

## **Life After College: Employment, Social, and Community Outcomes for Young Deaf Adults**

Jeffrey Levi Palmer, Ph.D.

National Deaf Center on Postsecondary Outcomes, University of Texas at Austin

Lynn A. Newman, Ed.D.

SRI International

Savannah Davidson

National Deaf Center on Postsecondary Outcomes, University of Texas at Austin

Stephanie W. Cawthon, Ph.D.

National Deaf Center on Postsecondary Outcomes, University of Texas at Austin

### Citation:

Palmer, J. L., Newman, L. A., Davidson, S., & Cawthon, S. W. (2020). Life after college: Employment, social, and community outcomes for young deaf adults. *American Annals of the Deaf*, 165(4), 401–417.  
[10.1353/aad.2020.0027](https://doi.org/10.1353/aad.2020.0027)

Peer reviewed: as indicated on the first page of each issue of the *American Annal of the Deaf* journal's Information for Authors.

The research reported here was supported by the Institute of Education Sciences, U.S. Department of Education, through Grant No. R324A120188 to SRI International, and a jointly funded grant through the U.S. Department of Education's Office of Special Education Programs (OSEP) and the Rehabilitation Services Administration (RSA), No. H326D160001, to the National Deaf Center on Postsecondary Outcomes. The opinions expressed are those of the authors and do not represent the views of the U.S. Department of Education.

## **Abstract**

While most research on transition outcomes focuses on education and employment, the transition to adulthood also includes social outcomes, such as group involvement and community service. The present study examined a broader set of outcomes for young deaf adults after postsecondary education. A secondary analysis of a large-scale data set, the National Longitudinal Transition Study (NLTS2), was conducted to compare the employment, income assistance, and social/community outcomes of three postsecondary education cohorts: graduates, noncompleters, and nonattendees. The sample included approximately 140 deaf postsecondary school graduates, 90 deaf postsecondary noncompleters, and 230 young adults who had not attended postsecondary school. The findings indicate that young deaf adults with more postsecondary education have more positive outcomes, e.g., higher employment rates, higher wages, and greater civic and social participation. These findings further demonstrate the importance of postsecondary education for young deaf adults and can be used to inform transition planning for deaf students, supporting the need to consider exploration of various career pathways available through college or postsecondary career/technical education.

**KEYWORDS:** deaf, hard of hearing, postsecondary outcomes, transition

The Individuals With Disabilities Education Improvement Act of 2004 (IDEA) mandates increased availability of programs and services to increase the likelihood of a successful transition from secondary school to “further education, employment, and independent living” (Subchapter 1, Part A, 1400 D). This legislation has required that schools not only develop postschool goals for students served under IDEA, but also track performance on this range of outcomes. This expansion in both the development of transition planning and the documentation of outcomes has given rise to a range of research examining in-school predictors of post–high school employment, education, and independent living outcomes (Mazzotti et al., 2016; Test et al., 2009).

Previous analyses of data from the National Longitudinal Transition Study-2 (NLTS2) examined predictors of postsecondary enrollment and postsecondary completion for deaf<sup>1</sup> students (Newman et al., 2011). Parental expectations (Cawthon et al., 2015b), adolescent social skill attainment (Cawthon et al., 2015a), course taking (Cawthon et al., 2016b; Newman et al., 2016), and, to a limited extent, English literacy (Garberoglio et al., 2013) all strongly positively predicted postsecondary outcomes. Studies like these contribute to the understanding of successful transition into postsecondary education settings for deaf students. In fact, post–high school outcomes, especially postsecondary education attendance, have improved for deaf students since the authorization of IDEA (Newman et al., 2010; Wagner et al., 2005). These studies were dedicated to examining high school and post–high school experiences and outcomes. However, much less is known nationally about the larger set of experiences and outcomes after postsecondary education of deaf students, particularly those related to social and community outcomes and to aspects of employment beyond employment status and wages, such as opportunities for promotion. These other factors are all critical to the overall quality of life and places of equity and opportunity for this historically marginalized population. The purpose of the present article is to present an analysis of this broader range of outcomes available from the NLTS2 data set as a greater context for understanding life after postsecondary education experiences of deaf youth.

### **Theoretical Framework**

We used a capital theory framework to help guide the present study. Capital theory suggests that all forms of capital—economic, cultural, and social—are critical to a successful transition to young adulthood (Bourdieu, 1986). Economic capital represents a range of employment-related outcomes, including whether an individual is employed in the type of job that offers growth opportunities and benefits, such as health insurance, and paid time off for

vacations and sick leave. Cultural and social capital are particularly relevant to moving successfully into adulthood. These types of capital include the knowledge, skills, and education acquired through attendance at and completion of postsecondary education programs, as well as the benefits of being part of a network of social relationships through participation in organized groups and involvement in volunteer and community service activities.

The capital theory framework is essential to understanding why there may be differential outcome attainment after postsecondary education for deaf students compared to their hearing peers. At home, in school, and in the community, deaf youth are often in settings where there is limited access to effective communication. Lack of access significantly reduces opportunities for incidental learning and opportunities to build social capital (Cawthon et al., 2016a). For example, one study on increasing social capital found that deaf students can more easily navigate communication and surmount barriers and other complex postsecondary situations when they have access to a deaf mentor or other deaf role models (Cawthon et al., 2016a).

## **Education**

Recent data show positive enrollment and education attainment trends for deaf individuals. The high school graduation rates of deaf students are higher than those of their hearing counterparts (Garberoglio et al., 2018), and nearly 75% of transition-aged deaf youth enroll in some type of postsecondary training program (Newman et al., 2011). The postsecondary education completion rate of deaf students is 52%, which is on par with that of the general population and the highest rate of any disability category (Newman et al., 2011). While these data may invoke cautious optimism, there is still very high within-group variability. This demonstrates the continued need to increase the postsecondary enrollment and completion rates of deaf individuals, particularly those with additional disabilities and those who are people of color (Garberoglio et al., 2019a).

Despite positive trends, there are significant educational attainment gaps at every educational level for deaf individuals. The latest data from the American Community Survey, an annual survey conducted by the U.S. Census Bureau aimed at identifying social and economic needs of communities across the country, estimates that 51% of deaf individuals ages 23–26 years have attended some college, as compared to 67% of hearing individuals (Garberoglio et al., 2019b). This attainment gap remains relatively constant for associate's and bachelor's degree completion. While those deaf students who are afforded the opportunity to attend college may be graduating at rates comparable to those attained by their same-age peers (Newman et al., 2011), far fewer deaf individuals have

postsecondary degrees. These data indicate that, by and large, deaf individuals are not obtaining postsecondary education at rates comparable to those experienced by their hearing peers.

