ARTICLE

'Soother of mind' – meditation in psychiatric disorders: a narrative review

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SUMMARY

Meditation, a component of ashtanga yoga, is an act of inward contemplation in which the mind fluctuates between a state of attention to a stimulus and complete absorption in it. Some forms of meditation have been found to be useful for people with psychiatric conditions such as anxiety, depression and substance use disorder. Evidence for usefulness of meditation for people with psychotic disorders is mixed, with reported improvements in negative symptoms but the emergence/precipitation of psychotic symptoms. This article narrates the benefits of meditation in psychiatric disorders, understanding meditation from the yoga perspective, biological aspects of meditation and practical tips for the practice of meditation. We also explain possible ways of modifying meditative practices to make them safe and useful for the patient population and useful overall as a society-level intervention.

LEARNING OBJECTIVES

After reading this article you will be able to:

- understand the benefits of meditation for people with psychiatric disorders and how to use it in clinical practice
- understand the mechanisms of meditation from both the yoga and neurophysiological perspectives
- appreciate the need for diagnosis-specific and safety-based modifications to meditative interventions for people with psychiatric disorders.

KEYWORDS

Meditation; psychiatric disorders; yoga; complementary therapies; alternative therapies.

The past two decades have seen significant growth in research publications on yoga as a form of therapy for various psychosomatic ailments. Meditation, a component of ashtanga yoga (Box 1), has also been recognised for its role as a form of therapy. *Kathopanishad*, one of the major ancient texts, defines meditation as 'turning one's sight towards oneself' (Krishnananda no date). It can be considered as an act of inward contemplation and the fluctuating state between attention to a stimulus and complete absorption in it.

Broadly, meditation techniques may be divided into three groups (Shapiro 1981):

- concentrative meditation – here the person attempts to focus attention on one particular object (such as a sound, mantra, candle or 'third eye')
- mindfulness (opening-up) meditation – here the person attempts to be receptive to whatever internal and external stimuli come into awareness
- a combination of the two – here the person has an object of focus, but when other stimuli arise, he or she notices the other stimuli and then returns to the original.

Other forms of meditation techniques (Box 2) appear to be permutations and combinations of these three prototypes, with known differences and commonalities in their methodology and benefits (Brandmeyer 2019).

The sage Patanjali in his yoga aphorisms (*Yoga Sutras*) highlighted that a healthy body and a healthy mind have close connection. Patanjali describes yoga as the control of the fluctuations of the mind (*yogas chitta vritti nirodhah*), meaning that it makes the mind calm and silent. The goal of meditation is to eliminate or reduce thought processes, as well as to stop or slow down the internal dialogue of the mind, or 'mental clutter'. This produces a profound sense of physical and mental calm while also enhancing pure awareness, free of thoughts, and perceptual clarity. It also appears to elicit positive emotions ranging from detached to ecstatic (Rubia 2009). A common experience of meditation is a metacognitive shift where thoughts and feelings can be observed from a detached witnessing awareness from which they can be dealt with in a more efficient manner (Ivanovski 2007).

In a review of the evidence on the neurobiology and clinical effectiveness of meditation for

BOX 1 Some definitions

Asana means posture and asanas refer to the different postures or positions held in yoga.

Ashtanga yoga refers to eight limbs of yoga (yama, niyama, asana, pranayama, pratyahara, dharana, dhyana, samadhi) as expounded by Patanjali in his Patanjali yoga sutra.

Kevala kumbhaka is the automatic suspension of breath.

Nadanusandhana is fixing one's attention on the inner sound.

Pranayama are a group of breathing techniques based on yoga texts.

Yoga nidra is a form of guided relaxation technique.

Vipassana meditation is a technique of meditation which involve observation of ones thoughts and sensations.

BOX 2 Major forms of meditation

- Focused attention meditation
- Mantra meditation
- Open monitoring meditation
- Loving kindness and compassion meditation
- Non-dual meditation
- Automatic self-transcendence meditation

(Brandmeyer 2019)

psychiatric disorders Rubia (2009) identified various long-term trait effects of meditation practices:

- at a physical level, feelings of deep relaxation and stress relief
- at a cognitive level, enhanced concentration and attention skills, improved self-control and self-monitoring and better ability to inhibit irrelevant interfering external and internal activity
- at the emotional level, positive mood, emotional stability and resilience to stress and negative life events (detachment)
- at a psychological level, personality changes such as enhanced overall psycho-emotional balance.

