Mindfulness-Based Programmes for Mental Health Promotion in Adults in Non-clinical Settings: A Systematic Review and Meta-Analysis of Randomised Controlled Trials

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Fig 1. Funnel plot for univariate meta-analysis for the depression outcome at 1-6 months post-intervention for MBPs compared with passive controls.

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### Supplementary methods

#### Table 1. Search strategies.

| Database | Strategy |
|----------|----------|
| Allied and Complementary Medicine (AMED) (through OVID) | S1: meditation/  
S2: mindful*.mp.  
S3: meditat*.mp.  
S4: clinical trials/ or randomized controlled trials/ or double blind method/ or random allocation/  
S5: RCT.mp.  
S6: (random* adj1 allocat*).mp.  
S7: (random* adj1 assign*).mp.  
S8: randomis*.mp.  
S9: randomiz*.mp.  
S10: 1 or 2 or 3  
S11: 4 or 5 or 6 or 7 or 8 or 9  
S12: 10 and 11 |
| Applied Social Sciences Index and Abstracts (ASSIA) | S1: ab((mindful* OR meditat*) AND (randomise* OR randomize* OR RCT OR "random allocation" OR "random assignment")) OR ti((mindful* OR meditat*) AND (randomise* OR randomize* OR RCT OR "random allocation" OR "random assignment")) |
| Cochrane Central Register of Controlled Trials (CENTRAL) | S1: MH "Mindfulness"  
S2: AB (mindfulness or mindfulness or meditat*) or TI (mindfulness or mindfulness or meditat*)  
1 or 2 |
| Cumulative Index to Nursing and Allied Health Literature (CINAHL) (through EBSCO) | S1: (MH "Mindfulness+")  
S2: (MH "Mindfulness")  
S3: (MH "Meditation")  
S4: TI (mindful* OR meditat*) OR AB (mindful* OR meditat*)  
S5: S1 OR S2 or S3 or S4  
S6: MH "Clinical Trials+"  
S7: PT Clinical trial  
S8: TX clinic* n1 trial*  
S9: TX ((singl* n1 blind*) or [singl* n1 mask*]) or TX ((doubl* n1 blind*) or [doubl* n1 mask*]) or TX ((tripl* n1 blind*) or [tripl* n1 mask*])  
S10: TX randomi* control* trial*  
S11: (MH "Random Assignment")  
S12: TX random* allocat*  
S13: TX placebo*  
S14: (MH "Placebos")  
S15: (MH "Quantitative Studies")  
S16: TX allocat* random*  
S17: S6 OR S7 OR S8 OR S9 OR S10 OR S11 OR S12 OR S13 OR S14 OR S15 OR S16  
S18: S5 AND S17 |
| Excerpta Medica Database (EMBASE) (through OVID) | S1 exp meditation/ or exp mindfulness/  
S2 (mindfulness or mindfulness or meditat*).ab. or (mindfulness or mindfulness or meditat*).ti.  
S3 1 or 2  
S4 clinical trial/  
S5 randomized controlled trial/  
S6 controlled clinical trial/  
S7 multicenter study/  
S8 phase 3 clinical trial/  
S9 phase 4 clinical trial/ |
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S10 double blind procedure/
S11 placebo/
S12 exp randomization/
S13 (randomized controlled trial$ or rct or (random$ adj2 allocat$) or single blind$ or double blind$ or ((treble or triple) adj blind$) or placebo$).tw.
S14 Prospective Study.mp. or prospective study/
S15 4 or 5 or 6 or 7 or 8 or 9 or 10 or 11 or 12 or 13 or 14
S16 3 and 15

Education Resources
Information Center (ERIC)
(through EBSCO)
S1: AB (meditat* OR mindful*) OR TI (meditat* OR mindful*)
S2: randomis* OR randomiz* OR RCT OR "random* allocat*" OR "random* assign*"
S3: S1 AND S2

Electronic Theses Online
Service (EThOS)
S1: Advanced search: mindful (title) AND randomise (any word)

Medical Literature Analysis
and Retrieval System Online
(MEDLINE) (through OVID)
S1: Randomized Controlled Trials as Topic/
S2: randomized controlled trial/
S3: Random Allocation/
S4: Double Blind Method/
S5: Single Blind Method/
S6: clinical trial/
S7: clinical trial, phase i.pt
S8: clinical trial, phase ii.pt
S9: clinical trial, phase iii.pt
S10: clinical trial, phase iv.pt
S11: controlled clinical trial.pt
S12: randomized controlled trial.pt
S13: multicenter study.pt
S14: clinical trial.pt
S15: exp Clinical Trials as topic/
S16: or/1-15
S17: (clinical adj trial$).tw
S18: ((singl$ or doubl$ or treb$ or tripl$) adj (blind$3 or mask$3)).tw
S19: PLACEBOS/
S20: placebo.tw
S21: randomly allocated.tw
S22: (allocated adj2 random$).tw
S23: or/17-22
S24: 16 or 23
S25: case report.tw
S26: letter/
S27: historical article/
S28: or/25-27
S29: 24 not 28
S30: exp meditation/ or exp mindfulness/
S31: (mindfulness or mindfulness or meditat*).ab or (mindfulness or mindfulness or meditat*).ti
S32: 30 or 31
S33: 32 and 29

ProQuest
S1: ab((mindful* OR meditat*) AND (randomise* OR randomize* OR RCT OR "random allocation" OR "random assignment") OR ti((mindful* OR meditat*) AND (randomise* OR RCT OR "random allocation" OR "random assignment"))

PsycINFO (through EBSCO)
S1: DE "Meditation" OR DE "Mindfulness"
S2: AB (mindfulness OR mindfulness OR meditat* OR mindful*) OR TI (mindfulness OR mindfulness OR meditat* OR mindful*)
S3: S1 OR S2
S4: AB (randomized controlled trial) OR (Random Allocation) OR (Double Blind Method) OR (Single Blind Method) OR (clinical trial) OR (clinical trial, phase i.pt) OR
| Database                  | Search Query                                                                 |
|--------------------------|------------------------------------------------------------------------------|
| Scopus                   | S1: (mindful* OR meditat*) AND (randomise* OR randomize* OR RCT OR "random allocation" OR "random assignment") |
| Web of Science           | S1: advanced search: TS=((mindful* OR meditat*) AND (randomise* OR randomize* OR RCT OR "random allocation" OR "random assignment")) |
| World Health Organization (WHO) International Clinical Trials Registry Platform (ICTRP) | S1: mindful or meditat |
Table 2. Pre-piloted extraction forms.

| Form Tab          | Information collected                                                                                                                                 |
|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| Study Identification | Sponsorship sources, conflicts of interest, country, study setting, corresponding authors, institution, emails, date recruitment started, and year first published. |
| Methods           | Study design, conceptualisation of mindfulness, incentives for participants, number of participants (total randomised and per arm), and power calculation. |
| Population        | Inclusion and exclusion criteria, type of participant, group differences, baseline characteristics                                                    |
| Interventions     | Intervention name, mention of intervention manual, whether it was an adaptation of another intervention (rationale), intensity, mindfulness components (type, frequency and duration), non-mindfulness components (type, frequency and duration), home practice length and type, group size, any individual tailoring, any booster sessions or support after the end of the programme, adherence to intervention manual, intervention setting, teacher competence, teacher characteristics, response to intervention (attendance, satisfaction, reasons for missing sessions), and whether participants paid to do the course. |
| Outcomes          | Outcome measure used, time points, group sizes, effect measures available and extracted effect sizes.                                                    |
Table 3. Definitions to refine primary outcome selection.

| Primary outcome | Requirement |
|-----------------|-------------|
| Distress        | has to measure more than one negative emotion |
| Wellbeing       | has to be more than one positive emotion |
| Anxiety         | has to include physical symptoms and functioning impairment. |
| Depression      | has to include general anhedonia, worthlessness, physical symptoms and functioning |
Supplementary results

Secondary outcomes

Table 4 contains a summary of secondary outcome results, which are summarised below. The systematic review search date for the secondary outcomes was January 2020.

Comparison with passive control groups

At post-intervention (measured within one month of completing the intervention), in comparison with passive control groups, on average MBPs improved anxiety, depression, psychological distress, and mental wellbeing, (Table 6). The prediction intervals indicated that post-intervention anxiety will be reduced following MBPs in more than 95% of the scenarios, but improvement is not homogeneous for the rest of the outcome domains. There was no evidence that improvements following MBPs in depression, distress or wellbeing remained six or more months post-intervention (no studies for anxiety). However, only one study measured depression, four distress and three wellbeing at six or more months post-intervention, so results need to be interpreted with caution.

There is evidence for a modest and heterogeneous improvement in cognitive functioning following MBPs compared to passive controls shortly after intervention completion, with no significant differences at one-to-six-months follow-up (Table 9). MBPs improved real-life functioning at post-intervention in comparison with passive controls (small effect, Table 12). Effects may last for up to six months, with no reliable evidence on longer effects. MBPs improved the relationship with the self for up to at least six months (Table 15, no data on longer-term outcomes), and dispositional mindfulness for longer (Table 22). MBPs reduced psychosomatic symptoms shortly
after course completion (Table 18), but no evidence supported effects persisting for any longer (Table 19). None of these effects was generalisable across settings.

Comparison with active non-specific control groups

In comparison with active non-specific control groups at post-intervention, results supported improvements following MBPs in anxiety, depression, distress and wellbeing. However, reliability is low due to a mix of few studies contributing data, borderline p values, and prediction intervals that included adverse scenarios (Table 7). No studies measured these outcomes six or more months after the interventions. We found no evidence for improvements following MBPs in cognitive function (only three studies measuring this, Table 10), real-life functioning (only four studies measuring it, Table 13), psychosomatic outcomes (only 2 studies measuring it, Table 20), or dispositional mindfulness (Table 23). MBPs improved the relationship with the self for up to at least six months (Table 16, no data on longer-term outcomes). However, this effect is not generalisable to all implementation settings.

Comparison with active specific control groups

Compared with active specific control groups, findings supported a modest superiority of MBPs in improving depression and wellbeing, but not distress and anxiety, at post-intervention (Table 8). Prediction intervals included null or unfavourable effects. Very few studies measured these outcomes six or more months after the intervention, with no significant differences between groups. We found no evidence for improvement in cognitive functioning (Table 11), real-life functioning (Table 14), relationship with the self (Table 17), psychosomatic symptoms (Table 21), or dispositional mindfulness (Table 24).
Risk-of-bias Source-specific Sensitivity Analyses

Source-specific sensitivity analyses could be conducted for risk-of-bias sources of randomisation, deviations from intended interventions, and missing outcome data; there was not enough risk variance for the other sources to meaningfully remove higher-risk trials. Source-specific analyses gave similar results to the overall-risk sensitivity analyses, except that in the comparison with passive controls the effects of MBPs on depression, distress and wellbeing remained significant and with narrower prediction intervals after removing trials at high risk of bias due to deviations from the intended interventions (a bias that tended to dilute intervention effects due to contamination between arms, Table 31).
Table 4. Summary of secondary outcome results.

