

University of Texas Rio Grande Valley

ScholarWorks @ UTRGV

---

Psychological Science Faculty Publications and  
Presentations

College of Liberal Arts

---

6-2023

## The underrepresentation of Latinx students in the professional dissemination of psychology research

Scott D. Frankowski

*The University of Texas Rio Grande Valley*

Megann Hawley

Shakira Hernandez

Nazanin M. Heydarian

*The University of Texas Rio Grande Valley*

Follow this and additional works at: [https://scholarworks.utrgv.edu/psy\\_fac](https://scholarworks.utrgv.edu/psy_fac)



Part of the [Psychology Commons](#)

---

### Recommended Citation

Frankowski, S. D., Hawley, M., Hernandez, S., & Heydarian, N. M. (2023). The underrepresentation of Latinx students in the professional dissemination of psychology research. *Journal of Latinx Psychology*. Advance online publication. <https://doi.org/10.1037/lat0000230>

This Article is brought to you for free and open access by the College of Liberal Arts at ScholarWorks @ UTRGV. It has been accepted for inclusion in Psychological Science Faculty Publications and Presentations by an authorized administrator of ScholarWorks @ UTRGV. For more information, please contact [justin.white@utrgv.edu](mailto:justin.white@utrgv.edu), [william.flores01@utrgv.edu](mailto:william.flores01@utrgv.edu).

**The Underrepresentation of Latinx Students in the Professional Dissemination of  
Psychology Research**

Scott D. Frankowski<sup>1</sup>, Megann Hawley<sup>2</sup>, Shakira Hernandez<sup>2</sup>, and Nazanin M. Heydarian<sup>3</sup>

<sup>1</sup> Department of Psychological Science, University of Texas Rio Grande Valley

<sup>2</sup> Department of Psychology, Midwestern State University

<sup>3</sup> School of Social Work, University of Texas Rio Grande Valley

**Author Note**

Scott D. Frankowski: <https://orcid.org/0000-0003-1820-2615>

Nazanin M. Heydarian: <https://orcid.org/0000-0002-9100-4378>

There are no conflicts of interest to disclose.

Correspondence regarding this article should be addressed to Scott D. Frankowski,  
University of Texas Rio Grande Valley, Department of Psychological Science, 1201 W.  
University Dr., Edinburg, TX 78539. Email: [scott.frankowski@utrgv.edu](mailto:scott.frankowski@utrgv.edu)

### **Abstract**

Latinx students are well represented among undergraduate psychology majors. However, there is an underrepresentation of Latinxs in psychology graduate programs, among faculty, and licensed practitioners. This underrepresentation is evidence of a leaky pipeline of attrition among Latinx psychology students from bachelor to post-bachelor career tracks. The present research investigates one point of this leaky pipeline – research activity and professional dissemination of research. We used public datasets and surname matching to compare Latinx student representation at a regional psychology conference to Latinx enrollment and psychology degree completions at colleges and universities represented at the conference. We found consistent evidence of Latinx underrepresentation in the professional dissemination of research. This underrepresentation occurred at both federally designated Hispanic Serving Institutions (HSIs) and non-HSIs. This research shows one point in the academic pipeline in psychological science at which Latinx students are underrepresented. Results provide evidence for a lack of recruitment of Latinx students into the research process. This disparity in research activity may lead to attrition from undergraduate to post-bachelor education and career tracks in psychology. Strategies that faculty and departments can employ to address these disparities are discussed.

*Keywords:* Latinx underrepresentation, minority students, research activity, presenting research, leaky pipeline

### **Public Significance Statement**

Using public data sources, our research showed an underrepresentation of Latinx students in presenting research at a psychology conference compared to their institution's demographics. This underrepresentation may indicate systemic barriers and ineffective recruitment of Latinx

students into the research process. In turn, this underrepresentation may lead to fewer Latinx students pursuing post-bachelor education and career tracks in psychology.

## **The Underrepresentation of Latinx Students in the Professional Dissemination of Psychology Research**

Latinxs<sup>1</sup> are currently the fastest growing demographic and largest minority group in the United States, making up 18.5% of the population (U.S. Census Bureau, 2021). Despite their increasing population in the U.S., Latinxs are underrepresented in post-secondary education, in graduate programs, and as university faculty (*Excelencia in Education*, 2020; Fernandez, 2019). However, Latinx students are increasingly well represented as undergraduate psychology majors, currently earning nearly 20% of bachelor's degrees in psychology (U.S. Department of Education National Center for Education Statistics [NCES], 2020). These increases in undergraduate psychology degree attainment among Latinx students have not translated into similar increases in psychology graduate degrees, faculty positions, and professional licensure for Latinxs (Fernandez, 2019; American Psychological Association [APA], 2020). The disparity between bachelor's degree attainment and transitioning into post-bachelor career tracks in the psychological sciences may indicate that Latinx psychology students face high attrition rates along their career path. We investigated student research activity as one of these points of attrition that could be a leak in the pipeline of Latinx students' careers in psychology.

Faculty interaction and faculty research supervision are strong predictors of self-reported preparedness for psychology graduate programs (Huss et al., 2002) and graduate school attendance (Stoloff et al., 2012). Undergraduate research activity that culminates in presenting at university and professional conferences correlates moderately with graduate school admissions (Stoloff et al., 2015). Additionally, commitment to pursuing graduate careers in science has been

---

<sup>1</sup> In this paper, *Latinx* is used when referring to people of Latin American cultural or ethnic identity. *Hispanic* is used when referring specifically to government designations used in Census Bureau and Department of Education data sources.

shown to be predicted by research experience and mediated by self-efficacy and identification as a scientist (Chemmers et al., 2011). Scholarship on undergraduate minority research activity tends to focus on positive outcomes of research activity including gains in knowledge and skills, better GPA, increased faculty interaction, satisfaction with the research process, and plans to enroll in a graduate or professional program (Collins et al., 2017; Eagan et al., 2013). However, there is no research we are aware of that attempts to quantify representation of historically underrepresented groups in student research participation. The positive outcomes of research activity mean little to students who do not engage in these activities. The underrepresentation of Latinx and Black students in graduate programs (Hussar et al., 2020), as faculty (White et al., 2021), and licensed psychologists (APA, 2020) could be attributed to underrepresentation in the research process at the earliest stages of students' career pipeline. The present study attempts to quantify representation of Latinx students in the psychological sciences by investigating professional conference presentations as an indicator of student research activity – specifically, poster presentations.