These effects, which were reported in both subjective reports and research evidence, are beneficial to healthy people, but hold even more promise for those suffering from psychiatric disorders. In light of this, meditative techniques have been tested as therapy for patients with psychiatric disorders.

Meditative interventions for psychiatric disorders

Non-psychotic disorders

A meta-analysis reported that meditative interventions were moderately effective in reducing anxiety symptoms among people with anxiety disorders. The effect size was considered robust and found to be unrelated to publication year and number of treatment sessions (Hofmann 2010). However, a Cochrane review looking at the effectiveness of meditation therapies for anxiety disorders remained inconclusive owing to the limited number of studies that met the inclusion criteria (Krisanaprakornkit 2006). Positive effects of a mindfulness intervention for anxiety disorders have also been reported in a 3-year follow-up study (Miller 1995). Transcendental meditation has been found to be helpful in reducing psychological distress in healthy adult volunteers and in reducing anxiety and stress among children with attention-deficit hyperactivity disorder (ADHD) (Elder 2014).

Mindfulness-based interventions have been found to be effective in reducing relapses of depression in people who have had three or more depressive episodes (Chiesa 2010) and also in reduction of depressive symptoms (Hofmann 2010). Vipassana meditation was shown to have efficacy in reducing alcohol and substance misuse among prisoners (Chiesa 2010).

Psychotic disorders

The above studies considered non-psychotic psychiatric disorders. When it comes to psychotic disorders such as schizophrenia, the literature is minimal, and a few early case reports suggest that some deep or prolonged meditative practices may actually precipitate psychotic episodes in vulnerable individuals (Sharma 2019). However, people with schizophrenia have reported acceptability and beneficial effects of mindful meditation on anxiety symptoms, without any worsening of psychotic symptoms (Brown 2010). Meditation has also been used with certain modifications as an adjunctive therapy in patients with psychosis/schizophrenia to enhance the effects of the main intervention without any reported adverse effects. Mindfulness has been proposed (Tabak 2015) and tested for efficacy in exploratory, uncontrolled and controlled studies in people with schizophrenia. There is preliminary evidence that loving kindness meditation is feasible and can result in improvement of negative symptoms (Johnson 2009). Khoury et al reviewed 13 studies on mindfulness interventions for psychosis and reported improvement in negative symptoms. They also suggested a need to identify the specific components of mindfulness meditation (Khoury 2013).

Adverse effects

Studies have not reported any adverse effects of meditation practices among people with anxiety disorders and depression. However, as mentioned above, there is some evidence that intense meditation practices may precipitate the emergence of psychotic symptoms in vulnerable healthy individuals as well as in people with psychotic disorders, and it is known that both psychosis and meditation produce hyperdopaminergic states (Sharma 2019).

The yoga perspective on meditative interventions

This mixed evidence about meditation makes one wonder about the specific components of meditative interventions that might be at work in producing both positive and adverse effects. In this context, understanding meditation from a yoga perspective might throw some light on the practical aspects to be considered while teaching meditation to patients and also on its mechanism. In relation to this, two aspects seem to be important: the progression from gross to subtle and the components of slowness and expansion.

Progressing from gross to subtle

Ancient texts advise practices such as asana and pranayama before individuals begin to explore their internal world. When first initiated into yoga practices, students in general are able to appreciate the gross aspects without much idea about the subtler aspects, which take a longer time and effort to master. For example, the practices of asana for a beginner are similar to physical exercise; the subtler aspects – the coordination of the asana with the breath and the individual's awareness of the practices – are inculcated at a later phase. Being mindful of all the practices and postures during asanas and pranayama to the best of their ability may be helpful in minimising the cognitive bias of people with schizophrenia. This flexibility in not yielding to the discomfort caused by the postures may help improve cognitive flexibility, which is known to be impaired (characterised by jumping to conclusions) in schizophrenia (Visceglia 2021). This understanding of the progression from gross to subtle provides clues about the way of introducing meditative practices for patients and also highlights the need to understand the components and/or types of meditation practices (Visceglia 2021).

