

WEIRD–Confucian Comparisons: Ongoing Cultural Biases in Psychology’s Evidence Base and Some Recommendations for Improving Global Representation

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The realization that most behavioral science research focuses on cultures labeled as WEIRD—Western, educated, industrialized, rich, and democratic (Arnett, 2008; Henrich et al., 2010; Thalmayer et al., 2021)—has given an impetus to extend the research to more diverse populations. Confucian East Asian societies have relatively strong social and technological infrastructure to advance science and thus have gained much prominence in cross-cultural studies. This has inadvertently fostered another bias: the dominance of WEIRD–Confucian comparisons and a tendency to draw conclusions about “non-WEIRD” cultures in general based on data from Confucian societies. Here, analyzing 1,466,019 scientific abstracts and, separately, coverage of 60 large-scale cross-cultural psychological projects ($N_{\text{samples}} = 2,668$ from $N_{\text{countries}} = 153$ covering $n_{\text{participants}} = 3,722,940$), we quantify the dominance of Confucian over other non-WEIRD cultures in psychological research. Our analysis also reveals the underrepresentation of non-European Union postcommunist societies and the almost total invisibility of Pacific Island, Caribbean, Middle African, and Central Asian societies within the research database of psychology. We call for a shift in cross-cultural studies toward midsize (7+ countries) and ideally large-scale (50+ countries) cross-cultural studies, and we propose mitigations that we believe could aid the inclusion of diverse researchers as well as participants from underrepresented cultures in our field. People in all world regions and cultures deserve psychological knowledge that applies to them.

Public Significance Statement

Despite longstanding calls to make psychology more globally representative, psychological research beyond Western contexts still focuses disproportionately on a few East Asian societies with Confucian cultural heritage. Humans in many parts of the world are underrepresented, or even invisible, in the literature. Addressing this requires studies comparing more (e.g., 7+ and 50+) cultural populations, as well as systemic interventions to support and empower researchers from underrepresented and scientifically underresourced societies.

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continued



Kuba Kryś

Over the past four decades, behavioral scientists have increasingly recognized the problems of drawing conclusions about human psychology from research conducted disproportionately in Western, educated, industrialized, rich, and democratic (WEIRD) societies (Arnett, 2008; Bond, 1988; Henrich et al., 2010; Markus & Kitayama, 1994; Thalmayer et al., 2021) and have sought to extend studies beyond WEIRD cultures (U.S. National Committee for Psychology/International Union of Psychological Science [USNC/IUPsyS], 2022). As this awareness was growing, several Confucian East Asian societies had strong social and technological infrastructure to advance science (i.e., these societies were typically educated, industrialized, and rich too), and so the region of Confucian East Asia gained increasing prominence in cross-cultural studies (see, e.g., Heine, 2020). Thus, although they were similar to WEIRD societies in the above respects and moderately dissimilar to other non-WEIRD societies, Confucian societies often came to be treated as prototypical examples of “non-Western” cultures in psychological research and theorizing across a range of topics (e.g., see Markus & Kitayama, 1991; Nisbett et al., 2001; Rhodes et al., 2001; Sedikides et al., 2003;

Yamaguchi et al., 2007) as well as in psychology textbooks (e.g., Aronson et al., 2021; Hogg & Vaughan, 2018). We contend that this tendency has guided behavioral science into another bias: A disproportionate majority of psychological knowledge about people from non-WEIRD societies relies on evidence from Confucian East Asian samples.

The general purpose of this article is to learn and illustrate where psychological science directs its focus when performing research beyond WEIRD societies. The specific aim is to systematically test the observation that Confucian Asian samples might have dominated the non-WEIRD psychological research. We do this in two steps: (a) by counting how frequently countries from various cultural regions are mentioned in all 1,623,065 abstracts that emerged after typing “psychology” into the EBSCO database and (b) by analyzing how large-scale cross-cultural psychological projects spread their attention across cultures. By quantifying the picture of where psychology is being carried out, we hope to navigate psychological science toward broader and more representative coverage of the world’s cultures. Therefore, we also present recommendations.

WEIRD Domination

The fact that most social scientific research has been generated by and for White, middle-class populations in the Global North has been discussed in scientific circles for many years, but only in recent years has this issue been explored more formally. Henrich et al. (2010) analyzed studies comparing people from modern industrialized societies with people from small-scale societies, studies comparing people from Western societies with people from non-Western industrialized societies, studies comparing Americans with people from other Western societies, and studies comparing university-educated Americans with non-university-educated Americans. Based on those analyses, Henrich et al. argued that WEIRD samples have unusual characteristics compared to samples from other cultures and that they should not be used as a basis for drawing generalizations about human psychology. Arnett (2008) quantified data from six journals from the American Psychological Association from 2003 to 2007, showing that 96% of the samples were from WEIRD cultures,

questions regarding the study of large-scale cross-cultural projects should be sent to Arkadiusz Wasielec.

Kuba Kryś played a lead role in conceptualization, project administration, writing—original draft, and writing—review and editing and an equal role in investigation, methodology, and supervision. Igor de Almeida played a lead role in data curation, formal analysis, and visualization, a supporting role in writing—original draft and writing—review and editing, and an equal role in conceptualization, investigation, and methodology. Arkadiusz Wasielec played a lead role in data curation, formal analysis, and visualization, a supporting role in writing—review and editing, and an equal role in conceptualization, investigation, and methodology. Vivian L. Vignoles played a supporting role in conceptualization, formal analysis,

investigation, and methodology and an equal role in supervision, writing—original draft, and writing—review and editing.

📄 The data are available at <https://osf.io/6942z/>.

📁 The experimental materials are available at <https://osf.io/6942z/>.

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with 68% coming from the United States alone. [Thalmayer et al. \(2021\)](#) updated Arnett's analysis with data from the same journals, but ranging from 2014 to 2018, they found that little had changed in terms of diversity. Importantly, both [Arnett \(2008\)](#) and [Thalmayer et al. \(2021\)](#) pointed out that there is only a small percentage, 3% in the 2003~2007 and 4% in the 2014~2018 period, of research conducted with samples from non-WEIRD societies, most of these studies being done with Asian, especially Confucian East Asian samples. Samples from African, Latin American, Middle Eastern, or other cultures were scarce.

Way Beyond WEIRD?