## **Employment**

For individuals in the general population, earning a college degree or attending post-high school training is positively associated with employment (Ng & Feldman, 2009). Not only is educational attainment associated with employment outcomes, but it can also lead to improved social-community engagement outcomes such as voter turnout (Smets & Van Ham, 2013), extracurricular participation, and social interaction (Marsh & Kleitman, 2002). Parallel with trends in the general population, national employment data for deaf adults show a positive association between education and employment rates. For deaf youth, specifically, postsecondary education fosters higher levels of career mobility, enhanced earnings, and increased likelihood of stable employment than high school completion alone (Garberoglio et al., 2016). Deaf individuals without postsecondary education or training are at risk of underemployment and are more likely to have shorter job tenure. They may also be more likely to rely on federal income assistance programs (Houston et al., 2010; Schley et al., 2011).

Unemployment and underemployment have long-lasting effects on the lives of deaf individuals. Data collected by the U.S. Census Bureau indicate that only 53% of deaf individuals ages 18–64 years are employed, while the employment rate for hearing individuals is 76% (Garberoglio et al., 2019a). Employment rates for deaf people increase from 49% for high school graduates to 71% for those with a bachelor's degree (Garberoglio et al., 2019a). Over the course of a lifetime, deaf students who do not attend college earn 66% less than peers with a bachelor's degree or higher (Schley et al., 2011). Median earnings for deaf individuals with the highest levels of educational attainment are double and sometimes triple the earnings of those with lower levels of educational achievement (Garberoglio et al., 2019a; Walter & Dirmeyer, 2013). Deaf individuals who have a bachelor's degree or higher earn nearly \$500 more a week than deaf individuals with a high school diploma (Garberoglio et al., 2019b). Education's impact on employment and wage earning is substantial. There are clear distinctions between those who do not attend college (nonattendees) and those who pursue postsecondary education, whether they become graduates or noncompleters.

## **Civic Engagement**

Traditionally, general education has included a dedication to civic values, service, and citizenship, along with intellectual development and career or vocational training (Persell & Wenglinsky, 2004). There is a consistent and statistically significant relationship between civic engagement and academic achievement (Hurtado & DeAngelo, 2012). For deaf individuals, strengthening community connections contributes significantly to psychosocial well-being (Hintermair, 2008; Jambor & Elliott, 2005) and persistence toward degree completion (Danermark, 1995; Stinson, 1987). Postsecondary institutions provide access to networks, resources, and opportunities that play important roles in preparing students for future success. As such, schools across the nation are integrating civic engagement into the curriculum and cocurricular activities. Community service is a common civic engagement activity, with more and more high schools requiring that students complete service hours in order to graduate (Loup, 2000). Not only are schools at the primary and secondary levels encouraging civic engagement; postsecondary institutions are also actively promoting cocurricular activities and beginning to infuse civic learning into their general education requirements (New, 2016).

Whether community service is required or voluntary, it is a strong predictor of adult voting and volunteering (Hart et al., 2007). After high school, young adults with disabilities engage with their communities at varying rates. Newman et al. (2011) found that 27% of post-high school youth with disabilities participated in community service. When comparisons are made across disability categories, it has been found that more deaf individuals (34%) are involved in community service than their peers. But while deaf youth are participating in community service at high rates, they are less likely to be registered to vote than other youth with disabilities. Newman et al. (2011) determined that 71% of deaf youth were registered to vote; by comparison, several other peer groups with disabilities had registration rates closer to 80%. Participation in elections is generally believed to be 20% lower for citizens with disabilities than for their peers in the general population (Schur et al., 2002); however, the level of participation in elections is high among registered deaf voters. Approximately 63% of registered deaf voters participated in the 2012 presidential election (Schur et al., 2017). Another indicator of civic engagement is participation in local community organizations. In a finding similar to other social-community outcomes, it has been found that a larger proportion of deaf post-high school youth (46%) are involved in organized community groups, such as sports clubs and religious groups, than youth with disabilities in general (39%; Newman et al., 2011).

## **Rationale for the Study**

The present study examined the employment and social outcomes of deaf individuals after leaving postsecondary education. On the basis of secondary analysis of the National Longitudinal Transition Study-2 (NLTS2) data set, we explored the outcomes of deaf students who had completed their postsecondary programs as well as of those who had attended postsecondary school but left prior to program completion. Analyses also included a third group of deaf individuals, those who had never attended college, as a comparison group.

Specifically, in the present article we explore three questions:

- What are the student and family demographic characteristics of postsecondary attendees, both those who complete and those who do not complete their programs, and how do their characteristics compare with those of nonattendees?
- How do employment and income assistance outcomes differ based on postsecondary education status?
- How do social and community engagement outcomes differ based on postsecondary education status?

Although the literature surrounding postsecondary education and employment is robust, there is very little available analysis of the differential relationship of different degrees of postsecondary education attainment in regard to subsequent outcomes. The literature suggests that higher levels of educational achievement have a profound impact on the lives of deaf youth. Expanding on this knowledge base, the present study increases understanding of outcomes after postsecondary school in a more holistic way by including often-unexplored ancillary outcomes, such as employee growth opportunities and benefits and social engagement, and by providing a comprehensive longitudinal comparison of three distinct pathways for deaf student transition. The results are beneficial to a wide range of service providers working with deaf youth and could be used to guide transition-related discussions.

## **Method**

The findings of the present study are based on secondary analysis of the NLTS2 data. NLTS2 is the largest and richest data set currently available that generalizes nationally to youth with disabilities transitioning from high school to early adulthood, as a group and in each of the federal disability categories. Data from NLTS2 are uniquely suited to contribute to better understanding of the outcomes of young deaf adults after postsecondary education. As the product of a 10-year study, the NLTS2 data set includes information about life after college of a nationally

representative sample of young deaf adults who attended and then left postsecondary school, thereby providing the opportunity to learn about their postcollege experiences.

### **The National Longitudinal Transition Study-2: An Overview**

The NLTS2 two-stage sampling strategy first randomly sampled local educational agencies (LEAs) and state-supported special schools stratified by geographic region, district enrollment, and wealth. The target sample of 501 LEAs was reached. In addition, 77 state-sponsored special schools (serving primarily deaf students, students with vision impairments, and students with multiple disabilities) were invited to participate; 38 providing student rosters for the study. Students receiving special education services were randomly selected from rosters of these LEAs and state-supported special schools. Details on the sampling strategy for NLTS2 have been published (Newman et al., 2011). The initial NLTS2 sample comprised more than 11,000 high school students ages 13–16 years in grade 7 or above, who were receiving special education services in December 2000; this sample included approximately 1,000 deaf students who were receiving special education services under IDEA.

