

Mindfulness in medicine

The mind-body approach to medicine recognises the consciousness of both patient and doctor.

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Mind-body medicine recognises, as one of its fundamental tenets, that the consciousness of both the patient and the clinician is relevant in an integral approach to understanding and treating illness. What is generally referred to as 'subjectivity', i.e. the first-person experience, is considered by many as an obstacle to a rational approach to medicine. However, the mental, emotional and spiritual dimensions of the patient are being shown, through scientific rigour, to be clinically relevant in both the assessment of causality in illness on the one hand, and the engagement of internal resources in on-going management on the other. Moreover, many clinicians recognise that the doctor's level of awareness, attitudes and beliefs will inform and influence the approach to treatment.

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Context and definitions

Mindfulness is most simply defined as moment-to-moment, non-judgemental awareness or bringing one's complete attention to the present experience on a moment-to-moment basis.¹ Mindfulness is recognised as an innate resource that can be intentionally cultivated, similarly to physical fitness, over time, with patience, persistence and discipline by purposefully paying attention in the present moment.

Mindfulness as a practice emerged out of the teachings of Gautama Siddhartha, the original Buddha, 2 500 years ago as a means to investigate and overcome human suffering. The degree of suffering on both an individual and collective level – however one

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understands that term – is no less relevant today, and the intensive scientific investigation of approaches like mindfulness, and meditation more broadly, has been diffusing its way into Western society over the last 50 years.

Early researchers in this area were particularly intrigued by the mental capacities of Indian yogis (adepts or masters), and how they seemed to be able to both influence their physiology through mental techniques and also remain remarkably stable and centred in the face of physical and mental challenges.²

The research question that arose out of these observations was whether similar techniques, taught to individuals in a secular context, would also have measurable effects on physiological parameters and positively influence physical and psychological functioning. The scientific interest which grew from a trickle to a flood to its present-day status at the cutting edge of neurobiological research has paralleled the integration and widespread use of meditation in medicine and psychology.

Mechanisms of mindfulness

The particular value of mindfulness is that it can be used and viewed both as a specific meditative form as well as a more global way of being or an inherent state of consciousness, and as such, is broadly applicable and can be practised free of cultural or religious dogma. The techniques associated with mindfulness, such as meditation on the breath, are seen as 'scaffolding' used to develop the skill of mindfulness.³

The emerging and on-going research focus over the last 30 years has been on understanding the cognitive and neurobiological basis of mindfulness. The physiological sequelae are somewhat under-determined in the literature; however, the current phase of controlled trials of mindfulness-based interventions now includes broader physiological parameters, such as measures of autonomic, immune and cardiac function. Mindfulness is not synonymous with relaxation, although the relaxation response as

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described by Benson² is often elicited during formal practices such as meditation or body scanning. As the peripheral physiology of mindfulness practices becomes clearer the similarities and distinctions with the relaxation response will be more clearly elucidated.

Shapiro and colleagues posit three components underpinning the cognitive mechanisms of mindfulness: intention, attention and attitude.⁴

A personal vision is important for anyone beginning practice. Further, as the capacity for present-moment awareness develops and refines, the intention itself is likely to evolve. For example, a stressed executive may begin to practise mindfulness as an adjunct to the management of essential hypertension. After a while he may begin to recognise that his cardiovascular system is connected to the rest of his body, and that the body is affected by the mind, and as such, the widening awareness that the blood vessels and heart are embedded in a larger system affects the way he relates to his body and mind. The progression thus moves from self-regulation, to self-exploration to self-liberation.

Self-regulation of attention is fundamental to mindfulness skills. In this context individuals notice with increasing precision what is happening in them and to them from moment to moment without becoming involved in interpretation, analysis or discursive thought. Attentional training allows a flexibility to develop in which the field of attention may be narrowed or progressively broadened at will.

The attitude inherent in the practice of mindfulness is one of friendliness, compassion and curiosity to what is observed. This is especially valuable when working with distressing or painful states of mind and body when aversion and judgement are strongest.