| Control domain | Outcome domain | Time point | n of trials | SMD (95%CI) p | 95%PI | Missed trials* |
|----------------|----------------|------------|-------------|---------------|-------|----------------|
| Passive        | Anxiety        | P-int      | 19          | -0.70 (-0.85, -0.54), <0.001 | -1.29, -0.10 | 0               |
|                | Depression     | P-int      | 37          | -0.45 (-0.57, -0.33), <0.001 | -1.04, 0.14  | 1 (3%)          |
|                | Depression     | 6+ m       | 1           | -0.19 (-0.78, 0.40), 0.53    | -1.02, 0.64  | 0               |
|                | Distress       | P-int      | 61          | -0.45 (-0.54, -0.36), <0.001 | -1.03, 0.14  | 4 (6%)          |
|                | Distress       | 6+ m       | 4           | -0.16 (-0.48, 0.15), 0.31    | -0.82, 0.50  | 0               |
|                | Wellbeing      | P-int      | 25          | 0.34 (0.21, 0.48), <0.001    | -0.25, 0.94  | 3 (11%)         |
|                | Wellbeing      | 6+ m       | 3           | 0.25 (-0.10, 0.60), 0.17     | -0.43, 0.93  | 1 (25%)         |
|                | Cog. Func.     | P-int      | 13          | 0.25 (0.06, 0.44), 0.009     | -0.32, 0.83  | 1 (7%)          |
|                | Cog. Func.     | 1-6 m      | 2           | 0.03 (-0.52, 0.58), 0.91     | -1.04, 1.10  | 1 (33%)         |
|                | Real Func.     | P-int      | 25          | 0.27 (0.12, 0.43), <0.001    | -0.38, 0.93  | 1 (4%)          |
|                | Real Func.     | 1-6 m      | 14          | 0.23 (0.05, 0.40), 0.013     | -0.44, 0.89  | 1 (7%)          |
|                | Real Func.     | 6+ m       | 1           | 0.09 (-0.56, 0.74), 0.79     | -0.85, 1.02  | 1 (50%)         |
|                | Rel. Self      | P-int      | 20          | 0.77 (0.47, 1.07), <0.001    | -0.60, 2.13  | 2 (10%)         |
|                | Rel. Self      | 1-6 m      | 8           | 0.71 (0.41, 1.02), <0.001    | -0.38, 1.80  | 0               |
|                | Psychosom.     | P-int      | 14          | -0.41 (-0.58, -0.24), <0.001 | -0.94, 0.12  | 1 (7%)          |
|                | Psychosom.     | 1-6 m      | 7           | -0.25 (-0.65, 0.16), 0.19    | -1.27, 0.78  | 1 (13%)         |
|                | Mindfulness    | P-int      | 50          | 0.54 (0.41, 0.67), <0.001    | -0.35, 1.42  | 5 (9%)          |
|                | Mindfulness    | 1-6 m      | 18          | 0.56 (0.40, 0.72), <0.001    | -0.33, 1.45  | 2 (10%)         |
|                | Mindfulness    | 6+ m       | 2           | 0.52 (0.24, 0.80), <0.001    | -0.40, 1.44  | 1 (33%)         |
| Active non-specific | Anxiety | P-int      | 4           | -0.55 (-0.95, -0.15), 0.007  | -1.69, 0.58  | 1 (20%)         |
|                | Depression     | P-int      | 7           | -0.43 (-0.77, -0.08), 0.016  | -1.53, 0.68  | 0               |
|                | Distress       | P-int      | 9           | -0.38 (-0.70, -0.06), 0.021  | -1.48, 0.72  | 1 (10%)         |
|                | Wellbeing      | P-int      | 1           | 3.00 (1.70, 4.30), <0.001    | 1.18, 4.83   | 0               |
|                | Cog. Func.     | P-int      | 3           | 0.08 (-0.66, 0.81), 0.84     | -8.82, 8.98  | 0               |
|                | Real Func.     | P-int      | 3           | 0.04 (-0.75, 0.83), 0.92     | -3.18, 3.26  | 0               |
|                | Real Func.     | 1-6 m      | 2           | 0.12 (-0.87, 1.12), 0.81     | -3.36, 3.60  | 0               |
|                | Rel. Self      | P-int      | 3           | 0.80 (0.26, 1.34), 0.004     | -1.49, 3.09  | 0               |
|                | Rel. Self      | 1-6 m      | 3           | 0.73 (0.18, 1.28), 0.010     | -1.58, 3.03  | 0               |
|                | Psychosom.     | P-int      | 2           | -0.36 (-0.74, 0.03), 0.067   | NA           | 0               |
|                | Psychosom.     | 1-6 m      | 1           | -0.29 (-0.89, 0.30), 0.34    | NA           | 0               |
|                | Mindfulness    | P-int      | 7           | 0.21 (-0.02, 0.44), 0.068    | -0.42, 0.85  | 0               |
|                | Mindfulness    | 1-6 m      | 6           | 0.28 (-0.06, 0.61), 0.11     | -0.44, 0.99  | 0               |
| Active specific | Anxiety       | P-int      | 7           | -0.12 (-0.27, 0.04), 0.14    | -0.45, 0.21  | 1 (13%)         |
|                | Depression     | P-int      | 17          | -0.24 (-0.36, -0.13), <0.001 | -0.55, 0.07  | 0               |
|                | Depression     | 6+ m       | 3           | -0.05 (-0.33, 0.24), 0.75    | -0.46, 0.37  | 0               |
|                | Distress       | P-int      | 24          | -0.07 (-0.18, 0.03), 0.15    | -0.38, 0.23  | 5 (17%)         |
| Outcome     | Time  | n  | Lower CI | Upper CI | P-int CI | P-int CI | Conclusion |
|-------------|-------|----|----------|----------|----------|----------|------------|
| Distress    | 6+m   | 4  | -0.03    | (0.27, 0.22), 0.84 | -0.41    | 0.36     | 0          |
| Wellbeing   | P-int | 10 | 0.17     | (0.03, 0.31), 0.015 | -0.15    | 0.49     | 3 (23%)    |
| Wellbeing   | 6+m   | 1  | -0.00    | (-0.36, 0.36), 0.99 | -0.48    | 0.47     | 1 (50%)    |
| Cog. Func.  | P-int | 7  | -0.03    | (-0.29, 0.24), 0.80 | -0.47    | 0.41     | 0          |
| Real Func.  | P-int | 6  | 0.03     | (-0.17, 0.23), 0.76 | -0.21    | 0.27     | 1 (14%)    |
| Real Func.  | 1-6m  | 4  | 0.01     | (-0.21, 0.23), 0.93 | -0.26    | 0.28     | 1 (20%)    |
| Real Func.  | 6+m   | 3  | 0.02     | (-0.18, 0.23), 0.82 | -0.22    | 0.27     | 0          |
| Rel. Self   | P-int | 6  | 0.13     | (-0.15, 0.41), 0.37 | -0.53    | 0.78     | 3 (33%)    |
| Rel. Self   | 1-6m  | 1  | 0.40     | (-0.12, 0.92), 0.13 | -0.47    | 1.27     | 1 (50%)    |
| Rel. Self   | 6+m   | 1  | 0.00     | (-0.90, 0.90), 1.00 | -1.30    | 1.30     | 1 (50%)    |
| Psychosom.  | P-int | 7  | -0.18    | (-0.38, 0.02), 0.068 | -0.72    | 0.36     | 1 (13%)    |
| Psychosom.  | 1-6m  | 4  | -0.13    | (-0.36, 0.09), 0.25 | -0.70    | 0.43     | 2 (33%)    |
| Psychosom.  | 6+m   | 2  | -0.15    | (-0.42, 0.13), 0.29 | -0.74    | 0.45     | 0          |
| Mindfulness | P-int | 19 | 0.14     | (-0.02, 0.29), 0.09 | -0.49    | 0.76     | 2 (10%)    |
| Mindfulness | 1-6m  | 7  | 0.12     | (-0.07, 0.31), 0.20 | -0.52    | 0.76     | 1 (13%)    |
| Mindfulness | 6+m   | 3  | 0.15     | (-0.09, 0.40), 0.21 | -0.51    | 0.81     | 1 (25%)    |

*Number of trials with non-reported data for the corresponding outcome. Abbreviations: 1-6m=1 to 6 months post-intervention follow up, 6+ months= more than 6 months post intervention follow up, CI= confidence interval for overall mean, Cog. Func = Cognitive functioning, n=number, P-int=post-intervention, PI= prediction interval for new study, Psychosom = Psychosomatic outcomes, Real func = Real life functioning, Rel. Self = Relationship with self, SMD=standardised mean difference.
Table 5. Conference abstracts for which too much information was missing to assess eligibility.

|   | Authors and Title                                                                                           |
|---|------------------------------------------------------------------------------------------------------------|
| 1 | Siwik, C., Phillips, K., Salmon, P., Litvan, I., Filoteo, V., Rebholz, W., & van der Gryp, K. (2018, April). An MBSR intervention for Parkinson's disease patients and caregiving partners: Effects on distress, social support, cortisol, and inflammation. In Psychosomatic Medicine (Vol. 80, No. 3, pp. A128-A128). Two Commerce SQ, 2001 Market St, Philadelphia, PA 19103 USA: Lippincott Williams & Wilkins. |
| 2 | Greven, C.; Bogels, S.; Dammers, J.; Buitelaar, J.; Speckens, A. Mindfulness for children with ADHD and Mindful Parenting (MindChamp): a randomised controlled trial. Journal of Neural Transmission Nov 2019;126(11):1568-1569 2019 Nov |
| 3 | Orosa Duarte, A.; Mediavilla, R.; Lopez Herrero, V.; Garde Gonzalez, J.; Rodriguez Vega, B.; Munoz San Jose, A.; Palao Tarrero, A.; Bravo Ortiz, M. F.; Bayon Perez, C. Mindfulness-based intervention through a smartphone application versus mindfulness-based stress reduction (MBSR) program in healthcare students: a randomised controlled trial. European Psychiatry Apr 2019;56():S569-S569 2019 Apr |
| 4 | Exploring effects of aerobic exercise and mindfulness training on cognitive function in older adults at risk of dementia: The active minds study. Circulation 2018;138(Supplement 1): Netherlands Lippincott Williams and Wilkins 2018 |
| 5 | Wang, Z. Y.; Jin, Z. The Effects of mindfulness-based cognitive therapy (MBCT) on anxiety and depression among professional women: Increased EEG gamma and alpha brainwave amplitude. Basic and Clinical Pharmacology and Toxicology 2018;123(Supplement 3):103 Netherlands Blackwell Publishing Ltd 2018 |
| 6 | Kiseleva, N.; Kiselev, S. Mindfulness training can reduce prenatal maternal stress. Journal of the Neurological Sciences 2019;405(Supplement):32 Netherlands Elsevier B.V. 2019 |
| 7 | Kiselev, S.; Volik, I. Influence of mindfulness training on stress reduction during pregnancy. European Psychiatry 2018;48(Supplement 1):S257-S258 Netherlands Elsevier Masson SAS 2018 |
Table 6. Comparison of MBPs with passive control groups: multivariate meta-analysis of anxiety, depression, distress, and wellbeing outcomes at post-intervention, (post-int), 1-6 months follow-up, (1-6m) and 6+ months follow-up (+6m). Exchangeable between-study variance-covariance matrices (0.1).

Multivariate meta-analysis
Variance-covariance matrix = proportional .9*I(11)+.1*J(11,11,1)
Method = reml Number of dimensions = 11
Restricted log likelihood = -119.78835 Number of observations = 78

|                        | Coef.  | Std. Err. | z      | P>|z|  | [95% Conf. Interval] |
|------------------------|--------|-----------|--------|------|----------------------|
| Overall mean           |        |           |        |      |                      |
| Post-int anxiety       | -.694  | .081      | -8.54  | 0.000| -.854                |
| 1-6m anxiety           | -.563  | .120      | -4.68  | 0.000| -.799                |
| Post-int depression    | -.450  | .061      | -7.32  | 0.000| -.571                |
| 1-6m depression        | -.533  | .096      | -5.53  | 0.000| -.722                |
| +6m depression         | -.190  | .301      | -0.63  | 0.526| -.780                |
| Post-int distress      | -.446  | .046      | -9.62  | 0.000| -.537                |
| 1-6m distress          | -.447  | .068      | -6.54  | 0.000| -.581                |
| +6m distress           | -.163  | .162      | -1.01  | 0.314| -.480                |
| Post-int wellbeing     | .343   | .069      | 4.94   | 0.000| .206                 |
| 1-6m wellbeing         | .325   | .110      | 2.94   | 0.003| .108                 |
| +6m wellbeing          | .248   | .179      | 1.39   | 0.165| -.102                |
Table 7. Comparison of MBPs with active non-specific control groups: multivariate meta-analysis of anxiety, depression, distress, and wellbeing at post-intervention, (post-int), 1-6 months follow-up, (1-6m) and 6+ months follow-up (+6m). Exchangeable between-study variance-covariance matrices (0.7).

Multivariate meta-analysis

| Coef.     | Std. Err. | z     | P>|z| | [95% Conf. Interval] |
|-----------|-----------|-------|------|----------------------|
| Overall mean |          |       |      |                      |
| Post-int anxiety | -.552 | .204 | -2.70 | 0.007 | -.953 | -.151 |
| 1-6m anxiety | -.474 | .201 | -2.35 | 0.001 | -.869 | -.079 |
| Post-int depression | -.426 | .176 | -2.42 | 0.016 | -.772 | -.080 |
| 1-6m depression | -.454 | .180 | -2.52 | 0.001 | -.808 | -.101 |
| Post-int distress | -.378 | .164 | -2.30 | 0.021 | -.700 | -.056 |
| 1-6m distress | -.137 | .188 | -0.73 | 0.465 | -.506 | .231 |
| Post-int wellbeing | 3.006 | .663 | 4.53 | 0.000 | 1.705 | 4.306 |
| 1-6m wellbeing | 1.403 | .537 | 2.61 | 0.009 | .350 | 2.456 |
Table 8. Comparison of MBPs with active specific control groups: multivariate meta-analysis of anxiety, depression, distress, and wellbeing at post-intervention, (post-int), 1-6 months follow-up, (1-6m) and 6+ months follow-up (+6m). Exchangeable between-study variance-covariance matrices (0.1).

Multivariate meta-analysis

|                     | Coef. | Std. Err. | z     | P>|z| | [95% Conf. Interval] |
|---------------------|-------|-----------|-------|-----|----------------------|
| Overall mean        |       |           |       |     |                      |
| Post-int anxiety    | -.116 | .079      | -1.46 | 0.143 | -.272                |
| 1-6m anxiety        | .072  | .140      | 0.51  | 0.607 | -.203                |
| Post-int depression | -.241 | .059      | -4.06 | 0.000 | -.358                |
| 1-6m depression     | -.165 | .078      | -2.10 | 0.036 | -.319                |
| +6m depression      | -.045 | .143      | -0.32 | 0.752 | -.326                |
| Post-int distress   | -.074 | .051      | -1.45 | 0.146 | -.175                |
| 1-6m distress       | -.008 | .073      | -0.12 | 0.904 | -.151                |
| +6m distress        | -.026 | .126      | -0.21 | 0.836 | -.274                |
| Post-int wellbeing  | .169  | .069      | 2.43  | 0.015 | .032                 |
| 1-6m wellbeing      | .028  | .108      | 0.26  | 0.791 | -.183                |
| +6m wellbeing       | -.001 | .183      | -0.01 | 0.992 | -.362                |
Table 9. Comparison of MBPs with passive control groups: multivariate meta-analysis of cognitive functioning at post-intervention, (Post-int), and 1-6 months follow-up (1-6m). Results were robust to the outcome-specific correlation sensitivity analysis.