Recognizing the historical underrepresentation of Latinxs in higher education, the U.S. federal government supports institutions that enroll large proportions of Latinx students. Colleges and universities are designated as Hispanic Serving Institutions (HSIs) if 25% or more of their full-time equivalent students are Latinx and 50% or more of the institution's students are receiving need-based assistance (Hispanic Serving Institutions, 2011). Currently, there are 569 HSIs in the United States, representing 18% of U.S. colleges and universities, and enrolling two-thirds of Latinx students in the U.S. (*Excelencia in Education*, 2020). The HSI designation offers tax benefits and provides institutions with opportunities to compete for grant programs to expand student research experiences, Science, Technology, Engineering, Math (STEM) degrees, and

graduate degrees among Latinxs. Hispanic serving institutions serve their students through academic and non-academic means (see Garcia et al., 2019 for review). Research on the outcomes of HSIs is mixed. Garcia et al.'s (2019) review suggests that, in general, HSIs have equitable academic outcomes (e.g., GPA, graduation rates, retention rates) with non-HSIs. One aspect of the present study was to test whether there were differences in Latinx representation between HSIs and non-HSIs in student dissemination of psychology research.

With the present research, we used archival methods to compare Latinx student representation at a regional psychology conference to institutional enrollment and psychology degree completion demographics of the colleges and universities with which the students are affiliated. Differences in these proportions are an indication of inequity among Latinx students versus non-Latinx students in the outcomes of research activity. These inequities in research outcomes could be an indicator of inequities in research participation. We focused on poster presentations because they are most likely to include student presenters and because they are typically students' first exposure to the professional dissemination of research. In preparing and presenting posters, students engage in active and independent learning, develop research and presentation skills, and poster presentations may be less daunting than other forms of research dissemination for students (Frankowski, 2021; Halligan, 2008; Tanner & Chapman, 2012; Wallengren-Lynch, 2018). Furthermore, the sheer number of poster presentations reflects a large sample from the conference total, thus allowing us to test whether there may be demographic biases in who presents research.

## **Research Aims and Hypotheses**

### *Aims*

The primary aim of this research was to investigate whether there is an underrepresentation of Latinx students in the dissemination of psychology research as operationalized by poster presentations at regional psychology conference. As a secondary aim, we investigated whether there were differences in research dissemination by Latinx students based on whether students were from HSIs or non-HSIs.

### *Hypotheses*

1. Our first hypothesis was that there would be an underrepresentation of Latinx students in the professional dissemination of research in the psychological sciences as shown by odds-ratios comparing Latinx representation at a regional conference versus Latinx student enrollment and psychology degree completions at conference presenters' institutions.
2. Our second hypothesis was that there would be less underrepresentation in the professional dissemination of psychology research at HSIs compared to non-HSIs. As with our first hypothesis, we calculated odds-ratios comparing Latinx conference representation to institutional Latinx enrollment and psychology degree completions.

## **Methods**

### **Conference Data**

For this archival study, we looked at student poster presentations at the Southwest Psychological Association (SWPA) regional conference. The SWPA region includes the states of Arizona, Arkansas, Louisiana, Kansas, Missouri, New Mexico, Oklahoma, Tennessee, and



Texas. The SWPA conference covers all sub-disciplines of psychology and welcomes student presenters (SWPA Mission Statement, n.d.). Regional conferences are more accessible to student presenters than national or international conferences because there is often less travel involved and lower attendance and organization costs (Sarabipour et al., 2021). Because of these lower costs, regional conferences bring in many presenters from teaching-intensive institutions where students and faculty may not have much of a travel budget. In Texas, the state that has the most institutional representation at SWPA, about 40% of the population is Hispanic/Latinx (U.S. Census Bureau, 2021). Because of the large proportion of Latinxs in the geographic region that SWPA primarily draws from, there should be a substantial number of Latinx student presenters to test whether there is underrepresentation at the conference in comparison to institutions represented at the conference. While not explicit in the submission guidelines, posters at SWPA are presented in English. Most U.S. colleges and universities require English proficiency; although, dual-language learning is becoming more common in some regions (Catolico, 2022). The standard of presenting in English could be exclusionary for some students. We downloaded SWPA conference programs from 2017, 2018, and 2019 representing academic years 2016-17 (taking place in Albuquerque, NM), 2017-18 (Houston, TX), and 2018-19 (San Antonio, TX). The locations of the 2018 and 2019 conferences in Texas were within a few hours driving distance of many of the universities that consistently have student participants. The 2017 Albuquerque, New Mexico conference would have been an all-day drive for students from schools in central and East Texas, and much longer for students at institutions further East (although, it was much closer to schools in New Mexico and Arizona). New Mexico and Texas both have substantial populations of Latinx residents (50.1% and 40.2%, respectively; U.S. Census Bureau, 2021). Participation in poster presentations at the SWPA conference were

relatively consistent across the three years under investigation. In 2017, there were 849 unique poster presenters ( $n = 201$  coded as faculty). In 2018, there were 878 unique poster presenters ( $n = 186$  coded as faculty); and in 2019, there were 791 unique poster presenters ( $n = 203$  coded as faculty). From the conference programs, we pulled the names and institutional affiliations of all poster presenters from each of the three years.

### **Identifying Faculty**

Because this research focuses on student representation, we needed to identify faculty members to exclude them from analyses. Faculty titles and/or degree initials were not indicated in the conference programs. We searched the names of all unique presenters in each year using institution websites, LinkedIn, and Google searches to determine whether presenters were faculty members (non-student adjunct, lecturer, tenured or tenure track) during the year. We coded for faculty status and excluded faculty from analyses. Because we coded for faculty on a per year basis, there were instances of presenters who, for example, were a graduate student in 2017 and became a faculty member in 2018. In such an instance, the presenter was included in analyses in 2017 but not in 2018. We coded 1,105 instances of faculty presenters and 446 unique faculty members across all institutions.

### **Presenter Data**

For each poster presentation, the names (first and last) and the institutional affiliation of the presenters were copied into a spreadsheet. Across the three years, there were 3,709 poster presenters from 163 institutions (122 of which were colleges or universities). Excluding the 1,105 instances of faculty presenters left 2,604 non-faculty presenters. Many presenters were co-authors on more than one poster. In total there were 1,747 unique non-faculty presenters across

all years. However, for analyses we created unique IDs within each year, such that the same individual who presented in multiple years would be counted each year. We created these unique IDs so that individuals would not be undercounted when we coded for Latinx surnames. If the same person presented in 2017, 2018, and 2019, our analysis would show that the presenter's institution had that representation from that student in each year. There were 1,928 unique presenters within and across the three years. We included presenters from institutions only if there were at least 10 unique presenters from the institution across the three years.<sup>2</sup> This cutoff of 10 unique presenters allowed us to examine institutions that regularly participate in the conference. This cutoff also excluded non-academic affiliations from companies, health service providers, and non-profits. This criterion left 1,601 unique student presenters from 53 academic institutions.

### **Latinx Surnames**

We coded for Latinx surnames using the U.S. Census Bureau's (2010) table of names that occur 100+ times in the U.S. census. This table includes 162,253 surnames. Each surname includes the percentage of people with that surname who indicated an ethnic or racial category. For example, for the most common U.S. surname, *Smith*, 70.9% of Smiths indicated they are White, 23.11% Black, and 2.4% Hispanic. For data analyses, we coded the name as Latinx if it was a surname that was reported to be Hispanic 50% of the time or greater.<sup>3</sup> In Microsoft Access, we joined the matching names from the Census Bureau with the presenter list. We also

---

<sup>2</sup> This cut-off decision was made as we began analyses and realized that many organizations at the conference had only a few presenters or the organization was not an academic institution.

