

Undergraduate Enrollment of Deaf Students in the United States

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on Postsecondary Outcomes

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Introduction

After people leave high school, college experiences can be an opportunity for continued growth and learning, and a way to increase competitiveness in the workplace. Postsecondary enrollment rates for deaf people have increased since the 1980s, in large part due to legislative action and increased accessibility of educational environments (Newman et al., 2011). Despite increased access to postsecondary education, fewer deaf people complete college degrees than their hearing peers (Garberoglio, Palmer, Cawthon, & Sales, 2019a). National data shows that only 5% of deaf people were currently enrolled in postsecondary institutions of any type, compared to 11% of hearing people (Garberoglio et al., 2019a).

This report provides a comprehensive overview of undergraduate enrollment of deaf college students in the United States, serving as a resource for community members, advocates, educators, researchers, and policy makers. In order to develop programs and strengthen services for deaf college students, it is necessary to understand the characteristics of deaf students, and what experiences they bring with them. Data from the 2016 National Postsecondary Student Aid Study (NPSAS), a comprehensive national study of the characteristics of students in postsecondary education, was used in this report. Undergraduate students who were currently enrolled in any type of postsecondary institution, and identified as having any type of hearing loss, were included in these analyses. Further information about this dataset and the methodology are shared in the Methods section of this report.

Key Findings:

- Among all currently enrolled college students, 1.3% are deaf.
- Most deaf students (51.8%) are enrolled in associate's degree programs.
- Deaf college students are less racially and ethnically diverse than hearing students.
- 30.8% of deaf college students have learning difficulties.
- 17.1% of deaf college students are veterans.
- Deaf college students are older than their hearing counterparts, with an average age of 31.
- 60.4% of deaf students are first-generation college students.
- 7 out of 10 deaf students have ever attended community college; a higher proportion than their hearing peers.
- Deaf students are more likely to attend college part-time than their hearing counterparts.
- More deaf students took courses online than their hearing peers.
- After high school, deaf students take around 5 years to enroll in college, compared to a little more than 2 years for hearing students.
- Deaf women complete college at rates closer to their hearing peers than deaf men.

In this report, the term deaf is used in an all-inclusive manner, to include people who may identify as deaf, deafblind, deafdisabled, hard of hearing, late-deafened, and hearing impaired. NDC recognizes that for many individuals, identity is fluid and can change over time or with setting. NDC has chosen to use one term, deaf, with the goal of recognizing experiences that are shared by individuals from diverse deaf communities while also honoring their differences.

CHARACTERISTICS OF CURRENTLY ENROLLED DEAF STUDENTS

Among college students enrolled in the academic year of 2015-2016, 19.5% had a disability. Of this group, 3.9% were deaf (U.S. Department of Education, 2019). The data source for this report estimates that of currently enrolled college students, 1.3% are deaf.

There are more deaf men than deaf women enrolled in college. Of deaf people enrolled in college, 53.5% are men and 46.5% are women. For hearing people, the opposite is true – there are more women than men enrolled in college. Of hearing people enrolled in college, 43.4% are men and 56.6% are women. We know that more deaf women have completed college degrees (Garberoglio et al., 2019a) but this finding suggests that more deaf men are enrolling in college than deaf women.

Among deaf people enrolled in college, 55.8% are white, compared to 52.6% of hearing people enrolled in college. Hearing college students are slightly more racially and ethnically diverse than deaf college students. This suggests that greater recruitment and retention efforts may be needed to increase college enrollment for racially and ethnically diverse deaf students (Figure 2).

Many deaf students have additional disabilities. Among deaf students, 8.1% are deafblind, 13.1% have ambulatory disabilities, and 30.8% have learning difficulties (e.g., learning disabilities, ADHD, ADD, or depression). The incidence of additional disabilities is much higher among deaf students than among hearing students. Colleges need to be prepared to meet the needs of deaf students with additional disabilities (Figure 3).

Figure 1
GENDER STATUS OF CURRENTLY ENROLLED STUDENTS

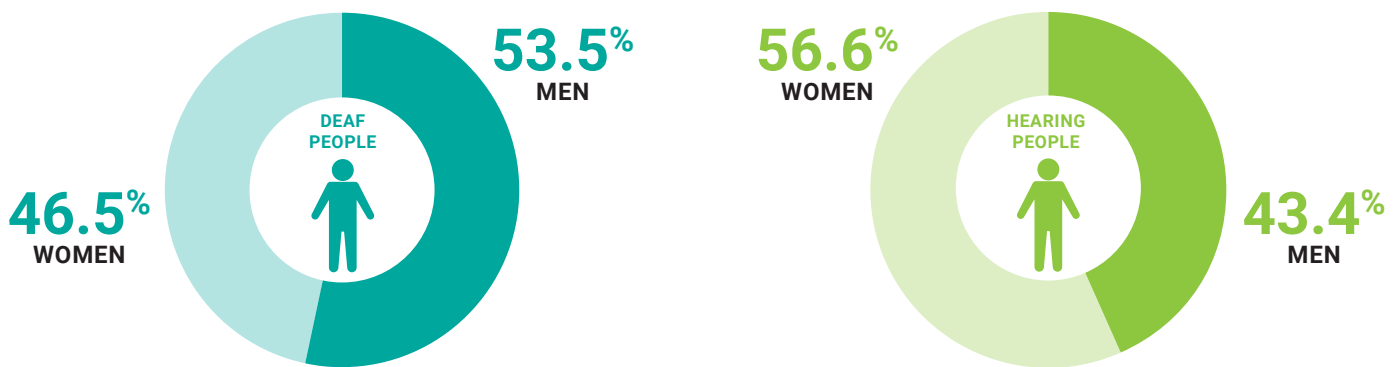
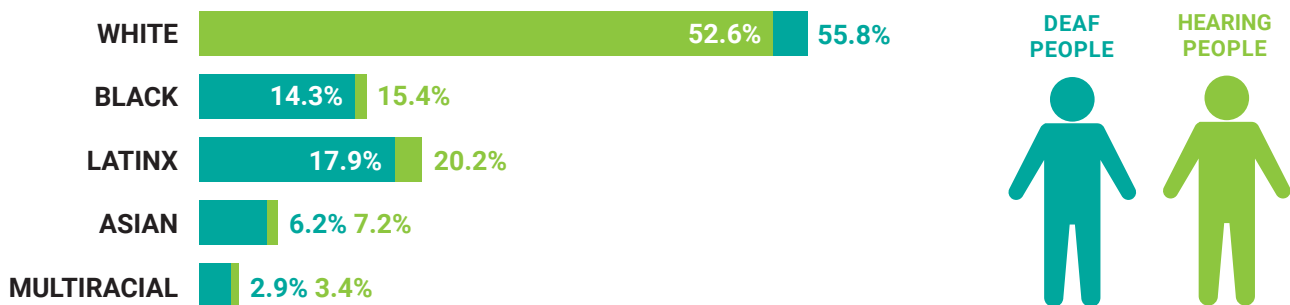


