

Workplace Accommodations for People with Disabilities: National Health Interview Survey Disability Supplement, 1994–1995

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As American workers age, workers with impairments and functional limitations make up a larger percentage of our workforce. This investigation presents data from the National Health Interview Survey Disability Supplement 1994–1995 (NHIS-D) describing the nature of workplace accommodations in the American workforce and factors associated with the provision of such accommodations. Of a nationally representative sample of workers aged 18 to 69 years with a wide range of impairments, 12% reported receiving workplace accommodations. Males (odds ratio (OR) 0.64; 95% confidence interval (CI) 0.53–0.78) and Southerners (OR 0.57; 95% CI = 0.47–0.70) were less likely than others to receive workplace accommodations. Those with mental health conditions were less likely than others to receive accommodations (OR 0.56; 95% CI = 0.44–0.70). College graduates (OR 1.53; 95% CI = 1.22–1.91), older workers, full time workers (OR 3.99; 95% CI = 2.63–3.87), and the self-employed (OR 1.76; 95% CI = 1.28–2.41) were more likely than others to receive accommodations. (J Occup Environ Med. 2003;45:517–525)

Over the next decades, the proportion of American workers with disabilities is expected to increase for several reasons, including the aging of the American workforce and the impact of policy changes in health care and welfare reform.¹

The Bureau of Labor Statistics data suggest that the average age of workers will increase as baby boomers who were born between 1946 and 1964 reach their 50s and 60s. The median age of American workers increased from 35 in 1978 to 39 in 2000 and is expected to reach age 41 by 2010.^{2,3} Fullerton and Toossi² suggest that, from 2000 to 2010, the number of American workers aged 55 and older will increase by 47%.

The National Health Interview Survey (NHIS) (1994) suggests that with age the percentage of workers with disabilities will increase.⁴ Among workers 18 to 28 years of age, 3.4% work with disabilities; among those 50 to 59 years of age, 8.4%; and among those 60 to 69 years of age, 13.6%. Thus, the aging workforce will include more people working with disabilities.

In addition to the demographic pressure from the aging baby boomers, the Americans with Disabilities Act (ADA)⁴ was expected to increase the number of qualified workers with disabilities in the American workforce.¹ Recent findings are mixed in this regard.^{5–7}

The ADA provides that employers with 15 or more employees must make “reasonable” accommodations for “qualified” workers with disabili-

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ities to participate in the workforce. The ADA's accommodation requirement mandates that an employer provide benefits to, or take steps in response to, the needs of particular qualified individuals so they are able to perform essential job functions.⁸

Other recent policy innovations are aimed at diminishing economic barriers that prevent persons with disabilities from working. For example, the Ticket to Work and Work Incentives Act of 1999 (TWWIA) makes affordable health care coverage available to qualifying individuals with disabilities. Also, the Workforce Investment Act of 1998 (WIA) establishes "one stop" employment and job training centers to provide accessible services and supports for all workers, including those with disabilities.^{3,6,7}

Our recent empirical work⁹⁻¹¹ suggests that a broad spectrum of workers with disabilities are at increased risk for occupational injuries. We found this increased risk among older workers of the Health and Retirement Study (HRS)^{12,13} as well as among workers of all ages surveyed by the NHIS.¹¹ The increased risk of occupational injury was found in cross-sectional studies^{9,10} as well as in prospective cohort studies.¹¹

As workers with impairments and functional limitations make up a larger percentage of our workforce, occupational injuries are likely to increase unless employers provide effective workplace accommodations that lower the risk of injury. However, there is little national data on the prevalence of and nature of workplace accommodations.¹² This investigation presents data from the NHIS Disability Supplement 1994-1995 (NHIS-D) describing the nature of workplace accommodations in the American workforce and factors associated with the provision of such accommodations.

Methods

The Cohort

Our study population derives from the NHIS-D. The NHIS is an annual

survey of the health status of Americans, carried out by the Census Bureau under contract from the National Center for Health Statistics. From 1994 to 1995, in addition to the regular core questions, the Census Bureau administered two more detailed surveys (the Disability Follow-Back Surveys) to obtain more information on the health and social status of Americans with disabilities.

