

# Best Evidence Summaries of Topics in Mental Healthcare

**BEST in MH** *clinical question-answering service*

## Question

“For employees, how effective are work-based mindfulness interventions, compared to any other intervention/other control group, for improving staff wellbeing, productivity and any other outcomes?”

## Clarification of question using *PICO* structure

*Patients:* Employees  
*Intervention:* Work-based mindfulness interventions  
*Comparator:* Any other intervention/other control group  
*Outcome:* Staff wellbeing, productivity and any other outcomes

## Plain Language Summary

Only a small number of poor quality studies have looked at whether mindfulness-based programs in the workplace can help with stress and other aspects of employee wellbeing. Overall, the results of these studies do not show that mindfulness-based programs work better than doing nothing. However, better studies are needed to properly assess whether mindfulness interventions designed specifically for the workplace have any benefits.

## **Clinical and research implications**

Overall, the available evidence does not support the effectiveness mindfulness interventions in the workplace. Very limited evidence, from two small poor quality studies, suggests that short mindfulness-based stress reduction interventions designed for use in the workplace may reduce perceived stress and improve resilience and sleep quality, however, the findings of these studies are unlikely to be reliable.

Further research is needed to adequately assess the effectiveness of mindfulness interventions which have been designed specifically for use in the workplace. As a minimum, randomised-controlled trials should provide the comparative effectiveness of mindfulness interventions versus a 'no intervention' control. Studies comparing the effectiveness of different types of mindfulness interventions, or comparing mindfulness to other psychological interventions would also be useful.

## **What does the evidence say?**

### ***Number of included studies/reviews (number of participants)***

We identified three randomised controlled trials (RCTs) which reported results relevant to this evidence summary.<sup>1,2,3</sup> One study was conducted in an industrial workplace,<sup>1</sup> and two in academic institutions.<sup>2,3</sup> Two small studies assessed short duration (6 to 7 week) mindfulness-based stress reduction interventions designed to be used in workplace settings,<sup>1,2</sup> and one larger study assessed a 6 month mindfulness-related, multicomponent health promotion intervention.<sup>3</sup> All three studies included a 'no intervention' control group, but only one reported between group effect estimates for the intervention versus control groups;<sup>3</sup> this study also reported follow-up data at 6 and 12 months post-intervention.

### ***Main findings***

One of the two short mindfulness-based stress reduction intervention studies reported no between-group comparisons; all effect estimates were based on within-group, pre- to post-intervention comparisons.<sup>2</sup> This study reported statistically significant improvements in mindfulness, perceived stress, and sleep quality in the mindfulness intervention group.<sup>2</sup> The second short intervention study reported post-intervention comparisons between the mindfulness intervention and control groups and found that mindfulness was associated with significantly better mindfulness, perceived stress, resilience, and vigour scores.<sup>1</sup> However, reporting of these results was limited to *p* values (no effect sizes were provided).<sup>1</sup> This study also reported pre- to post-intervention improvements in the mindfulness group, which were maintained at six month follow-up.<sup>1</sup> The study of a six month mindfulness intervention provided full comparative results and found no statistically significant differences between the mindfulness intervention and control groups in work engagement, mental health, need for recovery or mindfulness at 6 and 12 months follow-up.<sup>3</sup>

### ***Authors conclusions***

Aikens 2014 – The authors concluded that this on-line mindfulness intervention seems to be both practical and effective in decreasing employee stress, while improving resiliency, vigour, and work engagement, thereby enhancing overall employee well-being.

Klatt 2009 – The authors concluded that their study indicates that ‘low-dose’ mindfulness-based stress reduction program assessed is an effective adaptation for working individuals limited by time.

Van Berkel 2014 – The authors concluded that their study did not show any effect of the workplace mindfulness-related multi-component health promotion intervention on work engagement, mental health, need for recovery and mindfulness after 6 and 12 months.

### ***Reliability of conclusions/Strength of evidence***

Three randomised controlled trials, all with significant methodological weaknesses, provided evidence on the effectiveness of mindfulness interventions in the workplace.<sup>1,2,3</sup> Two small, poor quality trials reported that short mindfulness interventions were associated with improvements in various outcomes including perceived stress and sleep quality, however, neither study reported a reliable comparison with the control group or long-term follow-up.<sup>1,2</sup> The third larger study of a six month mindfulness intervention, was the only study to report an adequate comparison between the intervention and control groups; this study found that the mindfulness intervention had no significant effect on any outcome measure.<sup>3</sup>

### **What do guidelines say?**

Neither National Institute for Health and Care Excellence (NICE) nor Scottish Intercollegiate Guidelines Network (SIGN) guidelines comment on the effectiveness of work-based mindfulness on improving outcomes for staff.