Binary Comparisons

The need to go beyond WEIRD populations was one of the founding principles of cross-cultural psychology. Cross-cultural psychology aims to compare people across a variety of cultures; however, the technically easiest and the most common approach is to compare people from two cultures only. Probably the best partners for WEIRD academics turned out to be academics from Confucian East Asian societies. These societies seemed culturally different from the WEIRD world, and at the same time had sufficient academic, technical, and social infrastructure to become equal partners to WEIRD academics. Thus, the main theories highlighting cultural differences in psychology came to be based on U.S.–Japanese, or broader WEIRD–Confucian, comparisons. The origins of self-construal theory ([Markus & Kitayama, 1991](#)) and of theorizing on cultural differences in cognitive functioning—holistic versus analytic thinking ([Nisbett et al., 2001](#))—can serve as examples. In effect, it is quite common that social sciences describe and psychologize WEIRD versus the-rest-of-the-world distinctions based on research comparing WEIRD versus Confucian East Asian participants.

Furthermore, these distinctions are usually explained using the concepts of individualism and collectivism, as WEIRD cultures are seen as prototypical models of individualism, whereas Confucian cultures are considered prototypical models of collectivism (for evidence against this view, see [Minkov, 2018](#); [Pelham et al., 2022](#); [Takano & Osaka, 2018](#)). Comparisons between “East” and “West,” between Confucian and WEIRD cultures, or between “collectivistic” and “individualistic cultures” became an essential tool in cultural psychology and a dominant way of thinking about cultural differences in psychology textbooks, in new theorizing, and in the “limitations” sections of empirical articles.

However, similar to the critique of relying on WEIRD samples, the reliance on binary WEIRD–Confucian comparisons has also faced scrutiny. For example, [Matsumoto \(1999\)](#) already noted the lack of evidence for the common expectation that interdependent forms of self-construal prevalent in Confucian cultures, as described by [Markus and Kitayama \(1991\)](#), would also characterize South Asian, African, and South American cultures, and [Vignoles et al. \(2016\)](#) found that different ways of being independent versus interdependent did not typically co-occur in the same cultures—thus, questioning the binary theoretical distinction between independence and interdependence as opposing cultural emphases. Similarly, [Uskul, Kirchner-Häusler, et al. \(2023\)](#) recently demonstrated that patterns of cognition that had been attributed to a cultural distinction between analytic (Western) and holistic (Eastern) cognitive styles did not turn out to co-occur in the same cultures when sampling across a wider range of geographical locations. Thus, although drawing conclusions on WEIRD versus all-the-rest-of-the-world differences based on WEIRD versus Confucian research seems not to be rare, there is a need to go beyond such narrow dichotomies. Relying on binary empirical comparisons provides little scope for going beyond binary theorizing about cultural differences.

Going Beyond Binaries

Psychological scientists specializing in cross-cultural research are increasingly aware that extrapolating conclusions from one non-WEIRD cultural setting into all non-WEIRD cultures is unjustified. In recent years, it has become more common to see authors of articles and scientific presentations explicitly remind their audiences that findings are specific to the analyzed culture(s) and that one should be careful not to assume that conclusions derived from one non-WEIRD context are applicable to all non-WEIRD contexts.

Cross-cultural researchers increasingly understand the importance of sampling beyond WEIRD and Confucian circles, are eager to expand such research, and are actively trying to build infrastructures and establish partnerships. We discern an increase in at least two major approaches to research, and a third emerging practice, which leads us beyond the WEIRD–Confucian dichotomy:



Arkadiusz Wasielec

1. In-depth studies into the cultural psychology of specific world regions beyond the WEIRD–Confucian dichotomy, including Mediterranean (Uskul, Kirchner-Häusler, et al., 2023), Latin American (Krys et al., 2022; Salvador et al., 2022), Indian (Savani et al., 2012), Middle Eastern (San Martin et al., 2018), and sub-Saharan African (Adams & Plaut, 2003) regions.
2. Large-scale cross-cultural psychological comparisons covering 30+ (Gelfand et al., 2011; Vignoles et al., 2016), 40+ (Krys et al., 2016; Leung & Bond, 2004), 50+ (Eriksson et al., 2021; Krys et al., 2021), or even 60+ (Gardiner et al., 2020; Kosakowska-Berezecka et al., 2023) countries. Large-scale data sets gathered by sociologists and political scientists—for example, World Values Survey (Inglehart et al., 2020)—help tap into psychological phenomena too.
3. Recently, a third line drawing from the previous two has started emerging: some articles try to integrate/synthesize the complexity of non-WEIRD cultures across multiple world regions. For instance, in a recent article published in the *American Psychologist*, Kitayama et al. (2022) took a valuable step forward in seeking to navigate and explain the complexity of cultural models of self and social orientation across cultures. However, such articles offering complex syntheses are still rare.

Previous Signals About Confucian Overrepresentation in Non-WEIRD Samples

Signals about disproportional attention to Confucian cultures in studies of non-WEIRD samples can be found in

the literature. For instance, Heine (2020) in his specialist textbook on cultural psychology writes: “... the most common non-Western research participants have been students from East Asia ... Non-Western samples are similar to Western samples in many respects. ... However the field still has not done nearly enough research to explore other non-Western cultural regions.” (p. 26). Heine did not lend support to his observation with systematic analysis. Kitayama et al. (2022) also recognized the overreliance of psychology on Western and East Asian samples. But, similar to Heine, they did not quantify the extent of the problem. Nor have these researchers identified which regions of the world are most underrepresented in the mainstream (i.e., English-language) knowledge base of psychological science.

Probably the first systematic quantification of the overrepresentation of Confucian samples in cross-cultural psychology was provided by Krys et al. (2022) for self-construals research. When trying to explain why Latin American independent forms of selfhood were overlooked in the literature and in common theorizing, they noticed the huge disproportion in the focus of cultural psychology. They documented that the vast majority of empirical evidence on self-construals comes from Confucian Asia and that other cultural circles remain heavily underrepresented in that literature: They identified all articles mentioning in their abstract the term “self-construal” and quantified the frequency of countries mentioned in these abstracts—this way they found out that over 80% of evidence on self-construals came from WEIRD and Confucian cultures (more or less equal from each), whereas other cultural circles remained heavily understudied. Confucian East Asian societies received more than twice as much attention in the self-construal literature as all the rest of the non-WEIRD world combined.

Here, we systematically test the claims of Heine (2020) and Kitayama et al. (2022) about the underrepresentation of non-Confucian non-WEIRD societies in psychological research by expanding the methods previously employed by Krys et al. (2022). However, instead of narrowing the focus to self-construals as Krys et al. did, we aspired to deliver as broad picture of psychological science as possible—we analyzed abstracts of all articles that we found by typing into EBSCO the term “psychology” (not only in the abstract; anywhere in the article). Additionally, we systematically analyzed where existing large-scale cross-cultural psychological projects have garnered their data.