<sup>3</sup> We pre-registered 70% as the cutoff but changed this as we began analyses and realized we were excluding what we considered to be common Latinx surnames.

manually went through to check hyphenated names and individuals with more than one surname against the Census Bureau database ( $n = 22$  presenters were coded as Latinx manually).

### **Institutional Data**

Data about the demographic make-up of the 53 institutions with at least 10 presenters across the three years of SWPA was obtained from the NCES Integrated Postsecondary Education Data System (IPEDS) by selecting for target institutions' enrollment by race/ethnicity for 2016, 2017 and 2018. These data are reported in the fall semester each year to include the 2017, 2018 and 2019 SWPA conferences that occur in the spring. Presenter data was combined across the three years to increase power, and an average of the institutions' enrollment was calculated across the three years. We compared the proportion of unique Latinx (versus non-Latinx) student presenters within and across years to the institutions' average proportion of Hispanic students in these three years. The three-year average institutional enrollment was rounded to the nearest whole number. The IPEDS system does not report enrollment ethnicity broken down into academic majors. However, the system does provide the completion data for major of study by ethnicity. Completions are any degree that the institution awards (e.g., bachelor's, master's, doctorate, certificate). From IPEDS, we retrieved the data of the ethnicity demographics of completions from psychology related programs. These are designated in the IPEDS system with Classification of Instruction Program (CIP) codes of 42.xxx. We averaged three years of this CIP completion data for Hispanic students as a proportion of total students to compare to the proportion of Latinx presenters at the SWPA conference. Thus, we made comparisons of Latinx conference participation to both institutions' total demographics and to degree completion demographics in psychology.

Conference presenters manually entered their institutional affiliation, rather than selecting from a drop-down list, so there were differences in how presenters entered their affiliation (e.g., University of Texas at San Antonio, UT-San Antonio, The University of Texas – San Antonio). Thus, prior to joining the IPEDS data with the presenter data, we cleaned the presenter-entered institutional affiliations to match IPEDS. We joined the IPEDS data and the presenter data in Microsoft Access. For exploratory analyses, we also coded whether the institution was an undergraduate-only institution or whether they offered graduate programs in psychology. We obtained this program information from institutions' websites and checked it against the IPEDS degree completion data.

### **Hispanic Serving Institutions**

The NCES provides a listing of HSIs each year that cover the previous year (U.S. Department of Education, 2018-2020). We coded an institution as an HSI if they appeared on the list any of the three years. There was only one university of the 53 included in analyses that was not an HSI for all three years: Texas Tech University, in Lubbock, TX, was not on the HSI list for SWPA 2017 but became an HSI the following year. There were no institutions that lost HSI status across the three years. Eighteen of the 53 institutions were coded as HSIs.

### **Results**

For analyses, a single data table was imported into SAS that included the institution, the institution's HSI status, the average number across the three years of Hispanic and non-Hispanic students enrolled at the institution, the average number of psychology degree completions of Hispanic and non-Hispanic students at each institution across the three years, the number of unique Latinx and non-Latinx presenters within and across years, and whether the

institution has a psychology graduate program. Odds ratios with 95% confidence intervals are reported in relation to the institutional enrollment and the psychology degree completions.

Values less than one, with 95% confidence intervals that do not include one, indicate a probable underrepresentation of Latino presenters at the conference in comparison to the institutions' demographics.

### **Test of Hypothesis 1**

Across all 53 institutions included in analyses (18 HSIs, 35 non-HSIs) there were 1,601 student poster presenters. There were 248 (15.49%) presenters coded as Latinx and 1,353 (84.51%) non-Latinx presenters. Comparatively, at the institutions these students represented there were an average of 203,198 Latinxs (24.39%) and 629,816 (75.61%) non-Latinxs across the three years. Comparing these proportions shows an underrepresentation of Latinx student presenters at the conference compared to their institutions; Latinx students were 43% less likely to be poster presenters compared to non-Latinx students,  $OR = 0.57$  [CI95: 0.50, 0.65]. Using institutions' psychology degree completions as an indicator of Latinx representation, Latinx students comprised 30.25% of psychology degree completions at the institutions under investigation. Compared to psychology degree completions proportions, Latinx students were 58% less likely to present at the conference compared to non-Latinx students,  $OR = 0.42$  [CI95: 0.37 – 0.49].

Results from individual institutions can be found in Table 1. Most institutions had less representation of Latinx students at the conference in comparison to the students' institutions (46 out of 53 or 86.79% based on institutional enrollment; 47 out of 53 or 88.68% based on psychology degree completions). However, there were few institutions where the odds-ratio

confidence intervals did not span 1.00 ( $n = 5$  comparing to institutional enrollment;  $n = 10$  comparing to psychology degree completions).

**Table 1.** Latinx conference representation and institutional representation of all universities with 10+ unique student poster presenters at the Southwest Psychological Association annual conference from 2017-2019

Institution	Mean Latinx % and mean proportion at institution	Mean Latinx % completing psychology degrees	Latinx % and unique proportion at conference	Conference/Institution Odds Ratio <sup>4</sup> (95%)	Conference/Psychology Degree Completion Odds Ratio (95%)
Abilene Christian University	16.11% (814/5,054)	19.90% (13/67)	2.94% (1/34)	0.16 (0.02 – 1.16)	0.12 (0.02 – 0.97)
† Angelo State University	32.53% (3,309/10,173)	32.47% (46/142)	14.29% (8/56)	0.35 (0.16 – 0.73)	0.35 (0.15 – 0.79)
Arkansas State University	2.66% (370/13,890)	1.49% (1/67)	0% (0/13)	1.40 (0.08 – 23.73)	2.53 (0.08 – 79.68)
* Austin College	19.83% (253/1,276)	24.21% (8/32)	11.36% (5/44)	0.56 (0.23 – 1.39)	0.40 (0.12 – 1.38)
Baylor University	14.19% (2,419/17,046)	18.90% (30/157)	25.00% (4/16)	2.18 (0.74 – 6.40)	1.43 (0.43 – 4.75)
* Blinn College	21.85% (4,231/19,362)	32.93% (9/27)	20.00% (4/20)	0.98 (0.34 – 2.77)	0.51 (0.13 – 1.97)
Cameron University	12.44% (585/4,704)	16.40% (14/83)	8.33% (1/12)	0.92 (0.17 – 5.04)	0.46 (0.06 – 3.89)
* Collin County Community College District <sup>5</sup>	19.88% (6,364/32,016)	--	8.33% (1/12)	0.53 (0.10 – 2.88)	--
Fort Hays University	7.15% (1,082/15,142)	10.83% (19/172)	5.00% (2/40)	0.84 (0.23 – 3.04)	0.43 (0.10 – 1.94)
* Hendrix College	5.37% (67/1,248)	4.46% (2/37)	0% (0/14)	0.60 (0.04 – 10.23)	0.76 (0.03 – 19.13)

<sup>4</sup> A Haldane-Anscombe correction (adding 0.5 to count) was used for cell frequencies of zero.