**Date question received:** 20/07/2015  
**Date searches conducted:** 22/07/2015  
**Date answer completed:** 10/08/2015

### **References**

#### ***Randomised Control Trials***

1. Aikens, A. K. et. al. (2014). Mindfulness Goes to Work Impact of an Online Workplace Intervention. *Journal of Occupational and environmental Medicine*, 56 (1) 721
2. Klatt, M. D., Buckworth, J., Malarkey, W. B. (2009) Effects of low-dose mindfulness-based stress reduction (MBSR-I) on working adults. *Health Education and Behavior*, 36(3), 601-614
3. Van Berkel, J., Boot, R. L., Proper, I., Bongers, M., Van der Beek, J. A., (2014) Effectiveness of a Worksite Mindfulness-Related Multi-Component Health Promotion Intervention on Work Engagement and Mental Health: Results of a Randomized Controlled Trial. *PLOS One*, 9 (1)

## Results

### *Randomised controlled trials*

Author (year)	Inclusion criteria	Number of participants	Summary of results	Risk of bias
Aikens, et. al. (2014)	<p><i>Participants:</i> Employees of the Dow Chemical Company, randomly selected from those who responded to an e-mail invitation to participate in the study. Participants had to be over 18 years old and have taken a health risk assessment in the previous 6 months; there were no exclusion criteria.</p> <p><i>Intervention:</i> The workplace mindfulness-based stress- reduction programme utilised in this study consisted of a 7-week program combining live, weekly hour-long virtual class meetings with accompanying on-line applied training.</p> <p><i>Comparator:</i> Wait- list control (no active treatment); control group participants were offered the intervention at the end of the post-intervention period.</p> <p><i>Outcomes:</i> Mindfulness (Five Facets of Mindfulness Questionnaire; FFMQ); Psychological Stress (Perceived Stress Scale; PSS-14); Resiliency (Connor-Davidson Resilience Scale; CD-RISC.); Work Engagement (Shirom Vigor Scale). Outcomes were assessed</p>	n = 89 (44 mindfulness intervention, 45 wait-list control)	<p>This study aimed to assess the effects of a workplace-based mindfulness program on employee stress, resilience and wellbeing.</p> <p>No baseline data were reported to allow assessment of the extent to which the intervention and control groups were comparable.</p> <p>Thirty four of the 44 participants in the mindfulness group completed at least 50% of the program and provided baseline and post-intervention assessments (drop-out rate 10.5%).</p> <p>At the post-treatment assessment, the mindfulness intervention group rated themselves significantly higher than the control group on all facets of the mindfulness questionnaire (FFMQ), with the exception of non-</p>	<p>Study participants were randomised using a computer algorithm, but no details of allocation concealment procedures were reported.</p> <p>The nature of the intervention precludes blinding of participants and personnel delivering the intervention.</p> <p>Outcomes were self-assessed and therefore not blinded.</p> <p>Analyses were</p>

	immediately post-treatment and at 6 months follow-up for the intervention group only.		<p>judgemental awareness. The mindfulness group also rated themselves significantly lower on perceived stress (PSS-14) and higher on resilience (CD-RISC). All components of the Shirom Vigor Scale were also significantly higher in the mindfulness group. However, no effect sizes were reported for any between group comparison (<i>p</i> values only). Within group comparisons indicated statistically significant improvements in the mindfulness intervention group from baseline to post-intervention, in all outcome measures. These improvements were maintained at six months follow-up.</p>	<p>conducted on an intention-to-treat basis.</p> <p>Only within group effect sizes were reported. Between-group comparisons were reported as <i>p</i> values only and were only available for the post-treatment assessment.</p>
Klatt, et. al. (2009)	<p><i>Participants:</i> Full-time faculty and staff employed at a large mid-western university, recruited through e-mail announcements, health fair presentations, and advertisements in staff newsletters. Participants had to be aged 18 to 60 years, have a BMI <math>\leq 30</math>, exercise for &lt;30mins. On most days of the week, and consume no more than 2 alcoholic beverages and 6 beverages with caffeine per. Day. Exclusion criteria were: pregnancy or breast feeding; regular yoga practice or weekly yoga class; recent chronic illness requiring medication.</p>	n = 48 (24 mindfulness intervention, 24 wait-list control)	<p>This study aimed to assess the effects of a shortened (low-dose), workplace mindfulness-based stress reduction program on indicators of stress in healthy working adults.</p> <p>Participant characteristics (age, gender, BMI, marital status) were similar in the intervention and control groups. Baseline salivary cortisol was higher in the control</p>	<p>No details of randomisation or allocation concealment procedures were reported.</p> <p>The nature of the intervention precludes blinding of participants and</p>



