Slowness and expansion

Another important aspect of yoga practices are the components of slowness and expansion. Asanas are postures with stability and without movement that highlight slowness at the physical level. Pranayama emphasises slowness of breath and ultimately aims for *kevala kumbhaka*, i.e. automatic suspension of breath. In tandem with this slowness at the breath level, in meditation/mindfulness we observe slowness in the form of concentration or observation – slowness at mind level. This component of slowness results in improved awareness. The component of expansion is emphasised in relaxation techniques such as deep relaxation and yoga nidra with phrases such as 'expand your awareness as vast as the blue sky/ocean' (Amita 2009). Considering this logic it is not surprising that the effects of relaxation and meditation techniques have been found to be similar (Eppley 1989). Similarly in loving kindness meditation, the practice starts with concentration (slowness in a particular direction) and in the last phases emphasises directing warm feelings towards others (expansion at universal level). Extrapolating this idea of slowness and expansion to our daily life will result in identifying more practical techniques of meditation. This is the same as being mindful in all the activities, but with better understanding of the process. This should be feasible in the patient population also.

Biological aspects of meditation

In an effort to understand meditation from a neurophysiological angle, below is a description of the biological aspects of meditation. This section highlights research-based evidence on the effects of meditation.

Effects of meditation on the brain

Electroencephalogram (EEG) studies on meditation showed increased low-frequency activation of theta and alpha bands that suggest enhanced sustained attention to internal events (Cahn 2006). A study looking at brain activation in people with long experience of meditation compared with those new to the technique showed that the experienced meditators had more feelings of happiness and less mental activity than the novices. The intensity of happiness was positively correlated with theta activity over left frontal regions. There was also increased activation in the alpha power range over the same regions, which reflects a reduction in activation of brain regions that mediate mental effort and external attention (Aftanas 2001, 2002a, 2002b, 2003).

Most of the imaging studies done in meditation show functional up-regulation of brain regions involved in attention and emotion regulation. Different methods used to achieve the state of meditation elicit different brain activation patterns.

Effects of different types of meditation

Meditative practices that train the attentional focus on breathing or internal body states lead to

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activation of the insula and the anterior cingulate, which are known to be important areas for interoceptive attention and autonomic control (Lazar 2000; Farb 2007; Hölzel 2007).

Meditative practices that focus on concentration on an object or mantra seem to activate frontoparietal networks of internalised attention, whereas techniques that focus on breathing may elicit additional activation of paralimbic regions of the insula and anterior cingulate and techniques that focus on emotion may elicit frontolimbic activation (Rubia 2009).

A study on a form of Tibetan Buddhist meditation showed enhanced high-amplitude gamma activity over frontal and parietal brain regions in eight experienced Buddhist practitioners compared with novices (Lutz 2004). Here they concentrated on feelings of non-referential compassion. There was evidence of activation of higher-order effortful affective and cognitive processes during their practice. This is different from the activation pattern seen in the majority of EEG studies, which show enhanced theta activation during the state of thoughtless awareness (Cahn 2006).

Short- and long-term effects of meditation

To look at the short-term effect of meditation, a randomised controlled trial was done comparing participants with 8 weeks' training in mindfulness-based stress reduction (MBSR) and novices in the technique. Functional magnetic resonance imaging (fMRI) showed enhanced brain activation in the right lateral internalised attention network of the inferior prefrontal cortex, inferior parietal lobe and insula in the trainees compared with the novices (Farb 2007).

Long-term meditation has shown significant cognitive benefits, mainly in the domains of attention, inhibitory control and perceptual sensitivity, along with improvements in reaction time and executive functions (Sudsuang 1991; Cahn 2006; Jha 2007). Long-term meditators also have lower scores in personality features of anxiety, neuroticism, psychoticism and depression and higher scores in emotion recognition and expression (Aftanas 2005).

Meditation practitioners had significantly increased cortical thickness in the right middle and superior frontal cortex and the insula compared with control groups. Also, the normal age-related cortical thinning was delayed in right frontolimbic brain regions in these practitioners (Lazar 2005). In another study, meditators had significantly increased grey matter concentration in the right insula and hippocampus, and at a trend level in the left inferior temporal lobe (Hölzel 2007). These findings probably reflect meditation-induced cortical plasticity due to years of dedicated concentration practice in the areas crucial for sustained attention and concentration (prefrontal cortex), interoceptive attention and breath awareness (insula), and emotional and attentional processes (hippocampus).