Figure 2
RACE AND ETHNICITY OF CURRENTLY ENROLLED STUDENTS



A significant percentage of deaf college students are veterans. Among deaf college students, 17.1% are veterans, compared to only 4.7% of hearing college students. Recent military conflicts have resulted in a sharp increase in the number of veterans with hearing loss & tinnitus (Theodoroff et al., 2015). Campus support services for students with disabilities and those who are veterans should consider working together to strengthen institutional capacity to serve this large group of deaf students.

Among students who enroll in college, a smaller percentage of deaf students are non-US citizens than hearing students (Figure 4). This suggests that secondary settings may need to provide more support for deaf students who were not born in the United States to encourage their enrollment in

college, and that postsecondary institutions need to consider strategies for supporting these students once they enroll. International deaf students that use languages other than English and ASL may need extra time for learning the languages of instruction, whether that is English, ASL, or both.

Deaf students are largely older than hearing students. The average age of the currently enrolled deaf student is 31, compared to the average age of 25.7 for hearing students (Figure 5). Deaf students may take longer to complete postsecondary education (Newman et al., 2011), or wait longer after high school before enrolling in postsecondary education than their hearing peers (Page 13).

Figure 3
ADDITIONAL DISABILITY STATUS OF CURRENTLY ENROLLED STUDENTS

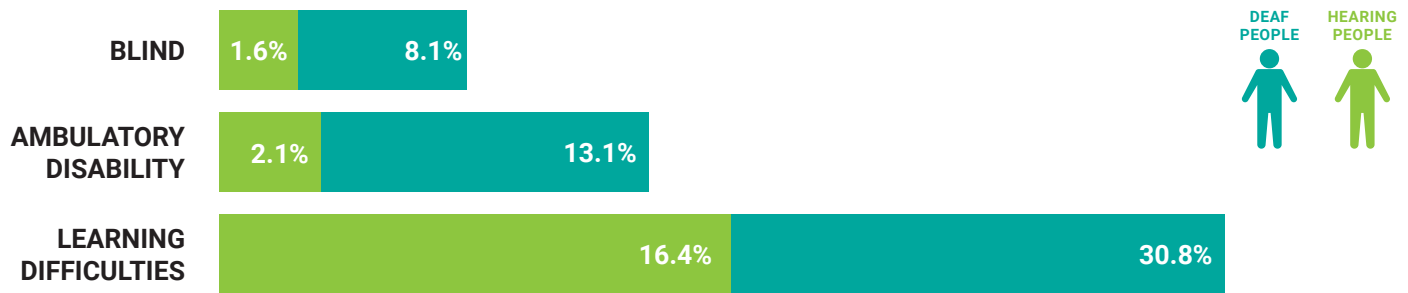
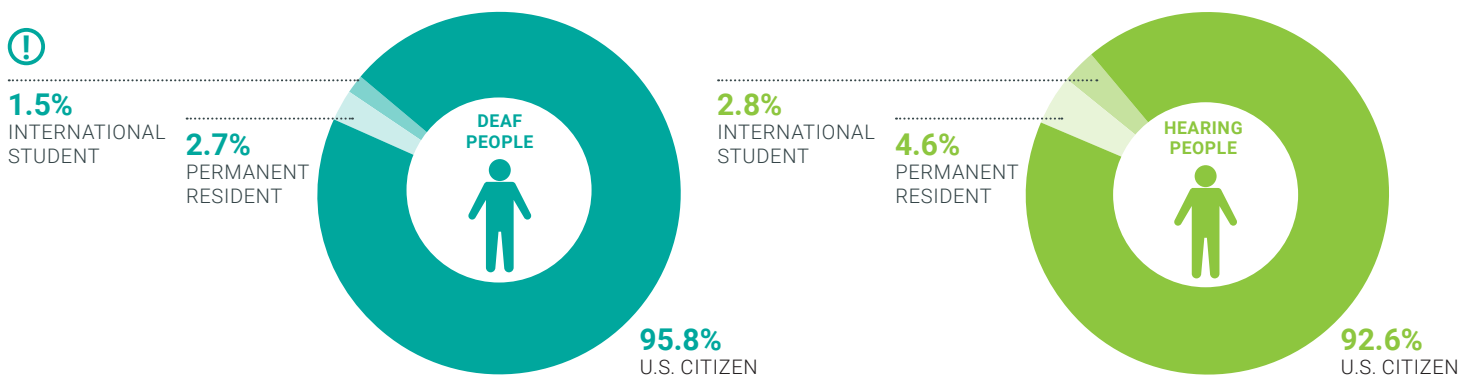


Figure 4
CITIZENSHIP STATUS OF CURRENTLY ENROLLED STUDENTS



! Data should be interpreted with caution. Standard errors represent more than 30% of the estimate.