### **Parent and Youth Surveys**

NLTS2 parent and youth telephone interviews and mail surveys were conducted in five waves—every other year from 2001 to 2009. Interviews were conducted in English and Spanish using computer-assisted interview techniques; parents and youth who could not participate by phone were mailed a survey. Participants also were offered the option of responding to the interview by TTY. (A videophone protocol had not been developed for this study, as videophones were not released until the final years of data collection, i.e., about 2007.) Response rates for the interviews and surveys ranged from 81.9% at Wave 1 to 55.1% at Wave 5. Data for about two thirds of sample members across the post–high school study time points came from the youth themselves. Parent data were obtained for youth who were said not to be able to respond for themselves, who could not be reached, or who refused to participate; analyses indicated high reliability across respondents (Newman et al., 2011).

### **Sample**

To be included in the present study's sample, young deaf adults needed to have had at least one parent or youth interview or survey after leaving high school—the source of data on postsecondary school attendance. To address

the research questions about postcollege lives, young adults who were reported to have attended postsecondary school were required to have at least one additional wave of parent/youth interview data after the wave in which they were reported to have left postsecondary school. (That is, they needed to have been out of postsecondary school at least 2 years.) Approximately 140 deaf postsecondary school graduates and other completers and 90 deaf postsecondary school dropouts met these criteria. Young adults who were reported to still be in postsecondary school at the time of their final wave of data collection were excluded from the sample. The study also included a comparison sample of approximately 230 young adults who had not attended postsecondary school by their final wave of post-high school data collection. These sample sizes and those reported in all subsequent results are rounded to the nearest multiple of 10, per Institute of Education Sciences data-reporting requirements for a restricted-use data set. Results were weighted by means of cross-wave, cross-instrument weighting (wt\_AnyPYPHSSch, Valdes et al., 2013), a method appropriate for analyzing multiple waves of NLTS2 data. Weights were computed taking into account youth and school characteristics used as stratifying variables in the sampling as well as nonresponse in those strata. Separate weights were computed for state-supported special schools and LEAs, so that findings are nationally representative of deaf individuals in the NLTS2 age range and time frame in both LEAs and state-supported special schools (see Newman et al., 2011 for more details on NLTS2 weighting strategy).

## **Analysis**

Analyses involved descriptive statistics (e.g., percentages and means) and bivariate relationships (i.e., cross-tabulations), excluding cases with missing values. In the tables provided, a standard error is presented for each mean and percentage. Comparisons focused on postsecondary education status and included three groups: young deaf adults who had completed their postsecondary education program (graduates), those who had attended postsecondary school but had left without completing (noncompleters), and those who had never attended postsecondary school (nonattendees). The study used a two-sample *t* test with unequal variances to determine whether the difference between the group averages of each of the three groups were greater than would be expected to occur by chance. Statistically significant differences were set at a probability of .05. Analysis variables included demographic characteristics, such as race/ethnicity, gender, parent's highest level of education, and household income, as well as disability-related characteristics, such as parent-reported language use and degree of hearing loss.

Young adult outcome variables included employment-related outcomes, such as employment status, wages, growth opportunities, and employment benefits, as well as variables focused on receipt of income assistance from programs such as Temporary Assistance for Needy Families (TANF), the Supplemental Nutrition Assistance Program (SNAP), and Supplemental Security Income (SSI). Community engagement variables included participation in organized groups, community service, and voting registration.

## **Results**

### **Young Adult and Family Characteristics**

About two thirds of postsecondary school attendees had graduated from their postsecondary program. Of the postsecondary education graduates, approximately half had attended a combination of types of postsecondary programs since leaving high school. Of those who had not completed their postsecondary program, most had either attended a 2-year college or had attended more than one type of postsecondary program. Students who had completed any type of postsecondary certificate or degree program—the graduates—differed from the nonattendees and the noncompleters in several ways. Compared to both groups, the graduates were more likely to be White and come from households with incomes higher than \$50,000. Their parents were more likely to have received a bachelor's degree or higher. Graduates were less likely to use sign language in the home than noncompleters and nonattendees. However, graduates were more likely to report having no trouble speaking compared to noncompleters and nonattendees. Large majorities of all three groups reported that they had attended mainstream high schools, with graduates most likely to have done so. Majorities of all three groups reported having profound hearing loss, with noncompleters being most likely to do so. Details on these and other findings on the characteristics, by postsecondary education status, of the young adults and their families are provided in Table 1.