Interestingly, the slow-wave EEG brain patterns seen during meditation were observed during the resting state as well in long-term meditators, suggesting the trait effects of meditation. These meditators were also able to switch to the meditative state without much effort whenever they wished to (Aftanas 2005; Cahn 2006). This is reminiscent of the previously mentioned definition of yoga (which included meditation) by the sage Patanjali: '*yogas chitta vritti nirodhah*' (yoga is the control of fluctuations of the mind). These trait changes may also explain the findings above that highlighted salutary personality changes in long-term meditators.

Meditation versus simple relaxation

The common assumption that meditation is the same as relaxation may not be correct, as meditation is more than just relaxation. Both result in reduction of sympathetic nervous system activity by activation of paralimbic brain regions such as the anterior cingulate or insula. However, meditation also brings about cognitive relaxation by stronger activation of paralimbic regions extending to additional frontoparietal attention and frontolimbic affective systems, presumably related to the state of internalised attention and emotional contentment (Rubia 2009).

Caveats and difficulties in meditation research

Most of the studies are done in different groups of participants, such as long-term meditators and novices. The long-term meditators might be different at baseline in relation to their cultural and religious background and psychological traits compared with novices, which is a confounding variable that is difficult to control for. Inter-individual differences and variability in brain activation and brain structure might be another confounding factor (Rubia 2009).

Small sample size, few active control groups, different meditation techniques having different effects on the brain, lack of clear-cut definition of mindfulness and lack of reliable measures to evaluate how well someone is meditating make it difficult to translate and generalise research findings into clinical practice.

Thomas & Cohen have proposed a comprehensive methodological framework for research into meditative states of consciousness (Thomas 2014) that takes into account the following domains:

- place – where the study is carried out is important as it will be influenced by the cultural origin of the meditation practice (technique) and the physical nature of the experimental setting;
- person – variables relating to the personal history/personality traits, meditation training, meditation practice/technique, expectations and motivation of the meditator need to be considered;
- practice/technique – it is suggested that a minimal description of the meditation practice should include the specific lineage and tradition that the practice is based on, together with any traditional descriptions: posture, eye attitude (open/closed) and how attention is directed;
- phenomenology – this includes subjective reports of the meditation states attained, which can be predicted by meditation teachings and actual experience during the session, validated by feedback from the participants; use of methods for mapping phenomenological space would enable a standardised format to be adopted;
- psychophysiology – adequate documentation of equipment used and methods of collection, analysis and interpretation of psychophysiological data.

They suggest that adopting this framework would lead to more reproducible research and therefore more consistent results, but note that it does not provide specific direction for the formulation of research hypotheses.

The use of randomised longitudinal study designs with active control groups would allow for control of the potentially confounding effects of non-meditation-specific qualities of the lifestyle associated with contemplative practices (Brandmeyer 2019). It is especially important to remain cautious regarding the degree to which research findings are translational and generalisable to clinical practice (Van Dam 2018). Also, the replicability and potential practical relevance of a given finding needs to be considered.

Practical tips for practice of meditation in people with psychiatric disorders

With the available evidence, it is difficult to come up with specific guidelines about the introduction of meditation practices for people with psychiatric ailments, especially given the lack of clarity about sensitivity, specificity and adverse effects. Nevertheless, six basic factors that should be kept in mind while planning a meditation intervention for patients are listed in Box 3 and expanded on below.

- *Short duration (a maximum of 15–20 min)*: As discussed above, intense and prolonged meditation has been associated with precipitation of psychosis or worsening of psychotic symptoms (Sharma 2019; Visceglia 2021). However, brief sessions can be productive for most types of meditation (Behere 2011; Varambally 2012; Visceglia 2021). The three cited studies used a specific yoga module with people with schizophrenia that included a form of chanting named *nadanusandhana*, which is similar to meditation, but does not involve any other meditative techniques.
- *Frequent repetition*: The practice of meditation is expected to be reflected finally as mindfulness in day-to-day life. Therefore, frequent repetitions of short duration seem to be an easier way to move ahead as a long-term intervention. Several studies on yoga as an intervention for people with psychiatric disorders also highlight this aspect (Varambally 2012; Naveen 2013; Govindaraj 2016).
- *Open discussions*: It is very important that the patient has open discussions with a trained meditation professional and/or psychiatrist about the contents of their mind during and between meditation sessions (Shonin 2014). These will help in documentation of findings and probably be helpful in identifying improvement or any worsening of the symptoms well in advance. This is even more important for many forms of meditation where it is not possible to assess the meditation progress from the outside.
- *Simplifying meditation*: It sounds logical to think of simple meditation for beginners, but this cannot be considered as a dictum as it is difficult to determine the simplicity of meditation practices. A simple meditation is not necessarily a safe meditation. Observation/mindfulness may be difficult for patients/beginners with a greater tendency for distraction of mind. However, simplifying the practice can be considered in terms of identifying the gross aspects of meditation on an individual basis (Shonin 2014).