Multivariate meta-analysis
Variance-covariance matrix = unstructured
Method = reml
Restricted log likelihood = -5.8048477
Number of dimensions = 2
Number of observations = 13

|                  | Coef.  | Std. Err. |    z  |  P>|z|< | [95% Conf. Interval] |
|------------------|--------|-----------|-------|------|----------------------|
| Overall mean     |        |           |       |      |                      |
| Post-int         | .250   | .095      | 2.61  | 0.009| .062 -.438           |
| 1-6m             | .030   | .281      | 0.11  | 0.914| -.520 .581           |
Table 10. Comparison of MBPs with active non-specific control groups: multivariate meta-analysis of cognitive functioning at post-intervention.

|                         | Coef. | Std. Err. | z     | P>|z| | [95% Conf. Interval] |
|-------------------------|-------|-----------|-------|-----|---------------------|
| Overall mean            |       |           |       |     |                     |
| Post-int                | .075  | .376      | 0.20  | 0.842 | -.663              | .813 |

Multivariate meta-analysis
Variance-covariance matrix = unstructured
Method = reml
Restricted log likelihood = -2.5910786
Number of dimensions = 1
Number of observations = 3
Table 11. Comparison of MBPs with active specific control groups: univariate meta-analysis of cognitive functioning at post-intervention.

| Study           | Effect Size | [95% Conf. Interval] | % Weight |
|-----------------|-------------|----------------------|----------|
| Isbel 2019      | -0.297      | -0.739               | 0.146    | 12.78    |
| Lebares 2019    | 0.174       | -0.477               | 0.824    | 6.87     |
| Ma 2019         | 0.169       | -0.153               | 0.491    | 19.64    |
| MacCoon 2012    | 0.256       | -0.266               | 0.779    | 9.91     |
| Malinowski 2017 | -0.772      | -1.387               | -0.158   | 7.58     |
| Oken 2010       | -0.007      | -0.160               | 0.147    | 36.75    |
| Smart 2017      | 0.000       | -0.673               | 0.673    | 6.48     |

theta | -0.028 | -0.292 | 0.236

95% prediction interval for theta: [-0.469, 0.413]

Test of theta = 0: t(6) = -0.26  Prob > |t| = 0.8017
Test of homogeneity: Q = chi2(6) = 10.01  Prob > Q = 0.1241
Table 12. Comparison of MBPs with passive control groups: multivariate meta-analysis of real-life functioning at post-intervention, (Post-int), 1-6 months follow-up (1-6m), and 6+ months follow-up (+6m). Exchangeable between-study variance-covariance matrices (0.8).

Multivariate meta-analysis
Variance-covariance matrix = proportional .2*I(3)+.8*J(3,3,1)
Method = reml Number of dimensions = 3
Restricted log likelihood = -18.124991 Number of observations = 29

|                | Coef.  | Std. Err. | z     | P>|z|   | [95% Conf. Interval] |
|----------------|--------|-----------|-------|-------|---------------------|
| Overall mean   |        |           |       |       |                     |
| Post-int       | .272   | .078      | 3.49  | 0.000 | .119     .425       |
| 1-6m           | .225   | .091      | 2.47  | 0.013 | .046     .404       |
| +6m            | .089   | .333      | 0.27  | 0.789 | -.563    .741       |
Table 13. Comparison of MBPs with active non-specific control groups: multivariate meta-analysis of real-life functioning at post-intervention, (Post-int), and 1-6 months follow-up (1-6m). Exchangeable between-study variance-covariance matrices (0.1).

Multivariate meta-analysis
Variance-covariance matrix = proportional .9*I(2)+.1*J(2,2,1)
Method = reml Number of dimensions = 2
Restricted log likelihood = -4.1010413 Number of observations = 4

|               | Coef. | Std. Err. | z     | P>|z| | [95% Conf. Interval] |
|---------------|-------|-----------|-------|------|----------------------|
| Overall mean  |       |           |       |      |                      |
| Post-int      | .038  | .404      | 0.10  | 0.924| -.753                |
| 1-6m          | .122  | .507      | 0.24  | 0.810| -.871                | 1.11        |
Table 14. Comparison of MBPs with active specific control groups: multivariate meta-analysis of real-life functioning at post-intervention, (Post-int), 1-6 months follow-up (1-6m), and 6+ months follow-up (+6m).

Exchangeable between-study variance-covariance matrices (0.9).

Multivariate meta-analysis
Variance-covariance matrix = proportional .1*I(3)+.9*J(3,3,1)
Method = reml Number of dimensions = 3
Restricted log likelihood = .19744653 Number of observations = 9

|                      | Coef. | Std. Err. | z    | P>|z| | [95% Conf. Interval] |
|----------------------|-------|-----------|------|-----|----------------------|
| Overall mean         |       |           |      |     |                      |
| Post-int             | .030  | .100      | .30  | .764| -.166, .227          |
| 1-6m                 | .008  | .113      | .08  | .939| -.214, .231          |
| +6m                  | .024  | .103      | .23  | .815| -.177, .226          |
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Table 15. Comparison of MBPs with passive control groups: multivariate meta-analysis of relationship with the self at post-intervention, (Post-int), and 1-6 months follow-up (1-6m).

Multivariate meta-analysis
Variance-covariance matrix = unstructured
Method = reml Number of dimensions = 2
Restricted log likelihood = -20.512327 Number of observations = 21

|                      | Coef. | Std. Err. | z     | P>|z| | [95% Conf. Interval] |
|----------------------|-------|-----------|-------|------|---------------------|
| Overall mean         |       |           |       |      |                     |
| Post-int             | .765  | .153      | 5.00  | 0.000| .465 1.065          |
| 1-6m                 | .714  | .153      | 4.66  | 0.000| .413 1.015          |
Table 16. Comparison of MBPs with active non-specific control groups: multivariate meta-analysis of relationship with the self at post-intervention, (Post-int), and 1-6 months follow-up (1-6m). Exchangeable between-study variance-covariance matrices (0.8).

Multivariate meta-analysis
Variance-covariance matrix = proportional .2*I(2)+.8*J(2,2,1)
Method = reml Number of dimensions = 2
Restricted log likelihood = -3.6406978 Number of observations = 4

|                     | Coef. | Std. Err. | z    | P>|z| | [95% Conf. Interval] |
|---------------------|-------|-----------|------|-----|---------------------|
| Overall mean        |       |           |      |     |                     |
| Post-int            | .801  | .277      | 2.89 | 0.004 | .258 | 1.344 |
| 1-6m                | .729  | .281      | 2.59 | 0.010 | .176 | 1.281 |
Table 17. Comparison of MBPs with active specific control groups: multivariate meta-analysis of relationship with the self at post-intervention, (Post-int), 1-6 months follow-up (1-6m), and 6+ months follow-up (+6m).
Exchangeable between-study variance-covariance matrices (0.5).

Multivariate meta-analysis
Variance-covariance matrix = proportional .5*I(3)+.5*J(3,3,1)  Number of dimensions = 3
Method = reml                                  Number of observations = 7
Restricted log likelihood = -2.503334

|                        | Coef. | Std. Err. | z    | P>|z| | [95% Conf. Interval] |
|------------------------|-------|-----------|------|-----|---------------------|
| Overall mean           |       |           |      |     |                     |
| Post-int               | .129  | .143      | 0.90 | 0.366 | -.151               |
| 1-6m                   | .398  | .265      | 1.50 | 0.134 | -.122               |
| +6m                    | 0.00  | .460      | 0.00 | 1.000 | -.902               |
Table 18. Comparison of MBPs with passive control groups: univariate meta-analysis of psychosomatic symptoms at post-intervention.

| Study          | Effect Size | [95% Conf. Interval] | % Weight |
|---------------|-------------|----------------------|----------|
| Barrett 2012  | -0.127      | -0.476               | 0.223    | 7.59    |
| Barrett 2018  | -0.014      | -0.250               | 0.221    | 9.56    |
| Carmody 2011  | -0.301      | -0.700               | 0.098    | 6.81    |
| Christopher 2018 | -0.464   | -0.861               | -0.067   | 6.84    |
| Dvorakova 2017 | -0.361   | -0.683               | -0.038   | 8.04    |
| Greeson 2014  | -0.529      | -0.888               | -0.171   | 7.44    |
| Hwang 2019    | -0.369      | -0.708               | -0.030   | 7.76    |
| Klatt 2009    | -0.198      | -0.652               | 0.255    | 6.02    |
| Klatt 2017    | -0.621      | -1.062               | -0.180   | 6.19    |
| Lee 2010      | -0.783      | -1.194               | -0.372   | 6.62    |
| Moynihan 2013 | -0.142      | -0.363               | 0.080    | 9.81    |
| Oken 2010     | -0.450      | -1.188               | 0.287    | 3.29    |
| Park 2016     | -0.647      | -1.044               | -0.250   | 6.84    |
| Wilson 2012   | -1.022      | -1.396               | -0.648   | 7.19    |

95% prediction interval for theta: [-0.936, 0.119]

Test of theta = 0: t(13) = -5.12 Prob > |t| = 0.0002
Test of homogeneity: Q = chi2(13) = 34.87 Prob > Q = 0.0009
Table 19. Comparison of MBPs with passive control groups: univariate meta-analysis of psychosomatic symptoms at 1-6 months follow-up.

| Study                  | Effect Size | [95% Conf. Interval] | % Weight |
|------------------------|-------------|----------------------|----------|
| Barrett 2012           | -0.026      | -0.414               | 0.363    | 14.53    |
| Barrett 2018           | -0.010      | -0.246               | 0.226    | 16.96    |
| Carmody 2011           | -0.233      | -0.674               | 0.207    | 13.64    |
| Christopher 2018       | -0.223      | -0.785               | 0.339    | 11.63    |
| Hwang 2019             | -0.293      | -0.693               | 0.107    | 14.33    |
| Moynihan 2013          | 0.098       | -0.180               | 0.375    | 16.35    |
| Wilson 2012            | -1.239      | -1.742               | -0.735   | 12.57    |
| theta                  | -0.245      | -0.645               | 0.155    |          |

95% prediction interval for theta: [-1.273, 0.783]

Test of theta = 0: t(6) = -1.50 Prob > |t| = 0.1846
Test of homogeneity: Q = chi2(6) = 23.43 Prob > Q = 0.0007
Table 20. Comparison of MBPs with active non-specific control groups: multivariate meta-analysis of psychosomatic symptoms at post-intervention, (Post-int), and 1-6 months follow-up (1-6m). Exchangeable between-study variance-covariance matrices (0.5).

| Overall mean | Coef. | Std. Err. | z     | P>|z| | [95% Conf. Interval] |
|--------------|-------|-----------|-------|-----|----------------------|
| Post-int     | -0.358| 0.195     | -1.83 | 0.067 | -0.742 - 0.024       |
| 1-6m         | -0.291| 0.302     | -0.96 | 0.336 | -0.884 - 0.302       |
Table 21. Comparison of MBPs with active specific control groups: multivariate meta-analysis of psychosomatic symptoms at post-intervention, (post-int), 1-6 months follow-up (1-6m), and 6+ months follow-up (+6m).

Exchangeable between-study variance-covariance matrices (0.8).

Multivariate meta-analysis
Variance-covariance matrix = proportional .2*I(3)+.8*J(3,3,1)
Method = reml                                  Number of dimensions = 3
Restricted log likelihood = -1.3820193         Number of observations = 7

|                        | Coef. | Std. Err. | z     | P>|z| | [95% Conf. Interval] |
|------------------------|-------|-----------|-------|------|----------------------|
| Overall mean           | -.181 | .099      | -1.82 | 0.068| -.376 .013           |
| Post-int               | -.133 | .116      | -1.15 | 0.250| -.360 .093           |
| 1-6m                   | -.146 | .139      | -1.05 | 0.292| -.420 .126           |
| +6m                    |       |           |       |      |                      |
Table 22. Comparison of MBPs with passive control groups: multivariate meta-analysis of dispositional mindfulness at post-intervention, (post-int), 1-6 months follow-up (1-6m), and 6+ months follow-up (+6m).

Exchangeable between-study variance-covariance matrices (0.9).

Multivariate meta-analysis
Variance-covariance matrix = proportional .1*I(3)+.9*J(3,3,1)
Method = reml Number of dimensions = 3
Restricted log likelihood = -40.775514 Number of observations = 52

|                      | Coef. | Std. Err. | z    | P>|z|   | [95% Conf. Interval] |
|----------------------|-------|-----------|------|-------|---------------------|
| Overall mean         |       |           |      |       |                     |
| Post-int             | .538  | .068      | 7.91 | 0.000 | .405 .672           |
| 1-6m                 | .559  | .080      | 6.95 | 0.000 | .401 .716           |
| +6m                  | .518  | .141      | 3.67 | 0.000 | .241 .795           |
Table 23. Comparison of MBPs with active non-specific control groups: multivariate meta-analysis of dispositional mindfulness at post-intervention, (post-int), and 1-6 months follow-up (1-6m).

