

Recent College Graduates with Disabilities: Higher Education Experiences and Transition to Employment

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Abstract

Although the well-known employment gap between people with and without disabilities persists, employment prospects are more favorable, in general, for individuals with college degrees. In the 30 years since the passage of the Americans with Disabilities Act, the number of disabled people who attend college has steadily risen. This study investigated how college characteristics and engagement in career preparation activities during college affected the transition to work and employment outcomes of recent college graduates, comparing the experiences of people with and without disabilities. A convenience sample of $n = 4,659$ U.S. residents ages 20 to 35 who had completed their first undergraduate degree within the last 5 years responded to an online survey about college and work. Results showed that recent college graduates with disabilities engaged in academic and career preparation services at least as much as their peers without disabilities. After college, 80% of recent graduates with and without disabilities were currently employed at the time of the survey. Yet, inequities in the type and quality of employment were evident. Recent disabled graduates were less likely than recent non-disabled graduates to work at a job that was related to their college degree or to hold regular, permanent positions. Disability services educators can contribute to positive post-college employment outcomes by encouraging college students with disabilities to engage in career preparation activities during college and helping to ensure that such services and activities are appropriately accessible for all.

Keywords: recent college graduates, employment, career services, internships, disability

Recent decades, since the passage of the Americans with Disabilities Act of 1990 (ADA), have seen a large increase in the number of people with disabilities who attend college (Grigal et al., 2011). During the 1995-96 academic year, approximately six percent of undergraduates reported having a disability (Horn & Berktold, 1999). Twenty years later, undergraduates with self-reported disabilities had risen to more than 19% (National Science Foundation, 2019). Disabled people now comprise nearly 12% of college graduates in the United States (Courtney-Long et al., 2015). This increase is good news for many reasons, one of which is that educational attainment is associated with both gainful employment and earning potential (Carnevale et al., 2013).

Although the employment gap between people with and without disabilities persists, employment prospects are more favorable, in general, for individuals with college degrees (Abel & Dietz, 2014; Carnevale et al., 2011; Oreopoulos & Petronijevic, 2013). Among those with jobs, disabled people tend to earn less than non-disabled people (Houtenville & Boege, 2019); however, higher education can facilitate access to higher-paying occupations for people with certain types of disabilities (Maroto & Pettinichhio, 2014). This suggests that even with the rising costs of higher education, college may still provide good returns on investment for people with disabilities.

In fact, although a recent U.S. jobs report shows that the labor force participation rate of working age

people with disabilities (33.7%) was substantially lower than that of people without disabilities (76.2%; U.S. Department of Labor, 2021), the gap significantly narrows when looking specifically at college graduates. Among working-age college graduates with disabilities, the labor force participation rate was 89.9% compared to 92.5% of college graduates without disabilities (National Science Foundation, 2017). When further restricting the age range to college graduates under 35 years old, the disparity is eliminated, and both groups, with and without disabilities, exhibit a labor force participation rate of 93% (National Science Foundation, 2017). These figures not only highlight the importance of higher education for disabled people, but also they allude to the potential impact of growing up and attending school as part of the ADA generation.

Despite the suggestion that college attendance rates are improving, relatively little is known about the college experiences of students with disabilities. Some studies have looked at disabled students' engagement with disability-specific services and accommodations procedures in college (Aquino & Bittinger, 2019; Barnard-Brak et al., 2010; Fichten et al., 2003; Hong, 2015; Marshak et al., 2010). Fichten et al. (2003) found that disabled students in community college who registered for disability services were more likely to succeed in school. However, other research showed that a majority (59%) of postsecondary students who had identified as having a disability in the first wave of a study had unidentified by the second wave two years later (Aquino & Bittinger, 2019), possibly to minimize stigma and counteract a decreased sense of belonging.

As to general aspects of college life, community college students with and without disabilities have been found to experience similar levels of satisfaction and dissatisfaction with the ups and downs of college, such as good or bad professors, difficult or boring classes, course schedules, motivation to study, and making friends (Fichten et al., 2012). College students with disabilities face barriers including the need for more computer training, difficulty with physical access to campus buildings, and lack of confidence in disability services offices' understanding of disabled students' lived experience (Gelbar et al., 2015). To combat these barriers, some promising practices have been tested, and results point to the effectiveness of individualized, student-centered services (Pillette, 2019). For example, a small-scale study of an internship program designed specifically for college students with physical disabilities showed positive results related to both job skills and soft skills, such as networking (DiYenno et al., 2019). Yet,

a recent systematic review of predictors of success for disabled college students noted that insufficient studies exist to form an evidence base in support of these and other promising practices (Madaus et al., 2020). No recent studies report on disabled college students' use of career services, career-related internships, or other career preparation activities that are not specific to disability-related services.

Similarly, although much is known about on-the-job experiences, job satisfaction, and job quality among people with disabilities, studies reporting on the effects of education on these employment outcomes more often contrast individuals with or without a high school diploma rather than with or without a college degree. In general, these studies show that disabled people experience many barriers to employment (Sundar et al., 2018), are less likely to work full time and access the employment benefits associated with full-time employment (Brucker & Henly, 2019), and experience less job satisfaction (Brooks, 2019; Sundar & Brucker, 2019). Specifically among college graduates, Gillies (2012) noted that university graduates with disabilities also faced a variety of structural and attitudinal barriers when looking for work, and many graduates who were employed expressed dissatisfaction because they had expected better jobs due to their degrees. While, in general, underemployment is not necessarily unusual among recent college graduates (Abel et al., 2014), recent graduates with disabilities are less likely than those without disabilities to work in jobs that closely relate to their fields of study (Fichten et al., 2012). College graduates with disabilities are also more likely than those without disabilities to work in occupations that do not require a college degree (Maroto & Pettinicchio, 2014).

