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Abstract

This report examines the occupational requirements, physical and mental functioning, and use of accommodations among workers in three key occupations: cashiers, receptionists, and those in nursing fields. These jobs are among the top occupations represented in the work histories of federal disability claimants in the United States (U.S.). We collected survey data from 802 people working in these occupations. The survey collected demographic information, work-related characteristics (including the use of workplace accommodations), and functional assessment information using the self-reported functional assessment using the Work Disability Functional Assessment Battery (WD-FAB). The WD-FAB generates eight scores per respondent, one for each of eight dimensions related to physical function (basic mobility, fine motor function, upper body function, and community mobility) and mental function (resilience and sociability, mood and emotions, self-regulation, and cognition and communication). Results indicated that accommodation use is associated with lower functioning in this population of employed or recently employed adults. In addition, for each occupation, we compared the WD-FAB scores to data from the Occupational Requirements Survey (ORS) using measures that align with these WD-FAB domains. This comparison demonstrates the extent to which functioning in these dimensions is necessary and suggests opportunities for task-specific, occupation-specific accommodations. We discuss implications for disability determination according to SSA guidelines.

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Introduction

In the United States (U.S.), working-age persons with disabilities are substantially less likely than persons without disabilities to be employed. In July 2021, for example, 30.8% of working-age persons with disabilities and 73.4% of working-age persons without disabilities were employed. Despite this large gap in employment rates, workers with disabilities still represent a sizable population of the workforce. In July 2021, among workers ages 16 to 64, 4.9 million workers with disabilities represented 3.4% of the total 143.8 million workers in the U.S. (Kessler Foundation and University of New Hampshire 2021). While there has been much research examining the individual, policy, and structural reasons that contribute to the low employment rates among persons with disabilities, there has been little research to date closely examining how worker functional abilities align with both job demands and receipt of job accommodations. Mismatches among these three areas can lead to workers leaving individual jobs or leaving the workforce altogether.

To address this gap, we use newly available survey data on more than 800 employees with and without disabilities covering these domains (e.g., worker functioning, job requirements, and workplace accommodations) for persons working in three occupations that account for high levels of applications for Social Security Disability Insurance (DI): cashiers, receptionists, and nursing staff. We contextualize these findings by examining expectations of job requirements as outlined within the Occupational Requirements Survey (ORS). Our results suggest that accommodation use may mitigate disadvantages associated with lower functional ability and may work to keep people employed in these fields. We discuss the differences between physical and mental functioning as they differ in workers across these three specific occupations.

Literature review

Many persons with disabilities are either not working or are underemployed (Kessler Foundation and University of New Hampshire 2021; Maroto and Pettinicchio 2014). Current literature has focused on identifying (1) individual barriers to employment such as a person's health and functional capacity, work skills, and career interests (Ali, Schur, and Blanck 2011; van Campen and Cardol 2009; Hernandez et al. 2007) and (2) structural and social barriers such as employer characteristics, prejudice against persons with disabilities, stigma, labor market trends, and the work disincentive effects of unemployment and public disability benefits (Brostrand 2006; Burkhauser and Daly 2011; Fogg, Harrington, and McMahon 2010; Hernandez et al. 2007; Kaye 2010; Peck and Kirkbride 2001).

To date, research relating worker functional abilities to both job requirements and job accommodations has been scant. Such research is necessary to design effective workplace policies and procedures, inform the development of government-sponsored rehabilitation and employment support activities, and improve how public disability benefit programs identify eligible participants and craft supportive employment services (Brandt et al. 2011). Prior work has developed methods to tie worker functioning to job requirements, finding that persons who are not working due to disability are more likely to fall short of the threshold of their last job's functioning requirements compared to those who are currently employed (Henly et al. 2021). While unsurprising, this research highlights that a mismatch between worker functioning and job requirements can lead people to leave the workforce. Many workers with disabilities or with chronic conditions that impact work apply for public disability benefits once they are no longer able to sustain employment. In the U.S., the Social Security Administration (SSA) administers two programs to support such

persons: Disability Insurance (DI) and Supplemental Security Income (SSI). DI is a social insurance program that provides monthly income and access to Medicare health insurance benefits to workers who have sufficient work history and meet work disability eligibility requirements. SSI is a means-tested program that provides monthly income and access to Medicaid health insurance benefits.