Multivariate meta-analysis
Variance-covariance matrix = unstructured
Method = reml
Restricted log likelihood = -4.2903167

|                  | Coef. | Std. Err. | z   | P>|z| | [95% Conf. Interval] |
|------------------|-------|-----------|-----|-----|----------------------|
| Overall mean     | .212  | .116      | 1.83| 0.068| -.015    .440       |
| Post-int         | .274  | .171      | 1.60| 0.110| -.062    .611       |
| 1-6m             | .274  | .171      | 1.60| 0.110| -.062    .611       |
Table 24. Comparison of MBPs with active specific control groups: multivariate meta-analysis of dispositional mindfulness at post-intervention, (post-int), 1-6 months follow-up (1-6m), and 6+ months follow-up (+6m).

Exchangeable between-study variance-covariance matrices (0.9).

|                | Coef. | Std. Err. | z     | P>|z|  | [95% Conf. Interval] |
|----------------|-------|-----------|-------|------|----------------------|
| Overall mean   |       |           |       |      |                      |
| Post-int       | .135  | .080      | 1.67  | 0.094| -.023 -.293          |
| 1-6m           | .122  | .096      | 1.27  | 0.204| -.066 .312           |
| +6m            | .153  | .123      | 1.25  | 0.212| -.087 .395           |
Table 25. Risk of bias assessment for individual studies.

| Study              | D1  | D2  | D3  | D4  | D5                                      |
|--------------------|-----|-----|-----|-----|-----------------------------------------|
| Aeamla-Or 2015     | Low | Low | Low | High| Some                                    |
| Agee 2009          | Some| High| High| High| High                                    |
| Allen 2012         | Some| High| High| Some| Some                                    |
| Amutio 2015        | Some| High| High| High| Some                                    |
| Anclair 2015       | Some| High| Some| High| Some                                    |
| Anderson 2007      | Some| High| High| Some| Some for test, high for self-report     |
| Armstrong 2016     | Low | Some| High| High| Some                                    |
| Arredondo 2017     | Some| High| High| High| Some                                    |
| Astin 1997         | Some| High| High| High| Some                                    |
| Asuero 2014        | Some| High| High| High| Some                                    |
| Auseron 2018       | Low | Some| High| High| Some                                    |
| Barrett 2012       | Low | High| Low | High| Some                                    |
| Barrett 2018       | Low | Some| Low | High| Low                                     |
| Beattie 2017       | Low | Some| High| High| Low                                     |
| Behbahani 2018     | Some| High| High| High| Some                                    |
| Benn 2012          | Some| High| High| High| Some                                    |
| Berghmans 2010     | Some| High| High| High| Some                                    |
| Black 2015         | Low | Some| Some| High| Some                                    |
| Brown 2016         | Some| Low | Low | High| Some                                    |
| Carmody 2011       | Low | High| High| High| Some                                    |
| Carson 2004*       | Some for D1, Low for D2 | high | high | high | some                                    |
| Cerna 2019         | Low | High| High| High| Some                                    |
| Christopher 2018   | Some| High| Some| High| Some                                    |
| Cohen-Katz 2004    | Some| High| High| High| Some                                    |
| Corsica 2014       | Some| High| High| High| Some                                    |
| Cousin 2016        | Some| High| High| High| Some                                    |
| DamiaoNeto 2019    | Some| High| High| High| Some                                    |
| Davidson 2003      | Some| High| High| High| Some                                    |
| Delgado 2010       | Some| High| High| High| Some                                    |
| Delgado-Pastor 2015| Some| High| High| High| Some                                    |
| Desbordes 2012     | Some| High| High| High| Some                                    |
| DeVibe 2013        | Low | High| High| High| Some                                    |
| Duncan 2017        | Low | Low | Low | Low for test, high for self-report     |
| Dvorakova 2017     | Some| High| Low | High| Some                                    |
| Dykens 2014        | Some| High| Some| High| High                                    |
| Dziok 2010         | Some| High| High| High| Some                                    |
| Esch 2017          | Low | High| Low | Low for test, high for self-report     |
| Ferraioli 2013     | Some| High| High| High| Some                                    |
| Fiocco 2018        | Some| High| High| High| Some                                    |
| Flook 2013         | Some| High| High| High| Some                                    |
| Frisvold 2009      | Some| Low | High| Low | Some                                    |
| Galante 2018       | Low | Some| Low | Low for test, high for self-report     | Low |
| Author                | D1 | D2 | D3 | D4 | D5 |
|-----------------------|----|----|----|----|----|
| Gallego 2014          | Some | High | High | High | Some |
| Gambrel 2015*         | Some for D1, Low for D2 | high | high | high | some |
| Giannandrea 2018      | Some | High | High | High | Some |
| Glass 2019            | Some | High | High | High | Some |
| Grandpierre 2013      | Some | High | High | High | Some |
| Greenberg 2010        | Some | High | High | Some | Some |
| Greeson 2014          | Some | High | Some | High | Some |
| Guardino 2014         | Some | Some | High | High | Some |
| Haarig 2016           | Some | High | Low | High | Some |
| Hou 2013              | Low  | High | High | High | Some |
| Huang 2015            | Low  | High | Low | High | Some |
| Hunt 2018             | Some | High | High | High | Some |
| Hwang 2019*           | Low for D1, Some for D2 | some | some | high | some |
| Ireland 2017          | Some | High | Some | High | Some |
| Isbel 2019            | Some | High | High | Some for test, high for self-report | Some |
| Jain 2007             | Some | High | High | High | Some |
| James 2018            | Low  | Some | High | High | Some |
| Josefsson 2014        | Some | High | High | Some for test, high for self-report | Some |
| Kang 2009             | Low  | High | High | High | Some |
| Kaviani 2008          | Some | High | Low | High | Some |
| Kingston 2007         | Low  | Some | High | High | Some |
| Kirk 2016             | Some | High | High | High | Some |
| Klatt 2009            | Some | High | High | High | Some |
| Klatt 2017            | Some | High | Some | High | Some |
| Kor 2019              | Low  | Some | Low | High | Low |
| Krick 2019            | Some | Some | Low | High | Some |
| Kuhlmann 2016         | Low  | High | High | High | Low |
| Lacerda 2018          | Some | High | High | High | Some |
| Lara-Cinisomo 2019    | Some | High | Low | High | Some |
| Lebares 2019          | Some | High | Low | Low for test, high for self-report | Some |
| Lee 2010              | Some | High | High | High | Some |
| Li 2018               | Some | High | High | High | Some |
| Lin 2019              | Some | High | High | High | Some |
| Liu 2013              | Some | High | High | High | Some |
| Liu 2015              | Some | High | High | High | Some |
| Lo 2017               | Some | High | Low | High | Some |
| Lonnberg 2020         | Low  | Some | Low | High | Some |
| Lopez-Maya 2019       | Low  | Some | Some | High | Some |
| Lynch 2018            | Some | High | High | High | Some |
| Ma 2019               | Some | Low  | Low for test, high for self-report | Some |
| MacGoon 2012          | Low  | Some | Some | Low for test, high for self-report | High |
| Malarkey 2013         | Some | Some | High | High | Some |
| Malinowski 2017       | Some | High | Some for test, high for self-report | Some |
| Manotas 2014          | Some | High | High | High | Some |
| Study        | Mindfulness | High | High | High | Some |
|--------------|-------------|------|------|------|------|
| Moody 2013   | Some        | High | High | High | Some |
| Moritz 2006  | Low         | High | High | High | Some |
| Moynihan 2013*| High for D1, Low for D2 | high | some | high | some |
| Mrazek 2013  | Some        | High | High | High | Some |
| Neece 2014*  | Low for D1, Low for D2 | high | some | high | some |
| Norouzi 2020 | Some        | Some | Low  | High | Some |
| Nyklicek 2008| Some        | High | High | High | Some |
| O'Donnell 2017| Some        | High | Some | High | Some |
| Oken 2010    | Some        | High | High | Low for test, high for self-report | Some |
| Pan 2018     | Low         | High | Low  | High | Some |
| Park 2016    | Some        | High | High | High | Some |
| Perez-Blasco 2013 | Some     | High | Some | High | Some |
| Perez-Blasco 2016 | Some    | Low  | High | High | Some |
| Phang 2015   | Low         | High | Low  | High | Some |
| Pipe 2009    | Some        | Some | Low  | High | Some |
| Plummer 2018 | Some        | High | High | High | Some |
| Pots 2014    | Low         | High | Low  | High | Some |
| Prakash 2015 | Some        | Some | Low  | Low for test, high for self-report | Some |
| Richards 2012| Some        | High | High | High | Some |
| Richards 2013| Some        | High | Some | High | Some |
| Robins 2012  | Some        | High | High | High | Some |
| Roesser 2013 | Some        | High | High | Some for test, high for self-report | Some |
| Sampl 2017   | Some        | High | High | Low for test, high for self-report | Some |
| Schellekens 2017 | Low     | High | Low  | High | Low |
| Schroeder 2018 | Some      | High | High | Low for test, high for self-report | Some |
| Sevinc 2018* | Low for D1, Low for D2 | some | low  | high | Some |
| Shapiro 1998 | Some        | High | High | High | Some |
| Shapiro 2005 | Some        | High | High | High | Some |
| Shapiro 2019 | Some        | High | High | High | Some |
| Shearer 2016 | Some        | High | High | High | Some |
| Smart 2017   | Some        | High | High | High | Some |
| Ţeşan 2018   | Some        | High | High | High | Some |
| Steinberg 2016 | Some      | High | Low  | High | Some |
| Strub 2013   | Some        | High | Low  | High | Some |
| Thomas 2016  | Some        | High | Some | High | Some |
| VanBerkel 2014| Some        | High | Some | Low for test, high for self-report | Some |
| VanDam 2014  | Some        | High | High | High | Some |
| vanDijk 2017*| Low for D1, Low for D2 | some | low  | high | Some |
| Verweij 2018 | Some        | High | Low  | High | Some |
| Vieten 2008  | Some        | High | Low  | High | Some |
| Vinesett 2017| Some        | Some | High | High | Some |
| Wang 2012    | Some        | High | Low  | High | Some |
| Whitebird 2013| Some       | High | Low  | High | Some |
| Williams 2001| Some        | High | High | High | Some |
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| Study            | Risk | High | High | High | Some |
|------------------|------|------|------|------|------|
| Wilson 2012      | Some | High | High | High | Some |
| Wong 2018        | Low  | Some | Some | High | Some |
| Woolhouse 2014   | Low  | High | Some | High | Some |
| Xu 2015          | Some | High | High | High | Some |
| Yazdanimehr 2016 | Some | High | High | High | Some |
| Zhang 2018       | Some | High | High | High | Some |

The RoB2 tool measures potential bias across five sources (called ‘domains’ in the tool): (D1) randomisation, (D2) deviations from intended interventions, (D3) missing outcome data, (D4) measurement of the outcome, and (D5) selection of the reported result. * Cluster RCTs, which were assessed with their specific sub-set of questions [58]. Abbreviations: high: high risk; low: low risk, some: some concerns.
Table 26. Potentially eligible trial registry records with no available results

| Title                                                                 | Identification details | Recruitment target | Control group type | Likelihood of having measured primary outcomes |
|----------------------------------------------------------------------|------------------------|--------------------|--------------------|-----------------------------------------------|
| MBSR Improves Memory and Attention Due to a Stress Reduction as Opposed to Specific Memory Training | NCT02672761            | 140                | Passive & active   | Unlikely                                      |
| Effects of Mindfulness Training on Emotion Regulation and Social Cognition, a Psychophysiological and Neuroimaging Randomized Controlled Study. | NCT03035669            | 60                 | Active             | Unlikely                                      |
| The Mindfulness Intervention and Repeated Acute Stress (MIRAS) Study | NCT02894229            | 150                | Passive & active   | Unlikely                                      |
| Promoting Mental Well-being of Pregnant Women with Mindfulness-Based Childbirth and Parenting (MBCP) in Hong Kong | ChiCTR-TRC-13004070    | 178                | Active             | Time point not specified                      |
| Mindfulness-based Training in the Workplace - evaluating the cost effectiveness and impact on emotional wellbeing | ISRCTN03386834         | 60                 | Passive            | Likely                                        |
| The Effects of Well-being Interventions on Affect, Attention, Sleep, Social Stress and Pain Regulation | NCT01057368            | 161                | Passive & active   | Time point and outcomes not specified         |
Table 27. Grading of Recommendations Assessment, Development and Evaluation (GRADE) assessment details by confidence domain: risk of bias, non-reporting bias, imprecision, inconsistency, and indirectness.

| Control group | Review outcome | Time point | RoB  | Non-rep bias | Imprecision | Inconsistency | Indirectness | GRADE confidence |
|---------------|----------------|------------|------|--------------|-------------|---------------|---------------|------------------|
| PC            | Anxiety        | 1-6m       | Serious | Not serious | Not serious | Not serious | Not serious | Moderate         |
| PC            | Depression     | 1-6m       | Serious | Not serious | Serious     | Not serious | Not serious | Low              |
| PC            | Distress       | 1-6m       | Serious | Not serious | Not serious | Serious     | Not serious | Low              |
| PC            | Wellbeing      | 1-6m       | Serious | Serious     | Not serious | Not serious | Not serious | Very low         |
| NC            | Anxiety        | 1-6m       | Serious | Serious     | Not serious | Serious     | Not serious | Very low         |
| NC            | Depression     | 1-6m       | Serious | Not serious | Not serious | Serious     | Not serious | Low              |
| NC            | Distress       | 1-6m       | Serious | Serious     | Serious     | Serious     | Not serious | Very low         |
| NC            | Wellbeing      | 1-6m       | Serious | Not serious | Not serious | Serious     | Serious     | Very Low         |
| AC            | Anxiety        | 1-6m       | Serious | Not serious | Serious     | Serious     | Not serious | Very low         |
| AC            | Depression     | 1-6m       | Serious | Not serious | Not serious | Serious     | Not serious | Low              |
| AC            | Distress       | 1-6m       | Serious | Serious     | Serious     | Serious     | Not serious | Very low         |
| AC            | Wellbeing      | 1-6m       | Serious | Serious     | Serious     | Serious     | Not serious | Very low         |