BOX 3 Key tips for meditation interventions for people with psychiatric disorders

- Keep meditation sessions short
- Encourage the patient to repeat them frequently
- Ensure open discussions about the contents of the patient's mind during and between meditations
- Remember that a simple meditation is not necessarily a safe meditation but simplifying the practice can be considered
- Explain the basic concept to the patient
- Identify specific meditation difficulties related to the patient's diagnosis

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- *Understanding the basic concept*: To increase the patient's interest, it is worth explaining the logical basis of the practice of meditation and possible useful/harmful effects.
- *Identifying the difficulties*: It is important to identify the difficulties in meditation practices for people with psychiatric disorders. For example in people with anxiety disorders or ADHD, concentration or sustained attention may be difficult; for those with depression or schizophrenia, it may be difficult to ensure focus during meditation (using chants might help) (Bhargav 2021a; Visceglia 2021). In obsessive–compulsive disorder, a specific ritualistic way of meditation might not be the right approach; in hypochondriasis, focus on the sensations in the body might result in worsening of the symptoms (Bhargav 2021b). People in a manic/hypomanic episode of bipolar disorder may feel agitated with slow-paced instructions and long meditative practices (Bhargav 2021b). This highlights the need to change the approach to therapeutic meditation not only from individual to individual but also for different diagnostic categories.

The above tips are based on the experience of yoga experts working for more than a decade in a yoga centre attached to a tertiary neuropsychiatric hospital. For comprehensive information on yoga and meditation practices for specific psychiatric disorders, the reader may refer to Bhargav & Varambally's guidelines for yoga therapy (Bhargav 2021b).

Conclusions

Meditation seems to have significant salutary effects for most people, enabling them to enjoy loneliness without being disturbed by it. However, meditative interventions are not often used in psychiatric illness, as the evidence base lacks clarity regarding their relevance and any refinements required for safety and efficacy. It does seem that for people with mental illness it is better to emphasise meditative practices that are shorter in duration with more focus on the gross level of awareness. Notwithstanding these caveats, meditation is a less explored area with potential beneficial effects for people with psychiatric illnesses.

Author contributions

Concepts and definition of intellectual content: V.K., S.R.B., R.A., S.V. and B.N.G.; literature search: V.K. and S.R.B.; manuscript preparation: V.K. and S.R.B.; manuscript editing: R.A., S.V. and B.N.G.; manuscript review: R.A., S.V. and B.N.G.

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Declaration of interest

None.

MCQ answers
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MCQs

Select the single best option for each question stem

1 Which of the following statements is true regarding meditation interventions for psychiatric disorders?

a there are no reported adverse effects
b training is not needed for their initiation
c they are not feasible
d prolonged periods of meditation are recommended
e open discussions with professionals about the mind's contents during meditation practices is essential.

2 Which of the following is not a form of meditation?

a open monitoring meditation
b focused attention meditation
c non-dual meditation
d loving kindness meditation
e cognitive–behavioural therapy.

3 Long-term meditation has been shown to lead to significant changes in all the following except:

a physical functioning
b cognitive functioning
c IQ
d emotional functioning
e psychological functioning.

4 EEG studies on meditation have demonstrated:

a increased high-frequency activation of theta bands
b decreased low-frequency activation of alpha bands
c decreased low-frequency activation of delta bands
d increased low-frequency activation of theta bands
e increased high-frequency activation of delta bands.

5 Which of the following statements is false?

a meditative practices that focus on concentration on an object or mantra seem to activate fronto-parietal networks of internalised attention
b meditative practices that focus on breathing may elicit additional activation of paralimbic regions of insula and anterior cingulate
c meditative practices that focus on emotion may elicit frontolimbic activation
d Tibetan Buddhist meditation that focuses on feelings of non-referential compassion showed enhanced high-amplitude gamma activity over frontal and parietal brain regions
e The effects of meditation are not dependent on the type of meditation used.

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