	<p><i>Intervention:</i> The '6 week' low-dose mindfulness-based stress reduction (MBSR-Id) intervention consisted of group instruction for 60 minutes, once per week, at noon in a centrally located campus classroom, as well as individual '20 minute' sessions of daily meditation.</p> <p><i>Comparator:</i> Wait- list control (no active treatment); control group participants were offered the intervention at the end of the study period.</p> <p><i>Outcomes:</i> Mindfulness (Mindful Attention Awareness Scale; MAAS) Perceived stress (Perceived stress scale); quality of sleep (Global measure of sleep from the Pittsburgh Sleep Quality Index); salivary cortisol. Outcomes were assessed at baseline and within 5 days of study completion.</p>		<p>group than the intervention group; no baseline comparisons of other outcome measures were reported.</p> <p>The mindfulness intervention group showed statistically significant improvements (pre- to post-intervention) in mindfulness awareness (MAAS), perceived stress, and overall sleep quality and 4 of the 7 sub-scales of the Pittsburgh Sleep Quality Index. The control group reported statistically significant pre- to post-test improvements in overall sleep quality only. There were no changes in average daily salivary cortisol for participants in either group. No between-group comparisons were reported.</p>	<p>personnel delivering the intervention.</p> <p>All outcome measures, except salivary cortisol, were self-reported. It was not clear whether the personnel who measured salivary cortisol levels were blinded to study group.</p> <p>Two participants from the intervention group (8%) and 4 from the control group (17%) did not complete the study and were not included in the analyses.</p> <p>No between-group comparisons were reported. All results</p>
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				were for within group pre- to pots-intervention changes.
Van Berkel et. al. (2014)	<p><i>Participants:</i> Employees from two Dutch research institutes were recruited by e-mail invitation. Exclusion criteria were pregnancy or sick leave &gt;4 weeks.</p> <p><i>Intervention:</i> The total duration of the intervention was six months. The Mindful Vitality In Practice (VIP) intervention comprised 8 weeks of in-company mindfulness-related training with homework exercises, followed by 8 sessions of e-coaching. E-Coaching included participants interacting with mindfulness trainers via e-mail and receiving positive feedback and answers to any questions. The weekly mindfulness-related training sessions took 90 minutes and were held in a room at the worksite in a group setting.</p> <p><i>Comparator:</i> Participants in the control group did not receive anything else other than a link to the web page containing health promotion material already provided by the organisation. This information was compiled on to one page for the purpose of the study.</p> <p><i>Outcomes:</i> Work engagement, Utrecht Work Engagement Scale (UWES);</p>	n = 257 (intervention 129, control 128)	<p>This study aimed to assess the effects of a workplace mindfulness-related multicomponent health promotion intervention on work engagement, mental health, need for recovery and mindfulness.</p> <p>Participant characteristics (age, gender, marital status, education) and baseline outcome measures were similar in the intervention and control groups.</p> <p>Nine participants in the intervention group and 18 in the control group did not complete the study.</p> <p>There were no significant differences in work engagement, mental health, need for recovery and mindfulness between the intervention and control group at either 6 or 12 months follow-up. Sub-group analyses assessing the effects of compliance also found no significant</p>	<p>Study participants were randomised by an independent researcher, using a computer-generated randomisation sequence. After randomisation, the research assistant notified each participant by e-mail about the group he or she was allocated to.</p> <p>The nature of the intervention precludes blinding of participants and personnel delivering the intervention.</p> <p>Outcomes were</p>


	mental health (RAND-36); need for recovery (Questionnaire on the Experience and Evaluation of Work; mindfulness (Mindful Attention Awareness Scale; MAAS). Outcomes were measured at baseline and at 6 and 12 months.		differences between the groups.	self-assessed and therefore not blinded.  Data were analysed on an intention-to-treat basis.  Results were reported for all specified outcomes.
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## Risk of bias