The cultivation of these components, it is hypothesised, leads to a significant shift in perspective, a meta-process referred to as de-centering or re-perceiving, which is thought to be transformative. This capacity allows an individual to stand back and witness the emergence and passage of thoughts, feelings and sensations without becoming swept up and away by personal drama and narrative. In dis-identifying from the contents of consciousness an individual

begins to recognise that what is observed is distinct from the awareness which observes and, as such, makes choices that are less encumbered by cognitive and emotional conditioning.

In parallel to the cognitive elements being explored and elucidated, the neural correlates of different aspects of mindfulness – from attention on the breath, to open awareness to focus on compassion – are being increasingly described.

Long-term practitioners meditating on compassion displayed distinctive patterns over the medial frontoparietal cortex with very high levels of synchronisation in these neural networks. In essence the data suggest that attentional and affective processes are flexible and can be trained, although the functional consequences of sustained gamma activity (high frequency) are uncertain.⁵ Lazar and colleagues have shown, using functional MRI (fMRI) in secular practitioners of mindfulness meditation, that the practice may be associated with structural changes in regions of the brain associated with interoceptive, cognitive and emotional processing and that meditation may have a positive impact on age-related declines in cortical structure.⁶ Research currently underway at the University of Cape Town is investigating the functional brain state-effects of mindfulness meditation in secular individuals who have been practising for 4 years or more, by comparing the meditative state with a standard cognitive task. The hypothesis that is being tested, using functional MRI, is that neural regions underpinning emotional regulation are more active during meditation (Ives-Deliperi: personal communication, 2007).

In a well-cited study, subjects who had never practised mindfulness before and participated in a structured mindfulness programme over 8 weeks demonstrated a significant increase in left-sided prefrontal cortical activation on EEG, a pattern

previously associated with positive affect, compared with the non-meditating controls. Interestingly, significant increases in antibody titres to the influenza vaccine among the intervention group were also noted compared with the wait-listed control, with the magnitude of the increase in the left-sided activation predicting the magnitude of the antibody titre increase.⁷

Clinical application of mindfulness

In the empirical literature clinical interventions based on the training in mindfulness skills are described with growing frequency and are becoming increasingly popular in both medicine and psychology. Although there are many methodological flaws in the studies, meta-analyses suggest that mindfulness-based interventions (MBI) may be helpful in the treatment of a variety of disorders.^{1,8} The most widely utilised MBIs are mindfulness-based stress reduction (MBSR) and mindfulness-based cognitive therapy (MBCT), which both have training in mindfulness as the exclusive therapeutic component, and dialectical behavioural therapy (DBT) and acceptance and commitment therapy (ACT) which incorporate mindfulness as a fundamental part of a broader programme in self-regulation.⁹

The mindfulness-based stress reduction programme (MBSR), the most widely used and well-cited MBI, was developed by Jon Kabat-Zinn at the University of Massachusetts Medical Center in 1979.¹⁰ This 8-week outpatient programme was developed originally for patients with chronic illness and stress-related disorders who had reached the end-point of what modern medicine could offer to relieve their suffering. Currently both individuals with chronic disease and those who simply want tools to manage stress more effectively participate in this programme. During the 8 weeks participants are taught a variety of formal mindfulness techniques (such as meditation, yoga and body scanning) which they practise at home using CDs, and the integration of mindfulness into daily living by attending to normal daily tasks which are usually performed mindlessly or automatically. Participants are encouraged to explore their observed experience in

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both the group and in-between sessions with an attitude of curiosity and kindness, and to investigate how this attitude and attentional stance might, in their immediate experience, be used to ameliorate distress, reduce reactivity, elicit relaxation and enhance skilful responsiveness in the face of challenges.

Patient populations that have been researched include those with chronic pain syndrome, fibromyalgia, psoriasis, stress in malignant disease, recurrent cancer of the prostate, HIV/AIDS, generalised anxiety disorder and sleep disturbance in women with breast cancer.^{1,11,12} Significantly, in a number of these studies, follow-up over 6 months to 5 years showed maintenance of therapeutic gains.^{13,14} Parameters that were assessed include symptoms of stress, mood states, general medical symptoms and markers of immune and prostate function. The critique of Bishop is valid in that paucity of controls in many of these studies and limited physiological measurements make the clinical effectiveness of MBSR inconclusive. This is well recognised by researchers and the data produced in the last 25 years are viewed as preliminary evidence that has led to larger, controlled trials with broader physiological measurements, many of which are currently being undertaken or are in press.

