

The Neglected 95% Revisited: Is American Psychology Becoming Less American?

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Final revision accepted by *American Psychologist* February 3, 2020

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Abstract

The field of psychology prides itself on being a data-driven science. In 2008, however, Arnett brought to light a major weakness in the evidence on which models, measures, and theories in psychology rest. He demonstrated that the most prominent journals in six sub-disciplines of psychology focused almost exclusively (over 70% of samples and authors) on a cultural context, the United States, shared by only 5% of the world's population. How can psychologists trust that these models and results generalize to all humans, if the evidence comes from a small and unrepresentative portion of the global population? Arnett's analysis, cited over 1,300 times since its publication, appears to have galvanized researchers to think more globally. Social scientists from the United States have increasingly sought ways to collaborate with colleagues abroad. Ten years later, an analysis of the same six journals for the period of 2014 to 2018 indicates that the authors and samples are now on average a little over 60% American-based. The change is mainly due to an increase in authorship and samples from other English-speaking and Western European countries. Thus, it might be said that 11% of the world's population is now represented in these top psychology journals, but that 89% of the world's population continues to be neglected. Majority world authors and samples (4-5%) are still sorely lacking from the evidence base. Psychology still has a long way to go to become a science truly representative of human beings. Several specific recommendations are discussed.

Keywords: cultural psychology, universals, philosophy of science, majority world, meta-analysis

Public Significance Statement: The field of psychology prides itself on being a data-driven science, but a major weakness in the evidence-base has been overreliance on a cultural context, the United States, shared by only 5% of the world's population. In 2008 it was reported that the most prominent journals of six sub-disciplines in psychology relied on samples that were over 70% American. Ten years later, an analysis of the same journals indicates that authors and samples are now on average a little over 60% American-based, but with the change mainly due to an increase in participation from other English-speaking and Western European countries. Majority-world authors and samples (4-5%) are still sorely lacking from the evidence base.

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Introduction

Far from the early days of the discipline, when clinician-theorists like Sigmund Freud and Carl Jung wrote influential texts based on anecdotal observations, psychology has grown into a profoundly empirical field. Psychologists take pride in high standards for quantitative methodology. In 2008, however, Jeffrey Jensen Arnett published a report on the provenance of the samples in six psychology journals that are each considered the flagship journal for their subdomain. This report brought to light a systematic weakness in psychology's methods. He showed that of all the samples used in the previous five years in those journals, nearly 70% were comprised solely of Americans¹. Perhaps even worse, in terms of representation of the human population, for the *Journal of Personality and Social Psychology (JPSP)*, nearly 70% of all participants were college students. To the extent that research from other countries was reported, it was almost exclusively from other English speaking or western European countries, and for *JPSP* at least, it was even more likely to consist exclusively of college students (80%). Overall, 96% of the evidence in psychology's top journals in those years came from the United States, three other English-speaking countries (Canada, Australia, and New Zealand), and Western Europe, a group of countries which together made up 12% of the global population in 2005.

This imbalance and underrepresentation was not new. Arnett (2008) included analyses extending back to 1988 that showed little change over a 20-year period. Other reports suggest

¹ The term *American* is used here and in the title of this article in the same way that it is used in the name of this journal and of the Association that publishes it: to refer to people living in the United States. Of course, people who live in Canada, Mexico, Central America, and South America are also, in a sense, Americans. Thus in many cases we specify this more accurately, but in other cases we use the briefer term *American* following established usage to save space.

that the imbalance is especially keen for psychology: May (1997) reported that the percentage of psychology citations from the United States (70%) was larger over a 14-year period (1981-1994) than for any of 19 other sciences, for example, chemistry (37%), a field with less obvious reasons to expect population-level variation (Henrich, Heine, & Norenzayan, 2010). Hartmann, and colleagues (2013) reported little increase in the percentage of articles related to ethnic minority or cross-cultural topics in American Psychological Association and Association for Psychological Science journals, from the period 1993-1999 to the period 2003-2009.

Arnett's 2008 report, however, may have appeared at a receptive moment. It has been cited over 1,300 times, indicating that many psychologists share this concern. Given improvements in communication technology, it has never been easier to collaborate across international borders. Thus, 10 years later, an updated analysis of the provenance of samples, authors, and editors in the same journals tests whether there has been an increase in the international scope of psychology's evidence base, and to assess where improvements might still be needed in order to make psychology the truly representative science it should be.

The WEIRD versus the Majority World

Arnett (2008) presented a demographic profile of the world's current population, contrasting the percentage of inhabitants of the United States (5%), and the economically developed countries that are part of the Organization for Economic Co-Operation and Development (OECD; the United States, Canada, Europe, Japan, South Korea, Australia, and New Zealand; 18%, 11% without Japan and South Korea) with the rest of the world. Ten years later, although the world's population increased by 800 million people (2005 to 2015; United Nations, Department of Economic and Social Affairs, Population Division, 2017) the proportions remain the same, excepting a 1% decrease in the proportion for the developed West. The term

“Majority World” has now come into use, a name that helpfully reminds us that societies in Asia, Africa, Latin America and the Caribbean are where most humans live (e.g. Kagitcibasi, 2002). Terms like “Third World” or “Developing” also imply a norm of comparison that is based on a minority of the world’s societies. In 2010 Henrich, Heine, and Norenzayan introduced the acronym WEIRD to describe people from Western, educated, industrialized, rich, and democratic societies who are mainly the subject of psychological studies; the term aptly highlights the unusualness of this population that dominates the evidence base of psychology.

Does it matter if psychological research relies on the participants closest at hand? Aren’t human brains the same everywhere? Arnett (2008) detailed some of the fundamental ways that populations in the United States and other OECD countries differ from the majority world, in terms of income, education, and health, and social and cultural conditions such as family size and gender roles, and detailed many of the ways such differences might impact psychological phenomena. Henrich and colleagues (2010) took this a step further, reviewing experimental results from across the behavioral sciences to demonstrate that WEIRD subjects are often especially unrepresentative of humans in general. In cases where it was possible to compare members of multiple small-scale societies from around the world to American participants, they showed that Americans are often outliers. For example, of 16 groups compared, Americans were the most susceptible to a visual illusion previously assumed to be generally true of adults; of 23 groups who played the same Ultimatum or Dictator games, they were the most concerned about fairness; in domains including spatial reasoning, categorization and inferential induction, moral reasoning, reasoning styles, self-concepts, and the heritability of IQ, American participants, including young children, were seen to be at the far end of the distributions of results, and thus typically the least representative of all groups compared.