<sup>5</sup> No degrees with IPEDS CIP code 42.xxx reported.

Lamar University	16.55% (2,424/14,647)	25.68% (114/443)	0% (0/14)	0.17 (0.01 – 2.92)	0.10 (0.01 – 1.75)
Missouri State University-Springfield	3.34% (788/23,617)	3.63% (11/303)	2.08% (1/48)	0.91 (0.18 – 4.65)	0.56 (0.07 – 4.48)
* Missouri Western State University	1.76% (97/5,515)	4.04% (1/33)	7.14% (2/28)	5.24 (1.41 – 19.47)	1.83 (0.19 – 17.37)
Oklahoma City University	8.90% (255/2,864)	8.06% (2/21)	8.33% (1/12)	1.33 (0.24 – 7.34)	1.04 (0.08 – 13.79)
Oklahoma State University – Main Campus	6.93% (1,748/25,240)	8.67% (18/204)	7.27% (4/55)	1.17 (0.45 – 3.08)	0.83 (0.27 – 2.55)
†* Saint Edward’s University	41.18% (1,825/4,432)	46.52% (36/77)	26.67% (4/15)	0.56 (0.19 – 1.66)	0.42 (0.12 – 1.43)
Sam Houston University	22.58% (4,707/20,845)	19.76% (54/273)	8.33% (3/36)	0.36 (0.12 – 1.08)	0.37 (0.11 – 1.25)
Southeastern Louisiana University	6.99% (1,002/14,327)	8.67% (9/100)	0% (0/14)	0.46 (0.03 – 7.69)	0.38 (0.02 – 6.88)
Southern Nazarene University	8.98% (193/2,150)	9.48% (4/39)	4.35% (1/23)	0.67 (0.13 – 3.54)	0.43 (0.04 – 4.22)
* Southwestern University	23.22% (330/1,421)	26.17% (9/36)	24.14% (7/29)	1.10 (0.48 – 2.54)	0.90 (0.29 – 2.78)
† St. Mary’s University	58.38% (2,118/3,628)	64.12% (28/44)	47.62% (10/21)	0.65 (0.28 – 1.51)	0.51 (0.18 – 1.46)
Stephen F. Austin State University	17.38% (2,228/12,817)	17.50% (19/107)	9.91% (11/111)	0.54 (0.29 – 1.00)	0.52 (0.23 – 1.15)
Tarleton State University	18.78% (2,452/13,054)	19.57% (39/199)	5.71% (2/35)	0.32 (0.09 – 1.17)	0.25 (0.06 – 1.08)
Texas A & M University-College Station	20.53% (13,744/67,083)	26.04% (158/608)	5.88% (1/17)	0.35 (0.07 – 1.87)	0.18 (0.02 – 1.35)
Texas A & M University-Commerce	17.71% (2,341/13,215)	17.46% (18/105)	0% (0/34)	0.07 (0.00 – 1.10)	0.07 (0.00 – 1.17)



† Texas A & M University-Kingsville	63.44% (5,644/8,897)	84.78% (39/46)	60.00% (9/15)	0.84 (0.31 – 2.29)	0.27 (0.07 – 1.00)
† Texas A&M University-San Antonio	69.13% (4,262/6,165)	67.53% (52/77)	40.00% (16/40)	0.30 (0.16 – 0.56)	0.32 (0.15 – 0.71)
Texas A&M University-Texarkana	13.05% (270/2,069)	13.08% (5/36)	3.70% (1/27)	0.38 (0.07 – 1.96)	0.26 (0.03 – 2.36)
Texas Christian University	12.68% (1,332/10,505)	13.64% (17/125)	2.63% (1/38)	0.27 (0.05 – 1.41)	0.17 (0.02 – 1.33)
†* Texas Lutheran University	34.25% (473/1,381)	41.86% (6/14)	25.71% (9/35)	0.69 (0.33 – 1.46)	0.48 (0.13 – 1.75)
† Texas State University	35.34% (13,697/38,756)	36.71% (203/552)	26.19% (11/42)	0.67 (0.34 – 1.31)	0.61 (0.30 – 1.24)
† Texas Tech University	24.89% (9,268/37,229)	29.00% (80/277)	12.90% (4/31)	0.49 (0.18 – 1.34)	0.36 (0.12 – 1.07)
† Texas Woman's University	25.10% (3,903/15,552)	24.68% (26/105)	14.29% (9/63)	0.52 (0.26 – 1.04)	0.51 (0.22 – 1.17)
† The University of Texas Permian Basin	45.52% (2,969/6,522)	38.05% (49/130)	33.33% (4/12)	0.64 (0.20 – 1.99)	0.81 (0.23 – 2.85)
† The University of Texas Rio Grande Valley	88.89% (24,835/28,009)	91.28% (370/405)	64.29% (27/42)	0.22 (0.12 – 0.41)	0.17 (0.08 – 0.35)
† The University of Texas at Arlington	24.18% (11,347/46,918)	28.01% (54/194)	10.26% (4/39)	0.40 (0.15 – 1.06)	0.29 (0.10 – 0.87)
The University of Texas at Dallas	13.65% (3,690/27,037)	20.55% (60/290)	8.33% (1/12)	0.83 (0.15 – 4.53)	0.35 (0.04 – 2.78)
† The University of Texas at San Antonio	52.77% (16,006/30,332)	57.01% (259/454)	31.82% (14/44)	0.43 (0.23 – 0.80)	0.35 (0.18 – 0.68)
The University of Texas at Tyler	18.28% (1,879/10,281)	20.00% (35/175)	29.73% (11/37)	1.94 (0.97 – 3.88)	1.69 (0.76 – 3.75)