For college students, their families can be an important influence and source of support. The demographics of college students have changed over time, as college enrollment has steadily increased in quantity and diversity. This means that many currently enrolled college students are first-generation students, from families whose parents had not graduated from college. A higher percentage of deaf college students (60.4%) than hearing students (55.4%) are first-generation students whose parents have never completed a bachelor's degree or above. These deaf students may need additional support as they learn how to navigate through college (Pascarella, Pierson, Wolniak, & Terenzini, 2004).

More deaf people who are enrolled in postsecondary settings are married and have children than their hearing counterparts (Figure 6). This may be partly explained because deaf students are older, on average, than their hearing counterparts. A higher percentage of deaf students have children than their hearing counterparts (29.6% vs. 21.9%). Only 50.3% of institutions offer on-site childcare. A slightly higher percentage of deaf students than hearing students are attending institutions that offer on-site childcare (52.6% vs. 50.3%), which suggests that the availability of on-site childcare may be an important consideration for deaf students.

Figure 5
AGE RANGES OF CURRENTLY ENROLLED STUDENTS

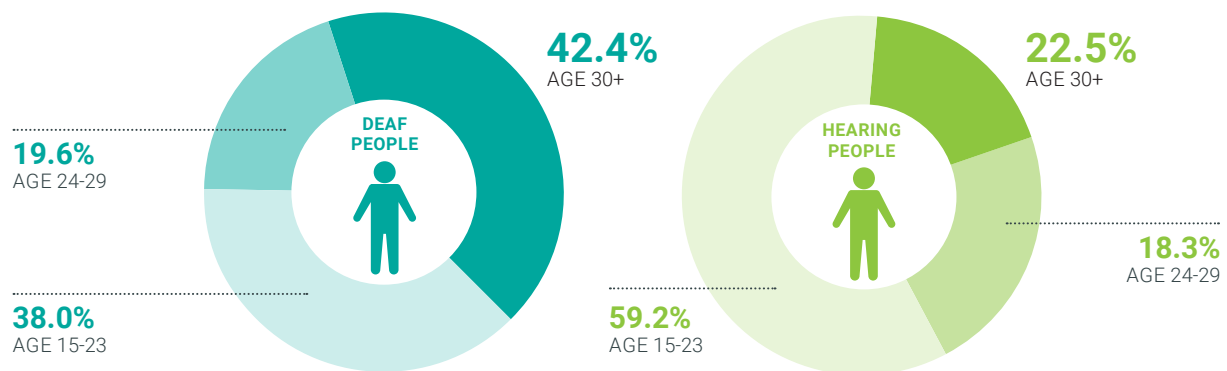
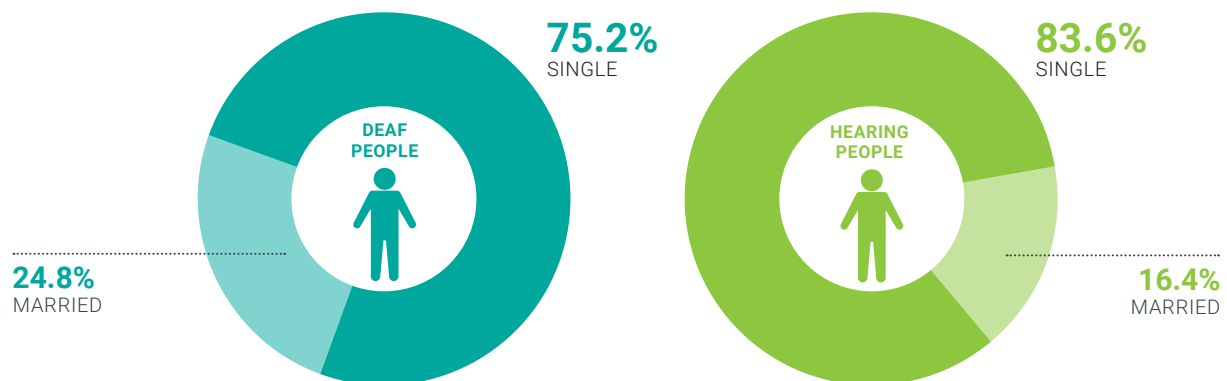


Figure 6
FAMILY STATUS OF CURRENTLY ENROLLED STUDENTS

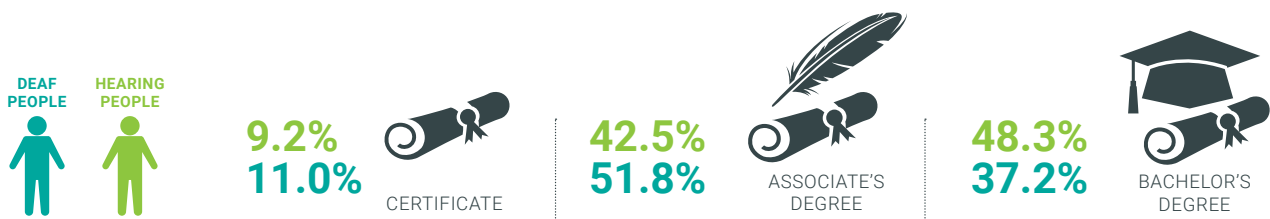


UNDERGRADUATE DEGREE ENROLLMENT OF DEAF COLLEGE STUDENTS

Current trends in undergraduate education indicate that people are increasingly choosing to enroll in certificate and associate's degree programs (Chen, 2016; Zhang et al., 2018). Among currently enrolled students, deaf and hearing students enrolled in certificate programs at similar rates. More than half deaf students are enrolled in associate's degree programs, while more hearing people are enrolled in bachelor's programs (Figure 7).

More than half of deaf college students are pursuing associate's degrees.

Figure 7
DEGREE ENROLLMENT IN 2015-2016




Most deaf women and deaf men are studying for their associate's degrees. Across gender, we see slight differences in degree goals. More deaf women are studying for their bachelor's degrees, while more deaf men were studying for their associate's degrees. A slightly larger percentage of deaf women than deaf men were seeking certificates (Figure 8).