Eligibility for the Disability Follow-Back Survey was determined by a positive response to any of nearly 200 screening questions. The Disability Follow-Back Surveys collected self-reported information regarding need for assistance with key activities, difficulties with activities of daily living (ADLs), instrumental activities of daily living (IADLs), and functional limitations. Additionally a broad range of medical, social, and employment information was collected.

Our study population included those who reported a variety of impairments and functional limitations. We included those who had difficulty with ADLs (bathing, dressing, eating, getting in or out of bed or chair, or using the toilet); difficulty with IADLs (preparing own meals, shopping for personal items, using telephone, doing heavy work around the house, or doing light work around the house); functional limitations (lifting 10 pounds, walking up 10 steps, walking a quarter mile, standing for 20 minutes, bending down from a standing position, reaching over the head, using the fingers to grasp or handle something, or holding a pen or pencil); difficulty seeing (even with their glasses); difficulty hearing (even with a hearing aid); reported mental health or cognitive diagnoses (Down's Syndrome, mental retardation, schizophrenia, delusional disorders, bipolar disorder, major depression, severe personality disorder, alcohol abuse, drug abuse, other mental or emotional conditions); or reported the use of a cane, crutches, walker, wheelchair, or scooter to get around.

Of the 25,805 participating respondents to the Disability Follow-Back Surveys, 47% (12,151) met at least one of the 31 inclusion criteria and were between 18 and 69 years old at the time of the survey. We have previously reported on the factors associated with employment among these 12,151 respondents with impairments.¹³ In this investigation, we report on the 41% (4937) of these respondents who were working at a job or business at the time of the survey. They constitute a representative sample of working Americans with impairments and functional limitations. Those who were not employed were not included in the study.

Variables

The outcome variables of interest are derived from questions in section D of the Disability Follow-Back Surveys that asked the respondent: "In order to work would you need any of these special features at your work-site, regardless of whether or not you actually have them?" The respondents are then asked: "Do you have (feature) at work?" The questionnaire offers the respondent the 17 specific accommodations listed in Table 1.

Our primary dichotomous outcome variable compares respondents who report receiving any accommodation to those who report receiving no accommodation. No employment records were available to validate these self-reports. We also do not know whether any of the reported accommodations would be required by the ADA.

Potential predictors of the provision of accommodation were considered in three categories. First, we considered background variables related to the worker: age, race, ethnicity, sex, education, income, region of residence, and urban/nonurban (>100,000 population). Second, we considered job-related variables: number of hours worked, self-employment status, and standard occupational and industrial codes asso-

TABLE 1

Percent of Workers with Disabilities Who Report Needing and Receiving Specific Accommodations Among the National Health Interview Survey–Disability Supplement, 1994–1995, (n = 4937)

Nature of Accommodation	Percent Reporting Needing Accommodation	Percent Reporting Receiving Accommodation
1. Handrails or ramps	3.5	2.2
2. Accessible parking, accessible transportation	6.1	4.2
3. An elevator	4.9	3.1
4. An elevator designed for persons with special needs	0.9	0.3
5. A workstation specifically adapted for your use	5.1	3.1
6. A restroom designed for persons with special needs	2.5	1.6
7. An automatic door	1.6	0.6
8. A voice synthesizer, telecommunications device, or other technical device	0.7	0.5
9. Braille, enlarged print, special lighting or audio	0.4	0.2
10. A reader, oral or sign language interpreter	0.2	0.1
11. A job coach to help train you and supervise your work	0.6	0.6
12. A personal assistant to help you with job-related activities	1.1	0.7
13. Special pans or pencils, chairs, office supplies	1.3	0.7
14. Job redesign, modifications of difficult job duties or slowing the pace of tasks	2.1	1.3
15. Reduced work hours to allow for more breaks or rest periods	2.3	1.4
16. Reduced or part-time hours	2.8	2.1
17. Some other equipment, help, or work arrangement	3.2	1.9
At least one of the above 17	15.6	12.2

ciated with the worker's employment. Third, we considered individual health and impairment variables. These included a self-rating of general health, duration of limitation, and self-reported difficulties with IADLs, ADLs, or functional limitations. Severe sensory limitations included difficulty seeing even while wearing glasses or difficulty hearing even while wearing a hearing aid. Diagnosed physical conditions causing difficulties with ADLs and measures of severity of impairment were considered in this final category.