This unrepresentativeness was also demonstrated to be true for Americans compared to people from other Western societies, for Westerners compared to members of other large-scale, industrial societies, for university-educated Americans compared to non-university educated Americans, and for undergraduate students with non-student adults (Henrich et al., 2010). The authors thus supported Arnett's (2008) report on the unrepresentativeness of psychological research with compelling evidence for why this matters, and for the inappropriateness of the assumption among behavioral scientists (often reflected in the titles of articles in top journals) that their findings based on a narrow slice of the human population should generalize to the all people the world over. In many cases, psychologists simply don't know whether and in what ways phenomena recorded in the United States differ across contexts. One thing that is clear is that models, theories, measurement instruments, and interventions built based solely on empirical evidence from Americans, in particular from undergraduate students, cannot automatically be assumed to generalize to the rest of the world.

Increased attention to the role of culture in psychology?

Across the field of psychology, efforts are underway to increase global-representativeness. Professional organizations like the International Association for Intercultural Research (www.intercultural-academy.net) and the International Association for Cross-Cultural Psychology (www.iaccp.org) have come into being. Cheung (2012) listed promising signs within the American Psychological Association (APA): The established of an award for contributions to the international advancement of psychology in 1988; the development of guidelines to promote multiculturalism in 1993; a resolution advocating for the incorporation of international perspectives in APA activities in 2004; and the launch of a journal for its international division including psychologists from beyond North America and Europe on its editorial board in 2012

(Cheung, 2012). The International Association of Applied Psychology (IAAP), including members from 80 countries, set up task forces in 2007 to promote the participation of psychologists from Africa, Asia, and Latin America in its activities and congresses (Cheung, 2012). In 2012, Leong, Pickren, Leach, and Marsella, edited a book of guidelines for internationalizing psychology educating and training. New APA guidelines for Psychology Majors (2013) state that students should be aware that research findings may not apply to all cultures, and able to understand how context influences behavior and attitudes and to design studies that address sociocultural factors related to their research question.

In his 2013 review and in a 2018 presidential address to the International Association of Cross Cultural Psychology, Fons van de Vijver assessed the extent to which culture has been taken into account across subdisciplines of psychology in recent years, concluding that attention to the importance of culture has increased, perhaps most effectively in the domains of social, personality, and developmental psychology. Recent meta-analyses and special issues have made an effort to integrate cross cultural findings. The Society for Research in Child Development (SRCD) strategic plan (2005) advocated for increasing cultural and contextual diversity in all aspects of the organization. SRCD hosted an invitational conference on African contributions to the field, published in a special section of *Child Development Perspectives* (Marfo, Pence, LeVine, & LeVine, 2011). *Child Development* published a special section (Bornstein et al., 2012) and SRCD a monograph (Bornstein, Putnick, Lansford, Deater-Deckard, & Bradley, 2016), based on results of an international household survey on protective and risk factors for children. The *Journal of Research on Adolescence* published a special issue on adolescents in the majority world, exploring culturally based approaches for research, describing successful

interventions, and examining how global factors are experienced locally by adolescents (Raffaelli, Lazarevic, Koller, Nsamenang, & Sharma, 2013).

Social and personality psychology may be the most internationalized subdomain, with a tradition of global studies designed to map individual and cultural differences. For example Hofstede's studies of work-related values, including descriptive dimensions for comparing cultures, House and colleagues' GLOBE study, Schwartz's study of values, and Diener's work on well-being (summarized by Henrich et al., 2010 and Van de Vijver, 2013). The Society for Personality and Social Psychology formed a task force to increase internationalization in 2018. *Social Psychological and Personality Science* organized a special issue in 2018 to highlight empirical studies based on underrepresented samples. In personality psychology, large survey studies continue to include networks of researchers across the globe (Gardiner et al., 2019; McCrae et al., 2005; Thalmayer & Saucier, 2014). Other projects have built local personality models from the ground up with international teams (e.g. Fetvadjiev, Meiring, Van de Vijver, Nel, & Hill 2015; Thalmayer, Saucier, Ole-Kotikash, & Payne, 2019; Zeinoun, Daouk-Öyry, Choueiri, & Van de Vijver, 2017). The World Association for Personality Psychology, established in 2013, hosts congresses outside OECD countries, to facilitate the participation of and foster collaboration with colleagues from majority world countries.

In a review of the internationalization of psychology, Van de Vijver (2013) suggested that the least integration has been made in the domains of cognition and intelligence and in clinical psychology. In those fields, either models are imported wholesale from the West, or the study of culture-bound syndromes or the adjustment of therapies to specific ethnic groups over-emphasize cultural specificity and fail to draw appropriate parallels. Worse, the importation of Western treatment models, for example into Sri Lanka after the 2004 Indian Ocean Tsunami,

have sometimes done more harm than good (Christopher, Wendt, Marecek, & Goodman, 2014). However, Summers and Poelker (2017) found that of the three quarters of public universities and colleges in the United States (among those offering a 4-year degree) who had at least one faculty member with a profile listing that they teach courses related to culture and/or pursue cultural programs of research, the highest proportion was for clinical and counseling psychology (31%).

Goals for the current study

The current project assesses to what extent the dominance of American authors and samples in top “gatekeeping” journals of psychology has changed in the 10 years since the publication of Arnett (2008). The same journals that were assessed for the period of 2003-2007 were reassessed in the same manner for 2014-2018. In the previous article, the main analyses focus on nationality of samples and authorship. Two other details about samples, explored in post hoc analyses in subsamples by Arnett (2008), are assessed from the outset here. These include the reporting of ethnicity for American samples, which was tracked for all journals for all years. Because of an observation made during the assessment, the 2008 article also included a post hoc analysis specific to *Journal of Personality and Social Psychology (JPSP)*, tracking the extent to which samples were made up of undergraduate university students. The current analysis includes this information from the outset for *JPSP*. Because of the growth of the use of Mechanical Turk (MTurk) in this period, those samples were also tracked. Finally, because *JPSP* is a special case among the journals analyzed in that it includes three subsections with independent editorial teams, and because of the significant role this journal plays in more than one subdomain of psychology, analyses for *JPSP* are additionally broken down by subsection.