A five-step sequential review process determines eligibility for DI. To be eligible, a claimant must

- (Step 1) meet the program's requirements related to absence of substantial gainful activity;
- (Step 2) demonstrate the presence of an impairment or combination of impairments severe enough to interfere with work activities, and that can be expected to result in death or has lasted or can be expected to last for a continuous period of not less than 12 months;
- (Step 3) has an impairment that meets or exceeds an impairment or combination of impairments in SSA's Listing of Impairments, which have been determined to be severe enough to limit substantially work activity;
- (Step 4) *if not satisfying Step 3*, have insufficient residual functional capacity (RFC) such that they are incapable of performing their prior relevant job; *and if so*
- (Step 5) have insufficient RFC such that they are incapable of making vocational adjustments (in terms of tools, work processes, work settings, or the industry) to be able to do other work, taking into account vocational factors: age, educational level (including literacy), skill level of past relevant work, and post-impairment physical

exertional capacity (Social Security Administration 1980; Wixon and Strand 2013).

Job accommodations may be able to mitigate some of the mismatch between worker functional ability and job requirements, and thus could play an important role in Steps 4 and 5 of the disability determination process. Job accommodations include a wide range of supports, including assistive technology (communication devices, ergonomic workstations), personal assistance, changes to the built environment (ramps; accessible bathrooms, kitchens, and offices), and changes to workplace policies (flexible work schedules, teleworking) (Anand and Sevak 2017; Gates 2000; Padkapayeva et al. 2017; Sundar 2017; Wong et al. 2021; Yeager et al. 2006).

While the Americans with Disabilities Act (ADA) mandates that employers with 15 or more employees provide reasonable accommodations to employees with disabilities (U.S. Department of Justice 2020), many employees unaware of their rights under the ADA or do not want to disclose their disabilities and, thus, do not formally request accommodations from their employers (Gamble, Dowler, and Hirsh 2004; Gioia and Brekke 2003; Trotter, Matt, and Wojnar 2014; Wheeler-Scruggs 2002). Employers are often not knowledgeable about accommodations, which further complicates their ability to assist workers with varied functional capacities in meeting job requirements (Inge et al. 2000; Padkapayeva et al. 2017; Stoddard 2006).

Estimates of the percentage of workers who need or use work accommodations for disability vary depending on the target population and the study methodology. Yelin and Trupin (2000) report that fewer than 20% of workers with musculoskeletal disorders use accommodations. Allaire et al. (2003) find that

although more than 65% of individuals with rheumatic disease report more than ten barriers at work, only 38% use accommodations. Research focusing on older workers found that 26% of persons 65 or older who have disabilities receive accommodations from their employers (Hill, Maestas, and Mullen 2016). Using data from an internet panel, Maestas et al. (2019) estimate that 12% of adults ages 18 to 70 use workplace accommodations for health reasons, although this estimate includes both persons who are and are not working in the denominator.

Accommodating workers with disabilities offers benefits to employers and has few drawbacks. On the whole, employers incur no or minimal costs (approximately \$500 on average) to provide job accommodations (Job Accommodation Network 2020) and accommodations improve employee retention, morale, and productivity and reduce workers' compensation costs (Job Accommodation Network 2020; Schartz, Hendricks, and Blanck 2006; Solovieva, Dowler, and Walls 2011). In a scoping review, Sundar (2017) notes that flexible scheduling, reduced work hours, modified training, and changes in supervisory practices were the most used accommodations among workers with cognitive or psychiatric conditions. For persons with physical disabilities, a recent systematic review found that the most frequently reported accommodations included the modification of job responsibilities, changes of workplace policy, supportive personnel provision, flexible scheduling, and assistive technology (Wong et al. 2021). Chow et al. (2014) found that the provision of accommodations to workers with psychiatric disabilities increased work hours by approximately eight hours per month, increased duration of employment by 31%, and reduced job termination by 13%.

Some accommodations are easier to provide for certain occupations than others. For instance, an examination of the job duties and workstations of cashiers

identifies many possible barriers for people with vision, hearing, ambulation, cognition, and communication disabilities yet each of these could be accommodated through specific environmental changes to the design of workstations (Gumasing, Aruego, and Segovia 2020). Occupations that are similarly sedentary, such as receptionists, may benefit in a similar manner.

In contrast, nursing jobs require more physical movement: As such, this workforce is prone to developing workplace-related injuries (Nursing Executive Center 2001). Koviak (2004) notes that modified job assignments or sick leave are commonly used by nurses who have arthritis to manage functional limitations, suggesting that there are ways of accommodating functional limitations in this field.

Given the importance of accommodations, it is surprising that no current occupational information system — such as O*NET and Occupational Requirement Survey (ORS) contains information on the use of accommodations by occupation. Such accommodations may be used by those with limited residual functional capacity to meet job requirements.

We hypothesize that people who never needed accommodations would have higher reported levels of functioning (higher Work-Disability Functional Assessment Battery (WD-FAB) scores) compared to those needing accommodations. Further, we anticipate that having a workplace accommodation in place when needed results in higher functioning compared to those who needed an accommodation but did not receive one. That is, an accommodation increases functional ability.

