



2016 Audiology Survey

Survey Methodology, Respondent Demographics, and Glossary

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Executive Summary

In Fall 2016, the American Speech-Language-Hearing Association (ASHA) conducted a survey of audiologists. This survey was designed to provide information about salaries, working conditions, and service delivery as well as to update and expand information gathered from previous ASHA Audiology Surveys.

Overall Findings

- ◆ The response rate was 40%.
- ◆ Respondents were *similar* to the population of audiologists from which they were drawn with regard to employment status, function, state, sex, and age but *dissimilar* with regard to highest degree earned.
- ◆ 79% worked full time.
- ◆ More than 90% of the audiologists who worked in industry and colleges and universities were employed full time.
- ◆ 82% were clinical service providers.
- ◆ Median number of years of experience was 19.
- ◆ 52% worked in cities or urban areas.
- ◆ 33% worked in the West.
- ◆ 84% were female, 16% were male.

Survey Methodology

A stratified random sample of 4,000 ASHA-certified audiologists was selected for this survey from a population of 8,054 audiologists. They were stratified on the basis of type of facility and private practice.

Sample Design

The survey was mailed on September 7, 2016, to 4,000 ASHA-certified audiologists working in the United States, followed by an electronic reminder on September 14. Individuals who returned their surveys were removed from second (October 5) and third (November 2) mailings. Each mailing consisted of a personalized cover letter, a numbered survey, and a #10 postage-paid business return envelope inserted into a #11 window envelope with an ASHA return address. Metered postage was at the full, first-class rate.

Weighting

Because facilities with fewer audiologists (such as universities) were oversampled and those with many (e.g., hospitals) were undersampled, weighting was used when presenting data to restore all groups to their actual proportion in the population of ASHA audiologists.

Response Rate

Of the original 4,000 audiologists in the sample, 24 had undeliverable addresses, two had retired, and three were not employed in the professions, leaving 3,971 possible respondents. The actual number of respondents was 1,569, resulting in a 39.5% response rate (see Table 1).

Table 1: Calculation of Response Rate, Unweighted

Disposition	Number
Original (gross) sample size	4,000
Undeliverable addresses	24
Retired	2
No longer employed in audiology	3
Net sample size	3,971
Number of respondents	1,569
$1,569 / 3,971 = 39.5\%$	

Experimental Design

All surveys were printed on 25.5 in. × 11 in. paper folded to 8.5 in. × 11 in. and printed with two columns per page. The font was Arial, 11 pt. The final page contained a thank-you note, an announcement about the 2016 ASHA Convention, and contact information should respondents have questions.

A methodological experiment was designed into the survey to test whether a \$100 drawing would incentivize audiologists to complete the survey. Specifically, a randomly selected half of the sample received a survey with 38 questions, and the other half received a survey with a 39th question asking if they would like to be entered into a drawing for a \$100 Amazon gift card as a thank you for completing the survey. In reality, all 1,569 respondents were entered into the drawing. A random number between 1 and 1,569 was generated, and the gift card was issued to that person who was actually a member of the experimental group. In summary,

- The control group of 2,000 received letters and surveys without a gift card announcement.
- The experimental group of 2,000 received letters and surveys with the announcement.

Table 2 shows that there was no difference ($p = .221$) in the unit response rate when a \$100 incentive was used compared to when it was not.

Table 2: Response Rate, by Experimental Design

Disposition	Control: No Incentive	Experimental: Incentive
Original (gross) sample size	2,000	2,000
Undeliverable addresses	14	10
Retired	2	0
No longer employed in audiology	1	2
Net sample size	1,983	1,988
Number of respondents	772	797
Response rate	38.9%	40.1%
	z score = .773; $p = .221$	

Data Entry

To ensure the highest quality data reasonably possible, each of the 1,569 completed surveys was checked, and erroneous responses were corrected or deleted by the ASHA staff member with primary responsibility for the project. The forms were then sent to an outside firm for two-pass (key and verify) data entry. This process was completed by December 2.



Nonresponse

Not only is it typically the case that some individuals who receive a survey do not complete it (unit nonresponse), but it is likewise true that some who return their surveys do not answer every question (item nonresponse) and thus do not qualify for inclusion in portions of a report. They may be excluded from analyses because they did not answer a question at all or because their answer disqualified them (such as stating that they were employed part time when a particular analysis was limited to full-time employees). For example, among the 1,569 audiologists who responded, only 1,510 were included in the analysis of primary employment facility (see Figure 1) because they were the only respondents who indicated that they had ASHA certification in audiology (CCC-A), were employed either full time or part time, and identified the type of facility where they were employed. Comparable restrictions apply to other analyses in the report.