Analysis of EBSCO Abstracts

We analyzed all 1,623,065 abstracts that emerged after typing “psychology” into the EBSCO database that aggregates scientific articles in March 2021. After excluding non-English abstracts and duplicates, we retained 1,466,019 abstracts for analyses. We calculated how frequently these abstracts



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mentioned words that identify a contemporary country, its citizens, or its culture (e.g., “Argentina,” “Argentinian,” “Argentine”). Next, we grouped countries into seven macrocultural groupings: (1) WEIRD, (2) Confucian-influenced, (3) Latin America and Caribbean, (4) Middle East and North Africa (excluding Israel), (5) non-Confucian Asia and Oceania, (6) sub-Saharan Africa, and (7) non-EU postcommunist states (for full details, see [online Supplemental Materials](#)). We examined how frequently the English-speaking scientific literature on psychological science is interested in each of these seven macrocultural regions.

Figure 1 shows how frequently psychology abstracts mentioned countries in these cultural regions over 50 years. The upper panel presents all seven macroregions, showing that psychological research is still disproportionately directed at WEIRD countries, despite published critiques of this practice (our analyses can be expected to underestimate the lack of diversity, given that countries are more likely to be mentioned in the abstract of an article if they are thought to be unusual). The lower panel excludes WEIRD countries, showing similarly that one cultural cluster—Confucian Asia—dominates the research. As an additional illustration, in [Supplemental Tables S5 and S6](#), we present the top 10 countries in each macrocultural circle.

Importantly, parallel analyses restricted to the Top 100 and Top 20 psychological journals reveal the same pattern, but with an even stronger overrepresentation of Confucian societies (see [Supplemental Figures S1 and S2](#)). The WEIRD–Confucian cultural bias is even stronger in top journals.

Recognizing that all cultural taxonomies are inherently open to question, we repeated our analyses using two alternative taxonomies from independent sources—one focused on geographical location ([United Nations Statistics Division, 2022](#)), and one focused on cultural similarity ([Mensah,](#)

2014). The picture of findings remains highly similar (see [Supplemental Figures S3–S8](#)).

As well as quantifying the dominance of Confucian Asia in psychological research into “non-WEIRD” cultures, our analysis reveals which world regions and societies are least represented in the research database. As shown in [Figure 1](#), non-EU postcommunist states are the least represented of the seven regions in our main analysis, and over half of the existing mentions of countries in this region refer to just one country: Russia (see [Supplemental Tables S5 and S6](#)). Our supplementary analyses reveal that island nations of the Caribbean and Oceania, as well as societies of particular subregions of Africa (Middle Africa) and Asia (Central Asia), are almost entirely invisible in psychological research to date (see [Supplemental Tables S1–S3](#)). People living in “non-WEIRD” societies that are nonetheless similar to WEIRD societies—especially in education, industrialization, and democracy—have a better chance of being represented in psychological research (see [Supplemental Table S9](#)).

Analysis of Large-Scale Cross-Cultural Studies

In order to extend the picture of our findings, we quantified how large-scale cross-cultural psychological studies spread their attention across various cultures—considering that such studies should in principle be expected to provide better global representation than the literature as a whole, while they would be unlikely to list the names of countries sampled in their abstracts. Through literature searches and consultation with experts in the field, we were able to locate 60 large-scale cross-cultural psychological projects that each included samples from 27 or more countries.¹ Our analysis covered $N_{\text{samples}} = 2,668$ from $N_{\text{countries}} = 153$ covering $n_{\text{participants}} = 3,722,940$. Please see [online Supplemental Materials](#) for additional methodological details, including a full list of projects/articles we analyzed ([Supplemental Table S7](#)) and the calculator we used in our analyses, which readers can also utilize in their own studies.

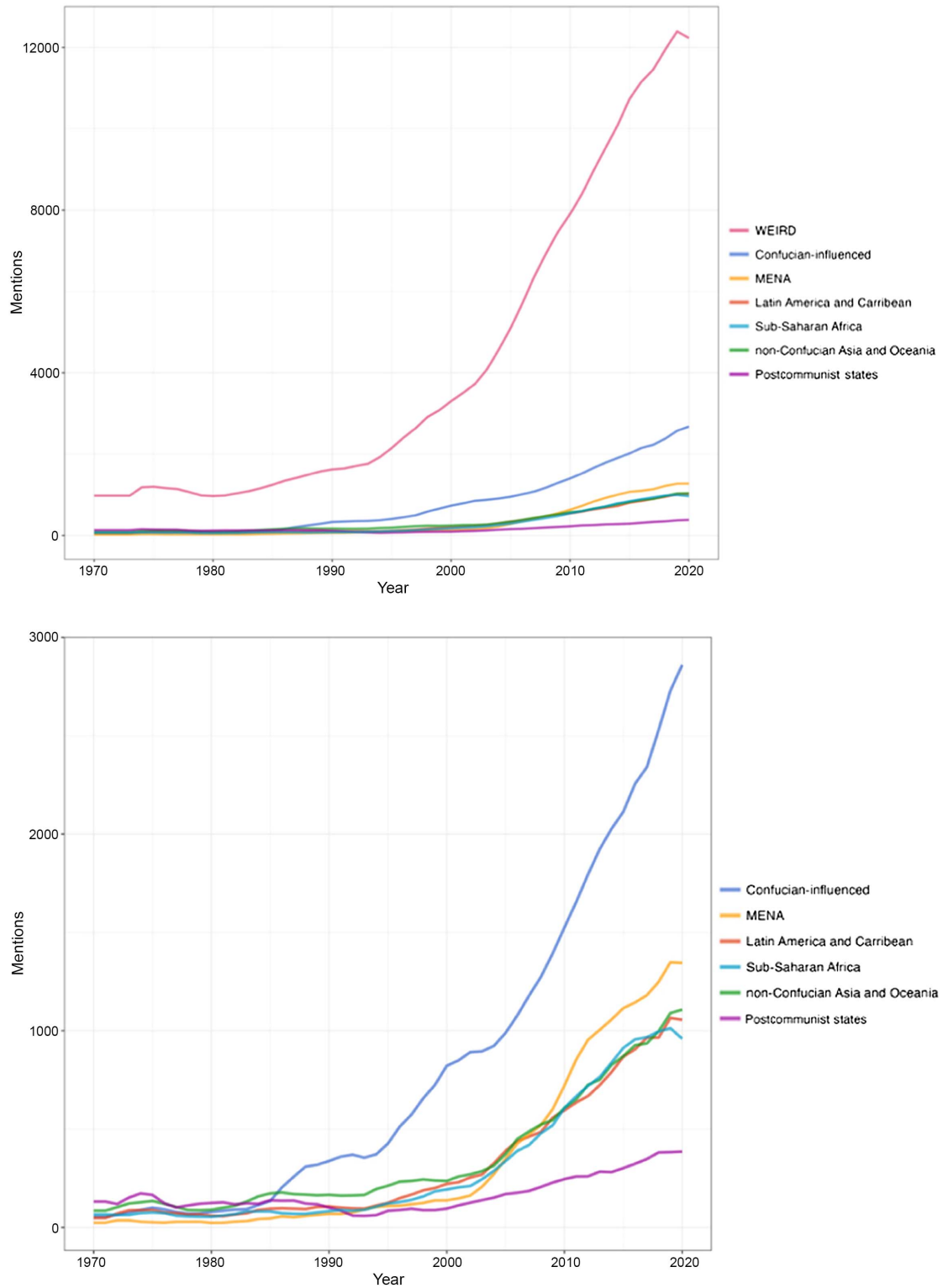
We sought to quantify to what extent large-scale cross-cultural psychological projects sample countries in a representative manner (i.e., sampling countries from different cultural regions in proportion to the number of extant countries within each region). For the summary of our findings please see [Figure 2](#) and the detailed data and calculations, please see [online Supplemental Materials](#).