**Table 1.** Young Adult and Family Characteristics by Postsecondary Education Status

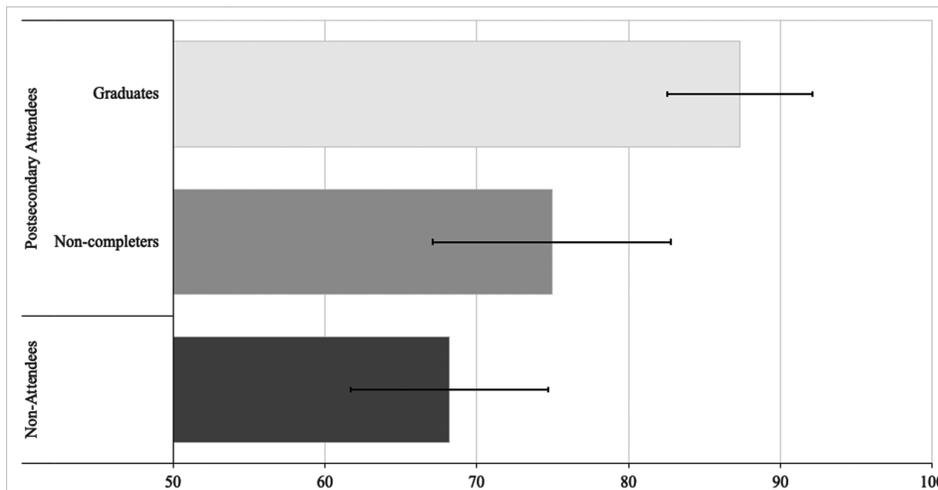
|  | Postsecondary attendees        |                            | Nonattendees                |
|--|--------------------------------|----------------------------|-----------------------------|
|  | Graduates<br>% (SE)            | Noncompleters<br>% (SE)    | % (SE)                      |
| <b>Postsecondary program attended</b>    |                                |                            |                             |
| 2-year college only                      | 10.37 (5.14)                   | 40.05 (8.26)               | n/a                         |
| 4-year college only                      | 20.67 (5.71)                   | 3.63 (3.78)                | n/a                         |
| Career technical education (CTE)<br>only | 14.28 (7.08)                   | 17.30 (6.36)               | n/a                         |
| 2-year college and CTE school            | 28.31 (6.84)                   | 24.87 (8.20)               |                             |
| Attended combination of programs         | 26.36 (5.45)                   | 14.14 (5.01)               |                             |
| <b>Race/ethnicity</b>                    |                                |                            |                             |
| African American                         | 11.31 (2.04) <sup>a</sup>      | 18.67 (6.34)               | 21.49 (3.99) <sup>a</sup>   |
| Hispanic                                 | 8.67 (4.29) <sup>a</sup>       | 25.25 (7.61)               | 21.60 (4.78) <sup>a</sup>   |
| Other                                    | 1.37 (0.96)                    | 1.88 (1.14)                | 8.10 (3.79)                 |
| White                                    | 78.64 (3.99) <sup>aaa,cc</sup> | 54.20 (8.17) <sup>cc</sup> | 48.80 (5.28) <sup>aaa</sup> |
| <b>Gender</b>                            |                                |                            |                             |
| Male                                     | 43.92 (6.98)                   | 57.47 (6.97)               | 54.78 (6.67)                |
| <b>Disability</b>                        |                                |                            |                             |
| Additional disability                    | 44.97 (8.79)                   | 50.69 (8.34)               | 59.8 (6.75)                 |
| <b>Home environment</b>                  |                                |                            |                             |
| Parent BA degree or higher               | 28.78 (5.70) <sup>aaa,c</sup>  | 13.98 (4.83) <sup>c</sup>  | 8.23 (2.91) <sup>aaa</sup>  |
| Household income \$50,000+               | 59.32 (7.74) <sup>aaa,c</sup>  | 25.93 (6.68) <sup>c</sup>  | 21.86 (3.63) <sup>aaa</sup> |
| <b>Language use</b>                      |                                |                            |                             |
| Sign language                            | 10.71 (3.93) <sup>a,c</sup>    | 29.95 (8.31) <sup>c</sup>  | 26.36 (6.34) <sup>a</sup>   |
| No trouble speaking                      | 44.35 (7.24) <sup>a</sup>      | 28.86 (7.77)               | 24.49 (4.51) <sup>a</sup>   |
| Little trouble speaking                  | 40.31 (7.74)                   | 35.59 (12.88)              | 41.48 (4.61)                |
| Trouble speaking/doesn't speak           | 15.33 (5.96) <sup>a</sup>      | 35.55 (11.54)              | 34.03 (4.53) <sup>a</sup>   |
| Understands speech well                  | 53.06 (9.88)                   | 55.67 (7.77)               | 42.95 (4.89)                |
| Little trouble understanding             | 44.86 (9.72)                   | 30.68 (7.26)               | 50.6 (4.84)                 |
| Trouble understanding                    | 2.08 (1.61)                    | 13.65 (6.77)               | 6.19 (2.19)                 |
| <b>Type of high school attended</b>      |                                |                            |                             |
| Mainstream school                        | 86.94 (4.50) <sup>aaa</sup>    | 79.01 (5.01)               | 66.70 (4.68) <sup>aaa</sup> |
| Deaf school                              | 7.68 (4.28)                    | 17.23 (5.03)               | 21.60 (3.75)                |
| Both                                     | 5.38 (2.29)                    | 3.76 (1.91)                | 11.61 (4.02)                |
| <b>Degree of hearing loss</b>            |                                |                            |                             |
| None/mild                                | 18.16 (5.60)                   | 9.02 (3.64)                | 12.92 (3.84)                |
| Moderate                                 | 30.27 (5.83)                   | 15.89 (5.73)               | 23.13 (4.40)                |
| Profound                                 | 51.57 (7.37) <sup>c</sup>      | 75.09 (7.15) <sup>c</sup>  | 63.95 (5.64)                |
| <i>N</i>                                 | 140                            | 100                        | 240                         |

*Note.* If the means within a row share the same superscript, there is a statistically significant difference between those two means. Single superscripts are  $p \leq .05$ , doubled are  $p \leq .01$ , and tripled are  $p \leq .001$ . For example, superscript-a in the African American row indicates that there is a significant difference between the graduates and the nonattendees. This single superscript-a means the difference at  $p \leq .05$ . Percentages are weighted population estimates. Unweighted sample sizes were rounded to the nearest multiple of 10, as required by the Institute of Education Sciences, U.S. Department of Education, for restricted-use data sets.

## Employment, Employment Benefit, and Income Assistance

The relationship between postsecondary experience and employment, employment benefits, and income assistance is substantial. In regard to employment status, graduates significantly differed from the nonattendees: 87% of the graduates reported being employed compared to 68% of the nonattendees,  $p \leq 0.05$  (Figure 1). The difference between the graduates and noncompleters did not reach significance.

**Figure 1.** Proportion Employed in the Past Two Years, by Postsecondary Education Status



During 2009, the federal minimum wage in the United States was \$6.55; it increased to \$7.25 per hour by the end of the year. When states have their own minimum wage statutes, employees are entitled to the higher of the two. In 2009, seven states and the District of Columbia had minimum wages that were higher than the federal wage, with the state of Washington requiring the highest amount, \$8.55 per hour. On average, the young adults in the present study reported earning substantially more than federal minimum wage, though pay per hour differed widely, especially between graduates and nonattendees: Graduates' hourly wage was more than a third greater than that of nonattendees. In terms of total income, graduates were, perhaps not surprisingly, most likely to earn \$25,000 or more per year. Several employment-related benefits and growth opportunity outcomes were included in this analysis. For employment benefits, such as receiving vacation or sick leave or health insurance, there was no significant difference by postsecondary education status. However, there were significant differences in terms of employment growth opportunities between the groups, with postsecondary noncompleters reporting significantly more opportunities for growth than either postsecondary graduates or nonattendees. Similarly, more noncompleters

reported having been promoted than nonattendees. For this set of outcomes, noncompleters exhibited more positive outcomes than the graduates. This finding may be associated with the amount of time in the workforce and is explored in subsequent sections. More information on these findings is provided in Table 2.