Figure 8
DEGREE ENROLLMENT BY GENDER

	CERTIFICATE	ASSOCIATE'S DEGREE	BACHELOR'S DEGREE
DEAF MEN	9.2%	54.6%	36.2%
HEARING MEN	8.6%	41.6%	49.8%
DEAF WOMEN	13.0%	48.7%	38.3%
HEARING WOMEN	9.6%	43.3%	47.1%

The likelihood of deaf people enrolling in associate's programs to a greater extent than bachelor's degree programs is consistent across race and ethnicity. This enrollment trend parallels with the data for Latinx hearing people, who are enrolled in associate's programs at higher rates than in bachelor's degree programs. But for white and Asian hearing people, enrollment was stronger in bachelor's degree programs than in associate's degree programs (Figure 9).

Figure 9
DEGREE ENROLLMENT BY RACE AND ETHNICITY



	CERTIFICATE	ASSOCIATE'S DEGREE	BACHELOR'S DEGREE
WHITE DEAF	10.5%	50.8%	38.7%
WHITE HEARING	8.3%	38.8%	52.9%
BLACK DEAF	13.5%	51.0%	35.5%
BLACK HEARING	11.5%	44.6%	43.9%
LATINX DEAF	14.7%	48.5%	36.8%
LATINX HEARING	10.8%	51.5%	37.7%
ASIAN DEAF	—	59.2%	36.4%
ASIAN HEARING	6.2%	38.5%	55.3%

The trend of deaf students enrolling in associate's degree programs to a greater extent than bachelor's degree programs is still apparent for younger students. Although, younger deaf students are more likely to enroll in bachelor's degree programs than older deaf students, who are more likely to be studying for certificates or associate's degrees. This trend is similar for hearing students. The average age of deaf and hearing students differ slightly, with deaf students skewing older (Figure 10). The average age of deaf students who are studying for their bachelor's degrees is 28.6 years old, compared to 24 years old for hearing students.

Figure 10
DEGREE ENROLLMENT BY AGE

AGE	CERTIFICATE	ASSOCIATE'S DEGREE	BACHELOR'S DEGREE
15-23 DEAF	6.2%	47.8%	46.0%
15-23 HEARING	6.1%	37.7%	56.2%
24-29 DEAF	19.6%	42.1%	38.4%
24-29 HEARING	12.1%	49.3%	38.7%
30+ DEAF	11.4%	60.0%	28.6%
30+ HEARING	15.2%	50.2%	34.6%

FINANCIAL SUPPORT FOR DEAF STUDENTS

For many college students, financial aid is an important factor that contributes to the likelihood of attending college and being able to continue taking coursework to complete their programs. Financial aid can come from multiple sources: loans, grants, vocational rehabilitation, work study programs, and more.

The average cumulative amount borrowed in student loans for undergraduate study, as of the end of the 2015-2016 academic year, was similar for deaf and hearing students (\$10,082 vs. \$10,321). The average financial aid received in the 2015-2016 academic year was \$1,365 lower for deaf students than hearing students (\$7,524 vs. \$8,888). Among U.S. citizens, more deaf students (34.1%) had received zero financial aid than their hearing counterparts (26.4%). Only 2.8% of deaf students had a work-study job, compared to 3.7% of hearing students.

Average financial aid received in 2015-2016 academic year



To explore the financial aid gaps between deaf and hearing students, it is necessary to ask if deaf students are as familiar with financial aid options and the process of applying for federal financial aid. Among U.S. citizens, a higher percentage of deaf students, 33.0%, had never applied for federal aid of any kind, compared to 27.3% of deaf students. Among students who did not apply for financial aid, only 35.5% of deaf students said they did not apply because they did not need it, compared to 44.7% of hearing students. This means that many deaf students who did need financial support did not apply for financial aid. Among deaf students who did not apply for financial aid, 21.7% did not apply because they didn't want to take on debt. This suggests that deaf students may benefit from financial aid literacy training and awareness, but also that deaf students may not be confident in their ability to find gainful employment and pay back their loans after college.

A smaller number of deaf students than expected, approximately between 0.6%-3.8% of U.S. citizens, were documented as using vocational rehabilitation (VR) funding to attend college or job training. This may indicate that many deaf students are not familiar with VR support for college, that budget cuts are affecting the capacity of VR agencies to provide financial support for deaf college students, or that colleges are not documenting all of the VR-related support that deaf students may be receiving.

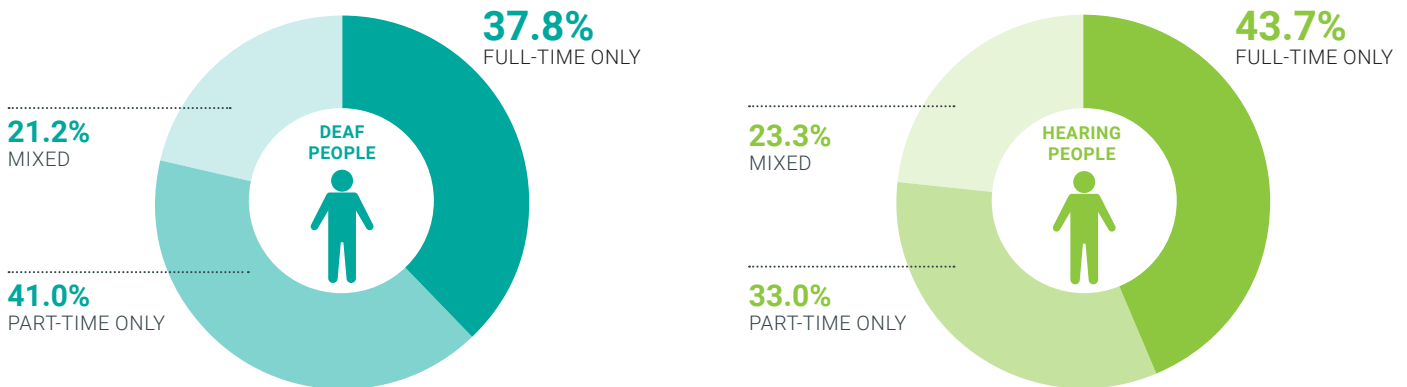
COLLEGE EXPERIENCES OF DEAF STUDENTS

Deaf students are likely to work while attending college, and attend part-time. The majority of deaf students (59.1%) had a job while enrolled in college, at rates slightly lower than their hearing counterparts (63.7%). Among deaf students with a job while enrolled, 44.1% had jobs that were related to their college major or field of study, compared to 34.7% of hearing students. These jobs were primarily regular jobs, not work-study jobs; 95.3% of deaf students and 94.2% of hearing students worked off campus.

