

# Evidence Compass



## Summary Report

Meditation and Mindfulness Practices for  
Mental Health

December 2018

Summary of the Rapid Evidence Assessment

## Disclaimer

The material in this report, including selection of articles, summaries, and interpretations is the responsibility of Phoenix Australia - Centre for Posttraumatic Mental Health, and does not necessarily reflect the views of the Australian Government. Phoenix Australia does not endorse any particular approach presented here. Readers are advised to consider new evidence arising post-publication of this review. It is recommended the reader source not only the papers described here, but other sources of information if they are interested in this area. Other sources of information, including non-peer reviewed literature or information on websites, were not included in this review.

This project utilised a rapid evidence assessment (REA) methodology. An REA streamlines traditional systematic review methods in order to synthesise evidence within a shortened timeframe. The advantage of an REA is that rigorous methods for locating, appraising and synthesising evidence from previous studies can be upheld. Also, the studies reported can be at the same level of detail that characterise systematic reviews, and results can be produced in substantially less time than required for a full systematic review. Limitations of an REA mostly arise from the restricted time period, resulting in the omission of literature such as unpublished pilot studies, difficult-to-obtain material and/or non-English language studies. A major strength, however, is that an REA can inform policy and decision makers more efficiently by synthesising the evidence in a particular area within a relatively short space of time and at less cost.

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## Executive summary

- The aim of this rapid evidence assessment (REA) was to assess the evidence related to meditation and mindfulness practices (meditation, transcendental meditation, mantra, yoga, and mindfulness) for Posttraumatic Stress Disorder (PTSD), depression, anxiety, and alcohol use disorder (AUD) in adults.
- To achieve this aim, the research team at Phoenix Australia was commissioned by the Department of Veteran's Affairs (DVA) to answer the following three questions:
  1. What role does meditational practice including meditation, transcendental meditation, mantra, and yoga have in mental health treatment options?
  2. What is the efficacy of mindfulness as a mental health treatment option when compared to conventional treatment?
  3. Is there any benefit for mindfulness, meditation, transcendental meditation, mantra, or yoga to be used as an adjunct with conventional therapy approaches for PTSD, depression, anxiety, or AUD?
- A literature search was conducted to identify trials that investigated the efficacy of meditation and mindfulness practices for treating PTSD, depression, anxiety, and AUD. Trials were excluded if the full text was unavailable, if the practice was not investigated as a treatment, if the paper was not peer reviewed, if the primary outcome measures were not the focus of the review (i.e., PTSD, depression, anxiety, AUD, stress, wellbeing, and arousal symptoms), and if they did not concern the population of interest (i.e., adults). Given that there was a large amount of literature found for meditation and mindfulness practices, only randomised controlled trials (RCTs) or systematic reviews and meta-analyses were examined. Other study designs were excluded. Trials were initially assessed for quality of methodology, risk of bias, and quantity of evidence. Subsequently, the consistency, generalisability, and applicability of the findings to the population of interest was assessed. Assessments were then collated for each meditation and mindfulness practice type to determine an overall ranking of level of support for each type of practice for the treatment of PTSD, depression, anxiety, and AUD.
- The ranking categories were: 'Supported' – clear, consistent evidence of beneficial effect; 'Promising' – evidence suggestive of beneficial effect but further research required; 'Unknown' – insufficient evidence of beneficial effect; 'Not supported' – clear, consistent evidence of no effect or negative/harmful effect.
- Forty-eight original trials met the inclusion criteria for review. Additionally, one paper reported a secondary analysis which was conducted on an original trial, and one paper reported a longer-term follow-up of an original trial, totalling 50 papers. Approximately half (26) of the trials originated from the United States. There were three trials from Canada, two each from

Sweden, Iran, India, Germany, the UK, and the Netherlands, and one each from Columbia, Taiwan, Croatia, Austria, Hong Kong, Vietnam, and Australia, totalling 48 original trials.