**Table 2.** Employment and Income Assistance Outcomes by Postsecondary Education Status

|                                      | <b>Postsecondary attendees</b> |                              | <b>Nonattendees</b>             |
|--------------------------------------|--------------------------------|------------------------------|---------------------------------|
|                                      | Graduates<br>% (SE)            | Noncompleters<br>% (SE)      | % (SE)                          |
| <b>Employment</b>                    |                                |                              |                                 |
| Employed within the last 2 years     | 87.31 (4.80) <sup>a</sup>      | 74.94 (7.82)                 | 68.17 (6.50) <sup>a</sup>       |
| Mean wages per hour                  | \$11.64 (0.90) <sup>aa</sup>   | \$10.79 (0.60) <sup>bb</sup> | \$8.59 (0.51) <sup>aa,bb</sup>  |
| <b>Employee growth opportunities</b> |                                |                              |                                 |
| Been promoted                        | 57.5 (10.75)                   | 75.0 (10.96) <sup>b</sup>    | 41.06 (9.74) <sup>b</sup>       |
| Opportunity to move up               | 52.5 (7.70) <sup>c</sup>       | 84.95 (11.79) <sup>bc</sup>  | 49.45 (9.42) <sup>b</sup>       |
| <b>Employment benefits</b>           |                                |                              |                                 |
| Any benefits                         | 64.91 (10.20)                  | 72.31 (9.89)                 | 50.35 (10.09)                   |
| Vacation or sick leave               | 53.32 (10.84)                  | 67.61 (10.64)                | 38.18(12.30)                    |
| Health insurance                     | 46.14 (9.54)                   | 55.18 (11.55)                | 35.93 (11.26)                   |
| <b>Income</b>                        |                                |                              |                                 |
| \$25,000 or less                     | 57.15 (9.10) <sup>aaa</sup>    | 75.51(11.10)                 | 95.46 (2.72) <sup>aaa</sup>     |
| \$25,000 or more                     | 42.85 (9.10) <sup>aaa</sup>    | 24.49 (11.10)                | 4.54 (2.72) <sup>aaa</sup>      |
| <b>Income assistance programs</b>    |                                |                              |                                 |
| Received TANF                        | 0 <sup>aaa</sup>               | 0 <sup>bbb</sup>             | 21.51(12.09) <sup>aaa,bbb</sup> |
| Received SNAP                        | 9.13 (5.01) <sup>a</sup>       | 7.9 (4.53) <sup>b</sup>      | 25.96 (6.00) <sup>a,b</sup>     |
| Received SSI                         | 18.05 (5.37) <sup>aa</sup>     | 23.69 (6.37)                 | 40.84 (7.44) <sup>aa</sup>      |
| <b>N</b>                             | 140                            | 100                          | 240                             |

*Note.* If the means within a row share the same superscript, there is a statistically significant difference between those two means. Single superscripts are  $p \leq .05$ , doubled are  $p \leq .01$ , and tripled are  $p \leq .001$ . For example, superscript-a in the African American row indicates that there is a significant difference between the graduates and the nonattendees. This single superscript-a means the difference at  $p \leq .05$ . Percentages are weighted population estimates. Unweighted sample sizes were rounded to the nearest multiple of 10, as required by the Institute of Education Sciences, U.S. Department of Education, for restricted-use data sets.

For individuals who are unemployed or underemployed, income assistance programs can help cover basic expenses such as food, housing, and health care. Participants were asked if they received TANF, SNAP, or SSI. Graduates were the least likely to report receiving income assistance. Nonattendees were significantly more likely than graduates to report receiving TANF, SNAP, and SSI, while noncompleters did not differ significantly from the graduates. Also, noncompleters were much less likely to report receiving nutrition assistance than nonattendees. Broadly, these results indicate that a smaller percentage of young deaf adults who have graduated from college

receive federal cash and benefit assistance than students who did not complete their postsecondary degree program and those who never attended college (see Table 2).

### Social-Community Engagement

In addition to employment-related outcomes, level of social-community engagement differed by postsecondary attainment. Significantly more postsecondary attendees who graduated from their educational programs participated in organized groups, volunteered, performed community service, or were registered to vote. Postsecondary noncompleters did not substantially differ from graduates on any of the social-community measures, and significantly differed from nonattendees only in being registered to vote three quarters of noncompleters reported being registered to vote compared to about half of the nonattendees-(see Table 3).

**Table 3.** Social-Community Outcomes by Postsecondary Education Status

|   | Postsecondary attendees   |                           | Nonattendees                |
|---|---------------------------|---------------------------|-----------------------------|
|   | Graduates<br>% (SE)       | Noncompleters<br>% (SE)   | % (SE)                      |
| Participated in organized groups              | 48.28 (9.14) <sup>a</sup> | 42.33 (10.16)             | 28.93 (4.79) <sup>a</sup>   |
| Involved with volunteer and community service | 41.97 (9.22) <sup>a</sup> | 24.53 (8.66)              | 16.35 (3.87) <sup>a</sup>   |
| Registered to vote                            | 74.48 (9.79) <sup>a</sup> | 75.47 (9.30) <sup>a</sup> | 47.75 (7.09) <sup>a,b</sup> |
| <i>N</i>                                      | 140                       | 100                       | 240                         |

*Note.* If the means within a row share the same superscript, there is a statistically significant difference between those two means. Single superscripts are  $p \leq .05$ , doubled are  $p \leq .01$ , and tripled are  $p \leq .001$ . For example, superscript-a in the African American row indicates that there is a significant difference between the graduates and the nonattendees. This single superscript-a means the difference at  $p \leq .05$ . Percentages are weighted population estimates. Unweighted sample sizes were rounded to the nearest multiple of 10, as required by the Institute of Education Sciences, U.S. Department of Education, for restricted-use data sets.

### Discussion

The present study used data from NLTS2 to compare the employment, income assistance, and social-community outcomes of young deaf adults with varying degrees of postsecondary educational attainment. The results generally indicated that young deaf adults with more postsecondary education had more positive outcomes. These outcomes included higher employment rates, higher wages per hour, reduced need for federal income assistance, and greater civic and social participation. These findings support the importance of postsecondary training and education for transition-aged deaf youth for long-term outcomes across many domains. The results are discussed in the context of previous research on deaf youth and postsecondary outcomes.

## **Demographics**

The contribution of the present findings to the field is the national representativeness of their sample, which provides a national characterization of attendees and life after postsecondary school experiences. On average, the nonattende deaf youth were people of color with profound hearing loss and an additional disability, while the postsecondary attendees were predominantly White and came from households with a higher income and had parents who were educated. Postsecondary attendees who did not complete their program of study (noncompleters) were demographically similar to the nonattende group. Compared to postsecondary graduates, a larger proportion of noncompleters were people of color and youth with profound hearing loss. This suggests the presence of barriers and inequities that are disproportionately affecting students of color, students with more profound hearing loss, and those with additional disabilities, which has implications for transition planning and educational programming.</>

## **Employment, Employment Benefits, and Growth Opportunities**

For young deaf adults, post–high school education fosters higher levels of career mobility, enhanced earnings, and an increased likelihood of stable employment (Garberoglio et al., 20162019b), and reduces the need to rely on federal income assistance programs (Houston et al., 2010; Schley et al., 2011). While the employment results of the present study align with findings from the literature regarding the positive association between education and employment outcomes, its main contribution to the current analysis is to the understanding of what happens after high school as students embark on various postsecondary pathways.

In the present study, employment within the last 2 years and mean wages per hour increased with postsecondary experience. These data suggest that deaf educational attainment is strongly associated with economic outcomes. However, employment benefits did not significantly differ. Postsecondary noncompleters reported having more opportunities to move up than nonattendees. This finding may reflect young deaf adults' positive outlook on their current career trajectory because other studies have noted deaf graduates' difficulty achieving promotions and career advancement. In a survey of college alumni, Kelly et al. (2015) found that hearing graduates had a significantly greater probability of being promoted throughout their careers than deaf graduates. In the present analysis, the noncompleter group stands out as having the largest percentage of individuals who reported having received a promotion. Discrepancies in employment benefits between graduates and noncompleters could be attributable to the fact that noncompleters have been in the workforce longer, a situation that increases the

opportunity to move into positions that include benefits, whereas recent graduates may be starting in entry-level positions.