In short, few published studies to date have looked at the experiences of recent college graduates with disabilities as they transition to work (Moore & Schelling, 2015). Instead, researchers have regarded postsecondary education and employment as separate options along an individuals' path after high school (Hetherington et al., 2010), or studies have focused on expanding higher education options for disabled people (Garrison-Wade, 2012), or estimating the prevalence of participation in any kind of postsecondary education (White et al., 2011). Kutscher et al. (2019) underscore the need for current research, pointing out that much existing knowledge about the career development of disabled college students is based on research that "was conducted decades ago and may no longer reflect contemporary student experiences" (p. 4). Addressing this gap, the authors fielded the 2020 Kessler Foundation National Employment and Disability Survey: Recent College Graduates to investi-

gate the association between key experiences during college and the transition to work and employment outcomes of recent graduates, comparing the experiences of people with and without disabilities.

Study Aims

This study aimed to advance current knowledge about how experiences during college affect the transition to work and employment outcomes of recent college graduates, comparing the experiences of people with and without disabilities. Specific research questions (RQ) were as follows:

RQ1: How do the college experiences of recent college graduates with disabilities compare to those of recent college graduates without disabilities in terms of a) college characteristics; b) engagement with mentorship opportunities, and c) career preparation activities?

RQ2: How do the post-college employment experiences of recent graduates with disabilities compare to those of recent graduates without disabilities in terms of job characteristics and job satisfaction?

RQ3: To what extent is disability a factor in post-college employment outcomes, after adjusting for engagement with certain college experiences among disabled and non-disabled students?

To the authors' knowledge, this study comprises the first national survey in the United States to look across disability types with the purpose of comparing the higher education experiences and employment outcomes of recent college graduates with and without disabilities. Results from this study may help to inform higher education policies and procedures to improve the college experience for people with disabilities. In turn, this may increase the attractiveness of higher education as a rehabilitation intervention, strengthening the pathway to better jobs, earnings, and overall quality of life (O'Neill et al., 2015).

Methods

This study was conducted using standard, replicable survey practices. In February and March 2020, adults with and without disabilities in the US were invited to take the survey as part of Qualtrics and partners' general population panel. Qualtrics maintains panels of potential participants who are willing to answer surveys in exchange for a reward or incentive decided on and allocated by the panel owner (i.e., Qualtrics). Researchers can purchase samples from these panels to provide data in response to surveys of

their own design. Incentives for participation such as cash payments, free downloads, and/or membership points were decided and offered by Qualtrics and its partner organizations.

To meet inclusion criteria for the present research, respondents had to be ages 20 to 35, U.S. residents who attended college in the U.S., graduated with their first associate degree or higher in the previous 5 years, and provided informed consent in accordance with protocols of the researchers' university Institutional Review Board. The researchers established a quota on the number of people without disabilities who could respond to the survey so that roughly half of the sample would be people with one or more self-identified disabilities. Because the survey did not ascertain individual respondents' preferences regarding the use of person-first or identity-first language to refer to disabled people, this manuscript alternates both styles to show respect and acknowledge the strengths of each linguistic approach.

Participants

Participants included $n=4,659$ recent college graduates. During the five-week study period, a total of 13,857 individuals accessed the survey. Of these, 5,531 met the inclusion criteria. Of those who met the inclusion criteria, 801 failed at least one of two quality control checks for attention or rushing through the survey. Quality control checks are meant to exclude respondents who answer haphazardly without reading the questions (e.g., "For quality control, please select 'strongly agree' for this item."). Another 71 were over quota in either the disability or no-disability group, and their responses were suppressed. The remaining 4,659 comprised the analytic sample for this study. Of these, 2,327 reported at least one disability.

Measures

The survey instrument was developed by a team of researchers with expertise in disability measurement, education, transition, and employment. Relevant items were borrowed from the National Survey of College Graduates (National Science Foundation, 2019), the American Community Survey, and the Current Population Survey to enhance validity. Items not borrowed from national surveys were written by core members of the research team and then discussed and vetted with the larger team of experts. When the final survey was launched, data collection was paused after about 500 responses were received, and data were reviewed to consider the instrument's face validity and ensure no serious issues with the survey flow. Median time to complete the survey was 12 minutes. Survey topics included participants' sociodemographic infor-

mation, characteristics of the colleges and universities attended, type of degree and major field of study, engagement in career preparation activities during college, post-graduation employment outcomes, and job characteristics.

Sociodemographics

Participants responded to multiple choice items to indicate their age, race (White, Black or African American, American Indian or Alaska Native, Asian, Hawaiian or Other Pacific Islander, or other), gender (man, woman, transgender, non-binary, or other), ethnicity (Hispanic / Spanish or not), total household income before taxes, and current state of residence. Disability was assessed with 10 items. The first six questions asked about serious difficulty hearing, seeing, ambulation (two questions), upper body mobility and articulation (i.e., grasping, bending, lifting), and cognition (i.e., concentrating, remembering, making decisions). Additional, sequential prompts came next. Participants who said no to the cognitive disability question were asked whether they had a condition that made it difficult for them to learn (e.g., ADD, ADHD, dyslexia). If they answered no, they were asked whether they had any psychological or mental health conditions (e.g., anxiety, depression, bipolar disorder, substance abuse). If they answered no, they were asked whether they had an intellectual or developmental disability (e.g., Down syndrome, autism). Finally, if respondents answered no to all previous disability questions, they were asked whether they had any other kind of disability and, if so, to indicate what the disability was.