Given the amount of interest shown in Arnett’s 2008 article, the growth of the field of cultural psychology, and some concerted efforts to increase internationalization, an increase in

international authorship and samples was hypothesized. However, given the large number of North American universities, the ongoing pressure to produce studies quickly, and the dramatically easier path of collecting local samples, the change was anticipated to be modest.

Method

The same six high-impact American Psychology Association (APA) journals as in Arnett (2008): *Developmental Psychology (DP)*, *Journal of Personality and Social Psychology (JPSP)*, *Journal of Abnormal Psychology (JAP)*, *Journal of Family Psychology (JFP)*, *Health Psychology (HP)*, and *Journal of Educational Psychology (JEP)* were analyzed. These journals are each the flagship APA journal in their area. They were chosen for the previous study to represent diverse areas of psychology, following the approach established in previous journal analyses on other topics (Arnett, 2008).

The procedure in the present study was the same: each article in each issue from the years 2014 through 2018 was coded for national institutional affiliation of authors and national locations of samples. Codes were grouped by region: Europe, Asia, Latin America, Africa, and the Middle East. Israel was coded as a separate category because it does not fit well into any of the other categories. The United States was a separate category, as the focus of the analysis. There was also a category of “English-speaking countries” for nations with strong cultural and historical ties to the United States: the United Kingdom, Canada, Australia, and New Zealand. For the current analysis a new category was added, “Worldwide”, for studies that included samples from all categories (though not necessarily Israel). All empirical articles were included, but not commentaries, rejoinders, or introductions to special issues or special sections. For review articles, national institutional affiliations of authors were recorded but not nationalities of samples. Overall, the analysis included a total of 3,447 articles.

In the coding of authors, 1-2% listed affiliations from more than one nation. In these cases, both affiliations were included. Likewise, articles with samples from more than one country were coded as one for each country. If an article included multiple studies from one country, this was handled and is reported in two separate ways. First, to follow Arnett (2008) to provide the best means of comparison between study periods, they were coded once per nation rather than separately for each study. However, because this coding might provide an inaccurate assessment of the internationalness of the research base (for example, making an article that included seven studies, six from the United States and one from another country, appear to be 50% non-American), we also counted all samples (generally defined in terms of a separate recruitment effort). This total number of samples arguably provides a more accurate basis for assessing the number of samples that were American in origin. However, more detailed coding comes with challenges. Particularly in *JSPS*, the number of samples is often large, and there is great heterogeneity in what details are reported. Where no mention was made of the nationality of the sample, but all authors were from a single country, it was inferred that the sample was from the same nation. For mixed-nationality teams, it was sometimes impossible to determine.

As noted, the reporting of ethnicity for American samples was tracked. Due to the extreme heterogeneity in how this is reported, it is impossible to compare the ethnic make-up across samples. Thus, we tracked whether or not ethnicity was reported, and whether studies included a majority of ethnic-minority participants. In such cases, authors were almost always clear about the population, and these studies can be considered meaningfully different from those with American-based samples that implicitly assume generalizability from White participants without consideration of potential limitations. This information was not tracked for other nations, as it is rarely reported, and in some cases, such as in France, it is illegal to collect.

Secondly, for *JPSP* specifically, we tracked whether the sample was university students. We considered tracking this for all the journals analyzed, but found it not common or relevant to the other journals. Because the use of Mechanical Turk (MTurk), Amazon's online, on demand "workforce", arose during the study period, this was tracked as well, as it appeared to become the primary alternative to the use of undergraduate students for *JPSP* authors.

For each journal, the national institutional affiliations of editors and editorial board members were recorded for 2018. National institutional affiliations were recorded for the editors of the six journals and for editorial board members (sometimes called "consulting editors"). These affiliations were available on the home page of each journal's web site.

Results

Authorship

The results of the analysis of authorship for 2014–2018 are shown in Table 1, divided into sections for first authors and other authors. For each section, the total is shown in the first column, followed by the U.S. results, those from the other four English-speaking countries (the United Kingdom, Canada, Australia, and New Zealand), then for Europe, Asia, Latin America, Africa, the Middle East, and Israel.

The results indicate that authors from the United States are still the majority at these APA journals. However, comparing these results to those from 2004-2008 there is a consistent trend – for every journal, for both first and other authors, the percentages of Americans decreased. Among first authors, overall, 64% (ranging from 48% for the PID section of *JPSP* to 78% for *JFP*) were based at American universities, compared to 73% in the previous study period. An additional 16% of first authors were from the four English-speaking countries (not including the United States), compared to 14% previously, and 17% were from Europe, compared to 11%

previously. The world outside of the United States, the English-speaking countries, and Europe was represented by less than 4% of first authors. This is a small improvement from the 2% reported in 2008, mainly due to authors from Asia (3% overall 2014-2018, compared to 1% 2003-2007). As before, only 1% of first authors were from the Middle East and there were virtually none from Latin America or Africa. The pattern for other authors was almost identical: 64% were American-based, down from 74% previously, with much of the difference made up by increases from the English-speaking countries (15% instead of 13%), and Europe (18% instead of 11%). Five percent of other authors were based in other places (up from 2% previously), mainly Asia (3%) and Israel (1%), with very minimal representation of co-authors from Latin America, Africa, or the Middle East.

The percentage of United States-based first authors in 2014 and 2018 and those previously reported for 5 year intervals from 1988 to 2007 are displayed in Figure 1. From an average across the six journals of 81% in 1988, the average in 2018, 30 years later, is a little over 62%. For two journals, *JPSP* and *JEP*, fewer than 50% of first authors were based in the United States in 2018. This indicates a meaningful shift towards international engagement for these journals, though again, it is almost entirely due to an increase in authorship from other English-speaking and European countries (47% and 51%, respectively).

Sample characteristics

Nationality. The pattern for samples was highly similar: American majorities, with a small decrease in this dominance over the last 10 years, almost entirely accounted for by an increase from European samples. Overall, 62% of samples were from the United States (down from 68% 2003-2007), 14% from the English-speaking countries (unchanged), 17% from Europe (up from 13%), and 4% from Asia (up from 3%). Unchanged from the period 2003 to 2007,

again 1% or less of samples came from Africa, the Middle East, Latin America, or Israel.

As described above, sample values are also reported using an alternative method that takes all the samples in the studies into account. The most variation in values between the two methods was for *JPSP*, where large numbers of studies and samples in an article are the norm. As suspected, this alternate method leads to increased percentages of American samples for all *JPSP* sections (from 60% overall American-based using the traditional method, to 74% if tracking all samples). For other journals, this method leads to very similar proportions.