While the evidence-base for the use of MBSR in medical conditions is promising but preliminary, it is with psychiatric and psychological disorders that more conclusive data for this approach are being demonstrated. MBCT, which is very similar in form and intent to MBSR, has been utilised and evaluated in patients with recurrent depression. The evidence in multi-centered, controlled trials demonstrates that MBCT significantly reduced the risk of relapse/recurrence in patients with 3 or more episodes of major depression.^{15,16} Given

the prevalence and morbidity associated with depression generally as well as the increasing evidence that depression may be a co-morbid risk factor – in terms of both aetiology and recovery – in medical disorders such as cardiac disease, the value of a time-limited, patient-centered intervention which maintains its effectiveness for a considerable period after the completion of the intervention (over a year) cannot be underestimated.^{17,18}

Further, DBT has been shown in controlled trials to be particularly successful in treating borderline personality disorder, and offers hope to patients who, despite both pharmacological and psychological interventions, often remain difficult to manage.⁹

The mindful clinician

It is self-evident that a doctor who is present and attentive to the clinical tasks at hand, from surgery to general practice consultation, is more effective than a mindless one. What is generally not recognised is that this capacity can be proactively developed in parallel to the information-knowledge and techniques that form the basis of medical training. The current climate in health care, especially at a primary health care level, places an enormous burden on the clinician's shoulders. Many of the challenges of daily practice – administration, business management, psychosocial dimensions of illness and complex doctor-patient dynamics – are either absent or deprioritised in training, yet have a significant impact on the doctor's capacity to cope, and consequently to perform effectively over an extended period.

Mindfulness as both practice and attitude is well positioned to support and broaden the internal resources of the clinician, not as prosaic navel-gazing, but rather as a clinical

skill, based on self-awareness. This offers a means for doctors to be engaged, open and compassionate – to both themselves and their patients – while retaining clinical effectiveness through mental acuity, attentive listening, technical competence and effective decision-making.¹⁹ In short, the clinician grounded in present-moment awareness is both good scientist and humane doctor, a condition which is congruent with the deepest values of medicine.

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In a nutshell

- Mindfulness practice exists at the convergence of human consciousness and science investigation.
- Mindfulness practices emerge out of the desire to reduce human suffering.
- Mindfulness is both a specific meditative form and a way of being.
- Mindfulness is not the same as relaxation, although mindfulness-based techniques may elicit the relaxation response.
- The three core cognitive components of mindfulness are intention, attention and attitude.
- The cognitive meta-process results in a disidentifying from the contents of consciousness.
- Neural correlates underpinning mindfulness are being elucidated in brain regions associated with interception and emotional regulation in particular.
- Mindfulness-based stress reduction (MBSR), the most widely utilised mindfulness-based intervention, has shown promising clinical results in initial trials.
- Mindfulness-based cognitive therapy (MBCT) results in significant reduction in relapse in patients with 3 or more episodes of major depression.
- The mindful practitioner, grounded in self-awareness, is effective in attending to the full range of patients' needs as well as retaining sensitivity to their own well-being.

Single suture

Stick not carrot to change drinking habits

Raise prices, reduce availability and block marketing of alcohol to young people – this is the message from the Nuffield Council on Bioethics, a UK think tank, which published a report on circumstances under which so-called 'nanny' policies might be justified. The current UK approach is to try to encourage responsible drinking, but irresponsible use of alcohol, particularly among young people, is common. The Nuffield report concluded that intervention was most strongly justified to limit excessive alcohol consumption, because drunk people harm others as well as themselves.

Excessive alcohol consumption costs the UK £20 billion a year, one-third of this through crime and public disorder. Domestic violence is another result – with 1 million children exposed to the effects of excessive alcohol consumption by their parents, carers and sibling at home. Absenteeism is another ill effect, leading to economic losses for companies.

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