There are pros and cons to this approach to measuring disability. On the positive side, including the four functional items from the common six-question sequence used by the American Community Survey, the Current Population Survey, the Behavioral Risk Factor Surveillance Survey and many other federal instruments (Centers for Disease Control and Prevention [CDC], 2020) allows for some subpopulation comparisons of this study's findings with national benchmarks. Because items from the six-question sequence have been shown to miss some individuals with disabilities (Burkhauser et al., 2014), the additional prompts are helpful for representing people who do not self-identify with those items but do see themselves as having a specific difficulty. For example, some people might answer yes to the cognitive disability question because they have a learning disability that makes it difficult to concentrate, remember, or make decisions. Other people might respond no to the cognitive question and still respond affirmatively to the learning disability prompt. On the negative side,

the sequential nature of the prompts does not allow for analysis of the potential overlap between existing federally-used questions and the more specific disability types included in this study's follow-up questions. In other words, sequential prompting is helpful when researchers want to estimate who is "missed" by, for instance, the cognitive question, but it does not provide information about how many individuals would answer yes to both. As another possible limitation, the wording of the additional prompts has not been standardized among researchers, nor has it been adopted by any national surveys, so the ability to compare findings across studies in relation to these questions is lacking.

College and Study Characteristics

Participants responded to multiple choice items to indicate their highest educational attainment (i.e., associate, bachelor's, master's). If they had received more than one undergraduate or advanced degree, they were asked to answer the survey while thinking about their first undergraduate degree. Multiple choice items were also used to assess the type of institution from which they graduated (i.e., community college, state college or university, private college or university), and participants' major field of study.

Career Preparation Activities

Career preparation activities comprised engagement with academic advising, career services, and jobs or internships held during college. Participants responded to a one-item checklist to indicate from which sources they had received academic advising: an advising center, an assigned faculty advisor or mentor, an informal faculty advisor or mentor, an assigned peer advisor or mentor, or an informal peer advisor or mentor. They answered a single item checklist to indicate their receipt of career services: meeting career counselors, attending job fairs, receiving training or assistance with resume writing or mock interviews, and career explorations, such as job shadowing. Participants were asked about the following employment activities they may have engaged in as undergraduates: working for wages at a typical job, self-employment, career-related internships or field placement, and volunteer work.

Post-College Employment Outcomes

Participants answered one yes-no item to indicate whether they were currently employed at the time of the survey. If so, they selected the sector in which they were working from a four-item checklist (i.e., government, private for-profit, self-employed, or nonprofit). A binary (yes-no) item asked whether or

not they had made the job connection when they were in college getting their first undergraduate degree. Those who were currently employed also answered a three-point item to share whether or not their current job was related to their undergraduate degree (i.e., closely related, somewhat related, not related).

Using open-ended responses, participants typed the average number of hours they worked per week and their hourly wages. A five-item checklist was used to assess their current working arrangements using the following options: independent contractor, consultant, or freelancer; on-call, working only when called; paid by a temporary agency; work for a contractor who provides workers or services; or regular, permanent employee. Finally, job satisfaction was measured with a four-point checklist borrowed from the National Survey of College Graduates (National Science Foundation, 2019). Participants indicated how satisfied they were (i.e., not all satisfied, not very satisfied, somewhat satisfied, or very satisfied) with 11 different job elements: salary, benefits, job security, location (i.e., easy to get to), opportunities for advancement, the intellectual challenge, level of responsibility, degree of independence, supervisor support, relationships with coworkers, and contribution to society.

Analytic Approach

To answer research questions R1 and R2, descriptive statistics including frequencies, chi square tests, and t-tests were computed to describe sample characteristics, college characteristics, career preparation activities, and employment outcomes, and to test for statistically significant differences between disabled and non-disabled graduates. Where necessary, missing variables were excluded pairwise. Research question R3 was addressed using logistic regression. Predictor variables were dummy coded and entered in a single step, and odds ratios, standard errors, confidence intervals, and p values were examined for statistical significance and interpreted.

Results

Sociodemographics

Of the $n = 4,659$ participants in the analytic sample, 49.9% ($n = 2,327$) had one or more disabilities. Sociodemographic characteristics are included in Table 1. Among people with only one disability, the most prevalent types were mental health conditions ($n = 631$, 13.5%), followed by cognitive disabilities ($n = 347$, 7.5%) and learning disabilities ($n = 330$, 7.1%). Nearly one in five ($n = 828$, 17.8%) participants with disabilities reported more than one disability type.

As shown in Table 1, gender differed significantly by disability status ($\chi^2(4) = 30.96$, $p < .001$); study participants with disabilities were more likely than those without disabilities to be female ($n = 1,199$, 51.6%) or transgender, non-binary, or other gender ($n = 52$, 2.2%). Disabled participants were more likely ($\chi^2(3) = 29.95$, $p < .001$) to be White, non-Hispanic ($n = 1,496$, 64.4%) or Hispanic ($n = 413$, 17.8%) and less likely to be Black ($n = 218$, 9.4%), other or multi non-Hispanic race ($n = 195$, 8.4%). People with disabilities also reported lower incomes than people without disabilities ($\chi^2(6) = 35.17$, $p < .001$). For example, disabled participants were more likely to have annual household incomes less than \$15,000 ($n = 175$, 7.8%) and less likely to have incomes of \$100,000 or more ($n = 401$, 17.8%).