To begin to address this gap, we examine the data we collected from employees to see if accommodation use is indeed associated with lower functioning as measured through the WD-FAB, which would suggest that accommodations mitigate lower functioning in these occupations.

In addition, for each occupation, we compare the WD-FAB scores and consider the extent to which these align with expectations of workers as described in existing establishment-level data (e.g., ORS).

Methods

Data

We draw from two data sources: The ORS and primary survey data collection. The ORS is an establishment-level survey. Trained field economists guide representatives of 20,000 sampled establishments in industry and government to report the physical and cognitive demands of their workers, among other characteristics. Data from these reports are used to identify the percentage of workers in each occupation with specific work demands. Some reported figures are averages, some are modes (U.S. Bureau of Labor Statistics 2019). The data presented here highlight relevant measures of functional requirements reported in the December 2020 ORS, data considered preliminary until all estimates from 2018 to 2023 are aggregated (U.S. Bureau of Labor Statistics 2021). We pulled measures from the ORS that best align with the areas of functioning captured in our instrument in order to identify occupational demands specific to the three occupations of interest (described below).

For our second data source, we collected survey data via an internet opt-in panel with purposive sampling to ensure a quota of people ages 18 to 67 currently or recently employed in three occupations: cashiers, receptionists, and nursing fields. We chose to focus on these three occupational groups as workers in these positions are among those most likely to apply to disability insurance (DI) (Trapani and Harkin

2011), and thus may represent groups where there is a mismatch among worker functional ability, job requirements, and accommodations.

Data were collected during an eight-week period in March through May 2021. Due to the economic instability associated with the COVID-19 pandemic, we included persons who were currently employed as well as persons who were unemployed but who were employed in these occupations just prior to the start of the pandemic (that is, working in January 2020). Respondents were screened into the survey if they indicated either that they had a job title associated with our occupations of interest or if they reported performing job duties associated with our occupations of interest in their main occupation. These title and duty lists were compiled from O*NET's list of job titles associated with our three selected occupations and from O*NET's list of tasks performed by people working in these occupations. We selected seven tasks for screening from each occupation list, including a variety of physical and communication-oriented tasks (see Appendix Table A1 for the full list of job titles and duties that screened respondents into the survey).¹

Our final analytic sample included 802 workers (320 cashiers, 361 receptionists, and 121 in nursing). Note that of these occupations, the nursing field is the most diverse as it includes both registered nurses and nursing assistants. For

¹ O*NET provides a database of standardized descriptions of occupations in the U.S. economy for a wide range of occupations within categories, such as skills and abilities, along with ratings of the level required to do the job (U.S. Department of Labor 2021). In addition, O*NET has developed a career exploration tool that assesses various abilities (e.g., arithmetic reasoning, computation, spatial ability, and manual dexterity) that can be linked to occupations in O*NET. However, the specificity of the information captured across these domains poses challenges to creating links between job demands and the requisite functional abilities needed to conduct them successfully. In addition, no such tools are widely used within work and vocational rehabilitation, or employment services.

the estimates provided for each occupation, we applied within-occupation post-stratification adjustments, utilizing the 2019 American Community Survey (ACS) 1-Year estimates as the target population standard. Adjustments were made for gender, age, race, and disability status (no disability, one disability, or multiple disabilities) within each occupation. We provide unweighted and weighted information about the demographics of our sample. For the remainder of our analyses, we report weighted results.

Measures

Job duties

As mentioned above, we screened individuals into our survey using information from O*NET. We thus had information about the types of job duties individuals had to handle within their current occupations.

Functional ability

We measured functional ability using the WD-FAB. The WD-FAB was developed to comprehensively assess self-reported, work-relevant functioning (Porcino et al. 2018). The WD-FAB focuses on the activity level of individuals, to measure physical and mental domains across eight scales. Using item-response theory, the WD-FAB draws from item banks including more than 300 items delivered as brief six- to 10-item computer-adaptive tests. The scales map onto International Classification of Functioning, Disability and Health (ICF) standards for describing and measuring functioning and disability. Since it was first launched in 2016, it has been well-tested to examine its reliability, comparability to legacy instruments, and criterion validity (Jette et al. 2019; National Academies of Sciences, Engineering, and Medicine 2019; Porcino et al. 2018). For physical functioning, the WD-FAB

assesses four areas: basic mobility (includes movement such as crawling, walking, and running), fine motor function (manipulation of objects requiring dexterity), upper body function (reaching, lifting, pulling, pushing, and carrying), and community mobility (driving and navigating public transportation). All items used a five-point difficulty response scale, ranging from 'unable to do' to 'no difficulty,' with higher scores indicating higher levels of functioning (McDonough et al. 2017).²

For the mental health domain, the WD-FAB assesses four scales: resilience and sociability (includes ability to interact with others, as well as ability to handle stress and related issues), mood and emotions (capturing emotional state, including feelings of depression and anxiety), self-regulation (capturing emotional regulation, anger, and social appropriateness), and cognition and communication (includes organizational skills, oral, and written communication) (Marfeo et al. 2018), using two different types of items. One set of items uses four-point frequency response categories (ranging from "Never" to "Always") and one set uses five agreement response categories ("Strongly agree" to "Strongly disagree," as well as "I don't know"). As with the physical functioning scores, higher scores on the mental health scales indicate higher level of functioning.