Throughout these analyses, postsecondary education noncompleters appeared to have more positive outcomes than nonattendees, who likely had been in the workforce longer. This reflects, in part, how even some college experience may benefit deaf youth. A recent national-level data report indicates that deaf individuals with some college experience are more likely to be employed and have a higher median salary than deaf individuals with only a high school diploma (Garberoglio et al., 2019b). Conversely, this finding might also demonstrate how deaf youth with a college degree may not be immune to systemic barriers to employment and career advancement. This is especially relevant in regard to long-term outcomes. Kelly et al. (2015) found that deaf graduates in their twenties did not differ in their job roles when compared to hearing graduates, but when graduates who were a decade older were compared, hearing graduates were disproportionately represented in managerial and high-level positions. Despite being the product of a cross-sectional analysis rather than a longitudinal study, results like these suggest that advancement opportunities for deaf employees plateau over time.

### **Social-Community Engagement**

In regard to social-community outcomes, more postsecondary attendees participated in organized groups, volunteered, or performed community service, and were registered to vote. While this analysis does not provide an extensive set of social network–associated outcome variables, previous research suggests the development of social and community engagement is linked to positive education and employment outcomes (Heal et al., 1997; Mahatmya et al., 2012). Hurtado et al. (2012) found that college students' participation in a range of civic-related activities (e.g., volunteer work, voting in student elections) contributes to self-reported growth in regard to civic awareness and thinking about a diversified democracy. Students who engage in these activities have the ability to create relationships that in turn give them access to various social networks.

For the outcomes examined in the present study, the noncompleters and nonattendees did not appear to differ significantly, except in regard to voter registration. An equal proportion of graduates and noncompleters reported being registered to vote. This finding aligns with other research indicating that voting rates increase with education level. For example, a recent report found that citizens with a bachelor's degree or higher are more likely to vote (Ma et al., 2016). Historically, deaf individuals have expressed apathy toward the political arena due to a lack

of information access and the general feeling that their votes are outnumbered by those of the hearing majority (Bateman, 1996). However, this attitude may be changing, as today's young deaf adults have more access to the democratic process thanks to the Help America Vote Act of 2002, and increasing access to information via closed captioning, social media dialogues in sign language (Wardle, 2017), and grassroots campaigns such as Sign Vote (<https://signvote.org/>). Deaf individuals are more likely to vote than other registered voters with disabilities (Schur et al., 2013). This statistic provides some context: In the 2012 presidential election voter turnout of people with disabilities was 5.7 percentage points lower than that of those without disabilities (Schur et al., 2013).

### **Limitations**

The secondary analysis of the NLTS2 data set in the present study provides a clear description of the employment, income assistance, and social experiences of young deaf adults after postsecondary education. The NLTS2 is a robust data set that allows us to generalize nationally about the transition experiences of deaf youth. However, one of the challenges in using the NLTS2 is that it was designed to capture the experiences of a broad range of youth with disabilities and lacks nuanced questions that are relevant specifically to deaf individuals and intersectional experiences. As a secondary analysis, this study was constrained by the NLTS2 design and the items available in the data set.

As other researchers have pointed out (e.g., Cawthon et al. 2015a), the NLTS2 lacks sufficient demographic information to capture communication dynamics in the home. The communication variables are parent reported, and it is unclear if responses reflect deaf youths' ability to communicate in their preferred mode of communication or are more influenced by an individual deaf youth's ability to lipread or to understand spoken English, or hearing family members' limited sign language proficiency. Beyond the possible primarily language mismatch between parents and youth, the NLTS2 does not contain classic variables that correlate with sign language fluency (e.g., age of acquisition; Boudreault & Mayberry, 2006; Mayberry & Lock, 2003) and age of deaf school entry (Henner et al., 2016), and instead has variables related to communication mode, which are extremely limited (Hall & Dills, 2020). In this study, we report sign language as the main language used in the home by postsecondary education status. At best, this indicates that the youth uses some form of sign language or manual communication in the home, and cannot be interpreted to mean fluency in American Sign Language. For critiques of similar heterogenous lumping of signing ability, see Hall et al. (2019) and responses to Geers et al. (2017). Additionally,

although the NLTS2 is the only available data set with postsecondary education outcomes for a nationally representative sample of deaf students and deaf young adults, some of these data now are more than a decade old and may no longer be fully reflective of current postcollege experiences.

The sample for the present study does not provide a sufficient sample size to support analyses focused on intersectionality, specifically race and disability. In previous studies, demographic covariates such as race, ethnicity, and additional disability have been found to be significant (e.g., Garberoglio et al., 2013). Examining intersectional identities can advance understanding of how systems differentially affect various populations. For example, Black deaf women attend and complete college at higher rates than Black deaf men (Garberoglio et al., 2019c).

We used an inferential statistics technique to determine if the difference between two groups was too great to be attributed to chance alone. This approach does not provide any explanation for this difference, so caution should be used when these results are interpreted. Lastly, these analyses were based on self-reported data that were not independently verified. These estimates are also limited by the lack of aggregation by location or place of enrollment, which reduced their utility in identifying institutional factors that promote or are obstacles to degree completion (Newman et al., 2011).

### **Future Research**

While most of the focus of deaf education is on the years from birth to young adulthood, trajectories set during adolescence can carry through a lifelong journey. Future research should continue to broaden the range of early adult outcomes investigated beyond academic outcomes into independent living, career advancement, and life satisfaction. Such an approach would help strengthen the understanding of the impact that postsecondary education and training have on young deaf adults. Also needed is a deeper understanding of how barriers to postsecondary completion vary due to factors including intersectional experiences of deaf youth from diverse racial, ethnic, and socioeconomic backgrounds. The NLTS2 data set is limited in the extent to which it can assist in identifying system-level barriers to postsecondary success. The field would benefit from a socioecological perspective and a data set that can identify specific institutional components and other exosystem-level factors (Bronfenbrenner, 1994) that either promote or hinder degree completion beyond student-level variables. This expanded focus on system-level variables could help generate interventions that focus on policies and practices at the school, community, state, and federal levels that might improve equity and success.

