



# Integrating open science and multiculturalism to restore trust in psychology

P. Priscilla Lui 

To ensure that psychological science is credible and impactful, and benefits people of all backgrounds, the field must simultaneously tackle the intertwining problems of reproducibility and generalizability.

Good psychological science positively serves the public. It enables people to understand themselves and others, and can offer solutions to societal issues. Whether people trust psychology and professional expertise rests on how credible they find the research process — and ultimately empirical results. Scientific distrust is a key barrier to whether individuals seek professional mental health services<sup>1</sup> and comply with public health measures such as COVID-19 vaccinations<sup>2</sup>. Such distrust is particularly profound in historically subordinated and underprivileged populations, including people of colour and people with low socioeconomic status.

Distrust of psychological science is related to the reproducibility problem. About 30–50% of psychology findings do not replicate<sup>3</sup>. The public might be sceptical about what has been learned about human psychology and question decisions made on the basis of such unreliable empirical evidence. The reproducibility problem has largely been attributed to limited transparency in the research process.

Distrust of psychological science can also arise from the generalizability problem. Psychology has been — and continues to be — dominated by white scientists and editors in the United States, and is mostly conducted with white research participants<sup>4,5</sup>. Because mainstream psychology assumes that research with white participants will generalize to all people, this research is held up as the standard for ‘good’ science despite the possibility that results might not extend to subordinated and underrepresented minority groups. At the same time, multicultural research (ethnic minority psychology and diversity science) is often dismissed as ‘niche’ and ungeneralizable to other populations — namely, to white individuals. The public might question who psychological science is designed to understand and how they are to benefit from this narrow representation.

To restore public trust, psychology has been nudged towards open science. In principle, open science initiatives aim to make the research process transparent and scientific findings accessible. These initiatives can

address the reproducibility problem, but open science has missed the mark on addressing other causes of distrust. Notably, there is little diversity in open science. Consequently, open science faces the same problem as psychological science generally: like traditional research practices, open science initiatives might perpetuate elitism and disregard justice, equity, diversity and inclusivity (JEDI). Although open science initiatives can promote JEDI in psychology<sup>6</sup>, it is premature to celebrate this promise without a deliberate integration of open science and multiculturalism.

## Open science is closed off

Open science emphasizes the importance of sharing study design information, materials, data and code to allow reproduction of results across investigations<sup>7</sup>. Currently, there are financial and social barriers to wide adoption of these practices. Barriers are especially pronounced for those in underprivileged positions — namely researchers of colour, in early career stages and in under-resourced locations and countries<sup>8</sup>. Many researchers who conduct diversity science or work with communities of colour ask empirical questions related to multiculturalism. They might approach psychology from ethnic minority and Indigenous perspectives — research that is less likely to be published in ‘mainstream’ outlets. These researchers might also be more likely to use non-experimental observational or qualitative designs than ‘mainstream’ researchers. Non-experimental and qualitative methods are often unjustly and erroneously considered less rigorous than experimental and quantitative methods, and have not been well incorporated into open science resources. Furthermore, certain academic communities might accuse psychological scientists who do not incorporate open science into their workflow of generating poor-quality research — and, by extension, of engaging in questionable research practices. It is not surprising that open science can feel exclusive to researchers who do not fit the ‘norm’<sup>9</sup>.

These barriers to open science — especially among diversity and ethnic minority researchers — discourage

Department of Psychology,  
Southern Methodist  
University, Dallas, TX, USA.  
e-mail: [plui@smu.edu](mailto:plui@smu.edu)  
<https://doi.org/10.1038/s44159-022-00110-7>

the mutual, positive influence of multiculturalism and open science. If open science does not expand its reach and flexibility, the current initiatives will not benefit from the culturally responsive practices that are already exemplified in multicultural research. For example, collaborative approaches highlighted in community-based participatory research are common in Indigenous psychology and among scientists working with minority populations. Holding scientists accountable to stakeholders, such as the communities that they serve and the general public, is one feature of good science. Moreover, multicultural research focuses on the lived experiences of diverse groups, especially those from historically disadvantaged and subordinated backgrounds. Understanding the psychology of these groups requires being sensitive and responsive to their distinctive socio-cultural conditions. By working with diverse segments of the human population, psychology can be the scientific discipline it promises to be — one that serves the public.

Importantly, these core features of multicultural research — accountability to and serving the public — have been promoted as goals of open science. Thus, both multiculturalism and transparent research workflow are necessary conditions for the public to trust that psychology produces reliable, impactful and representative knowledge about people. Continuous wilful disregard and dismissal of multicultural research as a model for ‘good science’ in open science specifically, and psychology globally, will hurt the credibility of the field<sup>10</sup>.

