



Correction to: Dose–response Relationship of Reported Lifetime Meditation Practice with Mental Health and Wellbeing: a Cross-sectional Study

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Correction to: Mindfulness <https://doi.org/10.1007/s12671-022-01977-6>

Herein we correct one aspect our analysis in the article “Dose–response Relationship of Reported Lifetime Meditation Practice with Mental Health and Wellbeing: A Cross-sectional Study” (Bowles et al., 2022). In the Results section of that article, at the end of the sub-section titled “GAMs” we provided estimates for the number of hours of meditation practice our analysis suggested would be required to achieve clinically relevant changes in outcomes. The original text from Bowles et al. (2022) reads:

To contextualize these results, we examined accumulated practice hours needed to achieve a change in measured outcomes that could be considered clinically relevant (based on a “minimal important difference” score from Cuijpers et al. (2014), estimated to be a standardized mean difference (SMD) of 0.24). In conducting this analysis, we restricted our sample to participants with less than 5 years of active practice (68.6% of the sample) to account for the diminishing returns that appear relevant for longer-term practice past a certain time threshold, as per Fig. 2. We also unstandardized the accumulated practice hours variable and multiplied it by 1000 to enable the interpretation of resulting beta coefficients as temporal rates of change. From these results, summarized in Table 6,

we estimate it may take approximately 424 h of practice to achieve a “minimal important difference” (i.e. SMD of 0.24) for psychological distress, 497 h for satisfaction with life, 606 h for positive affect, 609 h for affect balance, and 811 h for negative affect. (p. 2539).

This calculation used coefficients from linear regression models (where accumulated practice hours was the predictor) with a restricted dataset of participants with less than five years of meditation practice experience. An implicit assumption of this analysis was that the best way of representing temporal changes in outcomes is as a linear function of time spent practicing meditation. This conflicts with the evidence we found that non-linear regression models provided superior model fit compared to equivalent linear regression models, as shown in Table 5 of the original article. By assuming the rate of change in our calculations was linear, our estimates of the number of practice hours required to achieve clinically relevant change were not consistent with our finding of non-linear change. We implicitly acknowledged the non-linear nature of change by restricting the dataset to participants with less than five years of experience, noting the likelihood of diminishing returns for more experienced practitioners. However, we believe it would be more accurate to directly account for non-linear change by basing our calculation on our non-linear regression models (i.e. GAMs). While our original estimates of time taken to achieve clinically relevant change would still provide useful insights into the dose-response relationship under conditions of linearity, below we present updated non-linear estimates that are more accurate for this data.

Accordingly, we would like to make several corrections to the text under “GAMs” in the Results section, and to Fig. 2; Table 1 to which that text refers. The main change concerns the calculation of the estimated time required to achieve clinically relevant change being based on a non-linear rate of change over time, as depicted in the original