## **Implications for Practitioners**

Transition from secondary to postsecondary settings occurs over a long period of time, often at least 10 years from early conversations to degree attainment, with many steps in the process. The results of the present study can be used to inform transition planning for deaf students, supporting the need to consider both short- and long-term goals. For example, transition planning conversations can include both brief discussions about initial postsecondary employment options and more in-depth discussion focused on career-oriented employment preparation. This can include providing strategies on how to seek opportunities for advancement beyond entry-level work, with a clear awareness of the kinds of skills necessary to maintain a long-term career trajectory. These findings also suggest that there are long-term benefits to the range of postsecondary education and training opportunities, and that deaf students should explore the array of possibilities available at college or through career technical education. Regardless of the pathway pursued, the benefits of not just enrolling, but also completing postsecondary training, are clear; deaf youth can benefit from continued support in navigating barriers that deter degree or certificate completion.

## **Conclusion**

The purpose of the present study was to describe outcomes for deaf youth after postsecondary education. We focused on a broad range of employment and social outcomes in order to paint a more holistic picture of life after high school, with the goal of increasing awareness of quality of life and equitable opportunities for deaf people. The study highlights many of the positive outcomes associated with postsecondary attendance and completion. These results do not just demonstrate that reducing the attainment gap is not only about supporting equitable opportunities to pursue postsecondary education and training; they also show that education attainment beyond high school is associated with positive employment and social/community outcomes for deaf youth.

## **Note on Terminology**

1. In the present article, we use the term *deaf* to refer to the broad range of individuals who may identify as deaf, deafblind, deafdisabled, hard of hearing, late-deafened, or hearing impaired. These individuals are eligible for school-based services under the Individuals With Disabilities Education Act based on the category of deafness or hearing impairment (Individuals With Disabilities Education Improvement Act of 2004).

## References

- Bateman, G. C. (1996). Attitudes of the deaf community toward political activism. In I. Parasnian (Ed.), *Cultural and language diversity and the deaf experience* (pp. 146–159). Cambridge University Press.
- Boudreault, P., & Mayberry, R. I. (2006). Grammatical processing in American Sign Language: Age of first-language acquisition effects in relation to syntactic structure. *Language and Cognitive Processes*, 21(5), 608–635.
- Bourdieu, P. (1986). The forms of capital. In J. G. Richardson (Ed.), *Handbook of theory and research for the sociology of education* (pp. 241–258). Greenwood Press.
- Bronfenbrenner, U. (1994). Ecological models of human development. *Readings on the Development of Children*, 2(1), 37–43.
- Cawthon, S. W., Caemmerer, J. M., Dickson, D. M., Ocutto, O. L., Ge, J., & Bond, M. P. (2015a). Social skills as a predictor of postsecondary outcomes for individuals who are deaf. *Applied Developmental Science*, 19(1), 19–30.
- Cawthon, S. W., Garberoglio, C. L., Caemmerer, J. M., Bond, M. P., & Wendel, E. (2015b). Effect of parent involvement and parent expectations on postsecondary outcomes for individuals who are deaf or hard of hearing. *Exceptionality*, 23(2), 73–99.
- Cawthon, S. W., Johnson, P. M., Garberoglio, C. L., & Schoffstall, S. J. (2016a). Role models as facilitators of social capital for deaf individuals: A research synthesis. *American Annals of the Deaf*, 161(2), 115–127.
- Cawthon, S. W., Wendel, E., Bond, M., & Garberoglio, C. L. (2016b). The impact of intensive vocation-related course taking on employment outcomes for individuals who are deaf. *Remedial and Special Education*, 37(3), 131–145.
- Danermark, B. (1995). Persistence and academic and social integration of hearing-impaired students in postsecondary education: A review of research. *JADARA*, 29(2), 20–33.
- Garberoglio, C. L., Cawthon, S. W., & Bond, M. P. (2013). Assessing English literacy as a predictor of postsecondary outcomes in the lives of deaf individuals. *Journal of Deaf Studies and Deaf Education*, 19(1), 50–67.
- Garberoglio, C. L., Cawthon, S., & Sales, A. (2018, April 13–17). *Change over time in educational attainment for deaf individuals from 2008 to 2015* [Paper presentation]. American Educational Research Association Annual Meeting, New York, NY.
- Garberoglio, C. L., Palmer, J. L., Cawthon, S. W., & Sales, A. (2019a). *Deaf people and educational attainment in the United States: 2019*. Washington, DC: U.S. Department of Education, Office of Special Education Programs, National Deaf Center on Postsecondary Outcomes. <https://www.nationaldeafcenter.org/resource/deaf-people-and-educational-attainment-united-states>
- Garberoglio, C. L., Palmer, J. L., Cawthon, S. W., & Sales, A. (2019b). *Deaf people and employment in the United States: 2019*. Washington, DC: U.S. Department of Education, Office of Special Education Programs, National Deaf Center on Postsecondary Outcomes. <https://www.nationaldeafcenter.org/resource/deaf-people-and-employment-united-states>
- Garberoglio, C. L., Stapleton, L.D., Palmer, J. L., Simms, L., Cawthon, S., & Sales, A. (2019c). *Postsecondary achievement of Black deaf people in the United States*. Washington, DC: U.S. Department of Education, Office of Special Education Programs, National Deaf Center on Postsecondary Outcomes. <https://www.nationaldeafcenter.org/blackdeaf>

- Geers, A. E., Mitchell, C. M., Warner-Czyz, A., Wang, N. Y., Eisenberg, L. S., & CDaCI Investigative Team. (2017). Early sign language exposure and cochlear implantation benefits. *Pediatrics*, *140*(1), e20163489.
- Hall, M. L., & Dills, S. (2020). The limits of “communication mode” as a construct. *Journal of Deaf Studies and Deaf Education*. Advance online publication.
- Hall, M. L., Hall, W. C., & Caselli, N. K. (2019). Deaf children need language, not (just) speech. *First Language*, *39*(4), 367–395.
- Hart, D., Donnelly, T. M., Youniss, J., & Atkins, R. (2007). High school community service as a predictor of adult voting and volunteering. *American Educational Research Journal*, *44*(1), 197–219.
- Heal, L. W., Khoju, M., & Rusch, F. R. (1997). Predicting quality of life of youths after they leave special education high school programs. *Journal of Special Education*, *31*(3), 279–299.
- Help America Vote Act of 2002, Pub. L. 107–252, 116 Stat. 1666, codified as amended at 42 U.S.C. §§ 15301–15545.
- Henner, J., Caldwell-Harris, C. L., Novogrodsky, R., & Hoffmeister, R. (2016). American Sign Language syntax and analogical reasoning skills are influenced by early acquisition and age of entry to signing schools for the deaf. *Frontiers in Psychology*, *7*.
- Hintermair, M. (2008). Self-esteem and satisfaction with life of deaf and hard-of-hearing people: A resource-oriented approach to identity work. *Journal of Deaf Studies and Deaf Education*, *13*(2), 278–300.
- Houston, K., Lammers, H. B., & Svorny, S. (2010). Perceptions of the effect of public policy on employment opportunities for individuals who are deaf or hard of hearing. *Journal of Disability Policy Studies*, *21*(1), 9–21.
- Hurtado, S., & DeAngelo, L. (2012). Linking diversity and civic-minded practices with student outcomes: New evidence from national surveys. *Liberal Education*, *98*(2), 4–23.
- Individuals With Disabilities Education Improvement Act of 2004, Pub. L. 108–446, 118 Stat. 2647, codified as amended at 43 U. S. C. § 1601 *et seq.*
- Jambor, E., & Elliott, M. (2005). Self-esteem and coping strategies among deaf students. *Journal of Deaf Studies and Deaf Education*, *10*(1), 63–81.
- Kelly, R. R., Quagliata, A. B., DeMartino, R., & Perotti, V. (2015, July). *Deaf workers: Educated and employed, but limited in career growth* [Paper presentation]. Twenty-Second International Congress on the Education of the Deaf, Athens, Greece.
- Loup, D. (2000). *Community service: Mandatory or voluntary?* School Superintendents Association. <https://aasa.org/SchoolAdministratorArticle.aspx?id=14442>
- Ma, J., Pender, M., & Welch, M. (2016). *Education pays 2016: The benefits of higher education for individuals and society*. College Board.
- Mahatmya, D., Lohman, B. J., Matjasko, J. L., & Farb, A. F. (2012). Engagement across developmental periods. In S. L. Christenson, A. L. Reschly, & C. Wylie (Eds.), *Handbook of research on student engagement* (pp. 45–63). Springer.
- Marsh, H., & Kleitman, S. (2002). Extracurricular school activities: The good, the bad, and the nonlinear. *Harvard Educational Review*, *72*(4), 464–515.