Only 4.5% of deaf students had studied abroad at any time during their undergraduate education, compared to 5.3% of hearing students.

Deaf students had an average GPA of 2.83, while hearing students had an average GPA of 2.94.

Figure 11
ATTENDANCE INTENSITY



Many deaf students had experience with online instruction, with 45.7% having had taken at least one online course, and 17.1% doing their entire program online. A greater number of deaf students than hearing students took online courses or did their entire degree program online. Deaf students may be seeking out online instruction as an alternative approach to learning that does not rely on the quality and availability of real-time accommodations in their immediate geographical vicinity.

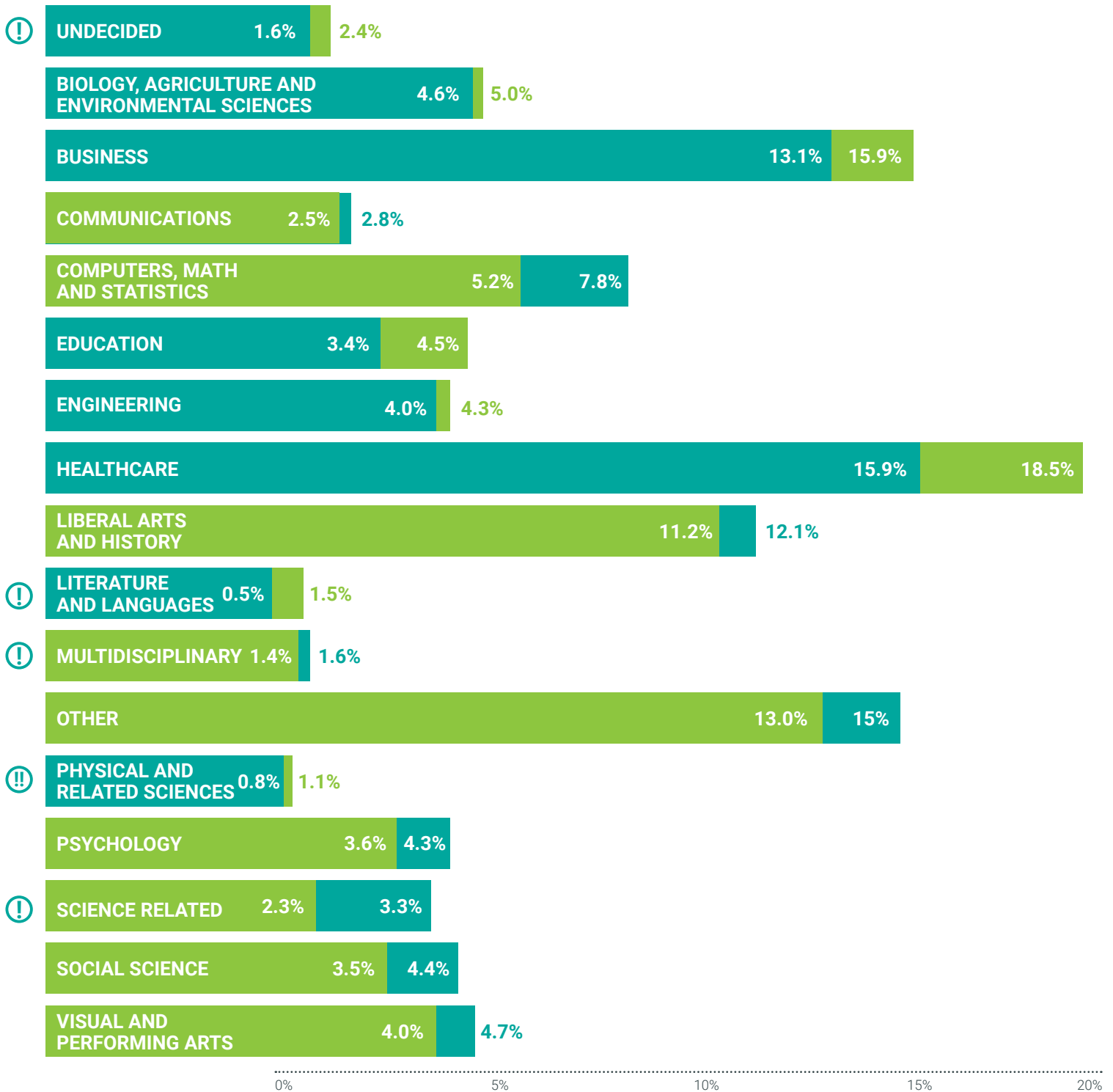
Figure 12
ONLINE INSTRUCTION





College students study across a wide range of fields. Only 26.1% of deaf students and 23.7% of hearing students were studying in STEM fields. For deaf and hearing students, the most popular fields of study (aside from the “Other” category) were business and healthcare.

Figure 13
FIELDS OF STUDY



⚠ Data should be interpreted with caution. Standard errors represent more than 30% of the estimate.

COLLEGE TRAJECTORY OF DEAF STUDENTS

Deaf students may be less prepared for college for many reasons, including lack of academic support during high school or an extended period of time between high school completion and college enrollment. On average, deaf students take around 5 years after completing high school to enroll in college, compared to a little more than 2 years for hearing students. In addition, fewer deaf students had taken college-level coursework during high school than hearing students (48.6% vs. 61.9%).