Neither age nor region of residence differed by disability status. Participants were most likely to be ages 25 to 29 (approximately 42% of people with and without disabilities) and least likely to be ages 30-35 (approximately 25% of people with and without disabilities). Most participants with and without disabilities resided in the South census region (approximately 37%), and about 20% lived in each of the other three census regions (West, Northeast, Midwest).

College and Study Characteristics

To answer research question RQ1, Tables 2 and 3 contain a summary of data regarding college and study characteristics as well as career preparation activities by recent disabled and non-disabled graduates. Most participants with and without disabilities reported a bachelor's degree as their highest educational attainment to date ($n = 1,425$, 61.2% with disabilities; $n = 1,475$, 63.3% without disabilities). More details appear in Table 2. Disabled people were significantly more likely ($\chi^2(2) = 8.74$, $p < .05$) to report an associate degree as their highest degree ($n = 443$, 19.0%). About 20% of people with and without disabilities had a master's degree or higher. Disabled participants were more likely ($\chi^2(3) = 14.55$, $p < .01$) to have graduated from community college ($n = 425$, 18.4%) and less likely to have attended state colleges or universities ($n = 1,287$, 55.7%). About 25% of participants with and without disabilities graduated from private colleges or universities.

Table 2 also shows participants' major field of study during college. The most common majors for people with and without disabilities were business management and administration and health and related sciences. Disabled people were significantly less likely to have studied business management ($n = 420$, 18.1%; $t_{(4643)} = 3.83$, $p < .001$) and engineering ($n = 176$, 7.6%; $t_{(4643)} = 4.24$, $p < .001$). They were more

Table 1*Sociodemographic Characteristics of Recent College Graduates with and without Disabilities*

	Disability		No Disability		
	<i>n</i>	%	<i>n</i>	%	
Total	2,327	100.0	2,332	100.0	
Gender					***
Man	1,075	46.22	1,226	52.64	
Woman	1,199	51.55	1,082	46.46	
Transgender, non-binary, or other	52	2.23	21	0.90	
Don't know / refused	1	--	3	--	
Age					
20 – 24	775	33.30	737	31.60	
25 – 29	965	41.47	991	42.50	
30 – 35	587	25.23	604	25.90	
Race					***
White only, non-Hispanic	1,496	64.43	1,381	59.55	
Black only, non-Hispanic	218	9.39	303	13.07	
Hispanic / Latinx	413	17.79	374	16.13	
Other or multi-race, non-Hispanic	195	8.40	261	11.25	
Don't know / refused	5	--	13	--	
Annual household income					***
Less than \$15,000	175	7.76	133	5.87	
\$15,000 – 29,999	313	13.88	225	9.94	
\$30,000 – 44,999	376	16.67	336	14.84	
\$45,000 – 59,999	350	15.52	385	17.01	
\$60,000 – 74,999	306	13.57	332	14.66	
\$75,000 – 99,999	334	14.81	363	16.03	
\$100,000 and up	401	17.78	490	21.64	
Don't know / refused	72	--	68	--	
Region of residence					
Northeast	472	20.33	494	21.25	
Midwest	471	20.28	454	19.53	
South	874	37.64	876	37.68	
West	505	21.75	501	21.55	
Don't know / refused	5	--	7	--	
Disability type					
Hearing only	19	0.41			
Vision only	74	1.59			
Lower mobility only	20	0.43			
Upper mobility only	27	0.58			
Cognition only	347	7.45			
Learning only	330	7.08			

(Table 1 continued)

Mental health only	631	13.54
Other disability only	51	1.09
Multiple disabilities	828	17.77

Note. Asterisks denote statistically significant results of chi-square tests; values provided in text.
 $*p < .05$. $**p < .01$. $***p < .001$

Table 2*College and Study Characteristics, by Disability Type*

	Disability		No Disability		
	<i>n</i>	%	<i>n</i>	%	
Total	2,327	100.0	2,332	100.0	
Highest degree					*
Associate	443	19.04	368	15.78	
Bachelor's	1,425	61.24	1,475	63.25	
Master's or higher	459	19.72	489	20.97	
Type of institution					**
Community college	425	18.39	338	14.66	
State college or university	1,287	55.69	1,392	60.36	
Private college or university	599	25.92	576	24.98	
Don't know / refused	16	--	26	--	
Major field of study ^a					
Business management	420	18.08	525	22.61	***
Health and related sciences	267	11.49	296	12.75	
Computer and information sciences	223	9.60	258	11.11	
Biological/life sciences	68	2.92	48	2.06	
Education	193	8.31	158	6.80	
Psychology	203	8.74	150	6.46	**
Communication	179	7.71	134	5.77	**
Engineering	176	7.58	260	11.20	***
Criminal justice/protective services	90	3.87	88	3.79	
Visual and performing arts	126	5.42	64	2.76	***
Social science and history	109	4.69	82	3.53	*
Liberal arts	104	4.48	61	2.63	**
Other	199	8.57	211	8.66	
Don't know / refused	4	--	10	--	

^a Because some participants had more than one major, column totals may exceed 100%.