### Randomised controlled trials

Study	RISK OF BIAS					
	Random allocation	Allocation concealment	Blinding of participants and personnel	Blinding of outcome assessment	Incomplete outcome data	Selective Reporting
Aikens 2014						
Klatt 2009						
Van Berkel 2014						

 Low risk

 High risk

 Unclear risk



## Search details

Source	Search Strategy	Number of hits	Relevant evidence identified
<b>Guidelines</b>			
NICE	Mindfulness	14	0
<b>Primary Studies</b>			
MEDLINE	<ol style="list-style-type: none"> <li>1. Medline; exp MINDFULNESS/; 443 results.</li> <li>2. Medline; exp MEDITATION/; 540 results.</li> <li>3. Medline; (Mindful* OR MBCT OR MBSR OR meditat*).ti,ab; 6293 results.</li> <li>4. Medline; 1 OR 2 OR 3; 6696 results.</li> <li>5. Medline; exp OCCUPATIONAL HEALTH/OR exp OCCUPATIONAL HEALTH SERVICES/; 11441 results.</li> <li>6. Medline; (Employee* OR staff OR workplace OR workbase* OR work-based OR "work based" OR in-work OR "in work" OR industry OR employer OR "occupational health" OR personnel OR workforce OR "work force" OR "in-job").ti,ab; 302044 results.</li> <li>7. Medline; 5 OR 6; 323037 results.</li> <li>8. Medline; 4 AND 7; 257 results.</li> </ol>	257	0
EMBASE	<ol style="list-style-type: none"> <li>1. EMBASE; exp MINDFULNESS/; 1405 results.</li> <li>2. EMBASE; exp MEDITATION/; 4428 results.</li> <li>3. EMBASE; (Mindful* OR MBCT OR MBSR OR meditat*).ti,ab; 8920 results.</li> <li>4. EMBASE; 1 OR 2 OR 3; 10656 results.</li> <li>5. EMBASE; exp OCCUPATIONAL HEALTH/OR exp OCCUPATIONAL HEALTH SERVICES/; 182123 results.</li> <li>6. EMBASE; (Employee* OR staff OR workplace OR workbase* OR work-based OR "work based" OR in-work OR "in work" OR industry OR employer OR "occupational health" OR personnel OR workforce OR "work force" OR "in-job").ti,ab; 383972</li> </ol>	438	1

	<p>results.</p> <p>7. EMBASE; 5 OR 6; 519484 results.</p> <p>8. EMBASE; 4 AND 7; 438 results.</p>		
PsycINFO	<p>1. PsycInfo; exp MINDFULNESS/; 4800 results.</p> <p>2. PsycInfo; exp MEDITATION/; 3432 results.</p> <p>3. PsycInfo; (Mindful* OR MBCT OR MBSR OR meditat*).ti,ab; 12194 results.</p> <p>4. PsycInfo; 1 OR 2 OR 3; 12589 results.</p> <p>5. PsycInfo; exp OCCUPATIONAL HEALTH/ OR exp OCCUPATIONAL HEALTH SERVICES/; 1504 results.</p> <p>6. PsycInfo; (Employee* OR staff OR workplace OR workbase* OR work-based OR "work based" OR in-work OR "in work" OR industry OR employer OR "occupational health" OR personnel OR workforce OR "work force" OR "in-job").ti,ab; 181877 results.</p> <p>7. PsycInfo; 5 OR 6; 182178 results.</p> <p>8. PsycInfo; 4 AND 7; 496 results.</p>	496	2
CENTRAL	<p>#1 MeSH descriptor: [Mindfulness] explode all trees 48</p> <p>#2 MeSH descriptor: [Meditation] explode all trees 338</p> <p>#3 Mindful* or MBCT or MBSR or meditat* 1874</p> <p>#4 Enter terms for search#1 or #2 or #3 1874</p> <p>#5 MeSH descriptor: [Occupational Health] explode all trees 431</p> <p>#6 Employee* or staff or workplace or workbase* or work-based or "work based" or in-work or "in work" or industry or employer or "occupational health" or personnel or workforce or "work force" or "in-job" 24212</p> <p>#7 #5 or #6 24212</p> <p>#8 #4 and #7 298</p>	62	



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