Ethnicity. Reporting of ethnicity and focus on minority samples in the U.S., reported in Table 3, has changed little since 2007. On average, about three quarters of studies reported this information in both time periods, though with great variation between journals, from a low of 43% in *JPSP* to a high of 92% for the *Journal of Family Psychology* in 2014-2018. Focus on minority populations as the main participants of a study declined, from 23% of studies overall in 2007 to 15% in 2014-2018. This also varied considerably across journals, from a low of 5% in *JPSP* to a high of 31% in the *Journal of Educational Psychology*

University students and Mechanical Turk. The percent of samples that were made up of undergraduate students for studies published in *JPSP* is reported in Table 4. Overall, 42% of samples were university students (39% of American-based studies and 54% of those predominantly based in other countries), a substantial decrease from the proportion reported for 2004-2007, where 67% of samples from the United States and 80% from other countries were students. This appears to be related to the dramatic increase in the use of MTurk, which accounted for 35% of all samples used in this period in *JPSP* (43% for American-based studies). Another 2% were provided by similar sources, for example the British company Prolific. While such samples may be slightly older and more diverse than student samples, they still represent a

rather specific population, one that has been reported to be younger, more educated, less employed, less religious, more liberal, and that includes a larger proportion of Asians but fewer Blacks and Hispanics relative to the general population (Paolacci & Chandler, 2014).

Editors and editorial board members

As in the 2008 article, the institutional affiliations of editors and editorial boards were examined. In 2008, all eight editors of the six journals were based at American universities (*JPSP* has three editors; the other journals have one each). In 2018 seven of the eight were based at American universities, and one in Canada. In 2008, 82% of associate editors (63% for *JPSP*, 73% for *Developmental Psychology* and 100% for the other journals) and 82% of editorial board members or consulting editors were American (ranging from 75% for *JPSP* to 100% for *Health Psychology*). As shown in Table 5, overall percentages did not change in the last 10 years. Although only one journal (*Developmental Psychology*) had 100% American-based associate editors in 2018 and the interpersonal relations subsection of *JPSP* was only 55% American-based, the overall percentage was still 81%, and virtually all non-American associate editors were from English-speaking countries (7%) or Europe (7%). Similarly, among editorial board members/consulting editors, 82% were American-based, and nearly all others in English-speaking countries (11%) or Europe (6%). Only one associate editor and four consulting editors were from Asia, and only a single consulting editor came from Latin America. None of the journals included an editorial board member from Africa or the Middle East in 2018.

Discussion

This study assessed the extent to which the provenance of authorship and samples in the top journals for psychology has changed in the 10 years since the publication of Arnett (2008). Given the impact of the article, and efforts made across the field to address this imbalance, it was

not surprising to see a decrease in American authorship and samples, from an average of 73% (2003-2007) to 64% of first authors; 74% (2003-2007) to 64% of other authors; and 68% (2003-2007) to 62% of samples. However, these decreases were predominantly accounted for by increases from other English-speaking countries and Europe, and not from substantial increases in representation of authors or samples from the majority world. Furthermore, a post hoc assessment verified our impression that the European category did not represent the 4% of the world's population in Eastern Europe, who accounted for only 2% of European first authors.

Analyses here also explored two qualities of samples for which post hoc consideration was given in 2008. For American-based samples, the percentage of articles reporting ethnicity was unchanged (77% in 2007, 76% 2014-2018), and the likelihood of using samples that were predominantly ethnic-minority decreased (23% in 2007, 15% 2014-2018). In *JPSP* the percent of samples made up of undergraduate students decreased from 67% (2007) to 39% (2014-2018) for American-based studies and from 80% (2007) to 54% (2014-2018) for studies predominantly based in other countries. For American studies, this decrease appears to have been made up for a new reliance on MTurk and similar platforms (45%), but this was not the case for studies based in other countries. The overall proportion of editors and editorial board members based in the United States remained constant over the last 10 years, at over 80%.

Comparative change across subdomains

The journals varied in their inclusion of international authors. For 2003-2007, the *Journal of Family Psychology* was the most American (85% of first authors, 83% other authors, 81% samples). *JPSP* and the *Journal of Education Psychology* were the least American (65-66% of first authors, 67-69% other authors, 62-64% samples). In 2014-2018, the *Journal of Family Psychology* is still the most American, with 70% of first authors, 78% of other authors, and 77%

of samples American-based. The least American journals were the *Journal of Education Psychology*, *Developmental Psychology*, and *JPSP*, for all of whom percentages of American-based authors and samples were 60% or under. Interestingly, when the three independently-run subsections of *JPSP* are disaggregated, the picture changes – two of the *JPSP* subsection have American-based proportions around 70%, while the least “American” of any journal is *JPSP*’s Personality and Individual Differences subsection, where the 48% of American first and other authors is matched by 48% of first authors and 46% of other authors from Europe and other English-speaking countries. The representation of first authors (6%), other authors (10%), and samples (13%) from other parts of the world are double the overall averages.

Improving internationalization in Psychology Research

As van de Vijver articulated in his 2013 review, the internationalization of psychology is a moral, intellectual, and professional imperative: Psychologists should include the majority of humans in their studies for ethical reasons and for scholarly ones, in order to test which findings are universal, and in order to appropriately adapt tools and services to a polyethnic society. But, what exactly does it mean to internationalize journals? The telescoping comparisons made by Henrich and colleagues (2010) provide a useful framework for considering multiple levels of diversity. They showed that Americans were outliers compared to participants from small-scale societies, and that this unrepresentativeness was also true for Americans compared to people from other Western societies, for Westerners compared to members of other industrial societies, for university-educated Americans compared to non-university educated Americans, and for undergraduate students compared to non-student adults. Thus, increased diversity at all levels appears to have value. Given the results of this analysis, the most value would appear to come in the cases of the least representation, e.g. for the majority world. However, the gains made in the

last decades in terms of the increase of participation in top journals by authors from Western European and other English-speaking countries, and in the decrease of reliance on college students, are also important, and will hopefully be maintained and increased.

Policy proposals made in 2008. Five proposals were made by Arnett (2008) for how to better internationalize journals, each of which are considered here in terms of their adoption.