Occupational requirements

Drawing from the ORS, we identified seven occupational requirements that align most closely with seven of the WD-FAB scales and report these values for each occupation. Because nursing includes both nursing assistants and registered nurses, which the ORS reports requirements for separately, we took a weighted

² Also included in this assessment is a wheelchair mobility score for those who use mobility devices. Due to the small number of respondents to our survey who use a wheelchair, we did not analyze this scale data.

average of the ORS requirements for the two occupations, using the Occupational Employment Statistics Survey (OES) data on number of people in each occupation. For basic mobility, we report the percentage of workers in each of these occupations for whom low postures are required; for fine motor function, we report the percentage of workers for whom fine manipulation is required; and for upper body function the percentage for whom reaching at or below the shoulder is required. We did not examine community mobility measures, as the ORS did not have measures specific to these three occupations that would fit within that scale. Within the mental health domain, we report the percentage in each occupation required to have verbal interaction constantly or every few minutes for the cognition and communication scale; the percentage with consistent, generally fast work pace for the resilience and sociability scale; the percentage where work is reviewed by a supervisor more than once per day for the self-regulation scale; and the percentage without the ability to pause work for the mood and emotions scale. Note that the scores for self-regulation and mood and emotions were not reported for cashiers, so are not represented in the graphs. For the resilience and sociability measure on work pace, the ORS reported that 85.8% of cashiers have a varying work pace. This item is additive with the percent having either a slow or fast work pace, but neither of these options are reported for this occupation. We report this estimate as 14.2% (100% to 85.8%), which is an overestimate, but the closest estimate we can calculate. Even though it is an overestimate, it is substantially lower than the value for the other occupations examined and serves to illustrate the difference in requirements that relate to resilience and sociability across these three occupations.

Work accommodations

We assessed the use of workplace accommodations using the method outlined by Maestas et al. (2019) and by adapting a question used in their work. We did not screen for or even ask about disability or health status until after asking about the need for or use of workplace accommodations. We edited the Maestas et al. question to be inclusive of mental health. The specific wording we used was: “Many people need special accommodations for health *or mental health* problems to make it easier for them to work. This could include things like getting special equipment, getting someone to help them, varying their work hours, taking more breaks and rest periods, or learning new job skills. Does your employer currently do anything special to make it easier for you to work?” [emphasis indicates how our wording varies from Maestas et al. (2019)]. For persons who responded that their employer provided any of the above, an additional question asked respondents to select any of the following accommodation types that were provided:

- My employer gets someone to help me.
- My employer shortens my work day.
- My employer allows me to change the time I come to or leave work.
- My employer allows me more breaks and rest periods.
- My employer sets my schedule around my medical or mental health appointments.
- My employer arranges for special transportation.
- My employer has changed the job to something I can do.
- My employer helped me learn new skills.
- My employer gets me special equipment for the job.
- My employer assists me in receiving rehabilitative services.
- My employer created physical modifications to the building, parking, elevators, restrooms, or other structures.
- My employer does other things to help me out.

We also gathered information about the types of special equipment employers provided to help people do their jobs (e.g., mobility devices, communication devices). In addition, we asked a final accommodation question to assess whether respondents believed that employers provided all of the accommodations and supports needed for them to continue working at their job.

Sociodemographic and employment characteristics

Our survey collected standard demographics (age, specific vocational preparation, gender, and race) and work-related characteristics of respondents, including typical hours worked, job duties, and the importance of each job duty.

Analysis

We first examined our data to see how frequently workers reported any accommodations and specific accommodation types, as a whole and by occupation. We next compared WD-FAB scores among persons using accommodations, persons reporting needing but not receiving accommodations, and persons not needing accommodations for each domain overall and within specific occupations using t-tests for comparing means across accommodation use category. Next, we present descriptive data from the ORS on the percentage of workers required to meet standards associated with each of the WD-FAB dimensions in order to evaluate the extent to which these areas of functioning are important to each of these three occupations.

Results

Table 1 shows the demographic characteristics of our sample, before and after weighting, within each occupation. Our sample overrepresented male workers among receptionists and we underrepresented male workers among nursing professions. Our sample underrepresented younger workers and nonwhite workers in all three occupations and substantially overrepresented those with disabilities.

