

Table 1: Systematic reviews of mindfulness and pain

Source: CAM-Cancer Collaboration. Systematic reviews of mindfulness and pain [online document]. [Mindfulness | CAM Cancer](#), June 2026.

Pain			
Review characteristics	PICO of included studies	Results and conclusions	Assessment
Danon, N, Al-Gobari M, Burnand B, & Rodondi PY. (2022). Are mind–body therapies effective for relieving cancer-related pain in adults? A systematic review and meta-analysis . <i>Psycho-Oncology</i> , 31(3), 345–371. https://doi.org/10.1002/pon.5821.pdf			
Type of review: Systematic review Studies: n and design 40 RCTs thereof 10 RCTs of mindfulness; 24 included in meta-analysis. Search strategy: Databases MEDLINE, Embase, PubMed, PsycINFO, PsycArticles, CINAHL, Cochrane Central Register of Controlled Trials (CENTRAL), Science Citation Index, Web of Science, Google Scholar, ClinicalTrials.gov, WHO International Clinical Trials Registry Platform Dates Search conducted in 2018 and updated in 2020. The authors did not provide a date range for the search Data synthesis Meta-analysis Risk of bias assessment Cochrane Risk of Bias tool RoB	Participants 3,569 participants Adults (≥18 years) with cancer-related pain during or after treatment. Any cancer type, any stage. Interventions Mind-body techniques: - Mindfulness (10 RCTs) - Yoga, qigong, tai chi (13 RCTs) - Relaxation techniques/guided imagery (13 RCTs) - Hypnosis (4 RCTs) Control UC, WLC Outcome measures: Pain intensity: VAS/ NRS, brief pain inventory, SF-36 bodily pain scale, EORTC QLQ-C30 pain subscale, PROMIS pain scales, McGill Pain Questionnaire Measure of treatment effect SMD 95% CI	Results for risk of bias assessment of primary studies included in the review All included studies were assessed as having an overall high risk of bias, primarily due to lack of blinding (performance bias) and widespread issues with detection, attrition, and reporting bias. Overall, the evidence base was judged to be of low quality. GRADE: No formal assessment was conducted but conclusions emphasize low certainty in the underlying evidence base. Results for outcome measures: The overall effect of all mind-body therapies shows a small-to-moderate significant reduction in pain. Mindfulness and hypnosis showed beneficial effects, while yoga and relaxation therapies did not demonstrate consistent or statistically significant improvements. Overall effect of all mind–body therapies on cancer-related pain SMD = –0.39 (–0.62, –0.16), $p < 0.001$ <i>Sensitivity analysis (excluding outlier studies)</i> SMD = –0.15 (–0.27, –0.03), $p = 0.024$ Subgroup analyses According to intervention type. Beneficial effects on cancer-related pain with: <i>Mindfulness interventions</i>	Quality assessment of the SR: Moderate-high according to the AMSTAR 2 checklist. No critical flaws identified but limited integration of bias into analysis. Comments: Although the SR is of moderate-high quality, conclusions appropriately emphasize low certainty in the underlying evidence base. There is substantial heterogeneity, small sample sizes, and a high risk of bias in the included studies. No GRADE assessment of evidence certainty. No assessment of adverse events.