As is our practice, we did not report data for cells with fewer than 25 respondents. This both protects respondent confidentiality and increases data stability. Note, too, that some percentages total 99% or 101% because of rounding.

**Respondents
Versus
Population**

As a rule of thumb, the closer a sample approximates the characteristics of the population from which it is drawn – and which it is designed to represent – the greater the external validity or ability to generalize to that population. The population for this survey consisted of ASHA-certified audiologists whose primary employment facility was a college/university, hospital, audiology franchise/retail chain, nonresidential health care facility, or industry. Below are comparisons of characteristics of the survey respondents with the database population from which they came.

Facility

- Small groups (such as colleges and universities) were oversampled to ensure sufficient respondents from that facility for reporting purposes. Likewise, large groups (such as hospitals) were undersampled. Therefore, where totals are reported, either in text or tables, they have been weighted to reflect the distribution of ASHA-certified audiologists in each type of facility. The number of respondents (*n*) shown in figures and tables is the weighted number who responded to the question.
- Because of stratification, comparing the distribution of the sample's facility to that of the population's would not be worthwhile and was not performed.

Employment Status (Full Time and Part Time)

- Sample: 79% full time, 19% part time
- Population: 78% full time, 18% part time

Function

- Sample: 81% clinical service provider; 6% faculty; 6% administrator; 3% sales, training, and technical support; 2% researcher; 1% consultant; < 1% other
- Population: 80% clinical service provider, 6% faculty, 6% administrator, 2% researcher, 1% consultant, 5% other

Highest Degree

- Sample: 28% master's, 63% AuD, 7% PhD, 1% other doctorate, 1% multiple doctorates
- Population: 53% master's, 39% AuD, 7% PhD, < 1% other doctorate, < 1% multiple doctorates

State

- Sample: 21% Northeast, 29% Midwest, 32% South, 17% West
- Population: 20% Northeast, 26% Midwest, 36% South, 18% West

Sex

- Sample: 84% female, 16% male
- Population: 84% female, 16% male

Age

- Sample median age: 46 years
- Population median age: 47 years

Years of experience, salary basis, and population setting are variables that are available only for the sample, so those comparisons cannot be made.

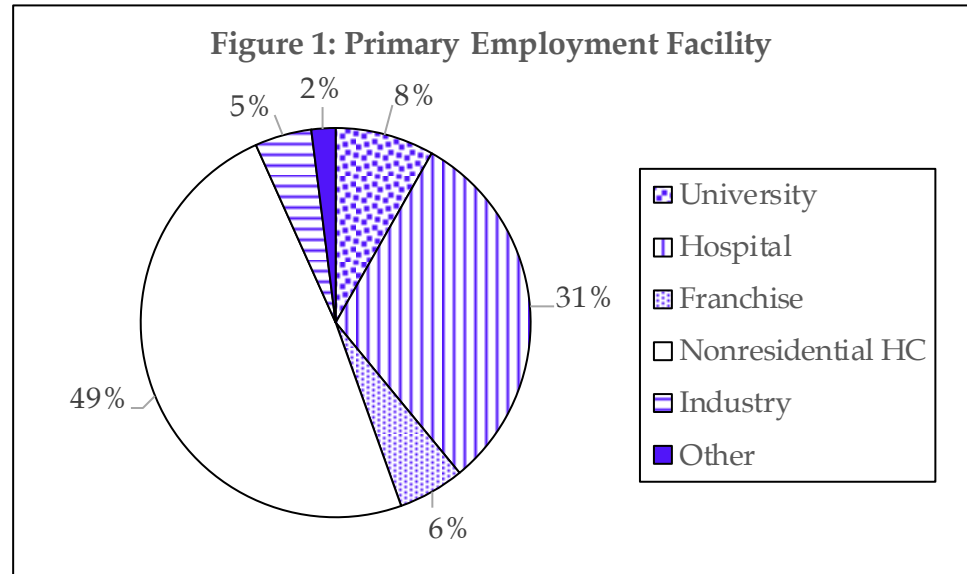
In conclusion, there was virtually no difference between the sample and the population from which it was drawn with regard to employment status, function, state, sex, and age.

