Warmer hearts, and warmer, but noisier rooms: Communality does elicit warmth, but only for those in colder ambient temperatures – Commentary on Ebersole et al. (2016)

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Author Note: To whom correspondence should be addressed: Hans IJzerman, Vrije Universiteit, Amsterdam, h.ijzerman@gmail.com. Our re-analyses have been posted online on the Open Science Framework (https://osf.io/6g73p/).

Abstract

In this article, we comment on the replication attempt by Ebersole and colleagues (2015) on the effect that communal (vs. agentic) priming leads to estimates of higher ambient temperature. We conclude that the probability that the effect is true is considerable, but only at lower ambient temperatures. We comment on “hidden moderators”, data quality, and theoretical and methodological consequences of replication studies.

In their target paper, the ManyLabs3 paper by Ebersole and colleagues (2015) conducted a number of studies in a mass scale replication initiative. The ML3 study resulted in a (seemingly) unsuccessful replication that communal (vs. agentic) priming leads to higher temperature estimates. That the study did not replicate was surprising to us, as recent, highly powered studies in this domain did detect comparable effects (IJzerman et al., 2015a; Schilder et al., 2014; Van Acker et al., 2016). After further investigation, we suspect that the replication was successful, reconciling some of the discrepancies between ML3 and the original while discussing a number of theoretical and methodological aspects we have learnt from this initiative for replication and original studies.

The "Hidden Moderator" argument

The ManyLabs initiatives are invaluable: They enable theoretical progress, teaching us more about the nature of original studies and helping us formalize more sophisticated models of reality. Importantly, the initiatives have developed a standard for confirmatory research - collaborations between original and replication authors and multisite collaborators. ML3 and its siblings are important, because on very rare occasions psychological theories concern main effects (cf. Brandt et al., 2014; Smith & Semin, 2004). But relying on "hidden moderators" is sensitive to post-hoc reasoning and, if not treated carefully, can and should be criticized (but see Cesario & Jonas, 2014). The ML3 initiative counters the hidden moderator argument by reporting site heterogeneity. We do not agree on this approach: Moderators should be examined by including theoretically consequential variables, preferably relying on so-called *auxiliary assumptions* (Trafimow & Earp, 2014) under which predictions hold true (i.e., reject the null).

Admittedly, we were also not clear yet on these ideas. However, one auxiliary assumption we typically aim to rely on during our studies is that our labs are not too warm. Careful inspection of the provided data taught us something we had not foreseen for the replication: The dependent variable in the replication study (M_{comm} = 71.41; SD = 4.97; M_{agen} = 71.38, SD = 4.79) was considerably higher than in the original (M_{comm} = 69.71, SD = 4.03; M_{agen} = 66.11, SD = 4.34),[1] suggesting that replication lab temperatures were higher than in the original. We thus inserted lab temperature as moderator, analyzing condition effect through simple slopes at "low" (-1 SD) and "high" (+1 SD) temperature in Table 1. We report them both when excluding outliers (as we had instructed ML3 to do: outside 50-95 degrees Fahrenheit; N = 3) and when including outliers (as in the original). Although not all significant, the direction is the same and seems to suggest that, under lower ambient temperatures, communal (vs. agentic) priming leads to higher temperature estimates (see also Figure 1). We thus think that the probability that communal (vs. agentic) priming leads to higher temperature estimates is greater than the null, but only when ambient temperatures are low (or samples sufficiently large), which can now be considered as formal prediction.

Future Methodological Concerns

Previous studies that had studied this effect did so not in a battery of test (Szymkow et al., 2013; IJzerman et al., 2015a) or as first in a battery (IJzerman & Semin, 2010). We failed to mention that the Table 1 analyses were *only* for those participants who were first in the battery. This was not the case for the entire ML3 sample (substantially departing from the original). When we analyzed *all* participants (again controlling for ambient temperature), the interaction effect did not appear when excluding outliers ($t(2107) = .20, p = .84$), although it did again (marginally) when including outliers ($t(2140) = -1.95, p = .05$). A second recommendation that we derive from the ML3 data is that communality priming – and probably priming studies more generally – that order should be carefully controlled for (or perhaps not run in a batch).

The True Effect Size

[1] Notably, other research has suggested that warmer conditions are associated with greater communality (IJzerman & Semin, 2009; Williams & Bargh, 2008; but see Lynott et al., 2015).

The original study's effect size was *d* = .86, which is larger than other, comparable studies priming communal-like qualities of humans (e.g., IJzerman & Semin, 2010) and those priming communal-like qualities of brands via MTurk (e.g., IJzerman et al., 2015), and yet larger than these replication studies. We suspect that our original study *overestimated* the effect size, but that the replication *underestimated* the effect size. Larger Ns are associated with more precise effect size estimations. But this replication study's appeared noisier than the original. Noisy, because an effect that can be reasonably expected to replicate (the availability heuristic) did not, and noisy, because we suspect (but could not empirically validate) that the varying lab circumstances across sites had a disproportional effect on the dependent variable (Ebersole, 2015).