Standard occupational codes are compared to the executive/professional group; standard industrial codes are compared to the manufacturing group. Self-reported health status is classified as excellent or good compared to fair or poor. The specific functional limitations include: any difficulty walking a quarter mile, sitting 2 hours, lifting or carrying 25 pounds, lifting 10 pounds, walking 10 steps without resting, standing for 20 minutes, stooping, kneeling, or bending, reaching overhead, reaching out as if to shake hands, or using fingers to

grasp. Only difficulties that subjects expected to last at least 12 months were classified as "yes."

Difficulties with ADLs and IADLs include: bathing, dressing, eating, getting in or out of bed, any difficulty walking, or difficulty managing money. These variables are dichotomized as "yes" for any difficulty and "no" for none. Severe hearing problem is defined as "having difficulty hearing normal conversation even while wearing a hearing aid" while severe vision problem is defined as "difficulty seeing even while wearing glasses."

To assess the severity of impairments, two measures of severity are reported in the literature. The first measure, constructed by Kasper et al,¹⁴ grouped functional limitations into four "domains." These domains consist of difficulties in the upper extremities, mobility or exercise tolerance, higher functioning, and basic self-care. The number of domains affected can be used to estimate the severity of the functional limitation. For analytical purposes, we used zero as the reference category in the regression model.

The second measure, constructed by Loprest, Rupp, and Sandell,¹⁵ created a seven-point scale to represent the degree of difficulty within four categories of functions: basic functions, sedentary work functions, physical work functions, and very physical work functions. The scaling of the responses, and some of the questions themselves, are slightly different between the HRS and the NHIS-D for the questions regarding functional limitations. We developed a parallel five-point scale to reflect presence and severity of work function limitations. The categories represented are basic sedentary functions, minimal mobility or strength functions, and vigorous mobility or physical strength functions that might be required while on the job. With this scale, category five represents the most seriously impaired while category one represents respondents with no functional limitation. We use one as the reference category in the regression model.

Medical conditions primarily causing difficulty with the ADL were categorized as cardiovascular, musculoskeletal, respiratory, sensory, and other conditions based

upon diagnostic codes (see Baldwin).¹⁶ We included three subsets of the musculoskeletal conditions: those of the back or spine, the upper extremities, and the lower extremities. Mental health and cognitive conditions included schizophrenia, paranoid delusional disorder, bipolar disorder, major depression, severe personality disorder, alcohol abuse, drug abuse, and other mental or emotional disorders.

Analysis

We compared those who self-reported receiving workplace accommodations to those who did not. First, we examined the bivariate associations between our predictive variables and the provision of accommodations. Second, we constructed a logistic regression model including those variables related to the worker demography and the jobs that were associated ($P < .05$) with the provision of accommodations. This base model allowed us to assess the relative importance of these variables in predicting the availability of accommodations. Third, we added each of the variables describing limitations and health conditions individually to the base model to assess their relationship with workplace accommodation after controlling for key variables concerning the workers and their job.

The NHIS is a multistage, stratified, clustered sample weighted to represent the number of noninstitutionalized adults in the United States. To account for the complex structure of this sample, we used SUDAAN software¹⁷ to estimate standard errors and corresponding confidence intervals for odds ratios.

Results

Our cohort consisted of 4937 Americans working with self-reported impairments and/or functional limitations. They ranged from 18 to 69 years of age with a mean age of 43.0. Forty-eight percent were men; 88% were white; 43% had at least some college education; 49% had a

family income of \$35,000 or more. Hence, this subsample generally is comprised of white men and women who tended to be educated and with family incomes above poverty levels. The first column in Table 2 provides additional description of our cohort.