The picture of findings presented in [Figure 2](#) clearly illustrates that large-scale cross-cultural psychological studies direct disproportionately high interest in Confucian and WEIRD cultures. These two cultural circles are being studied 2.69 and 2.41 times more frequently than would be

¹ We also included projects researching individualism–collectivism and other cultural dimensions that were conducted outside psychology but are often cited by psychologists ([Hofstede, 2001](#); [Minkov et al., 2017](#); [Inglehart et al., 2020](#)).

Figure 1

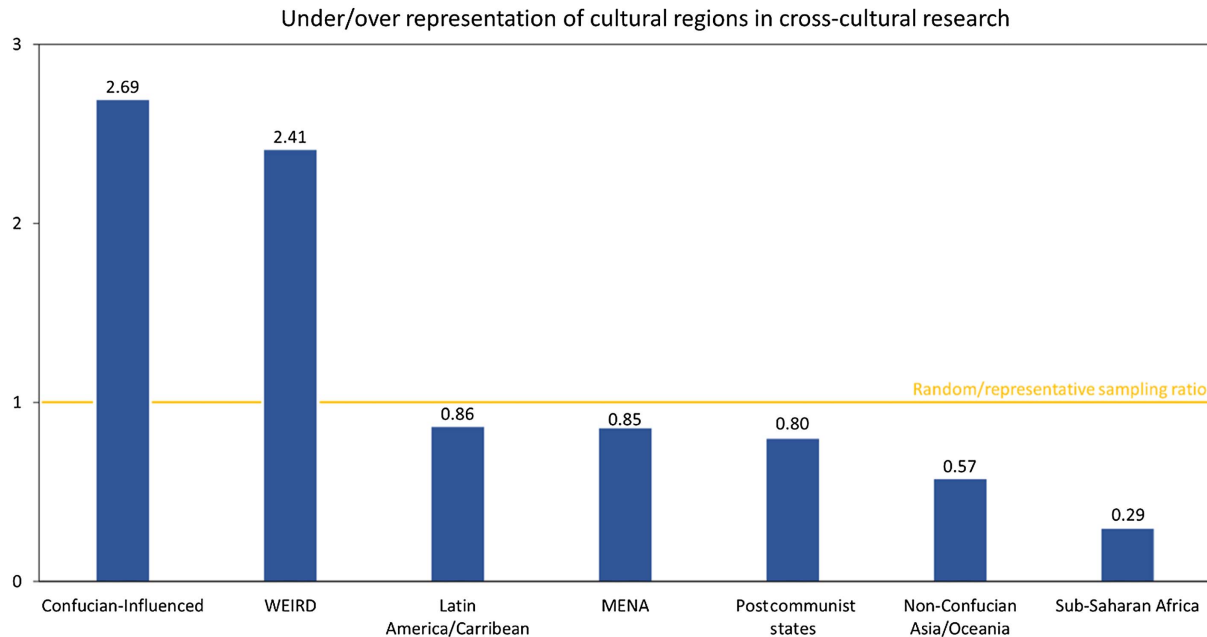
Frequency of Mentioning Countries From Macrocultural Regions in Abstracts of Psychology Articles: All Cultural Clusters (Upper Panel) and WEIRD Cultures Excluded (Lower Panel)



Note. We plot 5-year moving averages to smoothen yearly fluctuations. WEIRD = Western, educated, industrialized, rich, and democratic; MENA = Middle East and Northern Africa. See the online article for the color version of this figure.

Figure 2

From the Over- (Left) to Under- (Right) Representation of Cultural Circles in Large-Scale Cross-Cultural Psychological Research



Note. Each bar denotes the proportion between how frequently a given cultural grouping is being studied to how many country units of this cultural grouping exist in the contemporary political map. For instance, 43 WEIRD countries constitute 19.1% of the total number of countries (of 225), but on average, they constitute 46.02% of samples in large-scale cross-cultural studies. And, 46.02% divided by 19.01% gives the ratio of 2.41. Ratio 1 means that a given cultural circle attracts “exactly representative” attention of large-scale cross-cultural psychological projects (i.e., attracts share of researchers’ interest equal to the share it has in the full set of contemporary political units). WEIRD = Western, educated, industrialized, rich, and democratic; MENA = Middle East and Northern Africa. See the online article for the color version of this figure.

the case if countries were sampled randomly or representatively. The disproportion in the case of Confucian Asia can only partly be explained by the small number of countries in this grouping (i.e., eight²), which fosters covering a majority of them, as there is a similar high disproportion in the case of WEIRD cultures, while their number is higher (i.e., 43).

The Latin America and Caribbean region is the closest to being proportionately represented in large-scale cross-cultural research. However, the distribution of samples is inflated by the frequent inclusion of Brazil (present in 93.3% of all projects), whereas 10 Caribbean island nations did not have a single recruited sample. Similarities can be noted with the region of postcommunist states, from which Russia (present in 76.7% of all projects) is sampled much more frequently than other countries, and with Middle East and Northern Africa countries, where Turkey (present in 78.3% of all projects) leads in the number of samples.