Due to the workplace accommodations questions, respondents were likely primed to report disability as a result. A similar phenomenon is observed on the National Health Interview Survey when examining disability prevalence relative to other national surveys that do not focus on health: The line of health-related questioning is thought to have respondents prepared to be thinking about disability more so than questions focused on employment and housing (e.g., the American Community Survey or Current Population Survey).

Subsequent tables display data weighted by gender, race, age, and disability within occupation to provide estimates more representative of workers in each occupation.

Table 1: Percentage distribution by demographic characteristics, comparing sample compared to the target population, with and without weighting, by occupation

Demographic characteristics	<u>Cashiers</u>			<u>Receptionists</u>			<u>Nursing</u>		
	2019 ACS	Internet Panel Unwt.	Wt.	2019 ACS	Internet Panel Unwt.	Wt.	2019 ACS	Internet Panel Unwt.	Wt.
Sex									
Male	38.9	39.6	38.1	10.4	42.7	9.6	13.1	9.9	13.1
Female	61.1	60.1	61.9	89.6	57.3	90.4	86.9	90.1	87.0
Age									
18-34	60.2	31.2	59.9	52.5	27.8	53.7	34.7	29.8	32.1
35-44	12.8	26.5	10.6	15.0	31.9	14.6	21.8	18.2	21.1
45-54	11.9	12.2	12.6	14.4	14.7	13.2	20.8	24.0	23.7
55-67	15.2	30.2	16.0	18.2	25.6	18.6	22.7	28.1	23.2
Race/ethnicity									
White non-Hisp.	53.9	81.3	59.3	57.9	81.7	56.8	53.9	80.5	60.5
Black, non-Hisp.	15.1	5.1	13.4	12.3	7.0	12.5	21.4	11.0	24.0
Other, non-Hisp.	9.7	6.4	10.2	7.7	5.9	7.2	11.0	4.2	10.3
Hispanic	21.3	7.3	17.0	22.1	5.3	23.5	13.7	4.2	5.2
Disability status									
No disability	92.6	62.8	88.8	93.2	66.5	93.2	93.3	73.6	93.3
One disability	5.1	17.2	8.4	4.9	15.2	4.9	4.8	15.7	4.8
Two or more dis	2.2	20.0	2.8	2.0	18.3	2.0	1.9	10.7	1.9
Other information									
Number of cases	62,136	320	320	12,662	361	361	64,490	121	121
Median weight			0.63			0.54			0.84
Mean weight (Std. dev.)			1.00 (1.30)			1.00 (1.59)			1.00 (0.84)

Note: Poststratification weights were applied so that the demographic composition more closely resembles the population ages 18 to 67 working at least one hour in the 2019 American Community Survey 1-Year estimates. Margins were weighted within each category and in the order that the variables are presented here.

Table 2 shows our summary accommodation statistics. Overall, 53% of our weighted sample reported using accommodations, ranging from a low of 52% for nurses to a high of 54% for cashiers. Approximately 36% of the full sample reported

not needing accommodations and 10% reported needing accommodations but not receiving them.

Table 2: Percentage reporting workplace accommodation need and receipt, by occupation

Accommodation status	Cashier	Receptionist	Nursing	Total
Needed accommodation, never received	9.9	12.2	6.5	10.4
Use accommodations	54.4	52.8	51.5	53.3
Don't need accommodations	35.7	35.0	42.0	36.3
Number of cases	320	361	121	802

Table 3 shows more detail about the types of accommodations reported overall and by occupation. The most common workplace accommodations provided for physical or mental health across these three occupations related to work pace, pause control, and scheduling. Receptionists had the highest incidence of reporting that their employer allows more break or rest periods (38.4% of those who received an accommodation received this type of accommodation) and that their employer allows for flexible scheduling (41.4% reported that “my employer allows me to change the time I come/leave work”). Somewhat lower reports of these accommodations were reported by those in nursing and cashier work. This is consistent with variation in these occupation’s expectations, as reported in the ORS. Note that in the table, 43.1% of receptionists, but only 25.9% of those in nursing (weighted average) have the ability to pause work (information not reported for cashiers).

Receptionists also had high reporting of another schedule-related accommodation: having schedule set around medical or mental health appointments (24.7%), as well as learning new job skills (31.7%) and having employer get someone else to help with their work (25.6%). For cashiers, having someone else to

help with their work was the most common accommodation type (35.5%), followed by allowing more break or rest periods (33.3%), and having employer help to learn new job skills (35.5%).