However, the respondents reported fewer master's and more AuD degrees as highest degrees than did the population from which they were drawn. This may be because of a recent influx of audiologists attaining AuD degrees. The Council on Academic Accreditation in Audiology and Speech-Language Pathology stopped accrediting master's programs in audiology several years ago. At the same time, a number of academic institutions offered AuD degrees via distance learning to practicing audiologists. As a result, the number of ASHA-certified audiologists with an AuD degree increased, as is reflected by the survey's demographics. However, if members have not informed ASHA that they received an AuD degree, their membership records would still indicate a master's as the highest degree earned, and any apparent disparity could be due to recordkeeping rather than to actual differences in degrees attained.

Demographics

Nearly half of the respondents who were employed either full time or part time worked in nonresidential health care facilities, and more than one quarter worked in hospitals (see Figure 1).

Primary Employment Facility



Note. *n* = 1,510.

Excluding “Other”

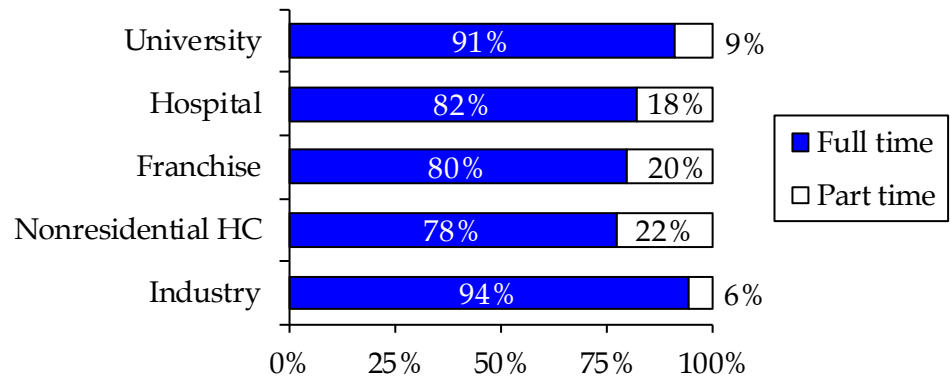
The 31 individuals who worked in an *other* type of facility, either full time or part time, have been included in the 2016 Audiology Survey Reports only where *totals* are reported – not as a separate category of facility – because of the ambiguous nature of this small group of individuals. Also included in the *total* is the group of 19 respondents who were employed full time or part time but who did not answer the question about the type of facility in which they were employed.

Employment Status

More than three fourths (79%) of the respondents were employed full time, and 19% were employed part time. The rest were not currently employed.

A closer look at the audiologists who were employed shows that full-time and part-time status varied significantly by the type of facility where they worked. Part-time audiologists were more likely to be found working in nonresidential health care facilities, audiology franchises or retail chains, or hospitals than in other types of facilities (*p* = .000; see Figure 2).

Figure 2: Employment Status

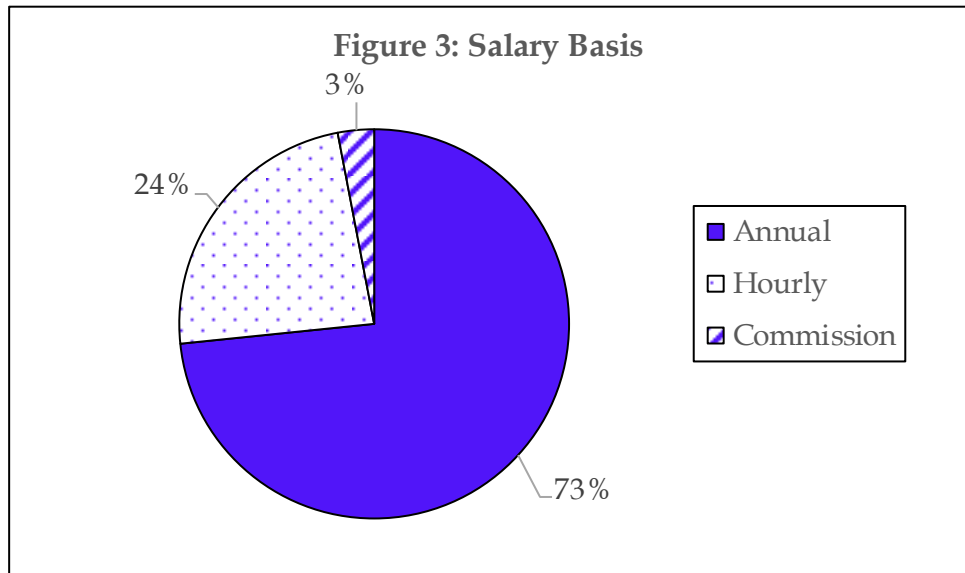


Note. $n = 1,479$.