Note. Asterisks denote statistically significant results of chi-square and *t*-tests; values provided in text.
 $*p < .05$. $**p < .01$. $***p < .001$

likely than people without disabilities to have majored in psychology ($n = 203$, 8.7%; $t_{(4643)} = -2.93$, $p < .01$), communication ($n = 179$, 7.7%; $t_{(4643)} = -2.53$, $p < .01$), visual and performing arts ($n = 126$, 5.4%; $t_{(4643)} = -4.60$, $p < .001$), social sciences and history ($n = 109$, 4.7%; $t_{(4643)} = -2.00$, $p < .05$), and liberal arts ($n = 104$, 4.5%; $t_{(4643)} = -3.41$, $p < .01$).

Career Preparation Activities

Table 3 shows a summary of advising and career preparation activities during college among participants with and without disabilities. Just under half of all participants reported that they had an assigned faculty advisor or mentor. Disabled people were more likely to say that they had used an advising center ($n = 953$, 41.0%; $t_{(4657)} = -2.64$, $p < .01$). As undergraduates, disabled participants were also more likely to have had informal faculty advisors or mentors ($n = 482$, 20.7%; $t_{(4657)} = -5.10$, $p < .001$) and informal peer advisors or mentors ($n = 235$, 10.1%; $t_{(4657)} = -2.05$, $p < .05$).

There were no statistically significant, disability-related differences in the utilization of career services among the recent graduates. Nearly three-quarters of the sample reported engaging with at least some career services during college. The most common services, used by approximately 40% of participants, were attending job fairs or meeting with job recruiters on campus; and meeting with career counselors. About one-third received assistance or training with resume or cover letter writing, and more than one in five had interview training or participated in mock interviews.

Recent disabled graduates were more likely than those without disabilities to have done career-related internships or field placements ($n = 1,590$, 68.3%; $t_{(4657)} = -2.62$, $p < .01$). Just over two-thirds of participants with and without disabilities had been employed for wages at typical jobs during college. People with disabilities were more likely than those without to have been self-employed ($n = 244$, 10.5%; $t_{(4657)} = -2.01$, $p < .05$) or to have done volunteer work ($n = 281$, 12.1%; $t_{(4657)} = -2.52$, $p < .05$) during college.

Post-College Employment Outcomes

To answer research question RQ2, Table 4 summarizes the employment outcomes of recent college graduates by disability status. Among participants with and without disabilities, 80% were currently employed at the time of the survey. Just over 40% of recent graduates with and without disabilities reported having made their employment connection during college. Currently employed participants with disabilities were significantly less likely to be working

at jobs that closely related to their fields of study ($n = 1,420$, 76.2%; $t_{(3917)} = 3.29$, $p < .01$). Disabled participants were less likely than non-disabled participants ($\chi^2(3) = 14.11$, $p < .01$) to be working in the private sector at for-profit companies ($n = 1,063$, 57.1%) and more likely to be working in government ($n = 379$, 20.3%), nonprofit organizations ($n = 212$, 11.4%) or self-employment ($n = 209$, 11.2%).

Job characteristics, such as hours worked per week, hourly wages, and current working arrangements, differed significantly by disability status. Compared to those without disabilities, recent disabled graduates were less likely to work full time (40 or more hours per week; $n = 1,003$, 54.4%) and more likely to work fewer than 28 hours per week ($n = 444$, 24.1%). Participants with disabilities were more likely to earn less than \$15.00 per hour ($n = 557$, 32.0%). A chi-squared test showed a significant difference in current working arrangements by disability status ($\chi^2(4) = 18.22$, $p < .01$); disabled participants were more likely to work as consultants or freelancers ($n = 284$, 15.6%), on-call ($n = 143$, 7.8%), or as temporary employees ($n = 105$, 5.8%) and less likely as regular, permanent employees ($n = 1,201$, 65.8%).

People with disabilities were less likely to report being at least somewhat satisfied with every element of their jobs than people without disabilities. The most significant differences related to less satisfaction with job security ($n = 1,472$, 79.2%; $t_{(3710)} = 5.56$, $p < .001$) and supervisor support ($n = 1,517$, 81.6%; $t_{(3709)} = 4.42$, $p < .001$). These were followed by lower satisfaction with salary ($n = 1,238$, 66.5%; $t_{(3712)} = 2.74$, $p < .01$), benefits ($n = 1,293$, 69.4%; $t_{(3711)} = 3.13$, $p < .01$), ease of access to job location ($n = 1,543$, 83.1%; $t_{(3704)} = 2.78$, $p < .01$), opportunities for advancement ($n = 1,191$, 64.1%; $t_{(3709)} = 3.30$, $p < .01$), the intellectual challenge of the job ($n = 1,288$, 69.3%; $t_{(3712)} = 2.96$, $p < .01$), degree of independence ($n = 1,533$, 82.4%; $t_{(3711)} = 3.01$, $p < .01$), and relationships with coworkers ($n = 1,413$, 75.9%; $t_{(3710)} = 3.48$, $p < .01$). Disabled graduates were also less satisfied than those without disabilities in the extent to which their jobs allowed them to make a contribution to society ($n = 1,391$, 74.8%; $t_{(3707)} = 2.54$, $p < .05$).