---

University of Central Arkansas	4.98% (562/11,373)	7.23% (10/138)	2.53% (2/79)	0.62 (0.17 – 2.17)	0.33 (0.07 – 1.56)
University of Dallas	17.93% (434/2,421)	23.29% (6/24)	30.00% (3/10)	2.13 (0.60 – 7.62)	1.41 (0.27 – 7.33)
† University of Houston	29.97% (13,391/44,675)	34.69% (190/549)	14.29% (4/28)	0.43 (0.16 – 1.17)	0.31 (0.11 – 0.92)
† University of Houston-Clear Lake	30.62% (2,641/8,624)	33.55% (67/201)	23.08% (6/26)	0.72 (0.30 – 1.74)	0.59 (0.23 – 1.55)
University of Louisiana at Lafayette	5.27% (910/17,266)	4.60% (5/109)	3.13% (1/32)	0.86 (0.17 – 4.41)	0.67 (0.08 – 5.94)
University of Louisiana at Monroe	2.14% (195/9,148)	2.63% (4/139)	0% (0/26)	0.86 (0.05 – 14.19)	0.71 (0.04 – 14.07)
† University of New Mexico – Main Campus	43.29% (10,570/24,418)	48.65% (276/568)	15.38% (2/13)	0.28 (0.07 – 1.12)	0.19 (0.04 – 0.87)
University of North Texas	22.62% (8,656/38,269)	24.33% (112/459)	36.36% (12/33)	1.99 (0.99 – 4.00)	1.78 (0.85 – 3.73)
University of Oklahoma – Norman Campus	8.93% (2,525/28,288)	12.60% (26/204)	0% (0/10)	0.49 (0.03 – 8.29)	0.35 (0.02 – 6.12)
†* University of St. Thomas	39.08% (1,256/3,214)	46.51% (13/29)	45.45% (15/33)	1.31 (0.66 – 2.57)	0.96 (0.35 – 2.62)
† University of the Incarnate Word	50.67% (4,335/8,556)	64.89% (61/94)	33.33% (8/24)	0.50 (0.22 – 1.15)	0.27 (0.10 – 0.70)
Washburn University	9.70% (640/6,601)	6.40% (3/42)	0% (0/36)	0.13 (0.01 – 2.08)	0.20 (0.01 – 4.31)
Wichita State University	11.07% (1,708/15,427)	16.94% (24/144)	0% (0/11)	0.35 (0.02 – 5.93)	0.22 (0.01 – 3.92)
* Williams Baptist University	4.89% (24/491)	6.82% (1/15)	10.00% (1/10)	3.01 (0.51 – 17.68)	1.52 (0.08 – 27.51)

---

† indicates the institution is a federally designated Hispanic Serving Institution

\* indicates institutions without graduate psychology programs as reported with IPEDS CIP codes of 42.xxx post-bachelor programs.

*Note.* The percentage and proportion at the conference counts the unique presenters within each of the three years investigated. Average institution and completion counts are rounded.

Percentages calculated for the institutions are from unrounded counts.

**Test of Hypothesis 2**

When comparing proportions of Latinx and non-Latinx student presenters at HSIs versus non-HSIs, there was underrepresentation of Latinxs from both types of institutions (Table 2). As the odds-ratios in Table 2 show, Latinx students at HSIs were between 45-55% less likely to present at the conference compared to non-Latinx students at HSIs (using institution enrollment demographics or psychology degree completion demographics, respectively). Similarly, at non-HSIs, Latinx students were 41-57% less likely to present compared to non-Latinx students.

**Table 2.** Latinx conference representation compared to institutional enrollment and psychology degree completions at federally designated HSIs and non-HSIs with 10+ unique student poster presenters at the Southwest Psychological Association annual conference from 2017-2019

HSI Status	Mean Latinx % and mean proportion at institution	Mean Latinx % completing psychology degrees	Latinx % and unique proportion at conference	Conference/Institution Odds Ratio (95%)	Conference/Psychology Completion Odds Ratio (95%)
HSI	40.27% (131,849/327,412)	46.92% (1,857/3,957)	28.62% (164/579)	0.55 (0.44 – 0.68)	0.45 (0.37 – 0.54)
Non-HSI	14.11% (71,349/505,602)	17.08% (856/5,012)	8.22% (84/1,022)	0.59 (0.49 – 0.70)	0.43 (0.34 – 0.55)

*Note.* The percentage and proportion at the conference counts the unique presenters within each of the three years investigated. Average institution and completion counts are rounded.

Percentages calculated for the institutions are from unrounded counts. These data compare the representation of Latinx students at the conference to the students’ institutions’ enrollment and the proportion of Latinx students who complete any psychology degree (using IPEDS CIP codes 42.xxx).

**Exploratory Results**

The results showing underrepresentation could solely reflect an underrepresentation of Latinx students in graduate programs. The conference programs did not indicate the student presenter status as undergraduate or graduate presenters. As an exploratory analysis, we coded for institutions that only had an undergraduate psychology program. There were 10 institutions. Table 3 summarizes these results. When comparing to total institutional enrollment Latinx students from undergraduate only institutions were not underrepresented at the conference (as indicated by a odds-ratio 95% confidence interval that spanned 1.00). At institutions with graduate programs, Latinx students were 47% less likely to present at the conference when comparing to total institutional enrollment. However, when comparing to psychology degree completion demographics, Latinx students at both undergraduate only institutions and institutions with graduate programs were underrepresented (46% and 60% less likely to present, respectively).

**Table 3.** Latinx conference presentations by undergraduate-only institutions and institutions that have psychology graduate programs.

Programs offered	Mean Latinx % and mean proportion at institution	Mean Latinx % completing psychology degrees	Latinx % and unique proportion at conference	Conference/ Institution Odds Ratio (95%)	Conference/ Psychology Completion Odds Ratio (95%)
Undergraduate only (n = 10)	21.21% (14,920/55,436)	28.40% (85/299)	20.00% (48/240)	0.93 (0.68 – 1.28)	0.66 (0.44 – 0.99)
	24.69%	30.31%	14.70%		

---

Graduate program offered ( $n = 43$ )	(188,278/762,658)	(2,628/8,669)	(200/1,361)	0.53 (0.45 – 0.61)	0.40 (0.35 – 0.47)
--	-------------------	---------------	-------------	--------------------	--------------------

---

*Note.* The percentage and proportion at the conference counts the unique presenters within each of the three years investigated. Average institution and completion counts are rounded.

Percentages calculated for the institutions are from unrounded counts.

### **Discussion**

The data provide evidence that Latinx psychology students were underrepresented in the professional dissemination of psychology research at a regional conference when compared to their institutions. There was significant underrepresentation at both federally designated HSIs and non-HSIs. When examining the aggregation of data across institutions there is a clear underrepresentation of Latinx student presenters. However, at the individual institution level, statistical power to detect underrepresentation at the conference compared to students' institutions was limited.

The results provided evidence of systemic underrepresentation of Latinx students in the professional dissemination of psychology research. These findings have ramifications for the pipeline of undergraduate research involvement and graduate school admissions of students who are members of historically underrepresented groups. Graduate programs, especially doctoral programs at research intensive public and private institutions, place an emphasis on undergraduate research experience in admissions decisions (Collins, 2001; Collins et al., 2017; Rogers & Molina, 2006). The underrepresentation found in the dissemination of research at this one conference could be an indication that there are also disparities in who is conducting research more broadly at universities. If groups of students are not disseminating research at the

same rates as other groups, it creates a cascading disparity in the academic pipeline for these groups (Frankowski, 2021).

The method of surname matching used in this research may be of interest in further investigations of Latinx disparities when surnames are provided but there is not ethnicity data available. Also, the use of publicly available Department of Education NCES and IPEDS data could be of use in other investigations of issues that are impactful to underrepresented minorities. These data sources could be used to investigate STEM, healthcare sciences, and other disparities in enrollment and degree attainment, by institution type or demographic and geographic characteristics of institutions.