Salary Basis

Nearly three fourths of the audiologists reported receiving primarily an annual salary (see Figure 3).

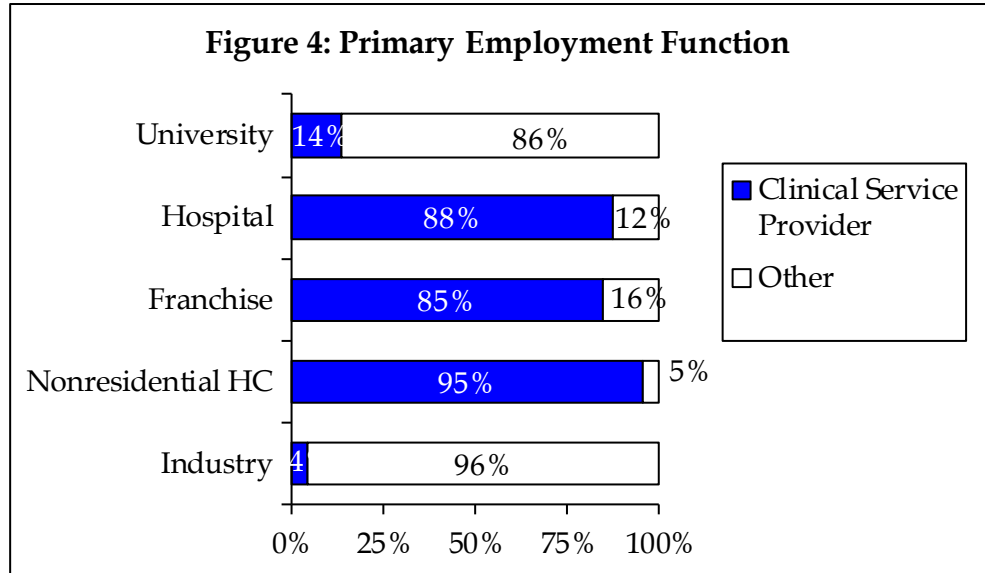
Figure 3: Salary Basis



Note. $n = 1,508$.

Primary Employment Function

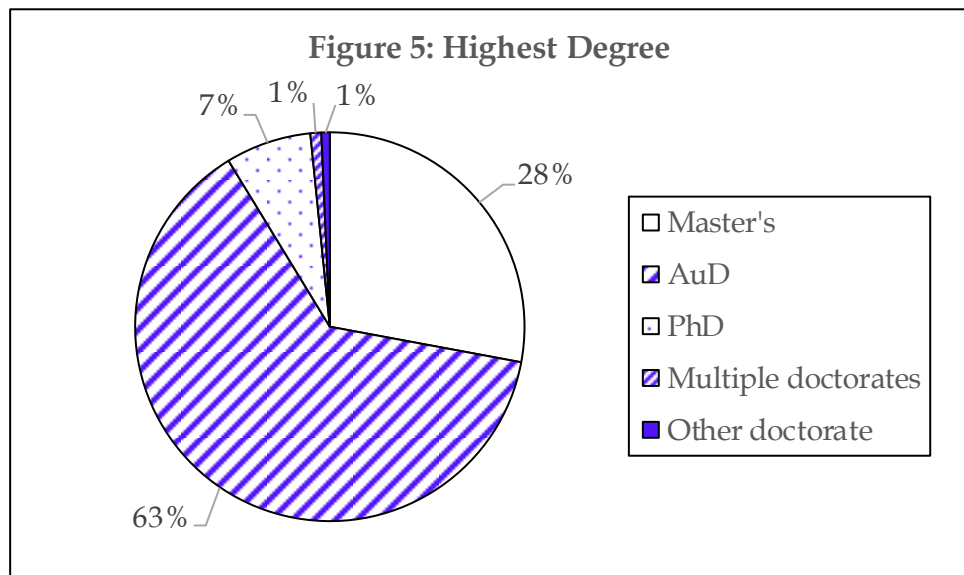
The vast majority of respondents who were employed full time or part time were clinical service providers (82%). Clinicians were more likely to be employed in hospitals, franchises and retail chains, and nonresidential health care facilities than in colleges and universities or industry ($p = .000$; see Figure 4).