Table 3: Percentage reporting a specific type of accommodations received, by occupation

Type of accommodation	Cashier	Receptionist	Nursing	Total
My employer ...				
Allows me more breaks/rest periods	33.3	38.4	32.1	35.4
Allows me to change time I come/leave work	23.0	41.4	34.0	32.8
Gets someone to help me	35.5	25.6	41.0	31.9
Helped me learn new job skills	26.8	31.7	26.5	28.9
Sets my schedule around my medical/mental health appointments	21.6	24.7	34.2	24.9
Shortens my workday	12.5	12.7	13.3	12.7
Gets me special equipment for the job	8.3	11.9	20.4	11.6
Has changed the job to something I can do	15.4	2.7	4.0	8.1
Arranges for special transportation	7.2	2.5	7.0	5.1
Assists me in receiving rehab services	8.8	2.7	1.1	5.0
Created physical modifications to environment	3.1	6.5	4.4	4.8
Did something else	5.6	5.7	1.9	5.1

For nursing, getting someone to help with job tasks (41.0%), and setting schedule around medical and mental health appointments (34.2%) were the most common accommodation types. A small minority of respondents in each occupation reported that their employer changed the job requirements (8.1% overall), arranged for special transportation (5.1%), assisted in receipt of vocational rehabilitation services (5.0%), or created environmental modifications (4.8%).

Table 4 compares WD-FAB scores by each scale between workers receiving and not receiving accommodations. The “No” column includes both persons who needed but were not receiving an accommodation as well as persons who did not need an accommodation. Compared to previous WD-FAB calibration samples that included the general population, workers in these occupations scored relatively

higher in all areas suggesting that they had higher levels of physical and mental functioning than the general population (Marfeo et al. 2019).

Table 4: Mean functioning scores of workers, by use of accommodation

Domain of function	<u>Accommodation used</u>			
	Yes	No	Overall	
<u>Physical functioning:</u>				
Basic Mobility	61.4	62.3	61.8	
Upper Body	55.4	57.3	56.3	***
Fine Motor	65.4	68.1	66.7	***
Community Mobility	50.2	53.2	51.6	***
<u>Mental health:</u>				
Mood & Emotions	56.8	59.2	58.0	*
Self-Regulation	51.8	55.2	53.4	***
Resilience & Sociability	50.3	49.5	49.9	
Communication & Cognition	53.5	54.9	54.1	*

Note: *p<0.05, **p<0.01, ***p<.001 for t-test comparison of means across accommodation use

We find that workers receiving accommodations have significantly lower WD-FAB scores than those not receiving accommodations in six of the nine scale areas: In mental health domains of cognition and communication, mood and emotions, and self-regulation; in physical health domains of upper body function, fine motor function, and community mobility. We do not find significant differences in scores in the remaining two scale areas analyzed (resilience and sociability; basic mobility).

Table 5 compares WD-FAB scores between people who used an accommodation and people who did not need an accommodation by occupation. For cashiers, functioning was statistically higher for those who did not need accommodation compared to those who did use an accommodation in each of the scales in the domain of physical functioning and in all but the resilience and sociability scale in the domain of mental functioning.

Receptionists have a similar physical profile to cashiers and the differences in functioning between those accommodated and those not needing accommodation were significant in all physical functioning scores except for basic mobility. For mental health scores, only self-regulation was significantly higher among those not needing accommodation. The other mental health domain scores were not significantly different between the two groups.

Table 5: Average WD-FAB Scores for each occupation, by accommodation use

Domain of function	Accommodation used								
	<u>Cashiers</u>			<u>Receptionists</u>		<u>Nursing</u>			
	Yes	Did not need		Yes	Did not need	Yes	Did not need		
<u>Physical functioning:</u>									
Basic Mobility	54.9	60.2	**	57.5	59.6		59.8	61.2	
Upper Body	51.6	55.7	**	51.5	55.8	***	53.4	55.9	
Fine Motor	50.0	49.6		50.3	49.6		50.9	49.9	
Community Mobility	52.4	55.6	***	54.3	55.0		54.2	55.3	
<u>Mental health:</u>									
Mood & Emotions	60.5	63.4	**	62.2	62.5		61.5	62.1	
Self-Regulation	54.6	57.7	***	55.9	57.7	*	56.4	57.4	
Resilience & Sociability	64.2	68.4	***	66.6	69.1	**	64.9	67.9	
Communication & Cognition	49.3	53.9	***	50.4	53.9	***	51.9	55.2	*