Abbreviations: RoB=Risk of bias, 1-6m= 1 to 6 months post-intervention, non-rep: non-reporting, PC=passive controls, NC=active non-specific controls, AC=active specific controls.
Table 28. Sensitivity analysis of methodological quality removing high-risk-of-bias trials. Comparison of MBPs with passive control groups: multivariate meta-analysis of anxiety, depression, distress, and wellbeing at post-intervention, (post-int), 1-6 months follow-up, (1-6m) and 6+ months follow-up (+6m).

|                                | Coef. | Std. Err. | z     | P>|z|  | [95% Conf. Interval] |
|--------------------------------|-------|-----------|-------|------|----------------------|
| Overall mean                   |       |           |       |      |                      |
| Post-int anxiety               | -.589 | .114      | -5.15 | 0.000| -.813                |
| 1-6m anxiety                   | -.218 | .179      | -1.22 | 0.224| -.569                |
| Post-int depression            | -.267 | .086      | -3.10 | 0.002| -.436                |
| 1-6m depression                | -.244 | .126      | -1.93 | 0.054| -.492                |
| +6m depression                 | -.144 | .272      | -0.53 | 0.596| -.677                |
| Post-int distress              | -.381 | .069      | -5.49 | 0.000| -.518                |
| 1-6m distress                  | -.295 | .092      | -3.19 | 0.001| -.476                |
| +6m distress                   | -.178 | .162      | -1.10 | 0.271| -.496                |
| Post-int wellbeing             | .354  | .102      | 3.48  | 0.001| .154                 |
| 1-6m wellbeing                 | .269  | .143      | 2.07  | 0.038| .015                 |
| +6m wellbeing                  | .261  | .163      | 1.60  | 0.109| -.057                |
Table 29. Sensitivity analysis of methodological quality removing high-risk-of-bias trials. Comparison of MBPs with active non-specific control groups: multivariate meta-analysis of anxiety, depression, distress, and wellbeing at post-intervention, (post-int), 1-6 months follow-up, (1-6m) and 6+ months follow-up (+6m).

Multivariate meta-analysis
Variance-covariance matrix = proportional .3*I(8)+.7*J(8,8,1)
Method = reml Number of dimensions = 8
Restricted log likelihood = -22.551656 Number of observations = 10

|                          | Coef.  | Std. Err. | z     | P>|z|   | [95% Conf. Interval] |
|--------------------------|--------|-----------|-------|-------|----------------------|
| Overall mean             |        |           |       |       |                      |
| Post-int anxiety         | -.675  | .266      | -2.54 | .011  | -1.197 to -.153       |
| 1-6m anxiety             | -.553  | .262      | -2.11 | .035  | -1.068 to -.038       |
| Post-int depression      | -.435  | .216      | -2.01 | .044  | -.860 to -.010        |
| 1-6m depression          | -.463  | .224      | -2.07 | .039  | -.904 to -.023        |
| Post-int distress        | -.398  | .199      | -2.00 | .046  | -.790 to -.007        |
| 1-6m distress            | -.096  | .233      | -0.41 | .680  | -.555 to .361         |
| Post-int wellbeing       | 3.278  | .705      | 4.65  | .000  | 1.897 to 4.660        |
| 1-6m wellbeing           | 1.546  | .573      | 2.70  | .007  | .422 to 2.669         |
Table 30. Sensitivity analysis of methodological quality removing high-risk-of-bias trials. Comparison of MBPs with active specific control groups: multivariate meta-analysis of anxiety, depression, distress, and wellbeing at post-intervention, (post-int), 1-6 months follow-up, (1-6m) and 6+ months follow-up (+6m).

**Multivariate meta-analysis**

|                          | Coef. | Std. Err. | z     | P>|z|  | [95% Conf. Interval] |
|--------------------------|-------|-----------|-------|------|----------------------|
| Overall mean             |       |           |       |      |                      |
| Post-int anxiety         | -.066 | .154      | -0.43 | 0.666| -.370                |
| 1-6m anxiety             | .377  | .206      | 1.83  | 0.068| -.027                |
| Post-int depression      | -.303 | .076      | -3.95 | 0.000| -.453                |
| 1-6m depression          | -.212 | .087      | -2.44 | 0.015| -.382                |
| +6m depression           | -.032 | .146      | -0.22 | 0.826| -.319                |
| Post-int distress        | -.168 | .068      | -2.47 | 0.014| -.302                |
| 1-6m distress            | -.048 | .085      | -0.56 | 0.573| -.216                |
| +6m distress             | .045  | .144      | 0.32  | 0.751| -.237                |
| Post-int wellbeing       | .086  | .105      | 0.82  | 0.411| -.120                |
| 1-6m wellbeing           | .032  | .128      | 0.25  | 0.799| -.219                |
| +6m wellbeing            | -.011 | .185      | -0.06 | 0.949| -.376                |
Table 31. Sensitivity analysis of methodological quality removing trials at high risk of bias due to deviations from intended interventions. Comparison of MBPs with passive control groups: multivariate meta-analysis of anxiety, depression, distress, and wellbeing at post-intervention, (post-int), 1-6 months follow-up, (1-6m) and 6+ months follow-up (+6m).

Multivariate meta-analysis
Variance-covariance matrix = proportional .9*I(11)+.1*J(11,11,1)
Method = reml Number of dimensions = 11
Restricted log likelihood = -3.302925 Number of observations = 8

|                           | Coef. | Std. Err. | z     | P>|z| | [95% Conf. Interval] |
|---------------------------|-------|-----------|-------|------|----------------------|
| Overall mean              |       |           |       |      |                      |
| Post-int anxiety          | -.403 | .184      | -2.19 | 0.029| -.765 -.042          |
| 1-6m anxiety              | .089  | .134      | 0.67  | 0.506| -.174 .352           |
| Post-int depression       | -.262 | .110      | -2.37 | 0.018| -.479 -.045          |
| 1-6m depression           | -.310 | .112      | -2.77 | 0.006| -.529 -.090          |
| +6m depression            | -.222 | .161      | -1.37 | 0.170| -.539 .095           |
| Post-int distress         | -.407 | .068      | -5.96 | 0.000| -.541 -.273          |
| 1-6m distress             | -.394 | .081      | -4.81 | 0.000| -.554 -.233          |
| +6m distress              | -.213 | .102      | -2.09 | 0.036| -.414 -.013          |
| Post-int wellbeing        | .227  | .101      | 2.25  | 0.025| .029 .426            |
| 1-6m wellbeing            | .317  | .100      | 3.15  | 0.002| .119 .515            |
| +6m wellbeing             | .258  | .104      | 2.48  | 0.013| .054 .462            |
Table 32. Sensitivity analysis of within-study correlation assumptions using Riley’s method. Comparison of MBPs with passive control groups: multivariate meta-analysis of anxiety, depression, distress, and wellbeing at post-intervention, (post-int), 1-6 months follow-up, (1-6m) and 6+ months follow-up (+6m).

|                         | Coef. | Std. Err. | z     | P>|z| | [95% Conf. Interval] |
|-------------------------|-------|-----------|-------|-----|----------------------|
| Overall mean            |       |           |       |     |                      |
| Post-int anxiety        | -.708 | .101      | -6.96 | 0.000 | -.907                |
| 1-6m anxiety            | -.685 | .150      | -4.55 | 0.000 | -.810                |
| Post-int depression     | -.465 | .074      | -6.18 | 0.000 | -.610                |
| 1-6m depression         | -.580 | .117      | -4.96 | 0.000 | -.810                |
| +6m depression          | -.089 | .371      | -0.24 | 0.81  | -.816                |
| Post-int distress       | -.447 | .055      | -8.10 | 0.000 | -.555                |
| 1-6m distress           | -.454 | .081      | -5.56 | 0.000 | -.614                |
| +6m distress            | -.125 | .195      | -0.64 | 0.522 | -.509                |
| Post-int wellbeing      | .366  | .083      | 4.39  | 0.000 | .203                 |
| 1-6m wellbeing          | .268  | .133      | 2.00  | 0.045 | .005                 |
| +6m wellbeing           | .200  | .217      | 0.92  | 0.355 | -.225                |
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Table 33. Sensitivity analysis of within-study correlation assumptions using Riley’s method. Comparison of MBPs with active non-specific control groups: multivariate meta-analysis of anxiety, depression, distress, and wellbeing at post-intervention, (post-int), 1-6 months follow-up, (1-6m) and 6+ months follow-up (+6m).

Multivariate meta-analysis
Variance-covariance matrix = proportional \( .3I(8)+.7J(8,8,1) \)
Method = reml Number of dimensions = 8
Restricted log likelihood = -24.812373 Number of observations = 11

|                       | Coef. | Std. Err. | z     | P>|z| | [95% Conf. Interval] |
|-----------------------|-------|-----------|-------|-----|---------------------|
| Overall mean          |       |           |       |     |                     |
| Post-int anxiety      | -.587 | .222      | -2.64 | .008| -1.023 -.151        |
| 1-6m anxiety          | -.422 | .217      | -1.94 | .053| -.849 -.004         |
| Post-int depression   | -.445 | .191      | -2.33 | .020| -.820 -.071         |
| 1-6m depression       | -.436 | .192      | -2.27 | .023| -.813 -.059         |
| Post-int distress     | -.390 | .177      | -2.20 | .028| -.739 -.042         |
| 1-6m distress         | -.111 | .200      | -0.56 | .578| -.504 .281          |
| Post-int wellbeing    | 4.824 | .429      | 11.24 | .000| 3.983 5.666         |
| 1-6m wellbeing        | 2.212 | .370      | 5.98  | .000| 1.487 2.938         |
Table 34. Sensitivity analysis of within-study correlation assumptions using Riley’s method. Comparison of MBPs with active specific control groups: multivariate meta-analysis of anxiety, depression, distress, and wellbeing at post-intervention, (post-int), 1-6 months follow-up, (1-6m) and 6+ months follow-up (+6m).

Multivariate meta-analysis
Variance-covariance matrix = proportional \( 0.9I(11)+0.1J(11,11,1) \)
Method = reml
Number of dimensions = 11
Restricted log likelihood = -18.786589
Number of observations = 31

|                      | Coef. | Std. Err. | z     | P>|z| | [95% Conf. Interval] |
|----------------------|-------|-----------|-------|-----|----------------------|
| Overall mean         |       |           |       |     |                      |
| Post-int anxiety     | -.133 | .090      | -1.48 | 0.139 | -.310 - .043        |
| 1-6m anxiety         | -.020 | .181      | -0.11 | 0.909 | -.377 - .335        |
| Post-int depression  | -.289 | .060      | -4.75 | 0.000 | -.408 - -.169       |
| 1-6m depression      | -.210 | .078      | -2.70 | 0.007 | -.364 - -.057       |
| +6m depression       | -.042 | .145      | -0.29 | 0.771 | -.327 - .242        |
| Post-int distress    | -.092 | .051      | -1.79 | 0.073 | -.193 - .008        |
| 1-6m distress        | -.056 | .072      | -0.78 | 0.434 | -.198 - .085        |
| +6m distress         | -.093 | .126      | -0.74 | 0.462 | -.340 - .154        |
| Post-int wellbeing   | .110  | .070      | 1.57  | 0.116 | -.027 - .249        |
| 1-6m wellbeing       | -.021 | .113      | -0.19 | 0.850 | -.243 - .200        |
| +6m wellbeing        | -.028 | .165      | -0.17 | 0.864 | -.351 - .295        |
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Table 35. Sensitivity analysis of within study correlation assumptions. Univariate meta-analyses of anxiety, depression, distress and wellbeing outcomes comparing MBPs with passive control groups.