Many students need developmental coursework upon arriving to college. A slightly higher percentage of deaf students had taken developmental coursework at some point while enrolled in college, compared to hearing students (41.7% vs. 39.1%). Both deaf and hearing students were likely to need developmental coursework in math, with smaller percentages of students needing developmental coursework in reading and writing. Among students who had taken remedial coursework, a slightly higher percentage of deaf students than hearing students took more than one developmental course in reading/writing in the academic year of 2015-2016.

Figure 14
DEVELOPMENTAL COURSEWORK IN CURRENT ACADEMIC YEAR

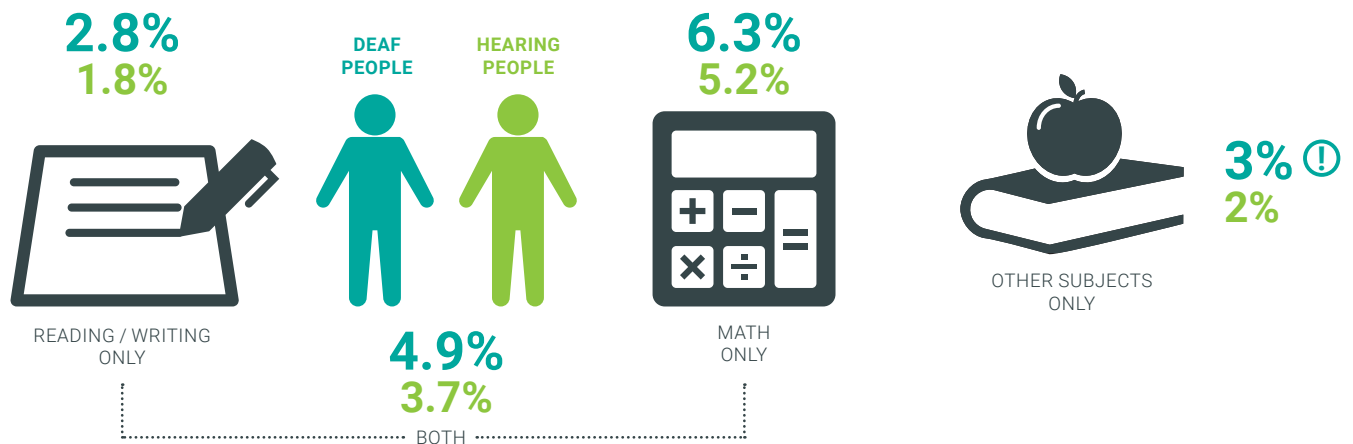
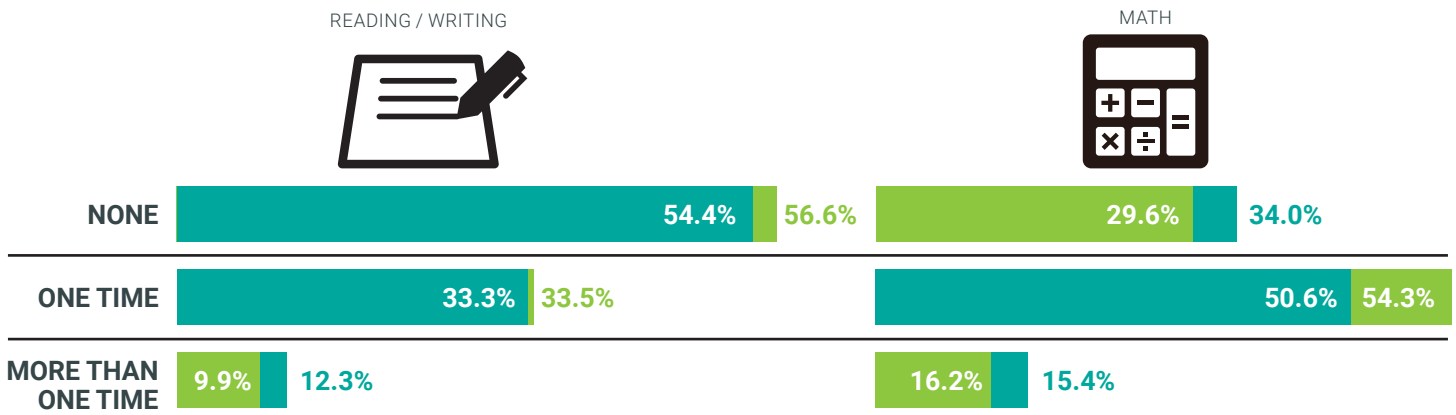


Figure 15
FREQUENCY OF REMEDIAL COURSES IN CURRENT ACADEMIC YEAR



⚠ Data should be interpreted with caution. Standard errors represent more than 30% of the estimate.

