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A cautious note on the relationship between social mindfulness and concern with environmental protection

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In a comprehensive study, Van Doesum et al. (1) show that social mindfulness (SoMi), that is, "being thoughtful of others in the present moment, and considering their needs and wishes before making a decision," is related at the country level to the environmental performance index (EPI), a country's performance on indicators of environmental health and ecosystem vitality (e.g., water quality, CO_2 emissions; 2). Across 31 countries, the authors report a "solid effect" of r = 0.617, 95% CI [0.325; 0.909], and conclude that "SoMi is associated with greater concern with protecting the environment" (p.4) and thus "can be linked to highly consequential outcomes at societal level" (p.6).

On closer inspection, however, the effect appears less solid. First, the EPI is highly correlated with log-transformed GDP (r = 0.80; 2), and partialling out GDP markedly reduces the relationship between SoMi and EPI, pr = 0.273, P = 0.147. Second, the relationship is largely driven by three influential cases (India, Turkey, and Indonesia) without which the correlation is smaller and non-significant, r = 0.305, P = 0.130. Finally, the research remains silent on the individual-level relationship between SoMi and environmental concern, which is of utmost importance for understanding *individual* behavior.

We thus set out to examine the individual-level relationship between SoMi and environmental concern by sampling 600 US participants stratified by age and gender via Prolific Academic. Participants' environmental concern was measured with four well-established criteria: the subscales ecocentric concern, environmental movement activism, and personal conservation behavior of the environmental attitudes inventory (3) as well as universalism-nature of Schwartz's values (4). Furthermore, we collected three covariates to test whether the relationship holds when

partialling out basic prosocial tendencies related to pro-environmental attitudes (e.g., 5): Social Value Orientation (6), the prosocial trait Honesty-Humility (7), and empathic concern (8). Preregistration, syntax, data, and study materials are available on the OSF (https://osf.io/wk9tr/). Following an equivalence testing approach (9), we compared our estimates against a Smallest Effect Size Of Interest (SESOI), which we a priori defined as the lower bound of the 95% CI of the correlation between SoMi and EPI (r = 0.325). All tests were one-tailed (9).

Results are shown in Figure 1 and Table 1. SoMi was only weakly correlated with ecocentric concern (r = 0.074, P = 0.034), environmental movement activism (r = 0.049, P = 0.115), personal conservation behavior (r = 0.074, P = 0.034), and universalism-nature (r = 0.111, P = 0.003). All estimates were significantly smaller than the SESOI at P < 0.001. Next, we tested the correlations when partialling out the basic prosocial tendencies. All partial correlations ($prs \le 0.071$) were significantly smaller than the SESOI at P < 0.001 and none reached significance when tested against zero (Figure 1).

Overall, our analyses remind us to be wary of the ecological fallacy, stating that a relationship at the country level can be different at the individual level (10). Indeed, we found the individual-level relationship between SoMi and environmental concern to be negligible in magnitude.

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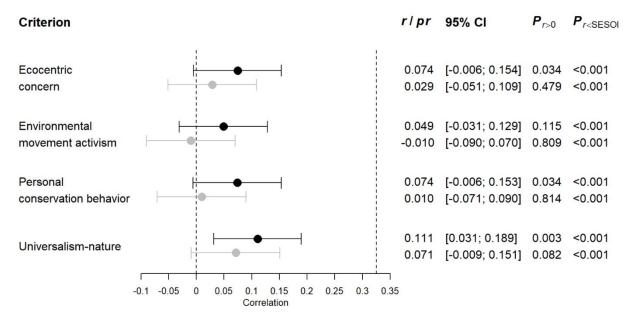


Figure 1. Forest plot of Pearson (black) and partial (gray) correlations (partialling out Social Value Orientation, Honesty-Humility, and empathic concern) between social mindfulness and four criteria pertaining to environmental concern. Dashed lines indicate r = 0 and r = .325. One-tailed *P*-values are used.

Table 1. Correlation matrix including means, standard deviations, and Cronbach's alphas (along the diagonal), of all measured variables (N = 600).

	1.	2.	3.	4.	5.	6.	7.	8.
1. Social mindfulness	(0.73)				0.03	-0.01	0.01	0.07
					[-0.05; .11]	[-0.09; 0.07]	[-0.07; 0.09]	[-0.01; 0.15]
2. Social Value Orientation	0.24							
	[0.16, 0.31]							
3. Honesty-Humility	0.19	0.29	(0.78)					
	[0.11, 0.26]	[0.21, 0.36]						
4. Empathic concern	0.06	0.20	0.28	(0.86)				
	[-0.03, 0.13]	[0.12, 0.28]	[0.20, 0.35]					
5. Ecocentric concern	0.07	0.17	0.18	0.42	(0.87)			
	[-0.01, 0.15]	[0.09, 0.25]	[0.10, 0.26]	[0.35, 0.48]				
6. Environmental movement activism	0.05	0.24	0.15	0.43	0.57	(0.94)		
	[-0.03, 0.13]	[0.16, 0.31]	[0.07, 0.22]	[0.36, 0.49]	[0.52, 0.62]			
7. Personal conservation behavior	0.07	0.16	0.32	0.44	0.52	0.59	(0.85)	
	[-0.01, 0.15]	[0.09, 0.24]	[0.24, 0.39]	[0.38, 0.50]	[0.46, 0.58]	[0.53, 0.64]		
8. Universalism- nature	0.11	0.17	0.18	0.41	0.64	0.70	0.57	(0.92)
	[0.03, 0.19]	[0.09, 0.25]	[0.10, 0.25]	[0.35, 0.48]	[0.59, 0.68]	[0.66, 0.74]	[0.51, 0.62]	
Mean	0.65	29.39	3.57	3.90	5.98	4.49	5.05	4.44
SD	0.23	13.04	0.67	0.66	0.88	1.38	1.04	1.17

Note. Range of measures: Social mindfulness = 0 to 1; Social Value Orientation = -16.26° to 61.39°; Honesty-Humility and empathic concern = 1 (*strongly disagree*) to 5 (*strongly agree*); ecocentric concern, environmental movement activism, and personal conservation behavior = 1 (*strongly disagree*) to 7 (*strongly agree*); universalism-nature = 1 (*not like me at all*) to 6 (*very much like me*). Partial correlations (partialling out Social Value Orientation, Honesty-Humility, and empathic concern) are shown above the diagonal. All $rs \ge 0.15$ are significant at P < 0.001, $rs \ge 0.11$ are significant at P < 0.01, and Ps = 0.001 are non-significant (two-tailed).