APA journals should be encouraged to include associate and consulting editors who are non-American. Including non-Americans (especially non-Westerners) would be an important signal that journals welcome international contributors, and such editors might help challenge unconscious assumptions and bring more attention to cultural context (Arnett, 2008). The evidence here, unfortunately, is that international inclusion on editorial boards has not changed. As far as we could determine, it appears that the APA publishing office encourages editors to seek diversity on their teams, without specifically mentioning the value of including non-Americans. It may be that this aspect of diversity is less salient to many editors, and that it would be helpful for this value to be made explicit. It is also important to consider barriers to recruiting internationally-based editors. Potential editors in majority-world countries might face more challenges in making the time, given teaching and administrative loads. Stipends and support in negotiating course release or staff support might help make this a reality.

APA journals should invite special issues edited by non-Americans and including all non-American authors, on a regular basis. This would signal interest in international content, provide professional development opportunities for the guest editors, and might highlight topics important to other parts of the world (Arnett, 2008). Of the flagship journals analyzed in this project, however, none did so during the study period. *JPSP* did not publish any special issues or sections. *Health Psychology* notably published two special issues (of three total in the period)

and one special section (of three) on discrimination or disparities. The four other journals published between two and eight special issues or special sections, none of which addressed international or underrepresented populations. Above, however, some special issues from other journals were noted. The Society for Research on Child Development, in particular, appears to have made early efforts to internationalize, with special issues, conferences, and other initiatives. To estimate the impact of such efforts, in particular hosting special issues, a post hoc assessment of *Child Development* was made for 2018. That year, 59% of first and 57% of other authors were from the United States, 35% and 40% respectively from European and English-speaking countries combined, 3% and 2% from Asia, and 1% and 1% from Israel. Latin American based researchers accounted for 1% of first authors, and Middle Eastern based researchers 1% other authors. (As can be seen in the main results, sample values closely match those for authorship.) Unfortunately, these values are indistinguishable from those of *Developmental Psychology*, the journal analysed from the same subdomain, which appears to have made less directed effort to internationalize. We cannot infer too much from one case, but it suggests that efforts will need to be ongoing and at multiple institutional levels in order to succeed in making long term impacts.

APA should revive the editorial mentor program designed to assist international psychologists in preparing their manuscripts for APA journals. Such a program might ideally include former journal editors (Arnett, 2008). The APA includes an office of international affairs, but as far as we could determine, no mentoring program of this type exists. We add to this a new suggestion for an APA-funded visiting mentor program. If experienced scientists could spend time at a majority world university as mentors, they could advise local researchers from the early stages of study planning to prepare for competitive international publication.

Undergraduate programs in psychology should require psychology students to take at least two courses in anthropology or cultural psychology. Requiring undergraduate courses in anthropology or cultural psychology would help future graduate students and researchers think more critically about the cultural context of the people they study (Arnett, 2008). Norcross and colleagues (2016) report that the number of bachelor's degree programs offering a course in multicultural psychology or cross-cultural increased from 33% in 2005 to 66% of programs in 2014, although fewer than 10% of programs required it for majors. Hurley and colleagues (2013) reported that international training opportunities did not increase from 2007 to 2010 at APA-accredited graduate counselling psychology programs in the United States, though they found that internationalism was increasingly being incorporated into the definition of multiculturalism. Takooshian, Gielen, Plous, Grant, and Velayo (2016) described developments in how psychology education has become more international and offered recommendations.

Major American funding agencies such as the National Institutes of Health and the National Science Foundation should create programs funding international research as well as graduate student fellowships and faculty research sabbaticals abroad (especially in non-Western countries). Research grants funded by NIH are overwhelmingly oriented toward the identification of psychological processes and principles assumed to be universal, with little attention paid to cultural context (Arnett, 2008). This appears to have improved slightly, for example with the Fogarty International Center's funding of international research collaborations at several universities. The National Institute of Mental Health (NIMH) strategic (2008) plan calls for enhancing comprehension of how cultural diversity influences the developmental trajectories of mental illness, and for exploring the cultural and ethnic factors that may be involved in risk, resilience, recovery, and promotion of health and well-being.

Recommendations for all researchers. For people who care about this issue, but who yet have little influence on editorial boards or funding priorities, new ideas are considered here.

Whom did you study, and to whom do you wish to generalize? In an analysis of studies published in 2007 in eight prominent journals covering four subdisciplines, Cundiff (2012) showed that the assumption of White men as the norm, requiring no special description, is still present in psychology. Members of racial-ethnic minority groups were underrepresented as participants, and studies with predominately male or White samples (vs. female or racial-ethnic minority) were less likely to indicate gender or race-ethnicity in the title, consistent with the assumption that men and Whites are more representative “humans”. Researchers should make the effort to be explicit about who they studied and to whom they expect results can be generalized. This goal is consistent with the movement to “decolonize” psychology, by normalizing majority world experiences, “denaturalizing” WEIRD concepts and experience as the natural condition to which all others should be compared, recovering historical memory, and privileging minority perspectives (Adams, Dobles, Gómez, Kurtiş, & Molina, 2015).

Note, however, that the reporting of ethnicity is an American phenomenon; this is rarely measured in European studies. In many European countries, including France, data protection laws ban the collection of ethnic and racial origin data. Furthermore, these data are perceived as inaccurate categories for describing populations and analysing social processes, and there is additionally a lack of legal definitions of race, ethnicity, or national minorities (Simon, 2012). However, it remains important to consider the potential barriers to generalizability for any study, and to attempt to describe the sample with as much relevant detail as possible, considering the study topic. It may be optimal to collect a suite of demographic variables that assess socio-economic status and background in addition to ethnic heritage.

Collaborate Across Borders. From an estimated 80% in the 1980s, American psychologists now account for only a fifth to a quarter of the world's psychologists (Takooshian et al., 2016). In the non-OECD countries that are the most underrepresented in mainstream psychological science, there are public universities, staffed with well-educated colleagues. The world is full of potential collaborators, with in-depth local knowledge and connections. Generally, public funding for these universities is sparser than in OECD countries, which means that faculty have larger teaching and administrative loads, relatively less time to conduct research, and fewer research funds for participant incentives, travel expenses, etc. However, the knowledge-base and the interest is there. Heine's *Cultural Psychology* textbook (2016) offers excellent methodological background, including a discussion of how to choose the most useful cultural contrasts, based on the research question. Among others, Causadias (2013) and Lansford and colleagues (2016) provide guidance for developmental psychologists, and Christopher and colleagues (2014) for clinical psychologists planning cross-cultural research.