### Anxiety

**Meta-analysis summary**

|                | Number of studies = 8 |
|----------------|-----------------------|
| Random-effects model | Heterogeneity: |
| Method: REML | tau2 = 0.5671 |
| SE adjustment: Truncated Knapp-Hartung | I2 (%) = 95.11 |
|                | H2 = 20.47 |

| Study          | Effect Size [95% Conf. Interval] | % Weight |
|----------------|---------------------------------|----------|
| Carmody 2011   | -0.487 [-0.789, -0.184]       | 13.35    |
| Christopher 2018 | 0.190 [-0.262, 0.642]       | 12.72    |
| Dziok 2010     | -1.008 [-1.682, -0.335]       | 11.51    |
| Kaviani 2008   | -2.427 [-3.286, -1.567]       | 10.39    |
| Kor 2019       | 0.020 [-0.092, 0.132]         | 13.83    |
| Samp1 2017     | -0.827 [-1.117, -0.537]       | 13.39    |
| VanDam 2014    | -1.153 [-1.700, -0.607]       | 12.23    |
| Yazdanimehr 2016 | -1.474 [-1.952, -0.997]       | 12.59    |

theta | -0.844 [-1.525, -0.162]  

95% prediction interval for theta: [-2.817, 1.129]  

Test of theta = 0: t(7) = -2.93, Prob > |t| = 0.0221  
Test of homogeneity: Q = chi2 (7) = 108.83, Prob > Q = 0.0000

### Depression

**Meta-analysis summary**

|                | Number of studies = 14 |
|----------------|-----------------------|
| Random-effects model | Heterogeneity: |
| Method: REML | tau2 = 0.6351 |
| SE adjustment: Truncated Knapp-Hartung | I2 (%) = 93.22 |
|                | H2 = 14.76 |

| Study          | Effect Size [95% Conf. Interval] | % Weight |
|----------------|---------------------------------|----------|
| Aeamla-Or 2015 | -0.334 [-0.639, -0.028]       | 7.69     |
| Barrett 2018   | -0.015 [-0.251, 0.221]        | 7.80     |
| Benn 2012      | -0.302 [-0.814, 0.210]        | 7.21     |
| Carmody 2011   | -0.296 [-0.672, 0.080]        | 7.54     |
| Christopher 2018 | 0.296 [-0.167, 0.760]       | 7.34     |
| Dziok 2010     | -0.949 [-1.890, -0.008]       | 5.86     |
| Haarig 2016    | -0.843 [-1.473, -0.012]       | 6.86     |
| Kaviani 2008   | -1.984 [-2.794, -1.174]       | 6.29     |
| Kor 2019       | -0.571 [-1.040, -0.012]       | 7.32     |
| Moynihan 2013  | 0.000 [-0.277, 0.277]         | 7.74     |
| Roser 2013     | -1.118 [-1.530, -0.707]       | 7.46     |
| VanDam 2014    | -1.258 [-1.679, -0.838]       | 7.44     |
| Vieten 2008    | 0.566 [-0.163, 1.295]         | 6.55     |
| Yazdanimehr 2016 | -2.604 [-3.226, -1.982]     | 6.89     |

theta | -0.649 [-1.143, -0.155]  

95% prediction interval for theta: [-2.455, 1.158]  

Test of theta = 0: t(13) = -2.84, Prob > |t| = 0.0140  
Test of homogeneity: Q = chi2 (13) = 128.63, Prob > Q = 0.0000
**Distress**

Meta-analysis summary

| Study               | Effect Size | [95% Conf. Interval] | % Weight |
|---------------------|-------------|----------------------|----------|
| Aemla-Or 2015       | -0.337      | -0.660 -0.015        | 4.55     |
| Arredondo 2017      | -1.474      | -2.254 -0.693        | 1.98     |
| Barrett 2012        | -0.106      | -0.476 0.265         | 4.19     |
| Barrett 2018        | -0.021      | -0.257 0.215         | 5.20     |
| Behbahani 2018      | -0.713      | -1.233 -0.192        | 3.19     |
| Benn 2012           | -0.672      | -1.241 -0.102        | 2.91     |
| Carmody 2011        | -0.512      | -0.848 -0.175        | 4.45     |
| Carson 2004         | -0.741      | -1.147 -0.336        | 3.94     |
| Christopher 2018    | -0.085      | -0.597 0.427         | 3.24     |
| Davidson 2003       | 0.000       | -0.627 0.627         | 2.61     |
| Galante 2018        | -0.419      | -0.581 -0.257        | 5.68     |
| Huang 2015          | -0.449      | -0.755 -0.143        | 4.67     |
| Hwang 2019          | -0.454      | -0.830 -0.078        | 4.15     |
| Kor 2019            | -0.838      | -1.438 -0.238        | 2.75     |
| Lin 2019            | -0.557      | -0.950 -0.165        | 4.04     |
| Moritz 2006         | -0.385      | -0.738 -0.033        | 4.33     |
| Moynihan 2013       | 0.000       | -0.277 0.277         | 4.89     |
| Phang 2015          | -0.247      | -0.674 0.180         | 3.79     |
| Plummer 2018        | -0.397      | -0.756 -0.038        | 4.28     |
| Sampl 2017          | -0.860      | -1.213 -0.507        | 4.32     |
| Schellekens 2017    | 0.197       | -0.451 0.844         | 2.52     |
| Schroeder 2018      | -0.922      | -1.648 -0.197        | 2.19     |
| VanDam 2014         | -0.613      | -1.291 0.065         | 2.38     |
| Vieten 2008         | 0.580       | -0.150 1.309         | 2.17     |
| Wilson 2012         | -1.022      | -1.468 -0.577        | 3.67     |
| Yazdanimehr 2016    | -1.040      | -1.502 -0.578        | 3.55     |
| vanDijk 2017        | -0.412      | -0.760 -0.064        | 4.36     |

| theta               | -0.446      | -0.597 -0.295        |

95% prediction interval for theta: [-1.028, 0.136]

Test of theta = 0: t(26) = -6.08 Prob > |t| = 0.0000
Test of homogeneity: Q = chi2(26) = 73.49 Prob > Q = 0.0000
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**Wellbeing**

Meta-analysis summary

Number of studies = 9

Random-effects model

Method: REML

SE adjustment: Truncated Knapp-Hartung

| Study          | Effect Size | [95% Conf. Interval] | % Weight |
|----------------|-------------|----------------------|----------|
| Barrett 2012   | 0.190       | -0.163               | 0.543    | 10.59 |
| Barrett 2018   | 0.019       | -0.217               | 0.254    | 15.20 |
| Benn 2012      | 0.319       | -0.228               | 0.865    | 5.99  |
| Davidson 2003  | 0.000       | -0.627               | 0.627    | 4.84  |
| Galante 2018   | 0.286       | 0.130                | 0.443    | 18.94 |
| Lin 2019       | 0.655       | 0.267                | 1.042    | 9.52  |
| Moynihan 2013  | 0.079       | -0.167               | 0.325    | 14.75 |
| Wilson 2012    | 0.592       | 0.171                | 1.014    | 8.57  |
| vanDijk 2017   | 0.512       | 0.189                | 0.835    | 11.60 |

theta | 0.280 0.098 0.463

95% prediction interval for theta: [-0.149, 0.710]

Test of theta = 0: t(8) = 3.55 Prob > |t| = 0.0076
Test of homogeneity: Q = chi2(8) = 15.79 Prob > Q = 0.0456
Table 36. Sensitivity analysis of within study correlation assumptions. Univariate meta-analyses of anxiety, depression, distress and wellbeing outcomes compared with active non-specific control groups.

**Anxiety**

Meta-analysis summary  Number of studies =  4  
Random-effects model  Heterogeneity:  
Method: REML  tau2 = 0.6123  
SE adjustment: Truncated Knapp-Hartung  I2 (%) = 93.16  
H2 = 14.61

| Study               | Effect Size | [95% Conf. Interval] | % Weight |
|---------------------|-------------|----------------------|----------|
| Armstrong 2016      | -0.336      | -0.889               | 0.217    | 23.99 |
| Hou 2013            | -0.257      | -0.575               | 0.060    | 25.99 |
| James 2018          | -0.156      | -0.509               | 0.197    | 25.74 |
| Norouzi 2020        | -1.900      | -2.424               | -1.377   | 24.28 |

theta | -0.649 | -1.956 | 0.658 |

95% prediction interval for theta: [-4.452, 3.154]

Test of theta = 0: t(3) = -1.58  Prob > |t| = 0.2122  
Test of homogeneity: Q = chi2(3) = 33.69  Prob > Q = 0.0000

**Depression**

Meta-analysis summary  Number of studies =  6  
Random-effects model  Heterogeneity:  
Method: REML  tau2 = 0.3364  
SE adjustment: Truncated Knapp-Hartung  I2 (%) = 90.31  
H2 = 10.32

| Study               | Effect Size | [95% Conf. Interval] | % Weight |
|---------------------|-------------|----------------------|----------|
| Armstrong 2016      | -0.011      | -0.538               | 0.516    | 15.72 |
| Duncan 2017         | -0.804      | -1.434               | -0.174   | 14.61 |
| Frisvold 2009       | -0.508      | -0.702               | -0.314   | 18.56 |
| Hou 2013            | -0.418      | -0.764               | -0.073   | 17.49 |
| James 2018          | -0.125      | -0.538               | 0.287    | 16.88 |
| Norouzi 2020        | -1.738      | -2.164               | -1.311   | 16.74 |

theta | -0.599 | -1.252 | 0.054 |

95% prediction interval for theta: [-2.357, 1.159]

Test of theta = 0: t(5) = -2.36  Prob > |t| = 0.0650  
Test of homogeneity: Q = chi2(5) = 39.23  Prob > Q = 0.0000

Table 36. Sensitivity analysis of within study correlation assumptions. Univariate meta-analyses of anxiety, depression, distress and wellbeing outcomes compared with active non-specific control groups.
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### Distress

Meta-analysis summary

|                   | Number of studies = 6 |
|-------------------|------------------------|
| Random-effects model | Heterogeneity: |
| Method: REML       | \(\tau^2 = 0.0000\) |
| SE adjustment: Truncated Knapp-Hartung | \(I^2 (%) = 0.00\) |

H2 = 1.00

| Study          | Effect Size | [95% Conf. Interval] | % Weight |
|----------------|-------------|----------------------|----------|
| Brown 2016     | -0.058      | -0.670               | 0.553    | 10.75    |
| Frisvold 2009  | 0.003       | -0.579               | 0.584    | 11.88    |
| Guardino 2014  | -0.306      | -0.958               | 0.346    | 9.44     |
| Hou 2013       | -0.241      | -0.567               | 0.084    | 37.92    |
| James 2018     | -0.322      | -0.795               | 0.152    | 17.94    |
| Norouzi 2020   | -0.724      | -1.301               | -0.148   | 12.07    |

\[\theta\] | -0.271 | -0.534 | -0.009

95% prediction interval for \(\theta\): \([-0.555, 0.012]\)

Test of \(\theta = 0\): \(t(5) = -2.66\) \(\text{Prob} > |t| = 0.0452\)

Test of homogeneity: \(Q = \text{chi}^2(5) = 3.78\) \(\text{Prob} > Q = 0.5820\)

**Wellbeing:** only one study available.
Table 37. Sensitivity analysis of within study correlation assumptions. Univariate meta-analyses of anxiety, depression, distress and wellbeing outcomes comparing MBPs with active specific control groups.

### Anxiety

**Meta-analysis summary**  
Number of studies = 2  
Random-effects model  
Method: REML  
SE adjustment: Truncated Knapp-Hartung  
Heterogeneity:  
\( \text{tau}^2 = 0.0000 \)  
\( I^2(\%) = 0.00 \)  
\( H^2 = 1.00 \)

| Study       | Effect Size | [95% Conf. Interval] | % Weight |
|-------------|-------------|----------------------|----------|
| Dykens 2014 | -0.185      | -0.598               | 0.227    | 60.92   |
| Ma 2019     | 0.127       | -0.388               | 0.642    | 39.08   |

**theta**  
-0.063  
-2.152  
2.026

95% prediction interval for theta: \([-0.712, 0.261]\)

- Test of theta = 0: \( t(1) = -0.39 \)  
  \( \text{Prob} > |t| = 0.7660 \)
- Test of homogeneity: \( Q = \chi^2(1) = 0.86 \)  
  \( \text{Prob} > Q = 0.3539 \)

### Depression

**Meta-analysis summary**  
Number of studies = 9  
Random-effects model  
Method: REML  
SE adjustment: Truncated Knapp-Hartung  
Heterogeneity:  
\( \text{tau}^2 = 0.0336 \)  
\( I^2(\%) = 61.62 \)  
\( H^2 = 2.61 \)

| Study       | Effect Size | [95% Conf. Interval] | % Weight |
|-------------|-------------|----------------------|----------|
| Barrett 2018| 0.002       | -0.012               | 0.016    | 25.18   |
| Beattie 2017| -0.025      | -0.853               | 0.803    | 4.00    |
| Dykens 2014 | -0.035      | -0.446               | 0.377    | 10.90   |
| Lonnberg 2020| -0.179       | -0.438               | 0.080    | 16.59   |
| Ma 2019     | -0.774      | -1.319               | -0.228   | 7.64    |
| ODonnell 2017| -0.901       | -1.751               | -0.051   | 3.83    |
| Pan 2018    | -0.396      | -0.684               | -0.108   | 15.35   |
| Vinesett 2017| 0.265        | -0.930               | 1.460    | 2.09    |
| Whitebird 2013| -0.296      | -0.607               | 0.016    | 14.41   |

**theta**  
-0.225  
-0.441  
-0.010

95% prediction interval for theta: \([-0.712, 0.261]\)

- Test of theta = 0: \( t(8) = -2.42 \)  
  \( \text{Prob} > |t| = 0.0421 \)
- Test of homogeneity: \( Q = \chi^2(8) = 24.88 \)  
  \( \text{Prob} > Q = 0.0016 \)
**Distress**

