

The Conclusions Are Unsupported by the Data, Are Based on Invalid Analyses, Are Incorrect, and Should be Corrected: Letter Regarding “Sleep Quality and Body Composition Variations in Obese Male Adults after 14 weeks of Yoga Intervention: A Randomized Controlled Trial”

Dear Sir,

Rshikesan *et al.* conducted a parallel randomized controlled trial (RCT) in which participants were assigned to either a yoga or a control condition and effects on sleep and body composition variables were observed.^[1] In parallel RCTs, the correct analyses for inferences about treatment effects entail comparing outcomes between the treatment and control groups.^[2-5] Rshikesan *et al.* conducted the correct analyses and found no statistically significant effects. Therefore, the correct conclusions of the study would have been that the data did not show that the treatment was effective.

Surprisingly, those were not the conclusions reported by Rshikesan *et al.* Rshikesan *et al.* incorrectly concluded that “The results indicate the beneficial effects of integrated approach of yoga therapy on body composition and sleep quality in obese males.” They drew these conclusions by mistakenly relying on the fact that some of the within-group changes in outcome variables were statistically significant for the yoga group but not for the control group. Unfortunately, such an analytic strategy is invalid. The invalidity of this approach has been noted repeatedly in the literature.^[3-7] The use of this inappropriate analytic approach, referred to as the difference in nominal significance (DINS) error, can result in an inflated Type I (false-positive) error rate as high as 50% (i.e., 0.50 instead of the usual 0.05) when sample sizes are equal across groups.^[3-5]

Other papers have had to be corrected^[8-10] or retracted^[11,12] because of making the DINS error. Ironically, in this very journal, this same error occurred in a different paper and was noted last year.^[13]

Given that the primary conclusions offered in the paper by Rshikesan *et al.* are incorrect, an erratum or retraction should be issued.^[14]

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Conflicts of interest

There are no conflicts of interest.

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