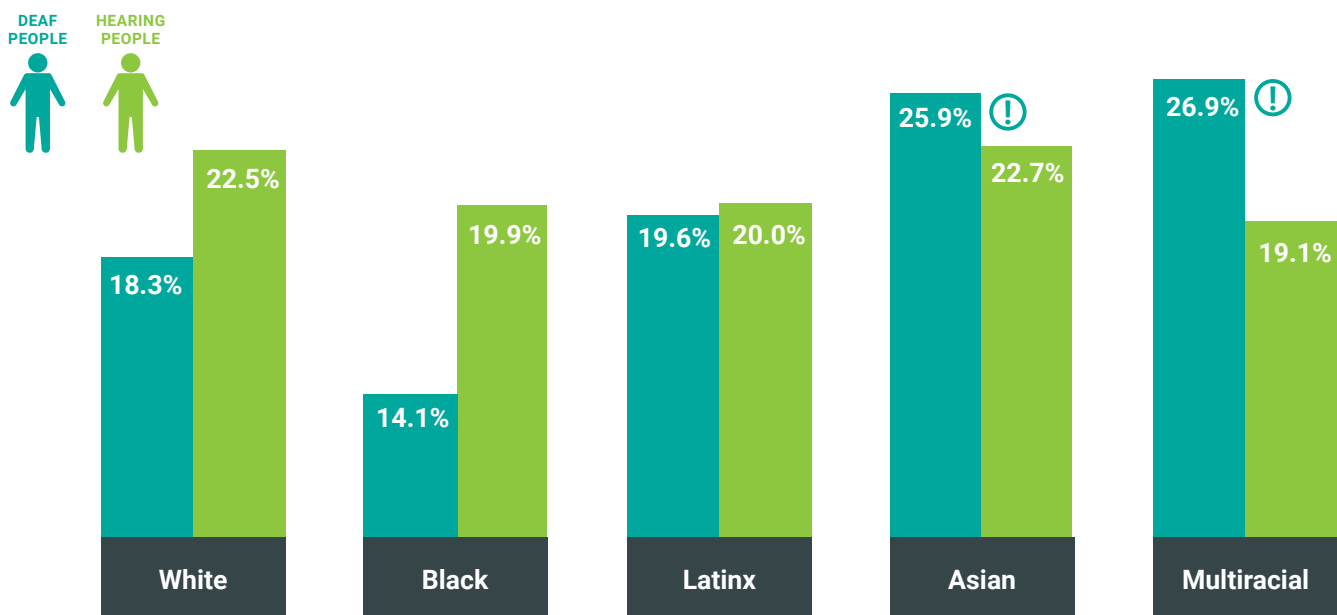
In the academic year of 2015-2016, 18.2% of deaf students had completed their certificate or degree program, compared to 21.5% of hearing students. Completion rates in this dataset do not track expected completion within a specified timeframe, just in the current academic year.

Exploring completion rates within gender, race, and ethnicity allow us to understand what percentage of deaf students of different genders, races, and ethnicities had completed their certificate or degree program, compared to their hearing counterparts. Deaf women completed college at rates closer to their hearing peers than deaf men. Deaf men may be enrolling in college at higher rates than deaf women, but deaf women are completing college at higher rates than deaf men. Within race and ethnicity, deaf Asians and people of multiple races seem to complete college at rates higher than their hearing counterparts, and higher than deaf people of other races and ethnicities. The sample sizes for these two groups are small, so these data should be interpreted with caution. Deaf women and Latinx people had completion rates that were closest to their hearing counterparts.

Figure 16
COMPLETION RATES IN 2015-2016 ACROSS GENDER



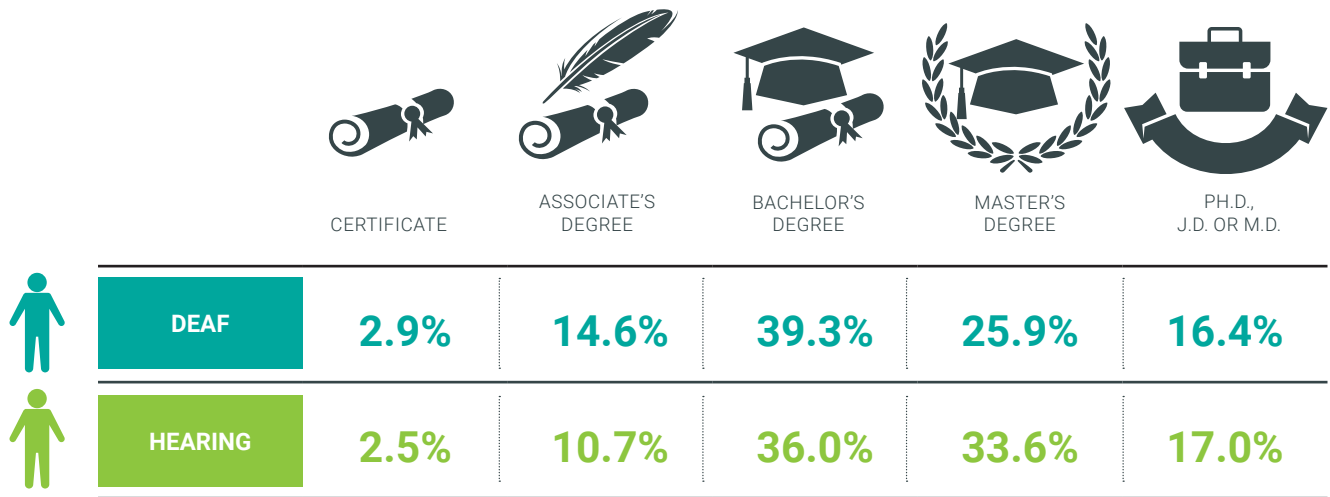
Figure 17
COMPLETION RATES IN 2015-2016 ACROSS RACE AND ETHNICITY



⚠ Data should be interpreted with caution. Standard errors represent more than 30% of the estimate.

Deaf students generally had high expectations about pursuing their education, at rates similar to their hearing peers. When students were asked about the highest level of education they expected to complete, deaf students responded optimistically, with 39% expecting to complete a bachelor’s degree, and 16% expecting to complete a doctoral degree. However, completion rates show us that fewer deaf students than hearing students complete their degrees, which suggests that there may be factors outside of deaf students’ control that serve as obstacles to their educational goals. Postsecondary institutions need to ensure that they are ready to meet the needs of deaf students (Cawthon, Schoff-stall, & Garberoglio, 2014).