- Mayberry, R., & Lock, E. (2003). Age constraints on first versus second language acquisition: Evidence for linguistic plasticity and epigenesis. *Brain and Language*, 87(3), 369–384.
- Mazzotti, V., Rowe, D., Sinclair, J., Poppen, M., Woods, W., & Shearer, M. (2016). Predictors of post-school success: A systematic review of NLTS2 secondary analyses. *Career Development and Transition for Exceptional Individuals*, 39(4), 196–215.
- New, J. (2016, May 10). *Civic learning*. Inside Higher Ed. <https://www.insidehighered.com/news/2016/05/10/colleges-placing-increasing-importance-programs-promoting-civic-engagement>
- Newman, L., Marschark, M., Shaver, D., & Javitz, H. (2016). Course taking effect on postsecondary enrollment of deaf and hard of hearing students. *Exceptionality*, 25(3), 1–16.
- Newman, L., Wagner, M., Cameto, R., Knokey, A. M., & Shaver, D. (2010). *Comparisons across time of the outcomes of youth with disabilities up to 4 years after high school: A report of findings from the National Longitudinal Transition Study-2 (NLTS2)*. SRI International, Institute of Education Sciences. [https://nlts2.sri.com/reports/2010\\_09/nlts2\\_report\\_2010\\_09\\_complete.pdf](https://nlts2.sri.com/reports/2010_09/nlts2_report_2010_09_complete.pdf)
- Newman, L., Wagner, M., Knokey, A. M., Marder, C., Nagle, K., Shaver, D., & Wei, X. (2011). *The post-high school outcomes of young adults with disabilities up to 8 years after high school: A report from the National Longitudinal Transition Study-2 (NLTS2)*. SRI International, Institute of Education Sciences. <https://ies.ed.gov/ncser/pubs/20113005/pdf/20113005.pdf>
- Ng, T. W., & Feldman, D. C. (2009). How broadly does education contribute to job performance? *Personnel Psychology*, 62(1), 89–134.
- Persell, C. H., & Wenglinsky, H. (2004). For-profit post-secondary education and civic engagement. *Higher Education*, 47(3), 337–359.
- Schley, S., Walter, G. G., Weathers, R. R., II, Hemmeter, J., Hennessey, J. C., & Burkhauser, R. V. (2011). Effect of postsecondary education on the economic status of persons who are deaf or hard of hearing. *Journal of Deaf Studies and Deaf Education*, 16(4), 524–536.
- Schur, L., Adya, M., & Kruse, D. (2013). *Disability, voter turnout, and voting difficulties in the 2012 elections*. Research Alliance for Accessible Voting. <http://web.mit.edu/supportthevoter/www/files/2013/08/Disability-and-Voting-Survey-Report-for-2012-Elections-Exec.-Summary.pdf>
- Schur, L., Ameri, M., & Adya, M. (2017). Disability, voter turnout, and polling place accessibility. *Social Science Quarterly*, 98(5), 1374–1390.
- Schur, L., Shields, T., Kruse, D., & Schriener, K. (2002). Enabling democracy: Disability and voter turnout. *Political Research Quarterly*, 55(1), 167–190.
- Smets, K., & Van Ham, C. (2013). The embarrassment of riches? A meta-analysis of individual-level research on voter turnout. *Electoral Studies*, 32(2), 344–359.
- Stinson, M. S. (1987). Perceptions of tutoring services by mainstreamed hearing-impaired college students. *Journal of Postsecondary Education and Disability*, 5, 18–26.
- Test, D. W., Mazzotti, V. L., Mustian, A. L., Fowler, C. H., Kortering, L., & Kohler, P. D. (2009). Evidence-based secondary transition predictors for improving postschool outcomes for students with disabilities. *Career Development for Exceptional Individuals*, 32(3), 160–181.

- Valdes, K., Godard, P., Williamson, C. J. V. C., Van Campen, J., McCracken, M., Jones, R., & Cameto, R. (2013). *National Longitudinal Transition Study-2 (NLTS2) waves 1, 2, 3, 4, and 5 data documentation and dictionary*. SRI International.  
[https://nlts2.sri.com/data\\_dictionary/downloads/Documentation/nlts2\\_DD\\_OverviewW5\\_Web.pdf](https://nlts2.sri.com/data_dictionary/downloads/Documentation/nlts2_DD_OverviewW5_Web.pdf)
- Wagner, M., Newman, L., Cameto, R., & Levine, P. (2005). *Changes over time in the early postschool outcomes of youth with disabilities: A report of findings from the National Longitudinal Transition Study (NLTS) and the National Longitudinal Transition Study-2 (NLTS2)*. SRI International.  
[https://nlts2.sri.com/reports/2005\\_06/nlts2\\_report\\_2005\\_06\\_complete.pdf](https://nlts2.sri.com/reports/2005_06/nlts2_report_2005_06_complete.pdf)
- Walter, G. G., & Dirmyer, R. (2013). The effect of education on the occupational status of deaf and hard of hearing 26-to-64-year-olds. *American Annals of the Deaf*, 158(1), 41–49.
- Wardle, J. (2017). *Political socialization of the deaf community through new media accessibility* [Unpublished doctoral dissertation]. Georgetown University.