When planning cross-cultural research, leading cultural psychologists (Cheung et al., 2011; van de Vijver, 2013) stress the importance of integrating “emic” (local) and “etic” (imported) elements. Etic studies export materials to a new culture, translating existing surveys, methods, or protocols. This can allow for direct tests of cross-cultural applicability, and can lead to the validation of materials for use in a new setting, but such studies preclude learning much else from the new context. Emic studies, on the other hand, explore the local culture in depth. Such studies were the basis for the “culture-bound” psychological disorders described in the 1980s (Cheung, 2012). These studies can provide rich detail, but may fail to integrate local concepts into existing models, thus unduly suggesting the uniqueness of what may be closely related concepts. For this reason, emic and etic approaches should ideally be integrated.

The Current Findings in Context

This analysis focused on six influential APA journals. Among the top-cited empirical journals in psychology, these function to some extent as “gatekeepers” to their subdomains. Thus, this analysis provides an indicator of the provenance of the authors and samples that strongly influence current knowledge and future directions in psychology. However, it is important to consider that there are hundreds of other peer-reviewed journals, some of them specific to regions (e.g. the *South African Journal of Psychology*, the *Asian Journal of Psychology*) and many with the word “international” in their names, whose missions are to be global in their content and reach. A methodology to precisely assess the proportion of empirical psychological research conducted in the majority world or outside the United States is hard to conceptualize, but an attempt is made here to estimate the generalizability of these findings.

One approach for broad estimation has been to use keywords in PsycNet. Van de Vijver, for example, reported in 2013 that the total number of publications there had increased sevenfold since the 1970s, while the number of cross-cultural studies increased fifteenfold, indicating a pronounced increase of interest in this topic. A new search of PsycNet indicated that of 469,748 peer reviewed articles published in 2003-2007, 13% were associated with the search-term “international” in any field, and 5% with any of the terms Africa, Asia, Latin America, South America, or Middle East (including either the name or adjective form e.g. “African”). Total peer reviewed publications for 2014-2018 increased to 763,780, as did the number of articles using the search terms of interest, now accounting for 17% and 6% of the total, respectively. Despite the inexact methodology (authors from outside the United States may not have used these terms in keywords or titles, and it is difficult to guess if doing so might have been more common at one

time or another), the very small proportional increases between these periods generally replicate our findings. However, it is encouraging that the raw number of such articles doubled.

To make a post hoc assessment of the extent to which these findings generalize to high impact journals of other subdomains and/or published by organizations other than the APA, we assessed, for 2018 only, the provenance of authors and samples for two additional journals, the *Journal of Cognitive Neuroscience*, and *Psychological Science*, the flagship journal of the Association for Psychological Science, which has an explicitly international identity than the APA. In the *Journal of Cognitive Neuroscience* in 2018, 39% of first and 44% of other authors were based in the United States, 32%/32% respectively in Europe, 24%/22% in other English-speaking countries, 3%/1% in Asia, and 1%/1% in Israel. One percent of first authors were from Latin America, but no additional authors were, and no authors at all were from Africa or the Middle East. This journal is the least American of any assessed in terms of its strong representation from Europe and other English-speaking countries, but it has no better representation of the rest of the world. In *Psychological Science*, 49% of first and 46% of other authors were based in the United States, 40% /44% in European and other English-speaking countries combined, 7%/6% in Asia, and 3%/3% in Israel. One percent of other authors were based in Latin America, but no first authors, and less than one percent of first or other authors were based in Africa or the Middle East. These values are similar to those of the most-international journal in the analyses (the Personality and Individual differences subsection of *JPSP*) with additionally the largest representation of Asian-based researchers of any journal assessed, suggesting that the more explicitly global mission of the journal has an impact. The actual number and percentage of Asia-based authors is still quite low, however, and there is almost no representation from the rest of the majority world, or from non-OECD countries.

Based on these post hoc analyses, we believe that our results for the six leading APA journals analyzed are likely to generalize to other high-impact journals in psychology. Over time, creative initiatives including the suggestions summarized here (mentoring programs, collaborations, inclusion on editorial boards and in special issues, etc.) may help bring more prominence to the efforts of psychological scientists working throughout the world.

Conclusions

In 2008 Arnett assessed the “Americanness” of the data reported in top psychology journals, finding that over 70% of authors and samples came from the United States, and that most of the remainder came from other English-speaking countries and from Europe. Although people across the globe have much in common, research demonstrates that many aspects of psychology, including basic perceptual and cognitive functioning, differ on the basis of social and cultural contexts (Henrich et al., 2010). An unusual 5% of the world’s population cannot continue to stand in for all of humanity, if psychologists wish to have an ethical, empirically sound science that is useful to increasingly polyethnic societies and a globally connected world. For the years 2014-2018, the proportional representation of authors and samples from the United States decreased and that of other English-speaking and Western European countries increased, thereby improving the internationalization of psychology to an extent. However, the participation of majority world countries, or even OECD-member Asian countries, has not meaningfully increased. Thus, it may be fair to conclude that 11% of the world’s population is now being represented in psychology’s most prominent journals, but that 89% of the world remains neglected in this database. The improved inclusion of this 89% remains an ethical, intellectual, and professional imperative for psychological science.