Figure 18
HIGHEST LEVEL OF EDUCATION EVER EXPECTED



INSTITUTIONAL CHARACTERISTICS

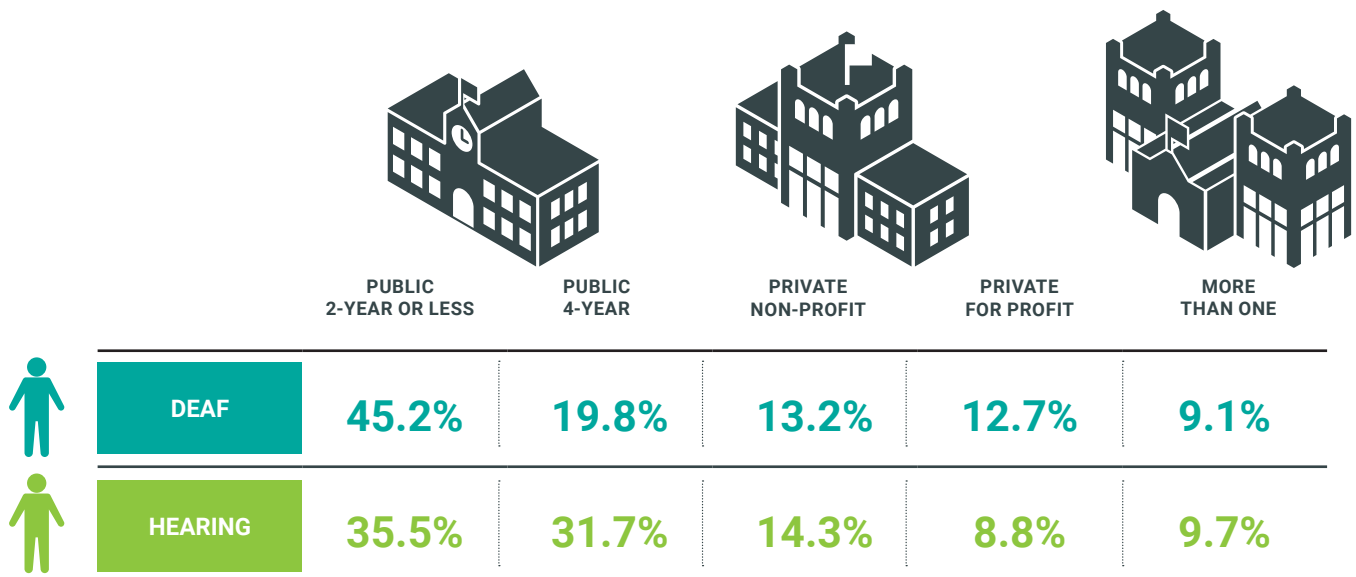
Deaf students enroll in many types of institutions, from private or public, in-state or out-of-state, 4-year or 2-year, nonprofit or profit. More deaf students (18.8%) attend an out-of-state college than hearing students (15.8%). Deaf students may be seeking out colleges that have better services and accommodations, or those that have a larger number of deaf students.

Community colleges are an important part of the postsecondary experience for college students, providing additional scaffolding that may be needed to succeed in college, and opportunities to earn certificates and associate's degrees. The majority (70.3%) of currently enrolled deaf students had ever attended a community college, at statistically significant higher rates than their hearing counterparts (61.8%).

More deaf students enroll in 2-year institutions than 4-year institutions, aligning with general enrollment data. A slightly higher percentage of deaf students enroll in private, for profit, institutions than hearing students (12.7% vs. 8.8%).

Figure 19

ENROLLMENT BY INSTITUTIONAL CHARACTERISTICS



METHODS

The data from this report was taken from the 2015–16 National Postsecondary Student Aid Study (NPSAS:16). The NPSAS includes cross-sectional data of undergraduate and graduate students enrolled in postsecondary education in the United States. The comprehensive dataset is nationally representative and combines data from institutions and the Department of Education. The NPSAS used a two-stage sampling strategy. The first stage targeted institutions by type (e.g., 2-year, 4-year, private, public, profit, and nonprofit) to ensure a nationally representative distribution of institutional characteristics. The second stage targeted students at each institution by student characteristics and degree type enrollment. Because of the rigorous sampling approach, deaf students in this sample were evenly distributed across institutions. Thus, this report shares generalizable data about deaf students who are distributed across a range of institutions in the United States, and may not reflect student characteristics of those who are enrolled at institutions that serve a large number of deaf students (e.g., Gallaudet University, National Technical Institute for the Deaf, California State University, Northridge, or Southwest Technical Institute for the Deaf). More information can be found at nces.ed.gov/surveys/npsas/about.asp.

The sample of interest in these analyses were students enrolled in any institution, at any time during the academic year of 2015-2016. The NPSAS: 16 sample size is 89,000 students. In this sample, 1.3% of students were deaf, which indicates the sample size of deaf individuals is over 1,100. Deaf participants responded ‘yes’ to interview questions asking if they were deaf or had serious difficulty hearing.

When analyzing degree program enrollment, enrollment was defined as being enrolled in an academic degree program, with at least one course credit that could be applied toward fulfilling the requirements for an academic degree or an occupational or vocational program that required at least 3 months or 300 hours of instruction to receive a degree, certificate, or other formal award. Students that were currently enrolled in high school, or solely enrolled in a General Educational Development (GED) or another high school completion program, were excluded from these degree program analyses.

When sample sizes for a data point were smaller than 30, we were unable to report an estimate. For analyses including race/ethnicity, we were unable to report data about Native Americans or Alaskan Natives, and Native Hawaiians or other Pacific Islanders due to small sample sizes. All estimates with a ! symbol should be interpreted with caution, with ! indicating that the standard error represented more than 30% of the estimate, and !! indicating that the standard error represented more than 50% of the estimate. When sampling errors represent more than 30% of the estimate, we may report estimates of X%-X%, representing confidence intervals in which we are 95% confident that the true estimate is within this range.

Fields of study were drawn from the categories used in the American Community Survey (ACS) 2017 codebook, with two new categories added for the purposes of this report: *undecided*, and *healthcare*. ACS codebooks can be found at www2.census.gov/programs-surveys/acs/tech_docs/code_lists/

The data shared in this report was generated using PowerStats, a web-based software application that enables users to generate tables for NPSAS and other federal datasets. For more information about PowerStats, please visit nces.ed.gov/datalab/index.aspx. When significance testing was used to compare numbers to each other in this report, *t*-tests were used, using sampling errors calculated in PowerStats that accounted for the complex sampling techniques used in NPSAS:16. The data presented in this report is solely descriptive, and causal inferences cannot be made.

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