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Letter to the Editor

Extraordinary claims require compelling evidence: Concerns about "loving-kindness meditation slows biological aging in novices"

The recent paper by Le Nguyen et al. (2019) makes the extraordinary claim that loving-kindness meditation (LKM) slows biological aging. Unfortunately, its headline-grabbing title lacks compelling evidence.

This paper shows telomere length (TL) decreased considerably in a control group over a very short time period, as compared to a LKM group, while a mindfulness meditation (MM) group was somewhere in between. From this difference, the paper argues that LKM slows biological aging, which is quite a logical leap. Clearly LKM had nothing to do with the extent of TL shrinkage in the control group, and why the control group's TL decreased so much is ignored in the paper. More generally, there are many problems with using TL as a proxy for biological aging (Alder et al., 2018). Even if this paper's basic logic is accepted, there are many problems with how the paper's data are handled.[1] The most important problem is the absence of any analyses that provides a direct and straightforward examination of pre-post TL as a function of experimental condition. Consequently, we ran a 2×3 mixed factorial ANOVA using TL measured across two times (pre and post) compared across three conditions (control, MM, and LKM) with the paper's data. Although a significant repeated measures main effect was found, the interaction with experimental condition was non-significant. One-way ANOVAs examining pre-, post-, and change/difference TL variables as a function of condition also produced non-significant results. Looking at the data using other statistical approaches, however, did show some pattern of mixed results that trend, although most are non-significant, in the direction of the LKM group having less TL shortening compared to the other groups. Regardless of analysis, effect sizes were consistently meager.

In addition, there are several serious confounds compromising any valid comparison among the groups. For example, the data show that six in the control group engaged in some meditation, and one even reported meditating 16 days during the study's short time-span. This hardly constitutes an adequate control group for a meditation study. Also, the LKM group spent considerably more time meditating than the MM group, so these did not differ only in meditation type.

We are unable to address many other problems with this paper due to this journal's length restrictions in a letter to the editor. We simply conclude that this paper's extraordinary claim does not have the compelling evidence to back it up, and we urge not making extraordinary claims without such evidence.

Declaration of Competing Interest

The authors declare that there are no conflicts of interest.

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[1] These include an error in the reported sample sizes for the MM and LKM groups, which were found reversed when compared to the data supplement.

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