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Table 1

National Affiliation of Authors, 2014-2018

Journal	Total	United States	English-speaking	Europe	Asia	Latin America	Africa	Middle East	Israel
First authors									
<i>Developmental Psychology</i>	925	543 (59%)	170 (18%)	203 (22%)	18 (2%)	0	0	7 (1%)	6 (1%)
<i>Journal of Personality and Social Psychology</i>	534	320 (60%)	84 (16%)	110 (21%)	17 (3%)	1	1	1	10 (2%)
<i>JPSP: Attitudes</i>	146	100 (68%)	15 (10%)	22 (15%)	5 (3%)	0	0	1 (1%)	5 (3%)
<i>JPSP: Interpersonal</i>	172	116 (67%)	32 (19%)	21 (12%)	2 (1%)	1 (1%)	0	0	3 (2%)
<i>JPSP: Personality</i>	216	104 (48%)	37 (17%)	67 (31%)	10 (5%)	0	1	0	2 (1%)
<i>Journal of Abnormal Psychology</i>	425	301 (71%)	53 (13%)	63 (15%)	3 (1%)	1	0	1	6 (1%)
<i>Journal of Family Psychology</i>	510	400 (78%)	40 (8%)	39 (8%)	20 (4%)	0	0	2	14 (3%)
<i>Health Psychology</i>	686	436 (64%)	158 (23%)	72 (11%)	7 (1%)	0	1	0	7 (1%)
<i>Journal of Educational Psychology</i>	367	208 (57%)	39 (11%)	93 (26%)	20 (5%)	1	0	2 (1%)	5 (1%)
Total	3,447	2,205 (64%)	592 (17%)	573 (18%)	85 (2%)	3	2	13	48 (1%)
Other authors									
<i>Developmental Psychology</i>	2,818	1,642 (58%)	461 (16%)	633 (22%)	86 (3%)	5	7	20 (1%)	6
<i>Journal of Personality and Social Psychology</i>	1,558	876 (56%)	233 (15%)	351 (23%)	70 (4%)	13 (1%)	9 (1%)	9 (1%)	26 (2%)
<i>JPSP: Attitudes</i>	361	244 (68%)	34 (9%)	62 (17%)	14 (4%)	0	0	0	12 (3%)
<i>JPSP: Interpersonal</i>	468	284 (61%)	83 (18%)	71 (15%)	20 (4%)	2	2	3 (1%)	7 (1%)
<i>JPSP: Personality</i>	729	348 (48%)	116 (16%)	218 (30%)	36 (5%)	11 (2%)	7 (1%)	6 (1%)	7 (1%)
<i>Journal of Abnormal Psychology</i>	1,853	1,267 (68%)	239 (13%)	322 (17%)	19 (1%)	18 (1%)	1	3	25 (1%)
<i>Journal of Family Psychology</i>	1,561	1,214 (78%)	125 (8%)	142 (9%)	51 (3%)	1	2	2	28 (2%)
<i>Health Psychology</i>	2,817	1,866 (66%)	547 (19%)	335 (12%)	44 (2%)	1	6	2	35 (1%)
<i>Journal of Educational Psychology</i>	1,031	600 (58%)	102 (10%)	276 (27%)	36 (3%)	0	0	6 (1%)	9 (1%)
Total	11,638	7,455 (64%)	1,707 (15%)	2,059 (18%)	306 (3%)	38	25	42	129 (1%)

Note. English-speaking countries are the United Kingdom, Canada, Australia, and New Zealand. Percentages not shown where less than half of one percent. The editorially independent sections of *Journal of Personality and Social Psychology* (*JPSP*) are Attitudes and Social Cognition (Attitudes), Interpersonal Relations and Group Processes (Interpersonal), and Personality Processes and Individual Differences (Personality).

Table 2

National Affiliation of Samples, 2014-2018, as a simple count and taking all samples in each article into account (*in italics*)

Journal	Total	United States	English-speaking	Europe	Asia	Latin America	Africa	Middle East	Israel	World-wide	Un-known
<i>DP</i>	954	525 (55%)	152 (16%)	209 (22%)	36 (4%)	9 (1%)	8 (1%)	8 (1%)	6 (1%)	1	0
	<i>1,375</i>	<i>736 (54%)</i>	<i>238 (17%)</i>	<i>307 (22%)</i>	<i>66 (5%)</i>	<i>10 (1%)</i>	<i>8 (1%)</i>	<i>8 (1%)</i>	<i>8 (1%)</i>	<i>1</i>	<i>0</i>
<i>JPSP</i>	692	416 (60%)	76 (11%)	116 (17%)	39 (6%)	7 (1%)	7 (1%)	5 (1%)	14 (2%)	11 (1%)	0
	<i>2,507</i>	<i>1,865 (74%)</i>	<i>178 (7%)</i>	<i>289 (12%)</i>	<i>110 (4%)</i>	<i>8</i>	<i>9</i>	<i>10</i>	<i>53 (2%)</i>	<i>15 (2%)</i>	<i>11</i>
<i>-Attitudes</i>	180	126 (70%)	14 (8%)	22 (12%)	9 (5%)	1 (1%)	1 (1%)	0	6 (3%)	1	0
	<i>838</i>	<i>685 (82%)</i>	<i>32 (4%)</i>	<i>72 (9%)</i>	<i>24 (3%)</i>	<i>1</i>	<i>1</i>	<i>0</i>	<i>21 (3%)</i>	<i>1 (2%)</i>	<i>10 (1%)</i>
<i>-Interpersonal</i>	222	148 (67%)	28 (13%)	25 (11%)	10 (5%)	2 (1%)	2 (1%)	1	3 (1%)	3	0
	<i>857</i>	<i>658 (77%)</i>	<i>77 (9%)</i>	<i>73 (9%)</i>	<i>33 (4%)</i>	<i>2</i>	<i>3</i>	<i>5 (1%)</i>	<i>11 (1%)</i>	<i>4 (2%)</i>	<i>1</i>
<i>-Personality</i>	289	143 (49%)	34 (12%)	69 (24%)	19 (7%)	4 (1%)	4 (1%)	4 (1%)	5 (2%)	7 (1%)	0
	<i>813</i>	<i>521 (64%)</i>	<i>69 (8%)</i>	<i>144 (18%)</i>	<i>52 (6%)</i>	<i>5 (1%)</i>	<i>5 (1%)</i>	<i>5 (1%)</i>	<i>21 (3%)</i>	<i>9 (2%)</i>	<i>0</i>
<i>JAP</i>	424	288 (68%)	54 (13%)	70 (17%)	3 (1%)	3 (1%)	1	1	4 (1%)	0	0
	<i>606</i>	<i>396 (65%)</i>	<i>75 (12%)</i>	<i>112 (19%)</i>	<i>6 (1%)</i>	<i>3 (1%)</i>	<i>1</i>	<i>2</i>	<i>12 (2%)</i>	<i>0</i>	<i>1</i>
<i>JFP</i>	505	390 (77%)	38 (8%)	41 (8%)	22 (4%)	1	3 (1%)	0	10 (2%)	0	0
	<i>538</i>	<i>419 (78%)</i>	<i>43 (8%)</i>	<i>43 (8%)</i>	<i>22 (4%)</i>	<i>1</i>	<i>3 (1%)</i>	<i>1</i>	<i>11 (2%)</i>	<i>0</i>	<i>0</i>
<i>HP</i>	649	416 (64%)	137 (21%)	64 (10%)	16 (2%)	3	5 (1%)	1	6 (1%)	1	0
	<i>748</i>	<i>483 (65%)</i>	<i>155 (21%)</i>	<i>70 (9%)</i>	<i>23 (3%)</i>	<i>6 (1%)</i>	<i>5 (1%)</i>	<i>1</i>	<i>6 (1%)</i>	<i>1</i>	<i>0</i>
<i>JEP</i>	365	199 (55%)	31 (8%)	94 (26%)	25 (7%)	2 (1%)	1	2 (1%)	5 (1%)	6 (1%)	0
	<i>498</i>	<i>275 (55%)</i>	<i>35 (7%)</i>	<i>146 (29%)</i>	<i>34 (7%)</i>	<i>2</i>	<i>1</i>	<i>2</i>	<i>7 (1%)</i>	<i>6 (1%)</i>	<i>0</i>
Total	3,587	2,232 (62%)	488 (14%)	594 (17%)	141 (4%)	25 (1%)	25 (1%)	17	45 (1%)	20 (2%)	0
	<i>6,270</i>	<i>4,172 (67%)</i>	<i>724 (12%)</i>	<i>967 (15%)</i>	<i>261 (4%)</i>	<i>30</i>	<i>27</i>	<i>23</i>	<i>97 (2%)</i>	<i>23 (2%)</i>	<i>12</i>