Effects of Participant Characteristics and College Experiences on Employment Outcomes

To answer research question RQ3, Table 5 shows the results of logistic regression estimates of the association between participant sociodemographics and college experiences with (a) current employment status, (b) establishment of the employment connection during college, and (c) relation of the job to the participants' field of study. The first logistic regression in-

Table 3*Career Preparation Activities, by Disability Type*

	Disability		No Disability		
	<i>n</i>	%	<i>n</i>	%	
Academic advising					
Assigned faculty advisor or mentor	1,135	48.78	1,143	49.01	
Advising center	953	40.95	867	37.18	**
Informal faculty advisor or mentor	482	20.71	350	15.01	***
Assigned peer advisor or mentor	374	16.07	377	16.17	
Informal peer advisor or mentor	235	10.10	195	8.36	*
No academic advising	283	12.16	384	16.47	
Career services					
Job fair / job recruiters on campus	928	39.88	992	42.50	
Meet with career counselors	934	40.14	875	37.52	
Assistance or training with resume or cover letter writing	773	33.22	758	32.50	
Interview training or mock interviews	512	22.00	520	22.30	
Career explorations	517	22.22	480	20.58	
Other career services	14	0.60	13	0.56	
No career services	528	22.69	544	23.33	
Career-related internships or field placement	1,590	68.33	1,509	64.71	**
Jobs held during college					
Employed for wages	1,588	68.24	1,555	66.68	
Self-employed	244	10.49	204	8.75	*
Volunteer work	281	12.08	228	9.78	*
No employment during college	477	20.50	535	22.94	*

Note. Asterisks denote statistically significant results of chi-square and *t*-tests; values provided in text.

* $p < .05$. ** $p < .01$. *** $p < .001$.

indicated a significant association of college experiences and age on current employment status at the time of the survey ($\chi^2(12) = 298.93, p < .001$). Having an associate degree was associated with lower likelihood of being employed at the time of the survey (OR = 0.85, $p < .001$), while participation in career-related internships (OR = 1.89, $p < .001$), working during college (OR = 2.44, $p < .001$), and being older (OR = 1.50, $p < .001$) all were associated with greater odds of employment after graduation. Disability was not a significant predictor of current employment status after college.

The second logistic regression showed a significant association of institution type, college experiences, and gender on the likelihood that the connection

to the current job was made during college ($\chi^2(9) = 340.48, p < .001$). Among those who were currently employed, being female was associated with lower odds of making the job connection during college (OR = 0.63, $p < .001$). Graduating community college (OR = 1.51, $p < .001$), engaging with any academic advising (OR = 1.37, $p = .005$), receiving any career services (OR = 1.76, $p < .001$), and completing a career-related internship (OR = 2.48, $p < .001$) each were associated with greater odds of making the job connection during undergraduate study. Among the recent graduates who were currently employed, disability was not a significant predictor of having made the job connection during college.

Table 4*Post-College Employment Outcomes, by Disability Type*

	Disability		No Disability		
	<i>n</i>	%	<i>n</i>	%	
Currently employed	1,863	80.06	1,856	79.59	
Job connection made in college	839	45.11	797	42.99	
Job closely related to field of study	1,420	76.22	1,497	80.65	**
Sector					**
Government	379	20.34	338	18.21	
Private, for-profit	1,063	57.06	1,167	62.88	
Self-employed	209	11.22	184	9.91	
Nonprofit	212	11.38	167	9.00	
Hours worked per week					****
40 or more	1,003	54.36	1,162	62.84	
28-39	398	21.57	379	20.50	
< 28	444	24.07	308	16.66	
Missing	18	--	7	--	
Hourly wage					****
≤ \$7.25	64	3.68	39	2.24	
\$7.26 - 14.99	493	28.32	361	20.77	
\$15.00 - 21.99	567	32.57	545	31.36	
\$22.00 - 40.00	470	27.00	613	35.27	
> \$40.00	147	8.44	180	10.36	
Missing	122	--	118	--	
Current working arrangement					
Independent consultant, freelancer	284	15.55	249	13.91	
On-call	143	7.83	99	5.53	
Temporary agency	105	5.75	80	4.47	
Work for a contractor of workers or services	93	5.09	75	4.19	
Regular, permanent employee	1,201	65.77	1,287	71.90	
Missing	37	--	66	--	
Satisfaction with job elements (<i>somewhat or very satisfied</i>)					
Salary	1,238	66.53	1,310	70.69	**
Benefits	1,293	69.44	1,371	74.07	**
Job security	1,472	79.20	1,595	86.08	****
Job location (easy to get to)	1,543	83.09	1,597	86.37	**
Opportunities for advancement	1,191	64.07	1,281	69.17	**
Intellectual challenge	1,288	69.25	1,365	73.63	**
Level of responsibility	1,475	79.26	1,535	82.88	**
Degree of independence	1,533	82.42	1,594	86.02	**
Supervisor support	1,517	81.61	1,609	86.88	****
Relationships with coworkers	1,413	75.89	1,491	80.60	**
Contribution to society	1,391	74.79	1,448	78.31	*

Note. Asterisks denote statistically significant results of chi-square and *t*-tests; values provided in text.

