barnhofer T, Crane C, Breman K, et al: Mindfulness-based cognitive therapy (MBCT) reduces the association between depressive symptoms and suicidal cognitions in patients with a history of suicidal depression. *J Consult Clin Psychol* 83(6):1013–1020, 2015 26302249
- Buven S, Witkiewitz K, Clifasefi SL, et al: Relative efficacy of mindfulness-based relapse prevention, standard relapse prevention, and treatment as usual for substance use disorders: a randomized clinical trial. *JAMA Psychiatry* 71(5):547–556, 2014 24647726
- Chiesa A, Serretti A: A systematic review of neurobiological and clinical features of mindfulness meditations. *Psychol Med* 40(8):1239–1252, 2010 19941676
- Clusesa A, Castlagner V, Andrisano C, et al: Mindfulness-based cognitive therapy vs. psycho-educational treatment for patients with major depression who did not achieve remission following antidepressant treatment. *Psychiatry Res* 236(2–3):474–483, 2015 25744335
- Davidson RJ, Kaszniak AW: Conceptual and methodological issues in research on mindfulness and meditation. *Am Psychol* 70(7):581–592, 2015 26436310
- Eberndorff SJ, Gillung E, Delicchi K, et al: A preliminary study: efficacy of mindfulness-based cognitive therapy versus sertraline as first-line treatments for major depressive disorder. *Mindfulness* (N.Y.) 6(3):475–482, 2015 26085853
- Farb NA, Segal ZV, Anderson AK: Mindfulness meditation training alters cortical representations of interoceptive attention. *Soc Cogn Affect Neurosci* 8(1):15–26, 2013 22699216
- Gottink RA, Chu P, Busselbach JJ, et al: Standardised mindfulness-based interventions in health care: an overview of systematic reviews and meta-analyses of RCTs. *PLoS One* 10(4):e0124341, 2015 25891019
- Hajibegs MJ, Spinhoven P, Spijker J, et al: Adding mindfulness-based cognitive therapy to maintenance antidepressant medication for prevention of relapse/recurrence in major depressive disorder: randomised controlled trial. *J Affect Disord* 167:54–61, 2015 26318271
- Khoury B, Sharma M, Rush SE, et al: Mindfulness-based stress reduction for healthy individuals: a meta-analysis. *J Psychosom Res* 78(6):519–528, 2015 25818837