- Stand-alone interventions were evaluated in 79% of the total original trials. Stand-alone interventions comprised 38% yoga, 31% mindfulness-based interventions, and 10% meditational practices (meditation 2%, transcendental meditation 2%, mantram repetition meditation 4%, and combined yoga/meditation 2%), totalling 79%.
- Adjunct interventions were evaluated in 21% of the total original trials. Adjunct interventions comprised 13% yoga and 8% mindfulness-based interventions, totalling 21%. There were no meditation-based adjunct interventions.
- The most frequently investigated interventions (whether stand-alone or adjunct) were yoga-based (50%), followed by mindfulness (40%), mantram repetition meditation (4%), meditation (2%), transcendental meditation (2%), and a combined yoga/meditation intervention (2%).
- Most of the trials targeted depression (39%), followed by PTSD (25%), anxiety (13%), depression and anxiety together (13%), and AUD (10%).
- Meditation, including mantram meditation and transcendental meditation, was used for depression (2% of all trials) and PTSD (6%). Yoga was used mostly for depression (21%), followed by PTSD (13%), depression and anxiety (10%), AUD (4%), and anxiety (2%). Mindfulness was also used mostly for depression (15%), followed by anxiety (11%), PTSD (6%), AUD (6%), and depression and anxiety (2%). Combined meditation and yoga was used for depression rarely (2%).
- Overall, the quality of the trials was mixed, with some high and some poor quality trials. Of the final 23 groups of interventions, three stand-alone interventions were ranked as 'Promising' (group yoga for depression, group mindfulness for depression, and group mindfulness for anxiety). The remaining 20 groups were ranked as 'Unknown'. A summary of the 23 groups and their rankings follows.
- The key findings for the 11 groups of *stand-alone meditational practice interventions* were that:
  - the evidence for **group meditation in treating PTSD (compared to a non-active comparison)** (1 trial) received an 'Unknown' ranking
  - the evidence for **group meditation in treating PTSD (compared to an active comparison)** (1 trial) received an 'Unknown' ranking
  - the evidence for **individual meditation in treating PTSD (compared to an active comparison)** (1 trial) received an 'Unknown' ranking

- the evidence for **group meditation in treating depression (compared to a non-active comparison)** (1 trial) received an ‘Unknown’ ranking
- the evidence for **group yoga in treating PTSD (compared to a non-active comparison)** (5 trials) received an ‘Unknown’ ranking
- the evidence for **group yoga in treating depression (compared to a non-active comparison)** (6 trials) received a ‘Promising’ ranking
- the evidence for **individual yoga in treating anxiety (compared to a non-active comparison)** (1 trial) received an ‘Unknown’ ranking
- the evidence for **group yoga in treating depression and anxiety together (compared to a non-active comparison)** (4 trials) received an ‘Unknown’ ranking
- the evidence for **individual yoga in treating depression and anxiety together (compared to a non-active comparison)** (1 trial) received an ‘Unknown’ ranking
- the evidence for **group yoga (hatha yoga) in treating AUD (compared to a non-active comparison)** (1 trial) received an ‘Unknown’ ranking
- the evidence for **group yoga/meditation in treating depression (compared to a non-active comparison)** (1 trial) received an ‘Unknown’ ranking.
- The key findings for the six groups of *stand-alone mindfulness-based interventions* compared to an active comparison group were that:
  - the evidence for **group mindfulness in treating PTSD (compared to an active comparison)** (2 trials) received an ‘Unknown’ ranking
  - the evidence for **group mindfulness in treating depression (compared to an active comparison)** (3 trials) received a ‘Promising’ ranking
  - the evidence for **individual mindfulness treating depression (compared to an active comparison)** (1 trial) received an ‘Unknown’ ranking
  - the evidence for **group mindfulness in treating anxiety (compared to an active comparison)** (5 trials) received a ‘Promising’ ranking
  - the evidence for **group mindfulness in treating depression and anxiety together (compared to an active comparison)** (1 trial) received an ‘Unknown’ ranking
  - the evidence for **group mindfulness in treating AUD (compared to an active comparison)** (3 trials) received an ‘Unknown’ ranking.
- The key findings for the six groups of *adjunct meditation, yoga, and mindfulness-based interventions* were that:

- the evidence for **group adjunct yoga (adjunct to psychopharmacological treatment) in treating PTSD (compared to an active comparison)** (1 trial) received an ‘Unknown’ ranking
  - the evidence for **group adjunct yoga (adjunct to pharmacological treatment) in treating depression (compared to an active comparison)** (3 trials) received an ‘Unknown’ ranking
  - the evidence for **group adjunct yoga (adjunct to psychoeducation) in treating depression (compared to a non-active comparison)** (1 trial) received an ‘Unknown’ ranking
  - the evidence for **group adjunct yoga (adjunct to psychological and pharmacological treatment) in treating AUD (compared to an active comparison)**(1 trial) received an ‘Unknown’ ranking
  - the evidence for **group adjunct mindfulness (adjunct to pharmacological treatment) in treating PTSD (compared to an active comparison)** (1 trial) received an ‘Unknown’ ranking
  - the evidence for **group adjunct mindfulness in treating depression (compared to an active comparison)** (3 trials) received an ‘Unknown’ ranking.
- Despite the predominantly ‘Unknown’ rankings, the findings of this review do provide some guidance on where future research efforts should be directed. The three ‘Promising’ interventions (group yoga for depression, group mindfulness for depression, and group mindfulness for anxiety) require further rigorous trials to attain a ‘Supported’ ranking. At this time they may be considered emerging interventions, but not first-line treatments.
  - The conclusion drawn from the available evidence is that the research is not of sufficiently high quality to support any direct recommendations. Even though there is some research of sufficient quality to suggest yoga and mindfulness being useful in the treatment of depression and anxiety, there is an opportunity to focus on funding well designed, high quality research in this area to build an evidence base that would inform the use of these modalities in treatment for mental health conditions, especially as it relates to understanding the underlying mechanisms of these approaches. In the short term, further research in the areas that have a promising ranking, that is, yoga and mindfulness for treating depression and anxiety, may be beneficial.

## Background

In recent years there has been increased research interest in meditation, yoga, and mindfulness practices for improving mental health. The common link between these practices is the mind-body connection,<sup>1,2</sup> or the interaction between the brain, mind, body, and behaviour.<sup>3</sup> There is much overlap between the practices in the techniques, skills, and objectives of each, and in the mechanisms of action exerted on PTSD, depression, anxiety, and AUD symptomatology.

To date, the evidence for meditation, yoga, and mindfulness-based interventions in treating PTSD, depression, anxiety, and AUD is not clearly established despite there being a range of theoretical neurophysiological and psychological mechanisms of action.

This review aimed to address the following questions.

1. What role does meditational practice including meditation, transcendental meditation, mantra, and yoga have in mental health treatment options?
2. What is the efficacy of mindfulness as a mental health treatment option when compared to conventional treatment?
3. Is there any benefit for mindfulness, meditation, transcendental meditation, mantra, or yoga to be used as an adjunct with conventional therapy approaches for PTSD, depression, anxiety, or alcohol use disorder?

Although there is substantial overlap in the components, effects, and mechanisms of these three types of interventions, distinctions have been drawn in this review where possible. The interventions examined in the current review were divided into two main categories, stand-alone and adjunct treatments, and these treatments were further separated into two modes of treatment delivery, individual or group-based.

## Meditation and yoga practices

Meditation and yoga practices such as breathing techniques, physical exercise, chanting, and sustained focus on a chosen object or word have been utilised for the treatment of PTSD, depression, anxiety, and AUD. The central features of these practices involve regulating attention and promoting a state of relaxation, whether through focussing the mind on mantras and/or breathing, or moving through a series of physical postures.<sup>4,5</sup> Therefore, this category of interventions includes a range of practices including transcendental meditation, mantram meditation, and yoga.