Meta-analysis summary  
Number of studies = 11  
Random-effects model  
Heterogeneity:  
Method: REML  
\( \tau^2 = 0.0092 \)  
SE adjustment: Truncated Knapp-Hartung  
\( I^2(\%) = 90.55 \)  
\( H^2 = 10.58 \)

| Study | Effect Size | [95% Conf. Interval] | % Weight |
|-------|-------------|----------------------|----------|
| Barrett 2012 | 0.111 | 0.074 - 0.149 | 23.76 |
| Barrett 2018 | -0.000 | -0.014 - 0.014 | 24.57 |
| Beattie 2017 | 0.147 | -0.787 - 1.081 | 0.96 |
| Corsica 2014 | 0.000 | -0.709 - 0.709 | 1.62 |
| Dykens 2014 | -0.013 | -0.425 - 0.399 | 4.26 |
| Lonnberg 2020 | -0.064 | -0.359 - 0.231 | 7.14 |
| Ma 2019 | -0.039 | -0.590 - 0.512 | 2.58 |
| Moritz 2006 | 0.117 | 0.083 - 0.150 | 23.97 |
| Vinesett 2017 | 0.073 | -1.114 - 1.261 | 0.61 |
| Whitebird 2013 | -0.445 | -0.875 - 0.014 | 3.96 |
| Wong 2018 | -0.269 | -0.582 - 0.044 | 6.56 |

\( \theta \) | 0.015 - 0.092 | 0.121 |

95% prediction interval for \( \theta \): [-0.228, 0.257]

Test of \( \theta = 0 \): \( t(10) = 0.31 \)  
Prob > |t| = 0.7637  
Test of homogeneity: \( Q = \text{chi}^2(10) = 70.10 \)  
Prob > Q = 0.0000

**Wellbeing**

Meta-analysis summary  
Number of studies = 4  
Random-effects model  
Heterogeneity:  
Method: REML  
\( \tau^2 = 0.0005 \)  
SE adjustment: Truncated Knapp-Hartung  
\( I^2(\%) = 47.36 \)  
\( H^2 = 1.90 \)

| Study | Effect Size | [95% Conf. Interval] | % Weight |
|-------|-------------|----------------------|----------|
| Barrett 2012 | 0.045 | 0.008 - 0.081 | 39.59 |
| Barrett 2018 | 0.005 | -0.009 - 0.020 | 59.52 |
| Dykens 2014 | -0.007 | -0.419 - 0.405 | 0.79 |
| Vinesett 2017 | -0.137 | -1.326 - 1.052 | 0.10 |

\( \theta \) | 0.021 - 0.039 | 0.081 |

95% prediction interval for \( \theta \): [-0.108, 0.149]

Test of \( \theta = 0 \): \( t(3) = 1.10 \)  
Prob > |t| = 0.3519  
Test of homogeneity: \( Q = \text{chi}^2(3) = 3.87 \)  
Prob > Q = 0.2756
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Table 38. Sensitivity analysis excluding data from samples N<30. Comparison of MBPs with passive control groups: multivariate meta-analysis of anxiety, depression, distress, and wellbeing at post-intervention, (post-int), 1-6 months follow-up, (1-6m) and 6+ months follow-up (+6m). The prediction intervals are shown in the second table.

Multivariate meta-analysis
Variance-covariance matrix = proportional .9*I(11)+.1*J(11,11,1)
Method = reml                                  Number of dimensions    =    11
Restricted log likelihood = -23.015115         Number of observations  =    30

| Outcome                  | Coef.    | Std. Err. | z     | P>|z|  | 95% Conf. Interval |
|--------------------------|----------|-----------|-------|------|------------------|
| Overall mean             |          |           |       |      |                  |
| Post-int anxiety         | -.484    | .085      | -5.86 | 0.000| -.652            | -.317 |
| 1-6m anxiety             | -.503    | .114      | -4.39 | 0.000| -.728            | -.278 |
| Post-int depression      | -.431    | .068      | -6.32 | 0.000| -.564            | -.297 |
| 1-6m depression          | -.436    | .094      | -4.60 | 0.000| -.622            | -.250 |
| +6m depression           | -.247    | .178      | -1.39 | 0.166| -.597            | .102  |
| Post-int distress        | -.442    | .043      | -10.21| 0.000| -.527            | -.357 |
| 1-6m distress            | -.399    | .055      | -7.20 | 0.000| -.508            | -.290 |
| +6m distress             | -.231    | .110      | -2.10 | 0.036| -.447            | -.015 |
| Post-int wellbeing       | .321     | .058      | 5.51  | 0.000| .207             | .436  |
| 1-6m wellbeing           | .353     | .081      | 4.35  | 0.000| .194             | .513  |
| +6 wellbeing             | .280     | .110      | 2.53  | 0.011| .063             | .498  |

Outcome                  | Estimate  | 95% Confidence Int. | 95% Prediction Int. |
|--------------------------|-----------|---------------------|---------------------|
| Post-int anxiety         | -.484     | -.652               | -.317               | -.846               | -.123               |
| 1-6m anxiety             | -.503     | -.728               | -.278               | -.897               | -.109               |
| Post-int depression      | -.431     | -.564               | -.297               | -.776               | -.085               |
| 1-6m depression          | -.436     | -.622               | -.250               | -.806               | -.065               |
| +6m depression           | -.247     | -.597               | .102                | -.730               | .235                |
| Post-int distress        | -.442     | -.527               | -.357               | -.770               | -.114               |
| 1-6m distress            | -.399     | -.508               | -.290               | -.735               | -.063               |
| +6m distress             | -.231     | -.447               | -.015               | -.619               | .156                |
| Post-int wellbeing       | .321      | .207                | .436                | -.016               | .659                |
| 1-6m wellbeing           | .353      | .194                | .513                | -.003               | .710                |
| +6 wellbeing             | .280      | .063                | .498                | -.108               | .670                |
Table 39. Sensitivity analysis setting estimate to +1 SE. Comparison of MBPs with passive control groups: multivariate meta-analysis of anxiety, depression, distress, and wellbeing at post-intervention (post-int), 1-6 months follow-up (1-6m) and 6+ months follow-up (+6m).

Multivariate meta-analysis
Variance-covariance matrix = proportional .9*I(11)+.1*J(11,11,1)
Method = reml

|                    | Coef. | Std. Err. | z     | P>|z|  | [95% Conf. Interval] |
|--------------------|-------|-----------|-------|------|----------------------|
| Overall mean       |       |           |       |      |                      |
| Post-int anxiety   | -.700 | .085      | -8.21 | 0.000 | -.867 to -.533       |
| 1-6m anxiety       | -.569 | .126      | -4.49 | 0.000 | -.817 to -.321       |
| Post-int depression| -.437 | .064      | -6.81 | 0.000 | -.563 to -.311       |
| 1-6m depression    | -.525 | .101      | -5.20 | 0.000 | -.723 to -.327       |
| +6m depression     | -.177 | .319      | -0.56 | 0.578 | -.803 to .448        |
| Post-int distress  | -.431 | .048      | -8.88 | 0.000 | -.526 to -.336       |
| 1-6m distress      | -.430 | .071      | -6.01 | 0.000 | -.571 to -.290       |
| +6m distress       | -.153 | .170      | -0.90 | 0.368 | -.488 to .181        |
| Post-int wellbeing | .356  | .073      | 4.87  | 0.000 | .212 to .499         |
| 1-6m wellbeing     | .349  | .116      | 3.00  | 0.000 | .121 to .578         |
| +6m wellbeing      | .252  | .189      | 1.33  | 0.183 | -.118 to .623        |
Table 40. Sensitivity analysis setting estimate to +1 SE. Comparison of MBPs with active non-specific control groups: multivariate meta-analysis of anxiety, depression, distress, and wellbeing at post-intervention (post-int), 1-6 months follow-up, (1-6m) and 6+ months follow-up (+6m).

Multivariate meta-analysis
Variance-covariance matrix = proportional .3*I(8)+.7*J(8,8,1)
Method = reml Number of dimensions = 8
Restricted log likelihood = -23.852515 Number of observations = 11

|                         | Coef. | Std. Err. | z     | P>|z|  | [95% Conf. Interval] |
|-------------------------|-------|-----------|-------|------|----------------------|
| Overall mean            |       |           |       |      |                      |
| Post-int anxiety        | -.542 | .208      | -2.61 | 0.009| -.950                |
| 1-6m anxiety            | -.462 | .205      | -2.25 | 0.024| -.865                |
| Post-int depression     | -.409 | .179      | -2.28 | 0.022| -.761                |
| 1-6m depression         | -.443 | .183      | -2.41 | 0.016| -.803                |
| Post-int distress       | -.362 | .167      | -2.17 | 0.030| -.690                |
| 1-6m distress           | -.124 | .191      | -0.65 | 0.514| -.500                |
| Post-int wellbeing      | 3.04  | .666      | 4.57  | 0.000| 1.737                |
| 1-6m wellbeing          | 1.43  | .541      | 2.64  | 0.008| .370                 |
Table 41. Sensitivity analysis setting estimate to +1 SE. Comparison of MBPs with active specific control groups: multivariate meta-analysis of anxiety, depression, distress, and wellbeing at post-intervention, (post-int), 1-6 months follow-up, (1-6m) and 6+ months follow-up (+6m).

|                        | Coef. | Std. Err. | z     | P>|z|  | [95% Conf. Interval] |
|------------------------|-------|-----------|-------|-----|----------------------|
| Overall mean           |       |           |       |     |                      |
| Post-int anxiety       | -.099 | .078      | -1.27 | 0.204 | -.252 .054           |
| 1-6m anxiety           | .078  | .138      | 0.57  | 0.568 | -.191 .349           |
| Post-int depression    | -.235 | .058      | -4.02 | 0.000 | -.350 -.120          |
| 1-6m depression        | -.161 | .077      | -2.08 | 0.037 | -.313 -.009          |
| +6m depression         | .043  | .141      | 0.31  | 0.759 | -.233 .320           |
| Post-int distress      | -.066 | .050      | -1.32 | 0.187 | -.165 .032           |
| 1-6m distress          | .003  | .071      | 0.04  | 0.965 | -.137 .143           |
| +6m distress           | -.052 | .125      | -0.42 | 0.677 | -.297 .192           |
| Post-int wellbeing     | .168  | .068      | 2.46  | 0.014 | .033 .302            |
| 1-6m wellbeing         | .028  | .106      | 0.27  | 0.788 | -.179 .236           |
| +6m wellbeing          | .001  | .180      | 0.01  | 0.991 | -.351 .355           |
Table 42. Sensitivity analysis setting estimate to -1 SE. Comparison of MBPs with passive control groups: multivariate meta-analysis of anxiety, depression, distress, and wellbeing at post-intervention, (post-int), 1-6 months follow-up, (1-6m) and 6+ months follow-up (+6m). The prediction intervals are shown in the second table.

Multivariate meta-analysis
Variance-covariance matrix = proportional \(0.9 I(11) + 0.1 J(11,1,1)\)
Method = reml
Number of dimensions = 11
Number of observations = 78

| Outcome                  | Estimate | 95% Confidence Int. | 95% Prediction Int. |
|--------------------------|----------|---------------------|---------------------|
| Post-int anxiety         | -.691    | -.849               | -.534               | -1.278               | -.104               |
| 1-6m anxiety             | -.567    | -.799               | -.334               | -1.179               | .045                |
| Post-int depression      | -.464    | -.584               | -.345               | -1.042               | .112                |
| 1-6m depression          | -.545    | -.732               | -.358               | -1.141               | .050                |
| +6m depression           | -.199    | -.779               | .380                | -1.015               | .616                |
| Post-int distress        | -.461    | -.551               | -.371               | -1.033               | .110                |
| 1-6m distress            | -.465    | -.597               | -.332               | -1.045               | .115                |
| +6m distress             | -.169    | -.482               | .142                | -.818                | .478                |
| Post-int wellbeing       | .332     | .197                | .466                | -.249                | .913                |
| 1-6m wellbeing           | .298     | .085                | .512                | -.306                | .903                |
| +6m wellbeing            | .243     | -.101               | .588                | -.421                | .908                |
Table 43. Sensitivity analysis setting estimate to -1 SE. Comparison of MBPs with active non-specific control groups: multivariate meta-analysis of anxiety, depression, distress, and wellbeing at post-intervention, (post-int), 1-6 months follow-up, (1-6m) and 6+ months follow-up (+6m). The prediction intervals are shown in the second table.