Our study also clearly documents which cultures are underrepresented in large-scale cross-cultural psychological projects. We found 75 countries, inhabited in total by approximately 371 million people, that were totally absent in large-scale studies that we identified (for details, please see [Supplemental Table S8](#)). The 10 largest countries in terms

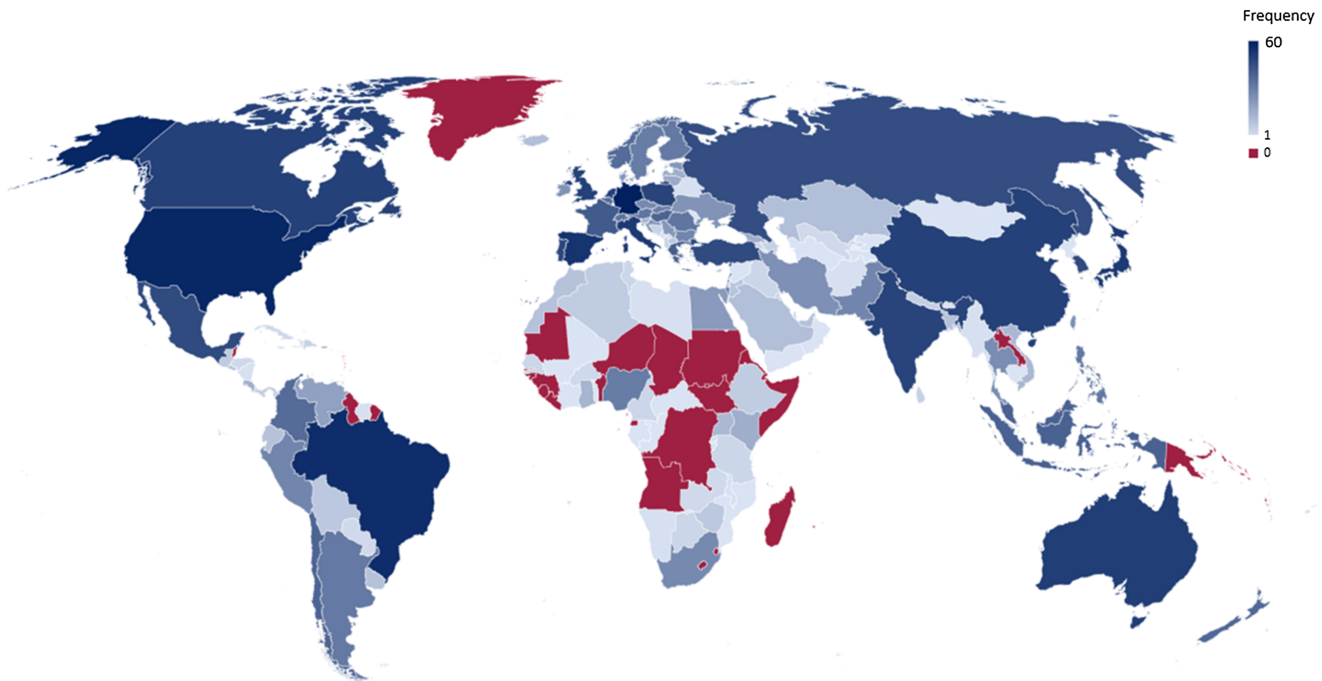
of population that have escaped up to now the attention of large-scale cross-cultural psychological studies are Congo Democratic Republic (~99 million inhabitants), Sudan (~46 million inhabitants), Angola (~35 million inhabitants), Madagascar (~29 million inhabitants), Niger (~26 million inhabitants), Chad (~17 million inhabitants), Somalia (~17 million inhabitants), Guinea (~13 million inhabitants), Benin (~13 million inhabitants), and South Sudan (~11 million inhabitants).

Figure 3 illustrates the global coverage of all analyzed projects: as in our abstracts study, sub-Saharan Africa, Middle East, and non-Confucian Asia are severely underrepresented. As with the broader psychological literature, people in “non-WEIRD” societies that are nonetheless similar to WEIRD societies—in education, industrialization, democracy, as well as cultural similarity to the United

² Please note that one of these eight countries—North Korea—due to political reasons is almost absent from large-scale cross-cultural psychological projects (only one project reports a North Korean sample). Had North Korea been excluded from our analyses (i.e., had we studied political units *usually available* for cross-cultural research), the overrepresentation of Confucian cluster would be yet higher, i.e., reach the ratio of 3.07.

Figure 3

Frequency of Inclusion of a Given Country or Territory in the Analyzed Large-Scale Cross-Cultural Psychological Research (Max N = 60)



Note. See the online article for the color version of this figure.

States—have a better chance of being represented in large-scale cross-cultural studies (see [Supplemental Table S9](#)).

Does Underrepresentation of Non-Confucian Non-WEIRD Cultures Matter?

Psychologists tend to label WEIRD cultures as individualistic and most other cultures as collectivistic, although non-WEIRD societies differ in many ways beyond individualism–collectivism ([Hofstede, 2001](#); [Minkov, 2018](#); [Schwartz, 2006](#)). Findings and conclusions from one collectivistic culture tend to be deemed applicable to other cultures labeled as collectivistic as well—probably every scholar interested in cross-cultural research has encountered instances where researchers have extrapolated findings from Confucian East Asia to all cultures commonly treated as collectivistic. However, conclusions about people in Latin America, Africa, Middle East, or many other regions should not be drawn from studies of Chinese, Korean, or Japanese participants (for discussions, see [Kitayama et al., 2022](#); [Krys et al., 2022](#); [Norenzayan & Heine, 2005](#)).

In the analyses reported above, we have shown empirically that Confucian East Asia dominates psychological research carried out beyond the WEIRD world. There are two basic consequences of such an imbalance. First, psychological science knows way too little about the complexity and dynamics of psychological functioning in non-Confucian and non-WEIRD societies. Second, what we

already know in cross-cultural psychology has disproportionately often been explained with reference to the WEIRD–Confucian dichotomy, and thus the literature may overestimate the importance of explanations that are thought to differentiate WEIRD from Confucian societies (e.g., individualism–collectivism—but see [Minkov, 2018](#); [Pelham et al., 2022](#); [Takano & Osaka, 2018](#); [Vignoles, 2018](#)), and overlook a wide range of other potentially important cultural dimensions, processes, and priorities for understanding humans psychological diversity (e.g., mastery vs. harmony values: [Schwartz, 2006](#); flexibility–monumentalism: [Minkov, 2018](#); honor logic: [Uskul, Kirchner-Häusler, et al., 2023](#); societal cynicism: [Leung et al., 2012](#); cultural models of infancy: [Keller, 2003](#); cultural construction of emotions: [Mesquita et al., 2016](#); societal emotional environments: [Krys, Yeung, et al., 2022](#)).

While Western researchers may not always easily notice these gaps in our knowledge, researchers from underrepresented cultural regions are acutely aware of them. Researchers from non-Confucian and non-WEIRD societies (e.g., [Sargautytė, 2023](#)) might describe the situation as follows: in our country, we learn and teach the psychology of WEIRD societies; in cross-cultural psychology courses, if we have them, we learn and teach about differences between the WEIRD and the Confucian world; and although all this is very interesting, we still do not feel that psychology helps us explain our social reality.