		SMD = -0.31 (-0.61, -0.00), $p < 0.05$ <i>Hypnosis interventions</i> SMD = -0.80 (-1.21, -0.40), $p < 0.05$ No statistically significant improvements with yoga and relaxation. Adverse events The article did not assess the report of adverse events from the included studies. Conclusions “Mind-body therapies may be effective in improving pain, but the quality of the evidence is low. The observed effects on pain are heterogeneous, and the quality of the reporting of RCTs should be improved.”	
Feng B, Hu X, Lu WW, Wang Y, & Ip, WY. (2021). Are mindfulness treatments effective for pain in cancer patients? A systematic review and meta-analysis. European Journal of Pain. https://doi.org/10.1002/ejp.1849			
Type of review: Systematic review Studies: n and design 10 RCTs Search strategy: Databases MEDLINE, PubMed, Embase, CINAHL, PsycINFO, Cochrane Central Register of Controlled Trials, and ClinicalTrials.gov Dates The authors did not provide a date range for the search. Data synthesis Meta-analysis Risk of bias assessment Cochrane Risk of Bias tool RoB	Studies and participants 843 participants Adults diagnosed with cancer experiencing pain. Any cancer type, any cancer stage. Interventions MBSR – 4 RCTs ACT – 2 RCTs Mindful yoga/yoga-based mindfulness – 2 RCTs MBCT – 1 RCT mHealth / app-based mindfulness – 1 RCT Control UC & WLC (6 RCTs), active control (4 RCTs). Outcome measures Primary: Pain intensity NRS, BPI, PROMIS. Measure of treatment effect SMD 95% CI	Results for risk of bias assessment of primary studies included in the review Two studies were judged to have an overall high risk of bias. Many studies had unclear risk in key domains (especially allocation concealment $n=3$, and blinding $n=5$), due to insufficient reporting. Performance bias (lack of blinding) and attrition bias were the most common issues across studies. GRADE: Overall, the GRADE assessment indicated moderate certainty of evidence for the effect of mindfulness-based interventions on pain intensity, suggesting reasonable confidence in these findings. Results for outcome measures: Significant effects were only found for pain intensity but not pain interference, with small effect sizes across analyses. <u>Pain Intensity:</u> <i>All studies</i> Short-term: SMD = -0.19 (-0.33, -0.04), $p < 0.05$ Long-term: SMD = -0.20 (-0.35, -0.05), $p < 0.05$ <i>Passive comparator</i> Short-term: SMD = -0.22 (-0.39, -0.05), $p < 0.05$	Quality assessment of the SR: Moderate quality according to AMSTAR 2 checklist. Publication bias not assessed (small number of studies), partial handling of RoB in synthesis Comments No assessment of adverse events. The included studies had high heterogeneity in cancer type, stages, interventions, and outcome measures. There are concerns about the risk of bias, mainly due to a lack of blinding and attrition.

		Long-term: SMD = -0.25 (-0.43, -0.07), $p < 0.05$ Subgroup analysis According to comparator type and intervention delivery. Mindfulness interventions were effective only when compared to passive controls and when delivered in clinic-based (face-to-face) formats, while no effects were observed with active controls or remote delivery. Adverse events The article did not assess the report of adverse events from the included studies. Conclusions “MBIs appeared efficacious in decreasing pain intensity among cancer patients at both short-term and long-term follow-up. Significant intervention effects were seen in clinic-based MBIs on pain intensity, compared with passive control, rather than active arms. The effect of remote MBIs remains undetermined by existing evidence.”	
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Abbreviations

ACT: Acceptance and Commitment Therapy
 BPI: Brief Pain Inventory
 CBT: Cognitive behavioral therapy
 CI: confidence interval
 EORTC QLQ-C30– European Organization of Research and Treatment of Cancer Quality of Life Questionnaire
 MBCR: Mindfulness-Based Cancer Recovery
 MBCT: Mindfulness-Based Cognitive Therapy
 MBSR: Mindfulness-Based Stress Reduction
 NRS: Numeric Rating Scale
 PROMIS: Patient-Reported Outcomes Measurement Information System
 RCT: randomized controlled trial
 RoB: Cochrane Risk of Bias Tool version 1
 SMD: standardized mean differences
 UC: Usual care
 VAS: Visual Analog Scale
 WLC: Waitlist control
 WMD: Weighted mean difference.

*AMSTAR 2 Critical Domain Items

1. Was the review protocol established a priori (e.g., registered in PROSPERO)?
2. Was the search comprehensive and included multiple databases, grey literature, and appropriate search strategies?
3. [Did the authors provide a list of excluded studies and justify the exclusions?]
4. Was the risk of bias (RoB) of included studies assessed using appropriate tools?
5. If a meta-analysis was conducted, were the methods used appropriate and clearly described?
6. Did the authors consider the RoB in individual studies when discussing the results?
7. Was publication bias assessed and discussed appropriately?