### **Limitations and Future Directions**

There were limitations with this study, some of which could be the basis for future research. We chose to focus only on poster presentations rather than conference symposia. This decision was made because there are many more poster presentations than symposia and students are much more likely to present posters than symposia. However, not including the symposia information may have led us to not fully capture Latinx participation at the conference. Whereas conference attendance and presentations can lead to valuable networking and collaboration opportunities across one's career, research posters do not carry much weight beyond one's undergraduate career. Peer-reviewed publications become much more important and impactful beyond undergraduate studies. However, we believe it is important to examine posters as a marker of research dissemination among students. As an early marker of research activity, underrepresentation could signal a leak in the education-to-career pipeline in the psychological sciences.

The data show an underrepresentation in poster presentations at a psychology conference compared to the demographics of students' institutions and psychology degree completions. However, there are not national statistics that breakdown enrollment by declared major and ethnicity. There may be attrition of students from psychology majors prior to degree completion. If there are biases in the ethnicity of students who leave the psychology major prior to degree completion, it could bias our results when comparing degree completions to conference participation. According to the U.S. Department of Education (2020) Latinx students are overrepresented in psychology bachelor's degrees conferred compared to total bachelor's degrees conferred (Table 4). Looking at Tables 1, 2, and 3, our data largely matches these national aggregates. At most institutions under investigation, there was a higher percentage of Latinx psychology degree completions than Latinx enrollment at the institution. Tracking institution-level enrollment data by major and ethnicity would provide more insight into institution-level, state-level, and regional-level racial/ethnic differences in enrollment by major field of study. Tracking enrollment by major and ethnicity and comparing it to degree completions would also allow researchers to investigate any biases that exist in attrition from majors.



**Table 4.** Total Bachelor’s Degrees and Psychology Bachelor’s Degrees Awarded to Latinxs in the United States – Academic Years 2016-17 through 2018-2019

<b>Academic Year</b>	<b>% of Total Bachelor’s degrees awarded to Latinx students</b>	<b>% of Psychology Bachelor Degrees Awarded to Latinx Students</b>
2016-2017	12.89%	17.79%
2017-2018	13.48%	19.27%
2018-2019	14.16%	19.79%

*Note.* Percentages calculated from NCES table 322.30 for each academic year.

Because of the archival nature of this research using publicly available data and assigning demographic characteristics that student presenters themselves did not self-report, there may be discrepancies in our counts. Some presenters who were coded as Latinx may not actually identify as Latinx (a Type I coding error). Some of these presenters may have changed their surname, identify as multiracial, or otherwise not identify as Latinx. Conversely, there were likely presenters who identify as Latinx but who do not have a traditionally Latinx surname and were not coded as Latinx (a Type II coding error). As for our choice to code surnames that were reported to the U.S. Census Bureau as being Latinx 50% of the time, we are confident this cutoff did not exclude, or falsely include, many Latinx students. Grofman and Garcia (2014) emphasize that the key to surname matching is to find the point at which Type I and Type II errors cancel each other out, a value they put at 34% nationally at the time they conducted their research. This cut-off value, though, is regionally dependent. A lower cutoff in areas where there are high concentrations of Latinxs would likely lead to minimal Type I errors but would lead to a greater likelihood of Type I errors in areas with lower concentrations of Latinxs. In the present dataset, there were only four presenters with surnames identified as Hispanic by the U.S. Census Bureau between 30-50% of the time. Recoding these surnames as Latinx would not change any of the statistical conclusions.

Regarding faculty coding, the manual search for faculty names could have led to some faculty not being coded as faculty if they did not turn up in our search. We are confident we coded the vast majority of faculty correctly because most institutions post and update their faculty rosters that include links to vitas, and most faculty presenters had LinkedIn profiles, or otherwise turned up in Google searches that made it evident what their status was each year that we investigated. In the future, conference organizers could include faculty status in the program.

Whereas faculty were relatively easy to identify, we had no reliable way of identifying graduate students. It is a limitation of the current research in that we are comparing Latinx representation at the conference to students' institutions without knowing the breakdown of undergraduate and graduate students. We were only able to identify and code institutions that had only undergraduate programs, indicating that the non-faculty presenters from these institutions were likely undergraduates. It could be the case that the underrepresentation of Latinx students at the conference primarily represents the underrepresentation of Latinxs in graduate programs in general. Our exploratory analysis showed no underrepresentation of Latinx student presenters from undergraduate-only institutions when comparing to total institutional enrollment; but there was underrepresentation when comparing to psychology degree completions. However, this underrepresentation was much less than at institutions that have graduate programs. We urge caution in drawing inference from the results from small liberal arts institutions that do not have psychology graduate programs to other types of institutions. With the data in the present study, there is no way to conclude whether the underrepresentation of Latinx students reflects a lack of research activity among undergraduates or an underrepresentation of Latinx students in graduate programs. Likely, these two possibilities are related, and both are contributing factors to Latinx underrepresentation in the psychology career

pipeline. We recommend including undergraduate and graduate student status in conference programs. This inclusion could provide insight into whether Latinx undergraduates are not getting equitable research experience to be competitive applicants into graduate programs.

It could be the case that the SWPA conference is itself an outlier and does not accurately reflect the levels of student research activity in psychology departments. Indeed, there may be some biases in the type of institutions that are heavily represented at SWPA. The conference attracts more participation from regional four-year and master's institutions than from research intensive universities. Thus, we cannot rule out that there is an institution-type moderator that may be responsible for the results. However, looking at national and international psychology organizations, and the profession in general, shows similar underrepresentation. The APA (2017), for example, reported that 1.7% of their membership are Hispanic, and 2.0% are Black. Although, there were a large percentage who did not specify their ethnicity (32.6%). The APA does draw a small percentage of members from outside of the United States (mostly from Canada), so the ethnicity data are not directly comparable to the demographics of U.S. psychology. The APA also tracks data on the demographics of psychologists who have a professional degree or doctorate in the workforce, as reported by the U.S. Census Bureau (APA, 2020). These data show that Latinxs make up 7% of the psychology workforce, an underrepresentation compared to the U.S. population. Another major organization, the Association for Psychological Science (APS), draws an international member base. However, most (80.78%) of their members are from North America and only 3.72% are Hispanic and 3.31% are Black (APS, 2020). The underrepresentation found among student research presenters at this one regional conference could reflect an underrepresentation in student research activity in

general, which downstream, affects graduate program admissions and pursuing careers in psychology.