* $p < .05$. ** $p < .01$. **** $p < .001$

Table 5

Logistic Regression: Effect of Student Characteristics and College Experiences on Post-College Employment Outcomes

Fixed effects	OR	SE	95% CI		p
			LL	UL	
Currently employed (at time of survey)					
Community college ^a	1.05	0.14	0.81	1.36	0.728
Private 4-year college ^b	0.85	0.08	0.71	1.02	0.086
Associate degree ^c	0.51	0.06	0.40	0.65	0.001
Advanced degree ^d	1.07	1.11	0.87	1.31	0.547
Any academic advising ^e	1.08	0.12	0.87	1.33	0.499
Any career services ^e	1.08	0.10	0.90	1.29	0.434
Career-related internship ^e	1.89	0.16	1.60	2.23	0.001
Work during college ^e	2.44	0.20	2.07	2.87	0.001
Woman ^f	0.89	0.07	0.76	1.03	0.125
Non-binary, trans, or other gender ^g	0.73	0.20	0.42	1.26	0.258
Age ^h	1.50	0.12	1.28	1.75	0.001
Disability ⁱ	1.02	0.08	0.87	1.18	0.823
Job connection made in college					
Community college ^a	1.51	0.20	1.17	1.95	0.001
Private 4-year college ^b	0.91	0.08	0.77	1.07	0.244
Associate degree ^c	0.81	0.11	0.63	1.06	0.123
Advanced degree ^d	1.31	0.11	1.10	1.55	0.002
Any academic advising ^e	1.37	0.15	1.10	1.70	0.005
Any career services ^e	1.76	0.17	1.46	2.12	0.001
Career-related internship ^e	2.48	0.21	2.10	2.93	0.001
Work during college ^e	1.19	0.11	1.00	1.42	0.053
Woman ^f	0.63	0.05	0.55	0.73	0.001
Non-binary, trans, or other gender ^g	0.60	0.18	0.33	1.10	0.099
Age ^h	0.87	0.06	0.76	1.00	0.057
Disability ⁱ	1.04	0.07	0.91	1.20	0.530
Job related to field of study					
Community college ^a	1.21	0.19	0.90	1.64	0.211
Private 4-year college ^b	1.07	0.11	0.87	1.31	0.538
Associate degree ^c	0.56	0.08	0.42	0.75	0.001
Advanced degree ^d	3.33	0.50	2.48	4.48	0.001
Any academic advising ^e	1.15	0.14	0.91	1.46	0.255
Any career services ^e	1.33	0.14	1.09	1.63	0.004
Career-related internship ^e	2.49	0.23	2.08	2.97	0.001
Work during college ^e	0.98	0.11	0.79	1.23	0.889
Woman ^f	0.69	0.06	0.58	0.82	0.001

(Table 5 continued)

Non-binary, trans, or other gender ^g	0.35	0.11	0.19	0.63	0.001
Age ^h	1.14	0.10	0.97	1.35	0.120
Disability ⁱ	0.75	0.06	0.63	0.89	0.001

Note. OR = odds ratio; CI = confidence interval; LL = lower limit; UL = upper limit. *p* values < .05 appear in bold.

^a 0 = community college, 1 = 4-year state or private college. ^b 0 = 4-year private college, 1 = community college or 4-year state university. ^c 0 = associate, 1 = bachelor's, master's or higher. ^d 0 = master's or higher, 1 = associate or bachelor's. ^e 0 = no, 1 = yes. ^f 0 = woman, 1 = man, non-binary, transgender, or other. ^g 0 = non-binary, transgender, or other, 1 = man or woman. ^h 0 = 20-26 years, 1 = 27-35 years. ⁱ 0 = no disability, 1 = any disability.

The third logistic regression indicated a significant association of educational attainment, experiences during college, and participant sociodemographic characteristics with the likelihood that the current job was related to the recent graduates' field of undergraduate study ($\chi^2(9) = 382.44, p < .001$). Having a master's degree or higher (OR = 3.33, $p < .001$), having received any career services (OR = 1.33, $p = .004$), and participation in career-related internships (OR = 2.49, $p < .001$) were associated with greater odds of working at a job related to one's field of study. Having an associate degree (OR = 0.56, $p < .001$), being female (OR = 0.69, $p < .001$) or other non-male gender (OR = 0.35, $p < .001$), and having a disability (OR = 0.75, $p < .001$) were each associated with lower odds of working in one's intended field.

Discussion

This study aimed to investigate the college experiences, career preparation activities during college, and post-college employment outcomes of recent graduates with disabilities, comparing the results with those of recent college graduates without disabilities. At the time of the survey, all participants had earned their first undergraduate degree, associate or bachelor's, in the previous five years. All were between 20 and 35 years old. Several interesting findings emerged in answer to the study's research questions.

The first research question asked how college experiences of recent graduates with and without disabilities may have differed. Although most participants of the study had a bachelor's degree or higher, disabled graduates were more likely than non-disabled to have earned a two-year associate degree as their highest

degree. Similarly, though the majority of participants had attended state colleges and universities, proportionately more people with disabilities had graduated from community college. In logistic regression, higher degrees were associated with greater odds of post-college employment, greater odds of making an employment connection during college, and greater odds of working at a job that was related to one's field of study. Logistic regression also showed that attending a community college was associated with a greater likelihood of making a successful employment connection during college.

The second research question concerned how post-college employment experiences may have differed between disabled and non-disabled recent graduates. Regardless of disability status, the vast majority (80%) of study participants reported being currently employed at the time of the survey. This finding is consistent with estimates produced using the National Survey of College Graduates regarding the labor force participation rate of young adults ages 20 to 34, which showed 93% labor force participation regardless of disability status (National Science Foundation, 2017). Logistic regression revealed that several factors were associated with post-college employment for recent graduates with and without disabilities. The strongest associations showed that those who worked during college at a regular job for pay, were self-employed, or did volunteer work had 2.4 times greater odds of employment after graduation. Participation in career-related internships was associated with 1.9 times greater odds of current employment. Because disabled participants reported holding jobs during college at equivalent rates to those without disabilities, and they were more likely to have done

career-related internships as undergraduates, it is not surprising that they were as likely to be employed after college as their peers without disabilities.