With the analyses presented here, we do not intend to impugn Confucian academics, who are doing a great job in running empirical and theoretical research explaining their cultural context. Nor do we point to academics in other non-WEIRD cultural circles, who are as skilled, talented, and motivated as WEIRD and Confucian academics are. We wish to point to the current system in general, and to WEIRD academics in particular—we believe the system may require improvements, and because the major psychological associations are currently governed by WEIRD academics, WEIRD academics may have a special role in preparing and implementing improvements to the system. It also matters that WEIRD academics are currently leaders in psychological science—we believe that carries a special responsibility to help our colleagues from understudied cultures.

To avoid a situation where psychology builds knowledge on “non-WEIRD” cultures in general by studying mostly Confucian cultures—how much can one learn about Mexicans from studies run in Beijing?—we offer in the next two sections some initial suggestions for improvement based on our own experiences as well as our discussions with colleagues working in different societies. We should emphasize that we are not able to provide a comprehensive “vision” of what an inclusive psychology should look like nor a “roadmap” of necessary actions to get there. That will require much more complex study and discussion in our field (see [Uskul, Bernardo, et al., 2023](#), for another highly valuable contribution in this regard)—and we would advocate the creation of a task force supported by the governing bodies of psychological organizations, and crucially foregrounding the voices of colleagues representing a genuinely diverse range of underrepresented geographical locations and political/economic circumstances—who may not all be facing the same barriers and in need of the same solutions. The ideas we present below should be treated as interim suggestions from the perspective of cross-cultural psychologists originating from out-of-WEIRD and out-of-Confucian academia, inspired by the analyses we have presented above documenting not only WEIRD but also Confucian bias in psychological evidence. Our recommendations seek to foster research into non-WEIRD and non-Confucian cultures while not limiting research into WEIRD and Confucian worlds. We hope that these initial suggestions may spark a more comprehensive discussion on actions needed to build a psychological science that is more adequately representative of the full range of human cultural diversity.

Recommendations for Researchers, Reviewers, and Editors

Sampling More Countries From Different Regions

Two-culture studies dominate cross-cultural research—of the 53,871 abstracts we found that mentioned multiple

countries, 76.4% contained only two countries. Such small-scale cross-cultural studies may provide deeper insight into cultural phenomena than large-scale studies. They can also be a necessary compromise in studies that are technically difficult to run in more than two or three cultures (e.g., those employing fMRI). However, not all studies need to be restricted to two or three cultures only, and providing deeper insight is needed for all cultures—also those beyond WEIRD and Confucian circles.

It is not helpful that U.S. American journals sometimes still have limited interest in studies with non-American or non-Confucian samples. If a study was carried out beyond WEIRD or Confucian world, editors and/or reviewers sometimes still expect additional justification for why, which is not the case of U.S. American sampling—how often, if ever does one read articles explaining why a study was carried out in the United States? “Unusual” sampling tends to be particularly problematic for editors when the research also provides a picture of findings incongruent with common theorizing, as we have experienced ourselves as well as heard from numerous colleagues—yet it is precisely such unexpected results from new populations that may provide the greatest potential to inspire new theoretical insights leading to more generalizable theories (for a discussion, see [Krys et al., 2022](#)).

We believe that no single cultural cluster is more or less important to study than others. Currently, cultures beyond WEIRD and Confucian clusters remain substantially underrepresented. In order to lessen this problem, we urge psychologists to adopt a wider framework for cultural dimensions beyond dichotomous categorizations of culture. We call for garnering data in at least one country from each macrocultural cluster. Thus, cross-cultural studies may typically need to include 7+ countries ([Franke & Richey, 2010](#)). Although this would mean tripling or quadrupling the efforts as compared to the current norm in cross-cultural studies, we find it the minimum that needs to be done if psychology is to cover a more adequate range of cultural systems. A starting point could be to expand the already common model for programmatic research—often consisting of a series of around four-to-six studies revolving around one topic—by replicating one of the studies in 7+ cultures from diverse world regions. This would either document generalizability of findings across a moderate range of cultural diversity or indicate cultural boundary conditions for the conclusions—either way, such 7+ cultures replications will be informative.

Is our suggestion realistic? With the current level and tempo of technological advancement, in particular in online communication, we believe that forming such midscale cross-cultural research consortia may actually be easier than running two-culture studies was at the end of the 20th century. If the previous generation of psychologists was able to reach beyond their own culture, the current generation can reach beyond two-culture comparisons.

How to achieve the above? A number of international scientific associations tend to assemble social scientists from diverse countries—for example, [International Association for Cross-Cultural Psychology](#), [World Association for Public Opinion Research](#), and [International Society for Quality of Life Studies](#). Such organizations may foster contact with researchers from currently understudied regions and help form midscale research consortia.³ Importantly, these associations (at least the three we mention here) tend to meet each year on a different continent, and this practice may additionally help build ties with scholars from various regions. Similarly, regional associations, such as the [European Association of Social Psychology](#) and [Asian Association of Social Psychology](#), welcome presenters from other cultural regions to their meetings and conferences, creating outstanding opportunities to build midsize research consortia.

Where feasible, however, we recommend that cross-cultural studies should aim to include samples from many (e.g., 30+, 40+, 50+, 60+) countries spanning all world regions. Technological advances and growing networks among researchers from diverse cultures make this increasingly possible. Researchers from around the world are interested in such collaboration. Such collaborations not only build our understanding of the broad picture of humankind, but they are also an excellent platform to share expertise and knowledge with colleagues from currently understudied and scientifically underresourced cultures. By running large-scale cross-cultural projects in an open manner—with analyses, drafting manuscripts, and guidance through the reviewing processes—we can foster the proliferation of methodological and writing know-how. Participation in large-scale cross-cultural projects will also build the curricula of our colleagues who are less recognized in Western scientific circles through coauthorship of manuscripts. Importantly, large-scale cross-cultural studies allow us not only to test the dominant theories in psychology but also—perhaps more importantly—to broaden our cultural perspectives. We turn to this topic next.

Developing New Theories and Reviewing Existing Ones

Over the past four decades, substantial cohorts of psychological scientists from Taiwan, Japan, Korea, Hong Kong, and Singapore have been trained overseas and returned home. These researchers have established labs in their home countries and nowadays become fully independent in generating psychological knowledge. They not only partner with academics from other regions (although still mainly WEIRD), but they also produce novel theories (e.g., [Yamagishi, 2010](#); [Yuki & Schug, 2020](#)) and bring locally existing theories into mainstream international scientific discourse (e.g., [Hitokoto & Uchida, 2015](#)).