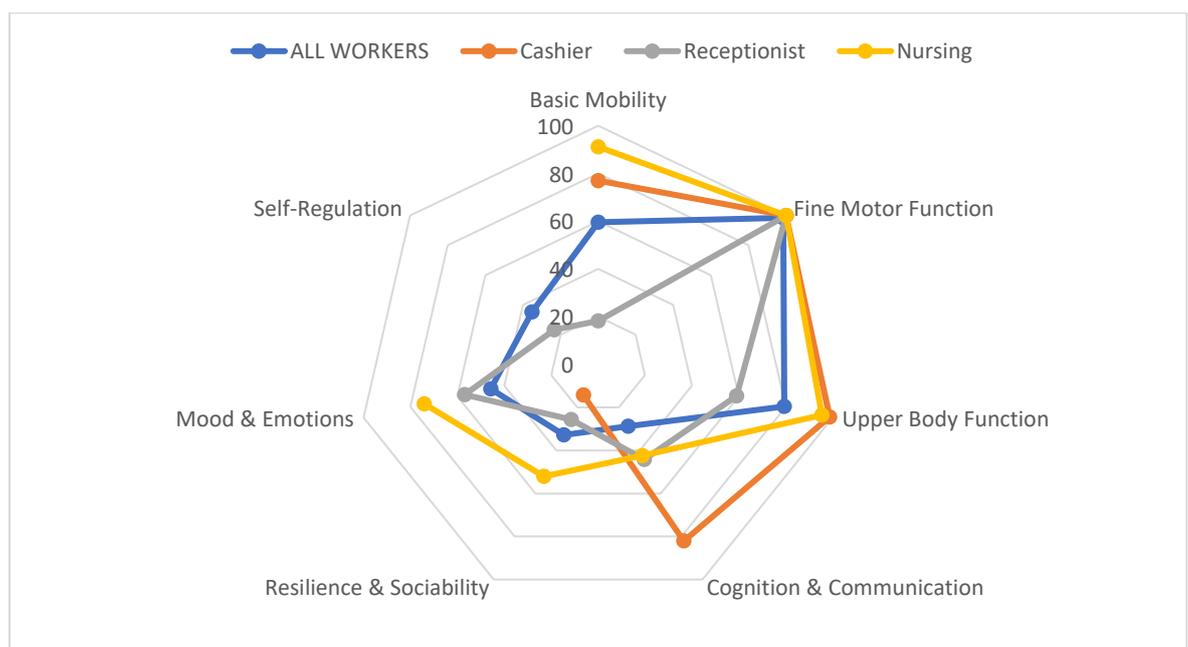
*p<0.05, **p<0.01, ***p<.001 for t-test comparison of means across accommodation use

In nursing occupations, none of the scores were significantly different between the two comparison groups, with the exception of community mobility, where those who did not need an accommodation scored higher.

With these findings in mind, we turn to the ORS analysis to depict the percent of surveyed employees meeting functioning requirements, as defined in the ORS in the dimensions of physical and mental health for each of these three occupations.

As Figure 1 shows, requirements in each area of functioning generally vary by occupation, as anticipated. High fine motor function is required in these three occupations (and in all occupations). We note that most workers had high fine motor functioning reported in the WD-FAB, so this high requirement is met by most. The upper body functioning requirement is highest for cashiers and nursing occupations, lower for workers in all occupations and lower than average for receptionists. Basic Mobility requirements are highest in nursing, above average for cashiers, and substantially lower for receptionists. Basic Mobility requirements are highest in nursing, above average for cashiers, and substantially lower for receptionists. Basic Mobility requirements are highest in nursing, above average for cashiers, and substantially lower for receptionists.

Figure 1: Percentage of workers expected to meet strong requirements in each of seven dimensions of physical and mental functioning, ORS



For mental and cognitive domains of functioning, in cognition and communication (assessed as requiring constant verbal communication), cashiers are almost all required to have high ability, and nurses and receptionists have higher than average demands. This appears to be an area of functioning that could present a challenge for workers who have reduced functioning.

For resilience and sociability, nursing occupations were the only of these to have higher than average requirements. For mood and emotions, nurses and receptionists both required higher than average functioning, compared to all occupations. Self-regulation was only assessed for receptionists and all workers. The requirements in this area are the lowest of any other area and receptionists had a very low percentage requiring it (23.3%).

Limitations

We acknowledge some limitations to this analysis. The data collection method likely prevents results from being representative of a full range of functioning. Our survey instrument used accessibility features such as “next page” tags that are labeled with words instead of symbols and naming of the page with a short descriptive label “Employment survey” so that those using screen readers could more easily complete it. However, because this is an opt-in panel, people who have difficulty navigating online surveys in general (due to blindness or other disabilities) may be less likely to opt into such panels. In addition, the sampling method used was not meant to yield a nationally representative sample. Through weighting, we attempted to adjust for the overrepresentation of those with disabilities and the underrepresentation of nonwhite and older workers. However, caution should be used in evaluating these findings.

