

REPLY TO NIELSEN ET AL.:

Social mindfulness is associated with countries' environmental performance and individual environmental concern

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Nielsen et al. (1) argue that Van Doesum et al. (2) need to consider three points for their interpretation of a positive association between individual-level social mindfulness (SoMi) and environmental performance (EPI) at the country level (3). The association is weaker when 1) it is controlled for GDP and 2) when the data of three countries are removed; also, 3) the data do not address the association between SoMi and individual-level environmental concern. We discuss these points in turn.

First, as we noted in a previous reply (4), there is a strong association between GDP and EPI (the Pearson correlation is 0.64 for raw GDP and 0.78 for log-transformed GDP). This should not be surprising, because, as the name reflects, EPI addresses “performance” which is linked to both motivation and the ability to do so. Ability is clearly associated with a country’s resources to have an impact. Thus, the observed correlation is a valid result, on average across countries, and it should not be a surprise that GDP accounts for some of the shared variance between SoMi and EPI. Furthermore, we should note that EPI also accounts for shared variance between SoMi and GDP, and we see no strong

reason to suggest that GDP should be considered a more proximal predictor of SoMi than EPI.

Second, our cross-national study included 31 countries (2). We agree that the sample is not very large. But leaving out the data of three countries for no special reason, other than that they are influential, is not convincing. In our view, it is good scientific practice to consider each data point as valuable and informative. Moreover, one could also arbitrarily remove three other countries and, in doing so, strengthen the association in the remaining data.

Third, Nielsen et al. (1) conducted a study to complement our data by examining the association between SoMi and four indicators of environmental concern. This study yielded associations that were small in magnitude, yet three of four correlations were statistically significant. Recall that SoMi is focused on dyads and uses a choice-related methodology with less reliance on language. Methodological differences may attenuate associations.

We regard Nielsen et al.’s (1) finding that an inherently dyadic measure predicts broader environmental concerns relevant to society’s future as

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The authors declare no competing interest.

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promising—and consistent with the broader idea that SoMi, as a case of kindness to another person, is connected to the presence and development of social capital. They also found associations between another dyadic measure of prosociality (social value orientation) and environmental concerns. These findings

complement a recent finding that SoMi is associated with global sustainability, especially ecological footprint of consumption (5). It is important to recognize that there are myriad ingredients to building sustainable societies. Being socially mindful is likely to be one of them.

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- 1 Y. A. Nielsen, K. A. Ścigala, L. Nockur, T. A. G. Venema, S. Pfattheicher, A cautious note on the relationship between social mindfulness and concern with environmental protection. *Proc. Natl. Acad. Sci. U.S.A.*, 10.1073/pnas.2120348119 (2022).
- 2 N. J. Van Doesum et al., Social mindfulness and prosociality vary across the globe. *Proc. Natl. Acad. Sci. U.S.A.* **118**, e2023846118 (2021).
- 3 Environmental Performance Index, 2020 EPI Results. <https://epi.yale.edu/epi-results/2020/component/epi>. Accessed 22 October 2021.
- 4 N. J. Van Doesum et al., Reply to Komatsu et al.: From local social mindfulness to global sustainability efforts? *Proc. Natl. Acad. Sci. U.S.A.*, 10.1073/pnas.2119303118 (2022).
- 5 H. Komatsu, J. Rappleye, I. Silova, Social mindfulness for global environmental sustainability? *Proc. Natl. Acad. Sci. U.S.A.*, 10.1073/pnas.2118710118 (2022).