However, a side effect of this great job is the fact that the dominant theories of cultural variation have been developed with a particular focus on explaining WEIRD–Confucian

binary differences (e.g., [Markus & Kitayama, 1991](#); [Nisbett et al., 2001](#)). Cultural systems of other non-WEIRD regions are often “forced” into these binary theoretical models and thus misunderstood (for discussions, see [Krys et al., 2022](#); [Vignoles, 2018](#)). To address this problem, we recommend here:

1. *Carefully reviewing current major theories and supporting evidence*, to establish which theories are—without proper empirical evidence—“overstretched” or overgeneralized and to identify cultures that are still neglected or heavily understudied within particular bodies of literature. If the major cultural psychology theories were built upon contrasting WEIRD with Confucian worlds, then it may be necessary to review evidence for their validity in other macrocultural regions. Such theories may be, but are not necessarily, valid for other regions. If empirical evidence is lacking for certain regions, then special interest should be directed at such cases, and the scientific community—especially editors and reviewers—should remain open to findings coming from such understudied cultures that contrast with dominant or common theorizing. To repeat two candidates for such a review: there are already first strong signals available that cultural variation in self-construals may be more nuanced than has been commonly assumed for the last 30 years (see [Kitayama & Salvador, 2023](#); [Krys et al., 2022](#); [Thomas & Markus, 2023](#)), and further research on self-construals beyond WEIRD and Confucian cultures is needed. A similar approach may be needed for common theorizing on analytic and holistic thinking (see [Uskul, Kirchner-Häusler, et al., 2023](#)). Such reviews will additionally build our knowledge of which regions remain understudied by psychological science.
2. *Conducting and reporting exploratory cross-cultural research involving neglected regions*, to provide a conduit for researchers to learn new ideas and insights from diverse groups of research participants. While the Open Science Movement (e.g., [Vazire & Nosek, 2023](#)) has recently yielded important benefits in fostering reflexivity among researchers, highlighting the importance of distinguishing between a priori predictions and exploratory findings, it is crucial that members of the scientific community (researchers, reviewers, and editors) show appropriate humility about our current

³ Some of the associations we mention are not psychological but broad “social sciences”-oriented; however, we know from our own experiences that these associations are particularly interested in inviting more psychologists.

level of understanding of underresearched cultural groups—and thus that we do not automatically prioritize the former over the latter. Scientific progress rarely happens in a straight line, and mapping out previously uncharted cultural territory is especially likely to require an exploratory (i.e., theory-building) phase prior to a confirmatory (i.e., theory-testing) phase. Thus, it will be crucial for researchers, reviewers, and editors to champion and celebrate the best and most generative exploratory research, rather than viewing this as a “second-class” approach compared to hypothesis testing.

3. *Increasing attention to (and resources for conducting, publishing, and translating) indigenous research beyond WEIRD and Confucian academia.* At least as important as the humility to learn from one’s participants is the humility to learn from one’s colleagues. A wealth of psychological knowledge already exists, stemming from some (but by no means all) of the societies and cultural contexts that are currently severely underrepresented in mainstream psychology. However, this work is often published in outlets that may not be accessible or familiar to Western researchers, often in languages other than English, and sometimes using indigenous methodological approaches that may not be familiar to Western researchers (see [Uskul, Bernardo, et al., 2023](#)). Some of this work is available in English-language collections on “indigenous psychologies” (e.g., [Kim & Berry, 1993](#); [Kim et al., 2006](#)), providing a hugely valuable resource for Western researchers seeking to address their own cultural blind spots. Moreover, the increasing viability of international research collaborations provides an opportunity for researchers from diverse cultural contexts to educate each other about locally important research topics and areas of indigenous knowledge that might be relevant.
4. *Pay careful attention to power dynamics in multinational research teams to ensure that collaborators from all regions have a voice in shaping the research* (cf. [USNC/IUPsyS, 2022](#)). While the increasing prevalence of multinational research teams in psychology is a welcome development, such teams will inevitably often be led by researchers from the more cultural dominant and scientifically resourced nations. This places a special responsibility on these researchers to address the power dynamics within the teams they are leading in order to benefit from the insights that could be provided by colleagues from less culturally

dominant and less resourced societies. Thus, when running cross-cultural research, it is important to encourage all involved parties to share their perspectives and contribute to building the research tools. This includes enabling and encouraging colleagues from less affluent societies to take lead authorship of studies and articles, with linguistic support from English speakers. Furthermore, when running 7+ or larger studies, researchers should consider expanding the primary study scheme by adding items, or even full experiments, that will test the perspective and/or ideas of colleagues from understudied cultures. Even in cases where these ideas may seem underdeveloped, it is important to give them a chance—how can novel ideas be strengthened and verified, if not through empirical research?

Fine-Tuning Statistical Tools

Dominant statistical requirements (e.g., tests of measurement invariance) and rules of thumb (e.g., cutoff values for fit indices) were mostly developed initially for monocultural studies and for comparing culturally similar groups (e.g., gender groups, age groups). These requirements may already be difficult to meet for two- or three-culture comparisons, and they are often wholly unsuitable for midscale studies (7+ cultures), let alone for large-scale cross-cultural studies (50+ cultures). The probability of meeting these criteria drops rapidly with each culture added to the analysis. Therefore, a strong emphasis on measurement invariance can inadvertently create an incentive for researchers to conduct and publish “safer” two-culture studies rather than to run larger studies, risking much more likely problems with the lack of equivalence and, as a result, being harder to publish.

Suggesting specific statistical solutions for midsize (7+ cultures) and large-scale (50+ cultures) studies reaches beyond the scope of the current article. However, we call for raising awareness of the limitations of traditional forms of invariance testing for midsize and large-scale cross-cultural studies and the unsuitability of these techniques for ecological-level variables (e.g., [Welzel et al., 2023](#)). We believe that a thorough review is needed of statistical approaches in midsize and large-scale cross-cultural studies, including an assessment of the strengths and limitations of novel approaches that seek to make measurement invariance more achievable (e.g., the alignment method: [Byrne & van de Vijver, 2017](#); [Muthén & Asparouhov, 2014](#)), further development of new approaches as needed, and a quantitative review to establish rules of thumb for fit indices that are realistically achievable for midsize and large-scale studies. Crucially, open-source software and training must then be provided for researchers in less affluent countries, allowing

them to use these methods and to interpret their findings in a balanced manner. In this way, high statistical rigor should not inhibit reaching out to understudied cultures.