Multivariate meta-analysis
Variance-covariance matrix = proportional \(0.3I(8) + 0.7J(8,8,1)\)
Method = reml Number of dimensions = 8
Restricted log likelihood = -23.23405 Number of observations = 11

| Outcome               | Coef. | Std. Err. | z     | P>|z|   | [95% Conf. Interval] |
|-----------------------|-------|-----------|-------|-------|---------------------|
|Overall mean           |       |           |       |       |                     |
|Post-int anxiety       | -.564 | .202      | -2.79 | 0.005 | -.960    -.167     |
|1-6m anxiety           | -.486 | .199      | -2.44 | 0.015 | -.876    -.095     |
|Post-int depression    | -.443 | .174      | -2.55 | 0.011 | -.785    -.102     |
|1-6m depression        | -.466 | .178      | -2.62 | 0.009 | -.815    -.117     |
|Post-int distress      | -.394 | .162      | -2.43 | 0.015 | -.712    -.076     |
|1-6m distress          | -.150 | .186      | -0.81 | 0.419 | -.515    .214      |
|Post-int wellbeing     | 2.978 | .660      | 4.51  | 0.000 | 1.682    4.273     |
|1-6m wellbeing         | 1.382 | .534      | 2.58  | 0.010 | .334     2.429     |

Outcome               | Estimate | 95% Confidence Int. | 95% Prediction Int. |
Post-int anxiety       | -.564    | -.960    | -.167  | -1.679   | .551     |
1-6m anxiety           | -.486    | -.876    | -.095  | -1.598   | .626     |
Post-int depression    | -.443    | -.785    | -.102  | -1.534   | .646     |
1-6m depression        | -.466    | -.815    | -.117  | -1.560   | .627     |
Post-int distress      | -.394    | -.712    | -.076  | -1.475   | .686     |
1-6m distress          | -.150    | -.515    | .214   | -1.251   | .950     |
Post-int wellbeing     | 2.978    | 1.682    | 4.273  | 1.169    | 4.786    |
1-6m wellbeing         | 1.382    | .334     | 2.429  | -.198    | 2.962    |
Table 44. Sensitivity analysis setting estimate to -1 SE. Comparison of MBPs with active specific control groups: multivariate meta-analysis of anxiety, depression, distress, and wellbeing at post-intervention, (post-int), 1-6 months follow-up, (1-6m) and 6+ months follow-up (+6m).

|                          | Coef. | Std. Err. | z     | P>|z|  | [95% Conf. Interval] |
|--------------------------|-------|-----------|-------|-----|----------------------|
| Overall mean             |       |           |       |     |                      |
| Post-int anxiety         | -.135 | .084      | -1.61 | 0.107 | -.300 -.029          |
| 1-6m anxiety             | .064  | .148      | 0.44  | 0.663 | -.227 .356           |
| Post-int depression      | -.250 | .062      | -4.02 | 0.000 | -.372 -.128          |
| 1-6m depression          | -.172 | .082      | -2.10 | 0.036 | -.334 -.011          |
| +6m depression           | -.137 | .149      | -0.92 | 0.360 | -.431 .156           |
| Post-int distress        | -.084 | .053      | -1.58 | 0.115 | -.189 .020           |
| 1-6m distress            | -.023 | .076      | -0.31 | 0.759 | -.172 .125           |
| +6m distress             | -.001 | .132      | -0.01 | 0.991 | -.260 .257           |
| Post-int wellbeing       | .168  | .073      | 2.30  | 0.021 | -.025 .312           |
| 1-6m wellbeing           | .028  | .113      | 0.25  | 0.805 | -.194 .250           |
| +6m wellbeing            | -.007 | .194      | -0.04 | 0.970 | -.387 .372           |
Table 45 Sensitivity analysis excluding studies with unclear teacher competence. Comparison of MBPs with passive control groups: multivariate meta-analysis of anxiety, depression, distress, and wellbeing at post-intervention, (post-int), 1-6 months follow-up, (1-6m) and 6+ months follow-up (+6m). The prediction intervals are shown in the second table.

Multivariate meta-analysis
Variance-covariance matrix = proportional .9*I(11)+.1*J(11,11,1)
Method = reml
Number of dimensions = 11
Restricted log likelihood = -85.029503
Number of observations = 55

| Outcome                  | Estimate | 95% Confidence Int. | 95% Prediction Int. |
|--------------------------|----------|---------------------|---------------------|
| Post-int anxiety         | -.646    | -.863               | -.430               | -1.266               | -.027               |
| 1-6m anxiety             | -.814    | -1.172              | -.456               | -1.498               | -.129               |
| Post-int depression      | -.472    | -.622               | -.321               | -1.070               | .126                |
| 1-6m depression          | -.485    | -.722               | -.249               | -1.112               | .141                |
| +6m depression           | -.177    | -.766               | .411                | -1.013               | .657                |
| Post-int distress        | -.415    | -.523               | -.307               | -1.004               | .173                |
| 1-6m distress            | -.383    | -.541               | -.224               | -.983                | .217                |
| +6m distress             | -.151    | -.468               | .166                | -.814                | .512                |
| Post-int wellbeing       | .371     | .224                | .517                | -.226                | .968                |
| 1-6m wellbeing           | .322     | .105                | .539                | -.296                | .942                |
| +6m wellbeing            | .254     | -.095               | .604                | -.425                | .934                |
Table 46. Sensitivity analysis excluding studies with unclear teacher competence. Comparison of MBPs with active non-specific control groups: multivariate meta-analysis of anxiety, depression, distress, and wellbeing at post-intervention, (post-int), 1-6 months follow-up, (1-6m) and 6+ months follow-up (+6m).

Multivariate meta-analysis
Variance-covariance matrix = proportional .3*I(8)+.7*J(8,8,1)
Method = reml
Number of dimensions = 8
Restricted log likelihood = -23.080973
Number of observations = 10

| Outcome                | Estimate | 95% Confidence Int. | 95% Prediction Int. |
|------------------------|----------|----------------------|---------------------|
| Post-int anxiety       | -.542    | -.957 -.126          | -1.725 .641         |
| 1-6m anxiety           | -.462    | -.869 -.054          | -1.641 .717         |
| Post-int depression    | -.414    | -.773 -.054          | -1.571 .743         |
| 1-6m depression        | -.443    | -.808 -.077          | -1.603 .717         |
| Post-int distress      | -.357    | -.703 -.012          | -1.509 .793         |
| 1-6m distress          | -.123    | -.505 .257           | -1.291 1.043        |
| Post-int wellbeing     | 3.046    | 1.731 4.362          | 1.161 4.932         |
| 1-6m wellbeing         | 1.432    | .367 2.497           | -.220 3.085         |
### Table 47. Sensitivity analysis excluding studies with unclear teacher competence. Comparison of MBPs with active specific control groups: multivariate meta-analysis of anxiety, depression, distress, and wellbeing at post-intervention, (post-int), 1-6 months follow-up, (1-6m) and 6+ months follow-up (+6m).

Multivariate meta-analysis
Variance-covariance matrix = proportional .9*I(11)+.1*J(11,11,1)
Method = reml
Number of dimensions = 11
Restricted log likelihood = -11.083879
Number of observations = 22

|                      | Coef. | Std. Err. | z     | P>|z|   | [95% Conf. Interval] |
|----------------------|-------|-----------|-------|-------|----------------------|
| Overall mean         |       |           |       |       |                      |
| Post-int anxiety     | -.058 | .101      | -0.58 | 0.562 | -.257                |
|                      |       |           |       |       |                      |
| 1-6m anxiety         | .388  | .195      | 1.99  | 0.047 | .005                 |
|                      |       |           |       |       |                      |
| Post-int depression  | -.267 | .066      | -4.01 | 0.000 | -.398                |
|                      |       |           |       |       |                      |
| 1-6m depression      | -.207 | .084      | -2.45 | 0.014 | -.373                |
|                      |       |           |       |       |                      |
| +6m depression       | -.055 | .138      | -0.40 | 0.687 | -.326                |
|                      |       |           |       |       |                      |
| Post-int distress    | -.129 | .057      | -2.24 | 0.025 | -.241                |
|                      |       |           |       |       |                      |
| 1-6m distress        | -.038 | .081      | -0.47 | 0.638 | -.197                |
|                      |       |           |       |       |                      |
| +6m distress         | -.034 | .122      | -0.28 | 0.776 | -.275                |
|                      |       |           |       |       |                      |
| Post-int wellbeing   | .159  | .081      | 1.94  | 0.052 | -.001                |
|                      |       |           |       |       |                      |
| 1-6m wellbeing       | .004  | .138      | 0.03  | 0.975 | -.267                |
|                      |       |           |       |       |                      |
| +6m wellbeing        | -.009 | .175      | -0.05 | 0.959 | -.353                |
Table 48. Multivariate Meta-regression. Comparison of MBPs with passive control groups, outcomes at 1-6 months follow-up. USA studies = studies from the USA; selective MBP = selective intervention; indicated MBP = indicated intervention; Psychoeducation = adding psychoeducation component and/or non-meditative psychological exercises; Physical exercise = adding physical exercise component; Arts = adding arts component.

|                      | Coef.  | Std. Err. | z    | P>|z| | [95% Conf. Interval] |
|----------------------|--------|-----------|------|------|---------------------|
| 1-6m anxiety         |        |           |      |      |                     |
| Selective MBP        | -1.601 | 0.360     | -4.48| 0.000| -2.291              |
| Indicated MBP        | -1.123 | 0.418     | -2.71| 0.007| -2.935              |
| USA studies          | 1.099  | 0.500     | 2.20 | 0.029| 0.102               |
| Contact hours        | 0.020  | 0.031     | 0.65 | 0.514| -0.041              |
| Physical exercise    | -0.716 | 0.476     | -1.50| 0.133| -1.621              |
| _cons                | -0.910 | 0.525     | -1.73| 0.083| -1.940              |
| 1-6m depression       |        |           |      |      |                     |
| Selective MBP        | -1.070 | 0.338     | -3.16| 0.002| -1.734              |
| Indicated MBP        | -0.841 | 0.343     | -2.45| 0.014| -1.515              |
| USA studies          | 1.084  | 0.282     | 3.84 | 0.000| 0.530               |
| Contact hours        | 0.045  | 0.018     | 2.48 | 0.013| 0.009               |
| Psychoeducation      | -0.550 | 0.383     | -1.44| 0.151| -1.302              |
| Physical exercise    | -0.961 | 0.403     | -2.38| 0.017| -1.752              |
| _cons                | -1.027 | 0.415     | -2.48| 0.013| -1.841              |
| 1-6m distress         |        |           |      |      |                     |
| Selective MBP        | -0.063 | 0.167     | -0.38| 0.703| -0.392              |
| Indicated MBP        | 0.099  | 0.299     | 0.33 | 0.740| -0.487              |
| USA studies          | 0.244  | 0.230     | 1.06 | 0.291| -0.208              |
| Contact hours        | 0.001  | 0.016     | 0.09 | 0.928| -0.031              |
| Psychoeducation      | -0.368 | 0.248     | -1.49| 0.137| -0.855              |
| Physical exercise    | 0.115  | 0.224     | 0.51 | 0.607| -0.323              |
| Arts                 | -0.744 | 0.525     | -1.42| 0.157| -1.774              |
| _cons                | -0.534 | 0.313     | -1.71| 0.088| -1.148              |
| 1-6m wellbeing        |        |           |      |      |                     |
| Selective MBP        | 0.156  | 0.371     | 0.42 | 0.673| -0.571              |
| USA studies          | -0.397 | 0.813     | -0.49| 0.626| -1.991              |
| Contact hours        | -0.006 | 0.079     | -0.08| 0.939| -1.162              |
| Psychoeducation      | 0.355  | 1.307     | 0.27 | 0.786| -2.207              |
| Physical exercise    | 0.247  | 0.553     | 0.45 | 0.655| -0.837              |
| Arts                 | 0.689  | 1.156     | 0.60 | 0.551| -1.577              |
| _cons                | 0.348  | 0.937     | 0.37 | 0.710| -1.488              |

Variance-covariance matrix = proportional 0.9*I(4) + 0.1*J(4,4,1)
Table 49. Meta-regression. Comparison of MBPs with active specific control groups, outcome distress at 1-6 months follow-up. Selective MBP = selective intervention; indicated MBP = indicated intervention; Psychoeducation = adding psychoeducation component and/or non-meditative psychological exercises; Physical exercise = adding physical exercise component; Other meditation = adding other types meditation component; Arts = adding arts component. Psychoeducation and other meditation are omitted because of collinearity.

Random-effects meta-regression
Method: REML
SE adjustment: Truncated Knapp-Hartung

Number of obs = 11
Residual heterogeneity:
  tau2 = 1.5e-07
  I2 (%) = 0.00
  H2 = 1.00
  R-squared (%) = 100.00
  Model F(6,4) = 7.23
  Prob > F = 0.0381

| _meta_es         | Coef. | Std. Err. | t    | P>|t| | [95% Conf. Interval] |
|------------------|-------|-----------|------|------|----------------------|
| Selective MBP    | 0.168 | 0.041     | 4.10 | 0.015 | 0.054 - 0.283       |
| Indicated MBP    | -0.153| 0.264     | -0.58| 0.592 | -0.886 - 0.579     |
| USA studies      | 0.057 | 0.156     | 0.37 | 0.732 | -0.375 - 0.490     |
| Contact hours    | -0.023| 0.141     | -1.62| 0.101 | -0.062 - 0.016     |
| Psychoeducation  | 0     | (omitted) |      |      |                      |
| Physical exer    | 0.510 | 0.198     | 2.57 | 0.062 | -0.040 - 1.061     |
| Other medit      | 0     | (omitted) |      |      |                      |
| Other/unclear    | 0.502 | 0.247     | 2.03 | 0.112 | -0.183 - 1.188     |
| _cons            | 0.010 | 0.204     | 0.05 | 0.961 | -0.558 - 0.579     |

Test of residual homogeneity: Q_res = chi2(4) = 1.30  Prob > Q_res = 0.8616
Fig 1. Funnel plot for univariate meta-analysis for the depression outcome at 1-6 months post-intervention for MBPs compared with passive controls.
Fig 2. Funnel plot for univariate meta-analysis distress 1-6 months post-intervention compared with passive controls.
Fig 3. Funnel plot for univariate meta-analysis distress 1-6 months post-intervention compared with active specific controls.