Note. $n = 1,475$.

Highest Degree

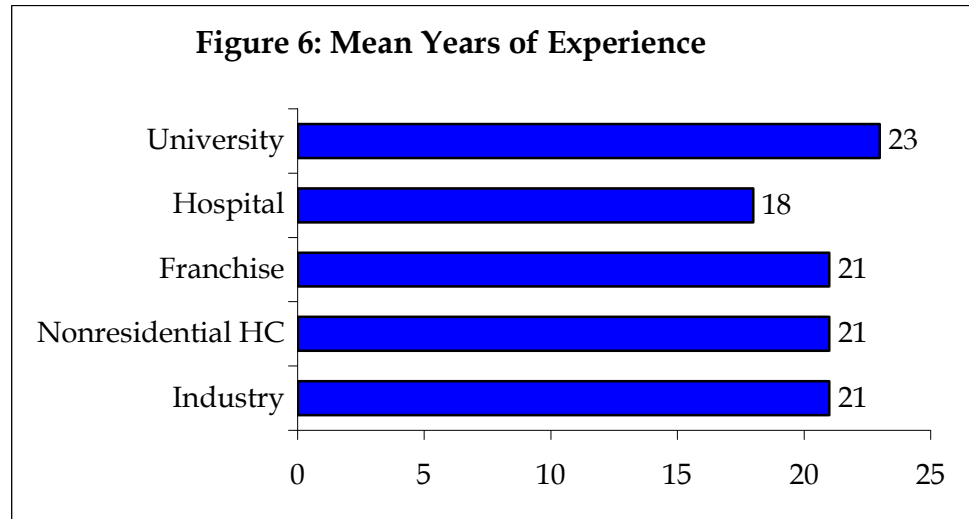
More than one quarter of the respondents held a master's as the highest degree. Recipients of doctoral degrees included 63% who held only an AuD degree, 7% who held only a PhD, 1% with an other doctorate, and 1% with multiple doctorates (see Figure 5).



Note. $n = 1,568$.

Years of Experience

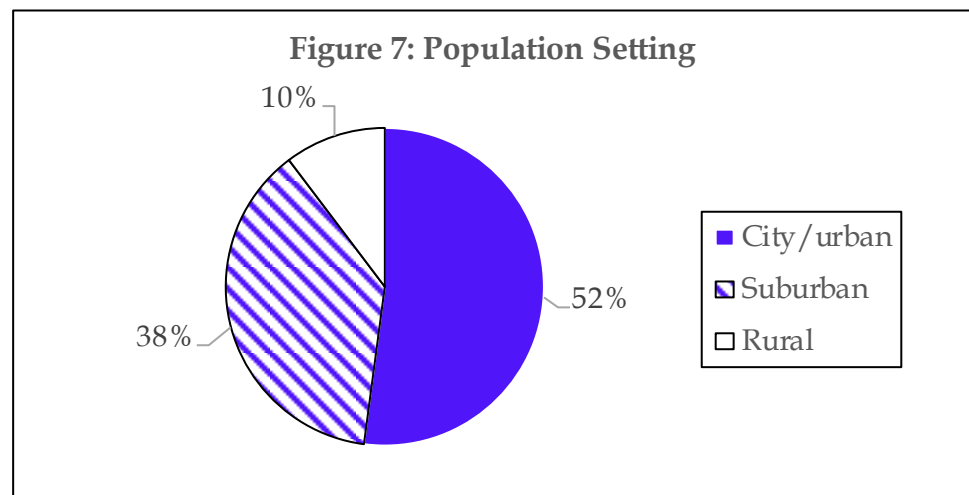
The median number of years of experience was 19. It was lowest in hospitals (16 years) and highest in colleges and universities (24 years; median numbers are not shown in any figure). The mean number of years of experience varied by type of facility ($p = .000$; see Figure 6).



Note. $n = 1,480$.