Note. Developmental Psychology (*DP*), Journal of Personality and Social Psychology (*JPSP*), Journal of Abnormal Psychology (*JAP*), Journal of Family Psychology (*JFP*), Health Psychology (*HP*), and Journal of Educational Psychology (*JEP*). The editorially independent sections of *Journal of Personality and Social Psychology (JPSP)* are Attitudes and Social Cognition (Attitudes), Interpersonal Relations and Group Processes (Interpersonal), and Personality Processes and Individual Differences (Personality). English-speaking countries are the United Kingdom, Canada, Australia, and New Zealand. Percentages not shown where less than half of one percent. Worldwide means that the samples included participants from all categories (not necessarily Israel). Unknown means that it was impossible to determine the provenance of the sample from the information provided.

Table 3

Ethnicity of U.S. Samples and whether it was reported, 2014-2018 compared to 2007

	Percentage U.S. samples that reported ethnicity		Percentage of U.S. samples that were predominantly ethnic minority	
	2007	2014-2018	2007	2014-2018
<i>Developmental Psychology</i>	76	81	18	21
<i>Journal of Personality and Social Psychology</i>	40	43	17	5
<i>Journal of Abnormal Psychology</i>	78	84	12	19
<i>Journal of Family Psychology</i>	91	92	24	26
<i>Health Psychology</i>	81	82	33	20
<i>Journal of Educational Psychology</i>	93	74	40	31
Total	77	76	23	15

Note. 2007 values were calculated from Arnett (2008, Table 2).

Table 4

Sample Characteristics for *Journal of Personality and Social Psychology (JPSP)*, 2014-2018

Section	Total	Undergraduate students	Adult	MTurk	Other online company	Not reported
<i>Attitudes and Social Cognition</i>	838	316 (38%)	90 (11%)	393 (47%)	19 (2%)	17 (2%)
<i>Interpersonal Relations and Group Processes</i>	857	410 (48%)	148 (17%)	275 (32%)	10 (1%)	7 (1%)
<i>Personality Processes and Individual Differences</i>	813	333 (41%)	232 (29%)	201 (25%)	13 (2%)	21 (3%)
<i>JPSP Total</i>	2,508	1,059 (42%)	470 (19%)	869 (35%)	42 (2%)	45 (2%)
United States-based studies	1,904	737 (39%)	270 (14%)	815 (43%)	39 (2%)	26 (1%)
Studies from other countries	603	322 (54%)	184 (31%)	54 (9%)	3	19 (3%)

Table 5

National Affiliation of Associate Editors and Editorial Board members in 2018

Journal	Total	United States	English-speaking countries	Europe	Asia	Latin America	Africa	Middle East	Israel
Associate Editors									
<i>Developmental Psychology</i>	20	20 (100%)							
<i>Journal of Personality and Social Psychology</i>	28	18 (64%)	5 (18%)	3 (11%)	0	0	0	0	2 (7%)
<i>JPSP: Attitudes</i>	8	5 (63%)	1 (13%)	1 (13%)	0	0	0	0	1 (13%)
<i>JPSP: Interpersonal</i>	11	6 (55%)	4 (36%)	1 (9%)	0	0	0	0	
<i>JPSP: Personality</i>	9	7 (78%)		1 (11%)	0	0	0	0	1 (11%)
<i>Journal of Abnormal Psychology</i>	11	10 (91%)	1 (9%)		0	0	0	0	
<i>Journal of Family Psychology</i>	8	7 (88%)		1 (13%)	0	0	0	0	
<i>Health Psychology</i>	6	4 (67%)	2 (33%)		0	0	0	0	
<i>Journal of Educational Psychology</i>	15	12 (80%)		2 (13%)	1 (7%)	0	0	0	
Total	88	71 (81%)	8 (9%)	6 (7%)	1 (1%)	0	0	0	2 (2%)
Editorial Board Members									
<i>Developmental Psychology</i>	98	83 (85%)	10 (10%)	5 (5%)	0	0	0	0	
<i>Journal of Personality and Social Psychology</i>	245	172 (70%)	40 (16%)	28 (11%)	2 (1%)	0	0	0	5 (2%)
<i>JPSP: Attitudes</i>	64	43 (67%)	8 (13%)	8 (13%)	2 (3%)	0	0	0	3 (5%)
<i>JPSP: Interpersonal</i>	126	90 (71%)	23 (18%)	11 (9%)	0	0	0	0	2 (2%)
<i>JPSP: Personality</i>	55	39 (71%)	9 (16%)	9 (16%)	0	0	0	0	
<i>Journal of Abnormal Psychology</i>	105	95 (90%)	6 (6%)	3 (3%)	0	0	0	0	1 (1%)
<i>Journal of Family Psychology</i>	151	142 (94%)	5 (3%)	4 (3%)	0	0	0	0	
<i>Health Psychology</i>	98	90 (92%)	6 (6%)	1 (1%)	1 (1%)	0	0	0	
<i>Journal of Educational Psychology</i>	145	105 (72%)	15 (10%)	23 (16%)	1 (1%)	1 (1%)	0	0	1 (1%)
Total	842	687 (82%)	82 (10%)	64 (8%)	4	1	0	0	7 (1%)

Note. Percentages not shown where less than half of one percent.

Figure 1
 Proportion of American First Authors 1988- 2018