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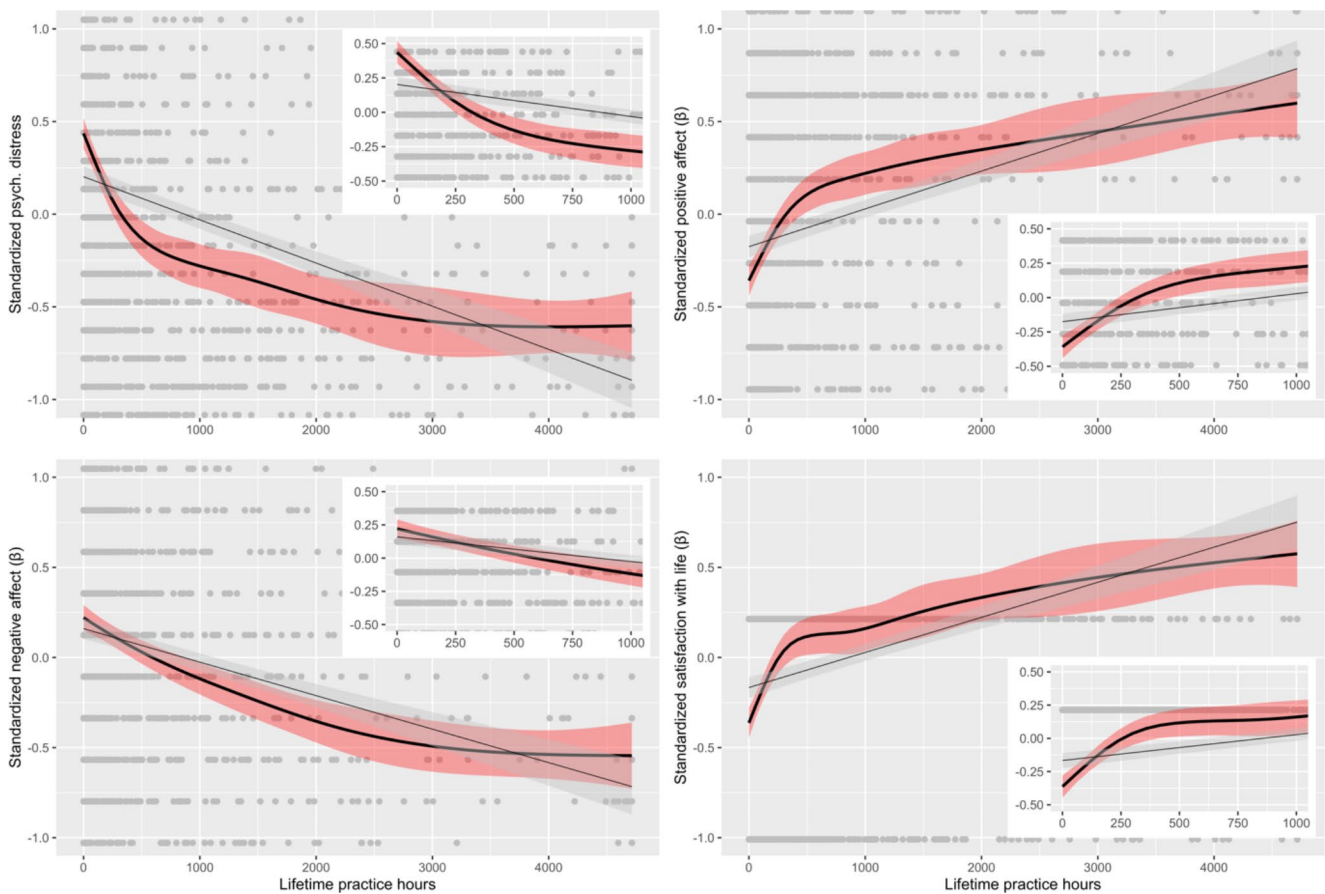


Fig. 2 Visual representation of GAMs (and linear regression for comparison) for psychological distress, positive affect, negative affect, and satisfaction with life

Fig. 2. As indicated in the updated text below, our estimation is based on a close visual inspection of Fig. 2 (our new revised version presented here). To enable this visual inspection, we standardized each variable so that standardized scores are represented on the y-axis. In R, we then confined the y-axis to the scale that represents clinically relevant change (i.e. $SMD=0.24$) to visually determine the number of hours required to achieve that amount of change. Our estimates are to the nearest five hours. The updated text reads as follows:

To contextualize these results, we examined accumulated practice hours needed to achieve a change in measured outcomes that could be considered clinically relevant (based on a “minimal important difference” score from Cuijpers et al. (2014), estimated to be a standardized mean difference (SMD) of 0.24). Based on a visual inspection of Fig. 2, we estimate that the time needed to achieve clinically relevant change would be 160 h for psychological distress, 195 h for positive affect, 650 h for negative affect, 270 hours

Table 6 Estimated hours of practice to achieve clinically relevant change (0.24 SMD) in outcomes

Outcome	Est. hours to achieve clinically relevant change in outcomes
Psychological distress	~ 160
Positive affect	~ 195
Negative affect	~ 650
Affective balance	~ 270
Satisfaction with life	~ 160

Note. SMD = standardized mean difference. 0.24 SMD threshold is from Cuijpers et al. (2014). β = standardized canonical coefficient, although accumulated practice hours predictor is unstandardized and multiplied by 1000 to allow for interpretation of β as temporal rates of change.

for affect balance, and 160 h for satisfaction with life. These results are summarized in Table 6,

In summary, by assuming non-linearity, the accumulated practice hours needed to achieve clinically relevant changes in outcomes decreases for psychological distress (424 h to 160 h), positive affect (606 h to 195 h), negative affect

(811 h to 650 h), affective balance (609 h to 270 h) and satisfaction with life (497 h to 160 h).

We have also modified Fig. 2 to add negative affect and remove affective balance. Affective balance is calculated based on positive and negative affect scores, therefore representing positive affect and negative separately represents all collected outcome variable data. In the previous version, negative affect scores were represented only insofar as they contribute to the affect balance score. Updated Fig. 2 therefore provides a better summary of all measured outcomes. And Table 2 represents only the number of hours estimated to achieve clinically relevant change under the non-linear assumption.

The original article has been corrected.

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References

Bowles, N. I., Davies, J. N., & Van Dam, N. T. (2022). Dose-response relationship of reported lifetime meditation practice with mental-health and wellbeing: A cross-sectional study. *Mindfulness*, *13*(10), 2529–2546. <https://doi.org/10.1007/s12671-022-01977-6>.

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