Population Setting

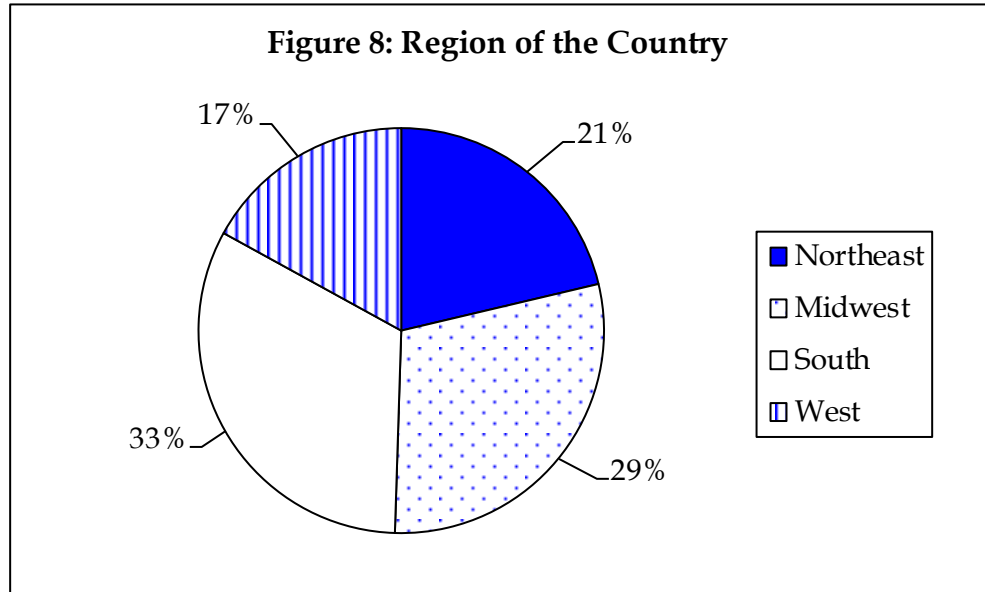
More than half of the audiologists who were employed either full time or part time worked in a city/urban area (see Figure 7). Those employed in nonresidential health care facilities were more likely to be employed in suburban areas (48%) than were audiologists in other facilities. Audiologists who worked in hospitals (71%), colleges and universities (58%), industry (55%), and audiology franchises and retail chains (44%) were more likely to be in urban than in other settings, ($p = .000$; not shown in any figure).



Note. $n = 1,502$.

Region of the Country

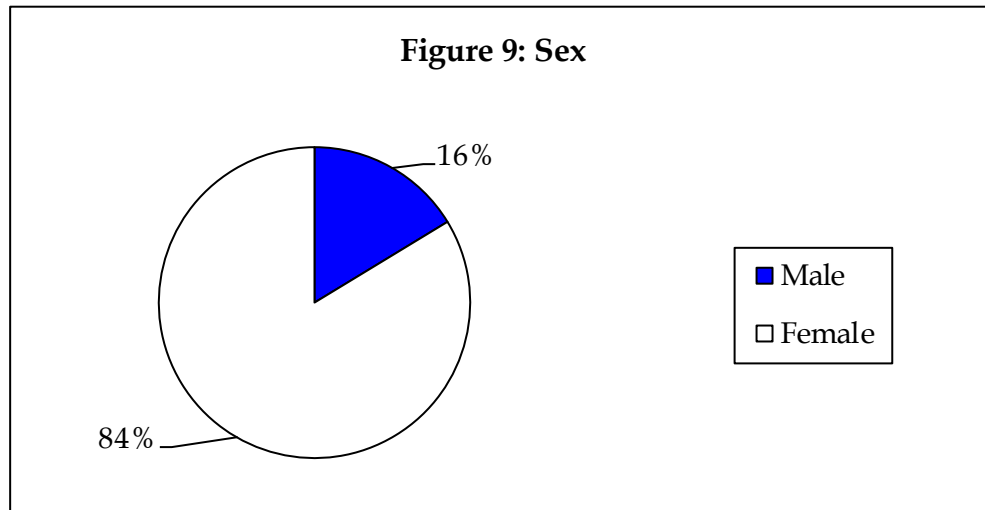
Overall, more of the audiologists worked in the South and Midwest than in other regions of the country (see Figure 8). The type of facility in which they worked was not related to the region of the country ($p = .369$).



Note. $n = 1,524$.

Sex

Nearly one sixth of the survey respondents were male (see Figure 9). Men represented a higher percentage of audiologists in audiology franchises and retail chains (25%) and in colleges and universities (25%) than in industry (23%), nonresidential health care facilities (17%), or hospitals (12%; $p = .001$; not shown in any figure).



Note. $n = 1,567$.