Discussion

Our study yields important results in two areas. First, our research highlights differences in accommodation receipt by specific types of worker functional abilities. This confirms prior research on the importance of accommodations in helping individuals maintain employment. Specifically, we find that overall levels of

functioning among our employed or recently employed population is higher than that reported by persons not working, and that persons who work as cashiers, nurses, or receptionists and have lower levels of physical and mental functioning than their colleagues are more likely to receive accommodations from their employers. While many prior studies have examined whether individuals receive accommodations or not, our study is the first, to our knowledge, to examine accommodation receipt by the *domains* captured in a validated functional ability tool (WD-FAB) by specific occupations. This provides more detailed information than prior studies that might, in turn, point to more targeted employment or rehabilitation policies and practices to address these disparities. This key finding also leads to our second contribution.

Second, our study presents a unique method of collecting accommodation information for domains within occupations. We provide some examples of how the domains included in the WD-FAB can be mapped to worker requirements in the ORS. This in turn suggests a process that could incorporate the collection of accommodation information into ORS or O*NET. Such supplementary information could possibly better inform SSA's disability determination process by considering how receipt of accommodations might mitigate limitations in functional ability.

In addition to the two key points discussed above, we also note that approximately 10% of workers in these three occupations needed but were not receiving accommodations. For the sake of brevity, we do not provide detailed information about why respondents stated they needed but did not receive accommodations.

In addition, when examining differences in accommodation receipt among nursing professions, we did not find any statistical differences. This may in part be due to the smaller sample size of nurses (121 observations) and the lower statistical

power that resulted, as the direction of the score differences is consistent with the other two occupations analyzed: All areas except for self-regulation are slightly higher for the group not needing accommodation.

Concluding remarks

The complex interactions among human functioning, work, and the work environment make the disability determination difficult. Systematic information on accommodations, in the context of job requirements and functional ability, is a useful yet missing element of the information available to inform Steps 4 and 5 of the SSA disability determination process. This research is intended to be a nascent step in the development of such systematic information, demonstrating an approach to compiling information about occupation and the functioning of workers in that occupation that accounts for the potential for workplace accommodations. Such information has the potential to supplement O*NET and ORS data, which do not recognize the potential substitutability (and complementarity) among occupational requirements themselves and workplace accommodations.

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Appendix

Appendix Table A1: Screening criteria for inclusion in our study

(For inclusion, respondents had to report one of our job titles of interest or perform associated job duties at work.*)

	Cashier	Receptionist	Nursing
Job Titles	Cashier Gambling Change Person or Booth Cashier Counter or Rental Clerk Parts Salesperson Retail Salesperson	Receptionist Information Clerk Clerk Specialist Front Desk Receptionist Greeter Member Service Representative Office Assistant Scheduler	Registered Nurse (RN) Nursing Assistant Orderly Psychiatric Aide Home Health Aide or Personal Care Aide Certified Nurse Aide (CNA) Licensed Nursing Assistant (LNA) Certified Home Health Aide (CHHA) Certified Medical Aide (CMA) Home Attendant Caregiver
Job Duties	<ol style="list-style-type: none"> 1. Receive payment by cash, check, credit cards, vouchers, or automatic debits. 2. Help customers find the location of products 3. Issue receipts, refunds, credits, or change due to customers. 4. Assist customers by providing information and resolving their complaints. 5. Establish or identify prices of goods, services, or admission, and tabulate bills, using calculators, cash registers, or optical price scanners. 6. Stock shelves, sort and re-shelve returned items, and mark prices on items and shelves. 7. Offer customers carry-out service at the completion of transactions. 	<ol style="list-style-type: none"> 1. Operate telephone switchboard to answer, screen, or forward calls, providing information, taking messages, or scheduling appointments 2. Schedule appointments and maintain and update appointment calendars 3. File and maintain records 4. Perform administrative support tasks, such as proofreading, transcribing handwritten information, or operating calculators or computers to work with pay records, invoices, balance sheets, or other documents. 5. Transmit information or documents to customers, using computer, mail, or facsimile machine 6. Perform duties, such as taking care of plants or straightening magazines to maintain lobby or reception area. 	<ol style="list-style-type: none"> 1. Turn or reposition bedridden patients 2. Answer patient call signals, signal lights, bells, or intercom systems to determine patients' needs 3. Feed patients or assist patients to eat or drink 4. Provide physical support or assist patients to perform daily living activities, such as getting out of bed, bathing, dressing, using the toilet, standing, walking, or exercising. 5. Remind patients to take medications or nutritional supplements 6. Lift or assist others to life patients to move them on or off beds, examination tables, surgical tables, or stretchers

***Table note:** Survey respondents were first asked about their employment industry so that we could filter through to questions about job titles appropriate to each setting. We included additional job titles and job duties in our screening lists and only screened in those who reported any of the above.