There are three broad types of meditation which are differentiated based on their particular focus of attention: concentrative (focussed attention) meditation, mindful (open monitoring) meditation, and automatic self-transcending meditation (ASTM).<sup>4</sup> When used within a psychological treatment context, there is often overlap in the types of meditation used. Therefore, research

examining the mechanisms of meditation as a treatment for psychological conditions often addresses the impact of meditational practices more broadly.

Yoga also incorporates several aspects of meditation, including deep relaxation and chanting of mantras.<sup>6</sup> Additional components include physical exercises and breathing, which are often used to reduce stress and anxiety as well as assisting with physical health.<sup>7</sup>

Neurophysiological, psychological, and behavioural mechanisms of action have been proposed which may account for improvements in PTSD, depression, anxiety, and AUD symptoms. Neurophysiological mechanisms include neurochemical alterations (e.g., cortisol reduction<sup>8</sup> and neurotransmitter normalisation<sup>9</sup>), which reflect changes in brain structure and function and increases in parasympathetic nervous system (PNS) activity.<sup>8</sup> Psychological and behavioural mechanisms include improved attention regulation<sup>5</sup>, improved emotion regulation,<sup>10</sup> reduced rumination and worry,<sup>11</sup> and increased behavioural activation.<sup>12</sup>

## Mindfulness

Mindfulness involves intentionally bringing one's attention to the internal and external experiences occurring in the present moment.<sup>13</sup> An operational working definition of mindfulness presents it as a two-component construct comprising, (1) self-regulation of attention to the present moment, coupled with (2) an attitude of acceptance toward the present moment.<sup>14</sup> Mindfulness may be described as a state, a trait-like or dispositional quality, or a set of skills.<sup>15</sup> Two key features of the definition of mindfulness are awareness and acceptance, both of which are accompanied by a nonjudgmental attitude.<sup>16</sup> Awareness refers to the perception of current experiences, including bodily sensations, cognitions, emotions, urges, and environmental stimuli such as sights, sounds, and scents.<sup>15</sup> Acceptance refers to the openness (curiosity, detachment, irregular thinking) to face personal experiences.<sup>17</sup> Mindfulness practice, therefore, encourages practitioners to remain in the present moment, whether pleasant, unpleasant, or neutral.<sup>15</sup> Awareness and acceptance are underpinned by the self-regulation of attention, and orientation toward the present moment.<sup>18</sup>

A range of structured and manualised mindfulness-based interventions (MBIs) have been developed, beginning with Mindfulness-Based Stress Reduction (MBSR) in the late 1970s.<sup>19</sup> Based on this foundational intervention, other MBIs such as Mindfulness-Based Cognitive Therapy (MBCT)<sup>20</sup>, Mindfulness-Oriented Recovery Enhancement (MORE)<sup>21</sup>, and Mindfulness-Based Relapse Prevention for Addictive Behaviours (MBRP),<sup>22</sup> were developed and are now widely utilised in research and clinical settings. These specific treatment approaches were among those used in the RCTs included within this review.



## Adjunct treatments

There is sparse evidence for meditation, yoga, and mindfulness-based interventions when delivered as an adjunct to conventional treatment. It is unclear whether these interventions confer additional benefit when utilised in conjunction with other established psychological and pharmacological treatments. In order to determine whether the benefits of meditation, yoga, and mindfulness can enhance conventional treatment for PTSD, depression, anxiety, and AUD, this review included meditation, yoga, and mindfulness interventions delivered as adjuncts to other active treatments.

## Evaluating the evidence

A rapid evidence assessment (REA) methodology was adopted in this review to assess the evidence related to the efficacy of meditation, yoga, and mindfulness interventions to treat PTSD, depression, anxiety, and AUD in adults.