In Conclusion

We would like to thank the authors of ManyLabs3 for their assistance in the process of data analysis and for their responsiveness in replicating our work. They truly set a standard. Regardless of what one may conclude, the present replication contributed much needed knowledge gain. First, it is theoretically consequential: In recent writings, IJzerman and colleagues (2015b) have suggested that social relationships help *upregulate* one's body temperature when temperature drops, and the present findings now provide testable hypotheses. Second, it is methodologically consequential: Original and replication priming studies should not be run in test batteries. We suspect the debate is far from over, but we are excited for the interest in the topic and welcome further investigations.

To conclude, when creating comparable parameters as the original, we think that the probability is sufficient to conclude that communal priming leads to higher estimates of ambient temperature, while turning auxiliary assumptions into formal predictions. ManyLabs3, the Open Science Framework: They are all technologies that make our science better, allowing for careful reconsideration of variables, of debate of what is true and what not, of publishing conditions under which effects do or do not occur, and for more accurately estimating the true effect size of an effect (cf. Spellman, 2015). Thus, even though we are not accepting the conclusion drawn from the ManyLabs data as failed replication, we are in full agreement that theoretical significance of the original effect has been taken into more careful consideration through replication.

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Table 1. Regression effects of lab temperature and experimental condition

Term	*B*	*t*	*df*	*p*	*partial r*
Condition * Temp (excluding outliers)	-.49	-1.61	246	.11	-.10
Condition*Temp (including outliers)	-1.10	-2.48	249	.01	-.17
Condition Effect (Low Temp; Excl)	.67	1.44	246	.15	.09
Condition Effect (High Temp; Excl)	-.30	-.72	246	.47	-.05
Condition Effect (Low Temp; Incl)	1.51	2.42	249	.02	.15
Condition Effect (High Temp; Incl)	-.69	-1.08	249	.28	-.07

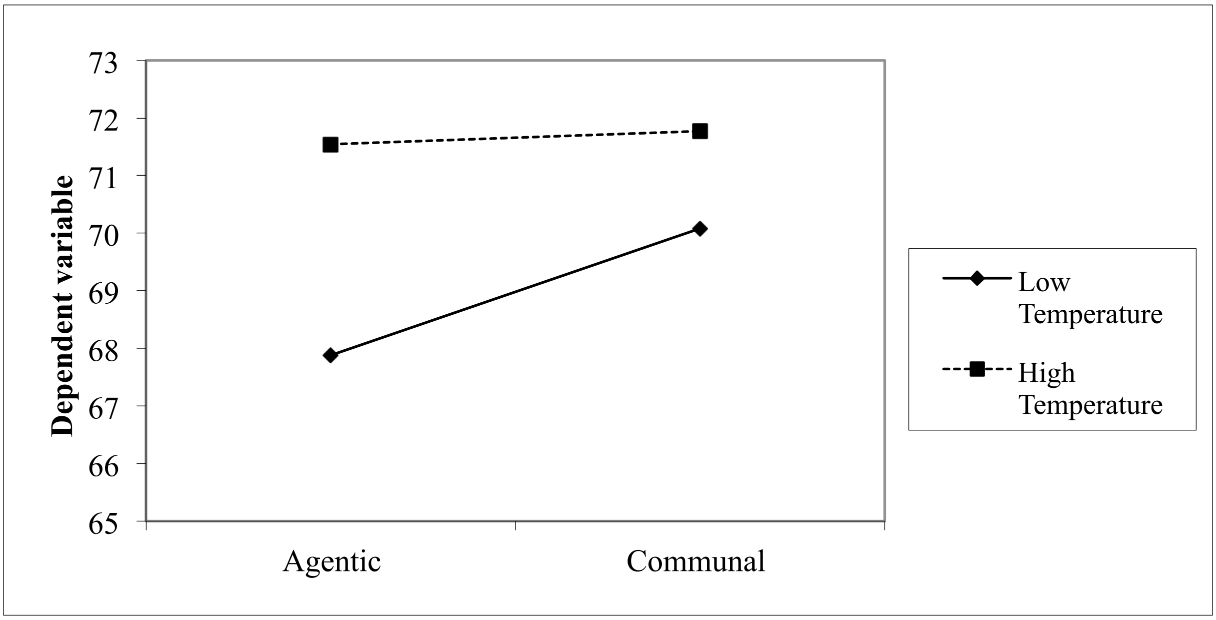

Figure 1. *Interaction effect between lab temperatures and priming condition*.