Disabled participants were also as likely as non-disabled graduates to have made their current job connections during college. Again, career-related internships were the strongest predictor of making successful job connections, with 2.5 times greater odds of a job connection among those who had done internships. Engagement with academic advisors or mentors and using any college career services were both associated with better eventual job connections. Compared to non-disabled participants, disabled participants were equally likely to use career services, such as meeting with career counselors, attending job fairs or meeting job recruiters on campus, or getting training or assistance with resume or cover letter writing. People with disabilities were also equally likely to have assigned faculty advisors or mentors, and they were more likely than people without disabilities to have identified informal faculty and informal peer mentors.

Without detracting from these encouraging findings, it is important to note the positive bias inherent in this study. Because the sampling frame included only recent college graduates, the outcomes discussed here fail to reflect the experiences of people with and without disabilities who attend college without successfully completing a degree. Inequities may be greater among this subpopulation. This study revealed other disability-related inequities and a continuing need for improvement in some areas. For example, in answer to the third research question about the effect of disability on the association between college experiences and post-college employment, people with disabilities were less likely than people without disabilities to be working at jobs related to their field of study, despite their engagement with career services and participation in career-related internships. They were also significantly less likely to be hired as regular, permanent employees and more likely to work as independent consultants, temporary employees, or on an on-call basis. They worked fewer hours on average per week and earned lower hourly wages. Compared to people without disabilities, they experienced less satisfaction with all elements of their jobs, especially as related to job security and supervisor support.

There are several possible reasons for these inequities. First, disabled people were less likely than non-disabled people to major in business or science, technology, engineering, and math (STEM) fields. They were more likely to major in arts, liberal arts, social sciences, and psychology, which may offer fewer direct pathways to full-time employment for

those with undergraduate degrees (Carnevale et al., 2013). Second, people with disabilities sometimes have health issues that preclude them from seeking full-time employment or otherwise limit their earning potential (Schur, 2003). In general, health status may be a better predictor of job quality than disability (Brucker & Henly, 2019), as not all self-reported disability reveals information about a person's day-to-day health and functioning. Still, the fact that job satisfaction was lower among disabled participants suggests that not all of the employment inequities found in this study were a result of individual choice. Needing to work less or earn less in order to maintain essential benefits is a factor for many workers with disabilities. Also, general ableism and specific discrimination still exist in the job market and the workplace. Future research that is able to capture more elements of this dynamic while taking into account disability severity, potential limitation of work activities, and participants' job preferences would favorably build on this study's findings.

Limitations

Several limitations to the present study must be noted. Though national in scope and sizable enough to allow robust comparisons between people with and without disabilities, the sample obtained was neither representative nor drawn by random selection. For this reason, due caution must be used when attempting to generalize the findings described here to the general population. As with all self-report studies, it is impossible to attest to the accuracy of participants' responses. Although Qualtrics uses a double verification process to ensure the identity of survey respondents, participants could have elected not to answer the questions honestly. To minimize the risk of inaccuracy, the researchers embedded both attention checks and speeding checks into the survey. Even if the participants did their best to answer honestly, the retrospective nature of the survey items introduced opportunities for error. Though respondents were asked to answer about their first undergraduate experiences, those with higher degrees may have had more difficulty recalling previous circumstances. Restricting participants to those who had graduated with their first undergraduate degree within the last five years was intended to minimize recall error; it is not possible to know the extent to which this effort succeeded.

As noted previously, this study has a positive bias in that it does not include participants who attended college but did not graduate. A limitation of this research is that it failed to capture information on how these successful students overcame barriers to partic-

ipation in career services, field placements, and work during and after college.

Impact and Conclusions

Findings from this study have implications for policy and practice in higher education, secondary education, transition planning, and rehabilitation counseling. Primarily, this study adds to the evidence base that higher education pays off for disabled students. At 80%, the employment rate of recent college graduates with and without disabilities is both encouraging and equitable. College graduates with disabilities are engaging in career preparation activities at least as much as their peers without disabilities, and those activities are leading to successful post-college employment connections and jobs. Disability services educators may find that encouraging this kind of engagement among future college students is a good strategy to help to avoid the employment gap people with disabilities experience without college degrees. Making sure that career services, mentorship activities, and internship opportunities are accessible and incorporating best practices for inclusive instruction is also an important role. Several resources describe research-driven promising practices to engage college students in career preparation activities and bolster post-graduation employment equity. Collaboration among multiple stakeholders is a key suggestion (Pillette, 2019). For example, career services staff can work closely with campus disability offices, proactively reaching out to disabled students, ensuring that career services are offered in disability-competent ways, and making sure the people with disabilities are visible as mentors, guest speakers, and employer representatives (Parker et al., 2021). The National Association of Colleges and Employers also has a wealth of information about organizations that can help college services improve their accessibility and inclusion of students with different types of disabilities. For example, the College Autism Network helps career services professionals learn how best to support neurodiverse students (Gray, 2021). Academic advisors, career counselors, and disability services professionals may also wish to help college students with disabilities understand the potential link between their college major and possible career paths so that people with disabilities will have equivalent opportunities as those without disabilities to work in their chosen fields.

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