Glossary

Terms used in the 2016 Audiology Survey Reports:

Types of Facilities

College/university

Hospital: General medical hospital
 Pediatric hospital
 Military hospital
 VA hospital/medical center
 Any other hospital

Audiology franchise or retail chain

Nonresidential health care facility:

 Home health agency or client's home
 Private physician's office
 Audiologist's or SLP's office
 Speech and hearing center or clinic
 Outpatient rehabilitation center
 Any other nonresidential facility

Industry: Hearing aid manufacturing
 Hearing conservation

Random Sample

A stratified random sample was used to select 4,000 ASHA-certified audiologists for this survey from a population of 8,054 audiologists. They were stratified on the basis of type of facility and private practice. A random sample is a probabilistic sample in which each person has an equal chance of being selected. This is a requirement for generalizing responses from a sample to the broader population from which the members were selected.

Response Rate

The response rate was calculated using the following equation:

$$RR = \frac{(C + P)}{S - (Ret + I)}$$

where

- RR = Response rate
- C = Number of completed surveys
- P = Number of partial surveys
- S = Sample size
- Ret = Number ineligible because of retirement
- I = Number ineligible for other reasons (e.g., does not work in a school, no longer in the field, or on leave of absence)

$$RR = \frac{1,569}{4,000 - (2 + 27)} = 39.5\%$$

Types of Averages

- Mean:** Add the total of all the values and divide by *n* (the number of items).
- Median:** Arrange the values in order, from lowest to highest. Select the value in the middle position.
- Mode:** This is the value that occurs more often than any other value.

Example: Sample data set

1, 1, 7, 34, 88

Mean: $(1 + 1 + 7 + 34 + 88) / 5 = 26.2$

Median: 7

Mode: 1

Median statistics are more stable and less sensitive to extreme values than are means.

Regions of the Country

Northeast

- ◆ Middle Atlantic
 - New Jersey
 - New York
 - Pennsylvania
- ◆ New England
 - Connecticut
 - Maine
 - Massachusetts
 - New Hampshire
 - Rhode Island
 - Vermont

South

- ◆ East South Central
 - Alabama
 - Kentucky
 - Mississippi
 - Tennessee
- ◆ South Atlantic
 - Delaware
 - District of Columbia
 - Florida
 - Georgia
 - Maryland
 - North Carolina
 - South Carolina
 - Virginia
 - West Virginia
- ◆ West South Central
 - Arkansas
 - Louisiana
 - Oklahoma
 - Texas

Midwest

- ◆ East North Central
 - Illinois
 - Indiana
 - Michigan
 - Ohio
 - Wisconsin
- ◆ West North Central
 - Iowa
 - Kansas
 - Minnesota
 - Missouri
 - Nebraska
 - North Dakota
 - South Dakota

West

- ◆ Mountain
 - Arizona
 - Colorado
 - Idaho
 - Montana
 - Nevada
 - New Mexico
 - Utah
 - Wyoming
- ◆ Pacific
 - Alaska
 - California
 - Hawaii
 - Oregon
 - Washington

Audiology Survey Reports

Results from the 2016 *Audiology Survey* are shared in a series of reports:

- Annual Salaries
- Hourly Wages
- Clinical Focus Patterns
- Private Practice
- Survey Summary
- Survey Methodology, Respondent Demographics, and Glossary

Suggested Citation

American Speech-Language-Hearing Association. (2017). *2016 Audiology Survey report: Survey methodology, respondent demographics, and glossary*. Available from www.asha.org.

Resources

Agresti, A., & Finlay, B. (1986). *Statistical methods for the social sciences* (2nd ed.). San Francisco, CA: Dellen.

Dillman, D. A. (2000). *Mail and Internet surveys: The tailored design method* (2nd ed.). New York, NY: Wiley.

Electronic Copy

An electronic copy of this report will be available on the ASHA website at www.asha.org/research/memberdata/AudiologySurvey.htm.

Thank You

ASHA would like to thank the audiologists who received the 2016 *Audiology Survey* and completed it. Reports like this one are only possible because people like *you* participated. If you find this information valuable, please accept the invitation to participate in other ASHA-sponsored surveys and focus groups. You are the experts, and we rely on you to provide data to share with your fellow members.

Additional Information

For additional information regarding the 2016 *Audiology Survey*, please contact ASHA's audiology practices unit at audiology@asha.org. To learn more about how the Association is working on behalf of ASHA-certified audiologists, visit ASHA's website at www.asha.org/aud/.