Assessment of the evidence was based on the following criteria including the:

- **strength of the evidence base**, which incorporated the quality and risk of bias, quantity of the evidence (number of studies), and level of the evidence (study design)
- **direction** of the evidence (whether positive or negative results have been found)
- **consistency** across studies
- **generalisability** of the studies to the target population
- **applicability** to an Australian context.

## Ranking the evidence

Fifty papers (comprising 48 original trials) met the inclusion criteria for the current review. Three categories of intervention (group-based yoga for depression, group-based mindfulness for depression, and group-based mindfulness for anxiety) were ranked as 'Promising', and the remaining categories were ranked as 'Unknown'.

The following table presents a summary of the evidence rankings.

SUPPORTED	PROMISING	UNKNOWN	NOT SUPPORTED
	<p>Group yoga (stand-alone) for depression</p> <p>Group mindfulness (stand-alone) for depression</p> <p>Group mindfulness (stand-alone) for anxiety</p>	<p>Group and individual meditation (stand-alone) for PTSD</p> <p>Group meditation (stand-alone) for depression</p> <p>Group yoga (stand-alone) for PTSD</p> <p>Individual yoga (stand-alone) for anxiety</p> <p>Group and individual yoga (stand-alone) for combined depression and anxiety</p> <p>Group yoga (stand-alone) for AUD</p> <p>Group yoga/meditation (stand-alone) for depression</p> <p>Group mindfulness (stand-alone) for PTSD</p> <p>Individual mindfulness (stand-alone) for depression</p> <p>Group mindfulness (stand-alone) for combined depression and anxiety</p> <p>Group mindfulness (stand-alone) for AUD</p> <p>Group yoga (adjunct) for PTSD</p> <p>Group yoga (adjunct) for depression</p> <p>Group yoga (adjunct) for AUD</p> <p>Group mindfulness (adjunct) for PTSD</p> <p>Group mindfulness (adjunct) for depression</p>	

## Implications for policy makers and service delivery

Research examining the use of meditation, yoga, and mindfulness interventions is still emerging, and to date provides insufficient evidence as to their usefulness in treating depression, anxiety, and other common mental health disorders. Nevertheless, while most of the evidence in the current review was ranked as ‘Unknown’, it is still beneficial to consider the areas in which findings appear to be ‘Promising’. Evidence for stand-alone group yoga to treat depression, stand-alone group mindfulness to treat depression, and stand-alone group mindfulness to treat anxiety was stronger and more consistent than the other interventions reviewed.

It is important to note the emerging nature of this evidence, and the need for further well conducted trials, which include longer-term follow-up periods, to substantiate the findings. However, even if further research supports the use of these interventions, they are far from being considered first-line treatments for PTSD, depression, anxiety, or AUD. Furthermore, the practices may not be suitable for all individuals affected by PTSD, depression, anxiety, or AUD. As an example, mindfulness interventions may be challenging for individuals experiencing difficulty with emotion regulation and distress management, and may not be beneficial for individuals with hyperarousal symptoms as it does not directly target these symptoms. Certain aspects of mindfulness and meditation may also present challenges for individuals with PTSD who experience intrusive images and flashbacks. Such individuals may require other interventions to target immediate symptoms before pursuing mindfulness-based interventions. At the same time, it is suggested that yoga might pose a feasible short-term intervention to prepare individuals with PTSD for more intensive trauma-focussed therapy.

Further study in this area is warranted given the suggested benefits of yoga and mindfulness, with a particular focus on identifying specific populations for which these interventions may be most effective.

## Conclusion

The evidence for the use of meditation, yoga, and mindfulness interventions to treat PTSD, depression, anxiety, and AUD is of insufficiently high quality to make direct recommendations. The current review does, however, provide guidance about where future research and funding can be directed, including group-based yoga for depression, and group-based mindfulness for depression and anxiety. A focus on funding high quality research investigating these interventions to treat other mental health conditions more broadly would also be beneficial in order to expand the evidence base and ascertain the benefits of these interventions. Investment in this research is required prior to making recommendations about the benefits of these modalities in the treatment of mental health conditions for particular populations.

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