The voluntary and typically unpaid nature of undergraduate research participation may create barriers that bias who is active in research and who has the time and resources to attend conferences. Students from historically underrepresented groups may not have the same moral and financial support from their families and may be expected to contribute financially to their family while in school (Alegria et al., 2019). Students from historically underrepresented groups also face social barriers when pursuing STEM career tracks, including negative perceptions and stereotypes, lack of peers of the same race or ethnicity, and negative classroom interactions (Strayhorn, 2010). Ineffective mentoring and the lack of mentors from underrepresented groups are also likely contributors to underrepresentation of minority students in the dissemination of research (Alegria et al., 2019; Kelch-Oliver et al., 2013; Pfund et al., 2016; Vargas et al., 2020). In general, U.S. higher education excludes students who are not sufficiently proficient in English (Catolico, 2022). While Catolico (2022) examines the rise of dual-language programs in some parts of the country, the dissemination of research in the U.S. is largely in English and thus could be a driver of some disparities if students do not feel comfortable presenting in English. At the institutional level, there are greater student-to-faculty ratios and less money budgeted for instructional and academic support at HSIs versus non-HSIs (Rodríguez & Galdeano, 2015) which could also lead to disparities in research participation among Latinx students. Our research solely investigated disparities in who presented research but did not investigate all these possible causes of disparities. Public datasets from the NCES and U.S. Census Bureau may be useful in investigating some of these underlying causes in disparities. It is important to further examine

the underlying causes of disparity in research participation as disparities could be a cause of attrition from education-to-career in the psychological sciences.

As detailed by the individual institution-level data in Table 2, there were universities in which there was parity in the percentages of Latinx participation compared to students' institutions. Future research should also examine what many institutions are doing to close opportunity gaps for their students. Publicly available NCES datasets may be a good place to start in such an investigation.

### **Addressing Disparities**

There are several concrete steps that institutions and departments can take to address disparities in student research involvement and professional dissemination of research. Standardizing recruitment of student research assistants, standardizing the promotion of research opportunities, and scaffolding in research skills across a department's curriculum are steps departments can take (Morrison et al., 2020). Faculty and departments can also consider upper-level courses in which they can implement course-based research experiences (Brownell & Bangera, 2014; Frankowski, 2021). Course-based research, when done rigorously, casts a wide net to bring many students into the research pipeline who may not have otherwise sought out such experiences. Course-based research also reduces the barriers posed by unpaid volunteer research participation that may disproportionately exclude students from underrepresented groups. Departments should also track their students' research activities, including student demographics, so that they are aware of possible disparities and can longitudinally track student research activity in relation to changing institutional demographics.

This research began early in the pandemic. Most psychology conferences since the pandemic began have gone fully online or have had a virtual component. Notably, the SWPA conference was cancelled in the spring of 2020, was hybrid in 2021, and was in-person in 2022. Virtual conference options can provide equity and increase inclusion in the dissemination of science (Estien et al., 2021; Niner et al., 2020). Future research could investigate representation of students from historically underrepresented groups at conferences that are virtual or hybrid to test whether non-traditional modes of conference attendance increase inclusivity among students from these groups.

## **Conclusion**

The present research provides evidence for an underrepresentation of Latinx students in the professional dissemination of psychology research. This underrepresentation may indicate that research activity is a point of attrition in the career pipeline among this student population. Being aware of this underrepresentation can allow for departments and institutions to address disparities. The archival methods used allowed us to match and merge existing public data sources to identify likely Latinx conference presenters based on surname, a methodology that would be difficult with other historically and systemically underrepresented groups. We believe that investigating leaks in the academic and professional career pipelines of Latinx students may also shed light on disparities among other historically and systemically underrepresented groups.

### References

- Alegría, M., Fukuda, M., Lapatin Markle, S., & NeMoyer, A. (2019). Mentoring future researchers: Advice and considerations. *American Journal of Orthopsychiatry*, 89(3), 329. 10.1037/ort0000416
- American Psychological Association (2017). Demographic Characteristics of APA Members by Membership Status. Retrieved from <https://www.apa.org/workforce/publications/17-member-profiles/table-1.pdf>.
- American Psychological Association (2020). Demographics of U.S. Psychology Workforce [Interactive data tool]. <http://www.apa.org/workforce/data-tools/demographics.aspx>.
- Association for Psychological Science (2020). APS member demographics as of December 31, 2020. Retrieved from [psychologicalscience.org/redesign/wp-content/uploads/2021/10/2020-APS-Member-Demographics-for-Web.pdf](https://psychologicalscience.org/redesign/wp-content/uploads/2021/10/2020-APS-Member-Demographics-for-Web.pdf).
- Bangera, G., & Brownell, S. E. (2014). Course-based undergraduate research experiences can make scientific research more inclusive. *CBE—Life Sciences Education*, 13(4), 602-606. <https://doi.org/10.1187/cbe.14-06-0099>
- Chemers, M. M., Zurbriggen, E. L., Syed, M., Goza, B. K., & Bearman, S. (2011). The role of efficacy and identity in science career commitment among underrepresented minority students. *Journal of Social Issues*, 67(3), 469-491. <https://doi.org/10.1111/j.1540-4560.2011.01710.x>
- Catolico, E. (2022). Can U.S. Colleges Serve People Who Primarily Speak Spanish? Retrieved from: <https://www.edsurge.com/news/2022-08-15-can-u-s-colleges-serve-people-who-primarily-speak-spanish>

- Collins, L. H. (2001). Does research experience make a significant difference in graduate admissions. *Eye on Psi Chi*, 5(2), 26-28.
- Collins, T. W., Grineski, S. E., Shenberger, J., Morales, X., Morera, O. F., & Echegoyen, L. E. (2017). Undergraduate research participation is associated with improved student outcomes at a Hispanic-serving institution. *Journal of College Student Development*, 58(4), 583-600. DOI: 10.1353/csd.2017.0044
- Eagan Jr, M. K., Hurtado, S., Chang, M. J., Garcia, G. A., Herrera, F. A., & Garibay, J. C. (2013). Making a difference in science education: the impact of undergraduate research programs. *American Educational Research Journal*, 50(4), 683-713.  
<https://doi.org/10.3102/0002831213482038>
- Estien, C. O., Myron, E. B., Oldfield, C. A., & Alwin, A. (2021). Virtual scientific conferences: benefits and how to support underrepresented students. *The Bulletin of the Ecological Society of America*, 102(2), e01859. <https://doi.org/10.1002/bes2.1859>
- Excelencia in Education. (2020). Hispanic Serving Institutions: 2019-2020 Fact Sheet. Retrieved from <https://www.edexcelencia.org/fact-sheets/hispanic-serving-institutions-hsis-2019-2020-fact-sheet#>
- Excelencia in Education. (2020). Ensuring America's Future: Benchmarking Latino College Completion to 2030. *Excelencia in Education*. Washington, D.C.
- Fernandez, F. (2019). What's money got to do with it? An examination of the relationships between sources of financial support and the post-graduation career plans of Latina and Latino doctoral students in the social sciences. *The Review of Higher Education*, 43(1), 143-168. 10.1353/rhe.2019.0093



Frankowski, S. D. (2021). Increasing participation in psychological science by using course-based research projects: Testing theory, using open-science practices, and professionally presenting research. *Teaching of Psychology, Online First*.  
<https://doi.org/10.1177/00986283211024200>.