### Open up for diversity and inclusion

Integrating open science and multiculturalism will promote JEDI. These changes require efforts at multiple levels. It is essential to design curricula that challenge students to critically question the credibility and impact of psychology findings. Students should be educated simultaneously about the reproducibility and generalizability problems. To normalize both open science practices and multiculturalism, these content and value-oriented discussions should be dispersed across methods and statistics, diversity-focused and other content-specific (for example, social psychology) courses. When multiculturalism is infused into basic training, students can learn to appreciate lived experiences and psychological processes that are common to diverse populations — and in turn develop an understanding of the value of research methods that are underused and undervalued in mainstream literature. Over time this will move the field away from a white-centric approach to psychology.

Diverse stakeholders must come up with additional creative ways to disincentivize questionable research practices, such as piecemeal publishing and *P*-hacking. For example, rather than pressuring scientists to publish research articles that confirm their hypotheses, funders can encourage ‘deliverables’ such as making de-identified research data publicly available or writing registered reports that facilitate the publication of null results. Funders should also consider diversity representation and the inclusion of subordinated and understudied minority groups as a key criterion for scientific rigour and impact. Rather than normalizing open science practices first and promoting JEDI efforts

second, these incentives and guidelines must be provided and implemented concurrently.

The American Psychological Association’s [Multi-cultural Guidelines](#) and [Guidelines on Race and Ethnicity in Psychology](#) already include recommendations to enhance culturally responsive and inclusive science and equitable research processes. There is room to improve so that multiculturalism is truly integrated with other guidelines for open science. First, current multicultural guidelines are aspirational and primarily serve to guide researchers who look to use these best practices; they do not offer specific standards or benchmarks that can be used to evaluate the degree to which JEDI are embraced in the scientific process. Similar to the complementary roles of the [Transparency and Open Science Promotion \(TOP\) Guidelines](#) and [TOP Factor](#), creating a JEDI Factor could incentivize equitable and inclusive psychological science. Psychology journals can endorse diversity and inclusivity standards and specify the expected level of implementation for each standard. For example, journals might encourage researchers to collect and report detailed participant demographic information (Level 0), require that authors specify whether and where demographic details are available to readers (Level 1), or decline to accept submissions that fail to detail participant demographic characteristics (Level 2). Implementing these standards would encourage mainstream researchers to incorporate multiculturalism in their research workflow and create a mechanism that rewards researchers who already embrace JEDI efforts in their work.

Instituting standards such as the TOP Factor and the JEDI Factor to evaluate the use of open science and multicultural approaches will signal that both are fundamental to advancing the rigour and impact of psychology. These metrics can complement and expand narrow emphases on journal impact factors and citation indices, so that good, public-serving psychological science represents human diversity and is rigorous and trustworthy.

1. Suite, D. H., La Bril, R., Primm, A. & Harrison-Ross, P. Beyond misdiagnosis, misunderstanding and mistrust: relevance of the historical perspective in the medical and mental health treatment of people of color. *J. Natl Med. Assoc.* **99**, 879–885 (2007).
2. Fisher, K. A. et al. Attitudes toward a potential SARS-CoV-2 vaccine: a survey of U.S. adults. *Ann. Intern. Med.* **173**, 964–973 (2020).
3. Open Science Collaboration. Estimating the reproducibility of psychological science. *Science* **349**, aac4716 (2015).
4. Buchanan, N. T., Perez, M., Prinstein, M. J. & Thurston, I. B. Upending racism in psychological science: strategies to change how science is conducted, reported, reviewed, and disseminated. *Am. Psychol.* **76**, 1097–1112 (2021).
5. Roberts, S. O., Bareket-Shavit, C., Dollins, F. A., Goldie, P. D. & Mortenson, E. Racial inequality in psychological research: trends of the past and recommendations for the future. *Perspect. Psychol. Sci.* **15**, 1295–1309 (2020).
6. Grahe, J. E., Cuccolo, K., Leighton, D. C. & Cramblet Alvarez, L. D. Open science promotes diverse, just, and sustainable research and educational outcomes. *Psychol. Learn. Teach.* **19**, 5–20 (2019).
7. Munafò, M. R. et al. A manifesto for reproducible science. *Nat. Human Behav.* **1**, 0021 (2017).
8. Lui, P. P. et al. Open science and multicultural research: some data, considerations, and recommendations. *Cultur. Divers. Ethnic Minor. Psychol.* <https://doi.org/10.1037/cdp0000541> (2022).
9. Bahlai, C. et al. Open science isn’t always open to all scientists. *Am. Sci.* **107**, 78–82 (2019).
10. Sue, S. & Sue, L. in *Handbook of Racial and Ethnic Minority Psychology* (eds. Bernai, G., Trimble, J. E., Burlew, A. K. & Leong, F. T. L.) 198–207 (Sage, 2003).

### Competing interests

The authors declare no competing interests.