Recommendations for Systemic Change

As we have already hinted at above, many of the barriers to adequate representation of culturally diverse participants and researchers in psychological science are systemic, and so systemic solutions—rather than purely individual behavioral changes—are needed (see [Chater & Loewenstein, 2023](#)). As with our recommendations for individuals, we want to emphasize that these are the first and tentative suggestions from our group of authors. We do not claim to be offering a comprehensive plan, and we would advocate much more extensive consultation, especially involving colleagues from a wider range of underrepresented societies to develop further insights into the barriers they face and the initiatives that might help. We consider here systemic changes that might help to address a series of barriers encountered in the research process: from unequal chances in access to the literature, through inequalities in access to methodological know-how, inequalities in access to equipment and resources, up to inequalities encountered during writing and publishing scientific articles.

Toward Equal Chances in Access to Literature

An initial problem for researchers working in less affluent countries is the lack of easy and legal access to the literature. In richer countries, researchers usually easily access the latest literature—their institutions provide such access. Such access is rare, if nonexistent, in less affluent countries. Many researchers from less affluent countries either bounce back from paywalls or rely on resources that openly violate copyrights ([Segado-Boj et al., 2022](#)). In effect, whereas researchers in more affluent countries can openly and legally carry out their work, researchers in less affluent countries—if they want to keep the level of their more affluent colleagues—need to regularly break the law. What can be done? Keeping in mind that many WEIRD societies built their welfare, at least partly, during the colonization era, we believe that making scientific literature formally and legally free for colleagues in developing countries to access would be a relatively inexpensive, but highly beneficial, form of reparations. If the WEIRD and Confucian societies are to become knowledge-based societies, investing in proliferating knowledge—also around the world—seems an obvious direction. If this sounds unrealistic, readers should remember that *articles are already actually free*, but against the law (see [Segado-Boj et al., 2022](#))—therefore, we can expect that publishing houses may also be interested in such intergovernmental mechanisms of financing free access to scientific publications.

Toward Equal Chances in Access to Methodology

As we signaled above, we believe that our colleagues from beyond the WEIRD and Confucian worlds are equally skilled, talented, and motivated as WEIRD and Confucian academics. The difference in the outputs may, at least partly, originate in the access to the basic (and the latest advanced) techniques and methods. The discussions on methods seem to be run almost exclusively within the WEIRD and Confucian circles, and these discussions rarely reach our colleagues from less affluent countries. In recent years, this has become even more problematic with the increasing focus on highly advanced statistical methods in cross-cultural research (as discussed above). Taking into consideration the recent proliferation of online communication and online teaching, international organizations could take responsibility for offering to our colleagues from less affluent countries courses on the latest advancements in methodologies of psychological science. Again, compensation for the colonial times and an intention to further dismantle the postcolonial order could serve as good enough motivations to offer such courses for free. Notably, the cost of offering online courses seems minor in comparison to how it could improve the conditions and quality of work of our colleagues from less affluent and understudied countries.

Toward Equal Chances in Access to Physical Resources and Equipment

Evidently, some forms of psychological research may be especially difficult to conduct in societies that lack resources or scientific infrastructure—especially research involving neuroscientific methods, such as fMRI scanning, eye-tracking, and so forth. Research into cultural neuroscience is now a fast-growing area ([Kitayama et al., 2019](#)), but this has been largely restricted to studies in WEIRD and Confucian East Asian societies because of the prohibitively expensive and physically large equipment required. There are no easy solutions to providing access to the most expensive and difficult-to-move physical equipment to researchers working in underresourced societies. Yet, universities and scientific associations in more advantaged societies could surely develop schemes to share and donate smaller used items to colleagues working in less advantaged societies.

Toward Equal Chances in Writing and Publishing

For as long as journals put emphasis on the quality of writing and do not provide tools of support for those whose native language is not English, the publication system includes a huge barrier to entry for nonnative English speakers. If we do not want the quality of writing to drop, journals could (a) consider for publication articles that are presenting high-quality studies even if they are not written in

excellent English and, if they get accepted based on their merit, (b) provide free linguistic assistance for authors in polishing their material linguistically. This requires educating journal editors and reviewers about linguistic diversity—including how to recognize and discount typical modes of expression for those writing in a second language—and no less, it requires a genuine commitment on the part of all concerned to work a bit harder with authors who may come from less advantaged scientific backgrounds in order to help them bring their writing up to an optimum level. One systemic change that the field might want to consider is the development of metrics for cultural inclusivity that can be used to rank academic journals and to evaluate progress over time.

We want to reiterate that our suggestions above stem from our personal experiences and informal discussions with colleagues, and they should not be read as a comprehensive set of recommendations for ensuring cultural representation in psychology—developing the latter would require a substantial “task force” approach rather than the ideas of a small group of authors. We hope for readers’ understanding that our primary aim in this article was to illustrate and quantify the imbalance in cross-cultural research beyond the context of WEIRD societies—since understanding accurately the nature of the problem is a necessary precursor to any attempt at finding solutions. We propose some basic mitigations here only as a preliminary attempt to lessen the problem. To help foster further discussion on the proposed solutions, we also present a brief summary of our recommendations in the form of presentation graphics in [online Supplemental Materials](#). We believe such tables can be helpful during lectures and during working-meetings of the governing bodies of psychological organizations.

Limitations

Here, we have identified the problem and dared to propose a few basic mitigations. Further research should explore the roots of the problem we quantified and propose more comprehensive solutions. We focused here on English-language publications, which define mainstream behavioral science given their higher readership and citation rates; publications in other languages (and in local venues not indexed in the EBSCO database) may bring a different picture to the one presented here, but the invisibility of such publications in the mainstream scientific literature is part of the phenomenon that we sought to expose here. Future research could also intensify efforts to systematically identify and overcome barriers encountered by non-WEIRD and non-Confucian researchers (cf. [USNC/IUPsyS, 2022](#)), as well as provide a more fine-grained analysis of the representation of different geocultural regions and individual countries in specific research topics.

Concluding Remarks

It is still not rare in behavioral science to run studies in two hegemonic cultural regions, and readers often assume this will be sufficient to draw conclusions about the whole human race. With our descriptive analysis, we hope to stimulate theoretical and empirical studies beyond WEIRD and Confucian cultural clusters. No other cultural region is as similar to WEIRD countries in education, industrialization, and richness as Confucian East Asia. Societies that are currently underrepresented in research—including those throughout Africa, Eastern Europe, Latin America, the Middle East, Southern Asia, and Oceania—demand greater attention from behavioral science. People in all world regions deserve behavioral scientific knowledge relevant to their local cultural contexts. If psychology is to be a science of human behavior in its variety across cultures, it needs to capitalize on theoretical insights and empirical data from all of the world’s cultures.

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