Garcia, G. A., Núñez, A. M., & Sansone, V. A. (2019). Toward a multidimensional conceptual framework for understanding “servingness” in Hispanic-serving institutions: A synthesis of the research. *Review of Educational Research, 89*(5), 745-784.  
<https://doi.org/10.3102/0034654319864591>

Grofman, B., & Garcia, J. R. (2014). Using Spanish surname to estimate Hispanic voting population in voting rights litigation: A model of context effects using Bayes' theorem. *Election Law Journal, 13*(3), 375-393. <https://doi.org/10.1089/ej.2013.0190>

Halligan, P. (2008). Poster presentations: Valuing all forms of evidence. *Nurse Education in Practice, 8*(1), 41–45. <https://doi.org/10.1016/j.nepr.2007.02.005>

Hispanic Serving Institutions, 20 U.S. Code § 1101a (2011).  
<https://www.govinfo.gov/app/details/USCODE-2011-title20/USCODE-2011-title20-chap28-subchapV-partA-sec1101a/summary>

Huss, M. T., Randall, B. A., Patry, M., Davis, S. F., & Hansen, D. J. (2002). Factors influencing self-rated preparedness for graduate school: A survey of graduate students. *Teaching of Psychology, 29*(4), 275-281. [https://doi.org/10.1207/S15328023TOP2904\\_03](https://doi.org/10.1207/S15328023TOP2904_03)

- Hussar, B., Zhang, J., Hein, S., Wang, K., Roberts, A., Cui, J., ... & Dilig, R. (2020). The Condition of Education 2020. NCES 2020-144. *National Center for Education Statistics*.
- Kelch-Oliver, K., Smith, C. O., Welkom, J. S., Gardner, N. D., & Collins, M. H. (2013). Exploring the mentoring relationship among African American women in psychology. *Advancing Women in Leadership Journal*, 33, 29-37. <https://doi.org/10.21423/awlj-v33.a98>
- Morrison, M. E., Lom, B., Buffalari, D., Chase, L., Fernandes, J. J., McMurray, M. S., & Stavnezer, A. J. (2020). Integrating Research into the undergraduate curriculum: 2. Scaffolding research skills and transitioning toward independent research. *Journal of Undergraduate Neuroscience Education*, 19(1), A64-A74. PMID: PMC8040851
- Niner, H. J., Johri, S., Meyer, J., & Wassermann, S. N. (2020). The pandemic push: can COVID-19 reinvent conferences to models rooted in sustainability, equitability and inclusion? *Socio-Ecological Practice Research*, 2(3), 253-256. <https://doi.org/10.1007/s42532-020-00059-y>
- Pfund, C., Byars-Winston, A., Branchaw, J., Hurtado, S., & Eagan, K. (2016). Defining attributes and metrics of effective research mentoring relationships. *AIDS and Behavior*, 20(2), 238-248. [10.1007/s10461-016-1384-z](https://doi.org/10.1007/s10461-016-1384-z)
- Rodríguez, A., & Galdeano, E. C. (2015). Do Hispanic-Serving Institutions really underperform? Using propensity score matching to compare outcomes of Hispanic-Serving and non-

Hispanic-Serving Institutions. In *Hispanic-Serving Institutions* (pp. 210-230).  
Routledge.

Rogers, M. R., & Molina, L. E. (2006). Exemplary efforts in psychology to recruit and retain graduate students of color. *American Psychologist*, *61*(2), 143-156.  
<https://doi.org/10.1037/0003-066X.61.2.143>

Sarabipour, S., Khan, A., Seah, Y. F. S., Mwakilili, A. D., Mumoki, F. N., Sáez, P. J., ... & Mestrovic, T. (2021). Changing scientific meetings for the better. *Nature Human Behaviour*, *5*(3), 296-300.

Stoloff, M. L., Curtis, N. A., Rodgers, M., Brewster, J., & McCarthy, M. A. (2012). Characteristics of successful undergraduate psychology programs. *Teaching of Psychology*, *39*(2), 91-99. <https://doi.org/10.1177/0098628312437721>

Stoloff, M. L., Good, M. R., Smith, K. L., & Brewster, J. (2015). Characteristics of programs that maximize psychology major success. *Teaching of Psychology*, *42*(2), 99-108.  
<https://doi.org/10.1177/0098628315569877>

Strayhorn, T. L. (2010, October). Work in progress—Social barriers and supports to underrepresented minorities' success in STEM fields. In *2010 IEEE Frontiers in Education Conference*, S1H-1. IEEE. DOI:10.1109/fie.2010.5673227

Southwest Psychological Association (n.d.). Mission Statement. Retrieved from  
<http://www.swpsych.org/Mission>

Tanner, P., & Chapman, J. (2012). Poster presentations speak for themselves. *The Language Teacher*, *36*(3), 15. <https://doi.org/10.37546/jalttl36.3-3>

U.S. Census Bureau (2010). Frequently occurring surnames from the 2010 census.

[https://www.census.gov/topics/population/genealogy/data/2010\\_surnames.html](https://www.census.gov/topics/population/genealogy/data/2010_surnames.html)

U.S. Census Bureau (2021). Population estimates, July 1, 2021. *United States Quick Facts*.

Retrieved from <https://www.census.gov/quickfacts/fact/table/US/PST04522>.

U.S. Department of Education, National Center for Education Statistics, Integrated

Postsecondary Education Data System. (2020). Table 322.30. Retrieved from

[https://nces.ed.gov/programs/digest/d20/tables/dt20\\_322.30.asp](https://nces.ed.gov/programs/digest/d20/tables/dt20_322.30.asp).

U.S. Department of Education, National Center for Education Statistics. (2018-2020). Table

312.40. Enrollment and degrees conferred in Hispanic-serving institutions, by institution level and control, percentage Hispanic, degree level, and other selected characteristics. Retrieved from

[https://nces.ed.gov/programs/digest/d20/tables/dt20\\_312.40.asp](https://nces.ed.gov/programs/digest/d20/tables/dt20_312.40.asp)

Vargas, N., Villa-Palomino, J., & Davis, E. (2020). Latinx faculty representation and resource allocation at Hispanic serving institutions. *Race Ethnicity and Education*, 23(1), 39-54.

<https://doi.org/10.1080/13613324.2019.1679749>

Wallengren-Lynch, M. (2018). Using conferences poster presentations as a tool for student learning and development. *Innovations in Education and Teaching International*,

55(6), 633-639. <https://doi.org/10.1080/14703297.2017.1286999>

White, S. W., Xia, M., & Edwards, G. (2021). Race, gender, and scholarly impact: Disparities for women and faculty of color in clinical psychology. *Journal of Clinical Psychology*, 77(1), 78-89. <https://doi.org/10.1002/jclp.23029>.