

Does culture get embrained?

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Mu et al. (1) claim that they provide the first evidence for the neurobiological foundation of social norm violation and its variation across cultures. In light of important methodological and theoretical flaws, however, we strongly doubt that anything cultural is at play in the results.

From a methodological standpoint, a basic prerequisite of both cross-cultural and EEG studies is the comparability of the groups in terms of demographics and overall testing conditions. Here, the authors compare groups that are not matched on socioeconomic status (SES) or ethnical homogeneity (the American group is ethnically diverse, whereas the Chinese group is not), two variables that are known to affect social norm perception (2, 3). Far from being a methodological detail, this casts doubt on what is really tested: SES, culture, ethnicity? Second, the use of different EEG systems in the United States and China makes it impossible to know whether the striking group differences observed in the event-related potentials (ERPs) are caused by the manipulation of social norms or by technical differences in data acquisition. This is especially true given that the ERP and behavioral data are inconsistent. Finally, despite the high number of spatial features and of behavioral variables, the statistical analyses were not corrected for multiple comparisons, which may have given rise to uncontrolled alpha inflation.

On top of these important methodological concerns, the study suffers from a more fundamental theoretical flaw, which is that the authors selected stimuli that seem to be so culturally biased that they trivially predict which attitude Chinese and American participants will hold. Although Chinese participants

hold “tighter” judgments on a number of items included in the study (i.e., conspicuous sex or politeness), it is easy to imagine scenarios where this seemingly general cultural difference would revert, leading Americans to be tighter than Chinese (e.g., Americans hold very “tight” judgments when it comes to smoking in public or using specific slurs).

More importantly, the authors do not consider the possibility that differences between individuals living in different environments have nothing to do with culture-specific neurobiological mechanisms but should rather be construed as the result of phenotypic plasticity. Such insistence on culture-specific mechanisms is puzzling given the impressive number of studies demonstrating that both human and non-human animals routinely modulate their behavior in response to specific ecologies and express different phenotypes as a result (4, 5). In that framework, group differences in response to social norm violations would simply arise because the stimulus at stake (passive smoking in the United States, promiscuous sex in China) is ecologically relevant to a greater number of participants in one of the groups. In line with this idea, data at the individual level reveal that there is a certain overlap between Chinese and American participants: although most Chinese have a higher sensitivity to social norm violation, some of them are in fact “looser” than Americans. Before concluding that Chinese and Americans are equipped with culturally specific neurobiological mechanisms, one must keep in mind that high levels of phenotypic plasticity predict that individuals living in different ecologies will exhibit strikingly different behaviors.

1 Mu Y, Kitayama S, Han S, Gelfand MJ (2015) How culture gets embrained: Cultural differences in event-related potentials of social norm violations. *Proc Natl Acad Sci USA* 112(50):15348–15353.

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The authors declare no conflict of interest.

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