Table 1 describes the proportion of our study population who report needing any of 17 specific accommodations and the proportion who report receiving these accommodations. Of the 4937 individuals in our study population, a relatively small proportion (16%) reported needing any of the 17 accommodations. Likewise, a small proportion (12%) reported receiving at least one accommodation. However, the majority (78%) of those who reported needing an accommodation received it from their employers.

The most common accommodations received included accessible parking or accessible transportation (4.2%); an elevator (3.1%); a workstation specifically designed for your use (3.1%); handrails or ramps (2.2%); and reduced or part-time hours (2.1%).

Table 2 summarizes the bivariate associations between our set of predictors and self-reported provision of workplace accommodation. The number with the risk factor and the number and percent accommodated are unweighted while the odds ratios and associated 95% confidence intervals reflect the complex sample design of the NHIS and weighted analysis using SUDAAN software.

From Table 2, we observe that both younger workers (aged 40 years and younger) and older workers (aged 51 years and older) were significantly less likely to report the provision of accommodations than are workers aged 41 to 50 years. Males report significantly fewer accommodations than females. There was no statistically significant difference identified among racial groups or among those of Hispanic ethnicity.

Those with at least some college education report increased provision

of accommodation. Compared to workers in the Northeast region of the United States, those in the South reported fewer accommodations. Those living in urban areas reported more accommodations than those living in nonurban areas. Compared to the executive professional group, those in sales, service occupations, mechanics, machine operators, and transport handlers report fewer accommodations. Compared to those in manufacturing, those in agriculture, mining, construction, retail/wholesale trade, and transport or public utilities report fewer accommodations. Those in insurance/real estate, professional services, and public administration report more accommodations. Full-time workers are significantly more likely to report a workplace accommodation.

Reported difficulty with any of the ADLs, functional limitations, or IADLs is associated with an increased self-reported availability of accommodation. Using either Kaspar's or Loprest's measures of severity of limitation, we observe a clear dose-response effect: the more severe the limitation, the more likely receiving an accommodation is reported. Those reporting physical limitations of longer duration (dating from 1990 or earlier) are more likely to have accommodations than those recently limited. Those with severe hearing problems are significantly less likely to report an accommodation. Workers with mental health disabilities are almost one half less likely to receive accommodations than workers with other disabilities. Specifically, those workers with diagnosed major depression or substance abuse disorder are significantly less likely to report accommodations.

Table 3 presents the adjusted odds ratios and confidence intervals from the base logistic regression model including demographic predictors of accommodation. This model shows slight changes in odds ratios from the bivariate analysis. Age, sex, education, region of residence, occupation,

TABLE 2

Bivariate Associations Between Predictors and Workplace Accommodations Among Persons with Impairments in the National Health Interview Survey–Disability Supplement 1994–1995

Predictor	No. With Risk Factor (Unweighted)	Number with Risk Factor Accommodated		OR	95% CI
		n	%		
Variables related to the worker					
Age (years)					
30 or less	765	62	8.1	0.46	0.34–0.63
31–40	1242	149	12.0	0.78	0.62–0.99
41–50	1451	210	14.5	1.00	
51–60	1012	133	13.1	0.84	0.65–1.08
60+	467	48	10.3	0.66	0.46–0.95
Male	2366	213	9.0	0.55	0.45–0.67
Race					
White	4325	516	11.9	1.00	
Black	447	54	12.1	0.96	0.67–1.38
Other race	165	32	19.4	1.54	0.94–2.51
Hispanic ethnicity	465	46	9.9	0.74	0.53–1.03
Education					
Less than high school	873	69	7.9	1.00	
High school graduate	1925	205	10.7	1.26	0.93–1.7
Some college	1142	156	13.7	1.56	1.11–2.19
College graduate or more	997	172	17.3	2.29	1.67–3.14
Residence region					
Northeast	798	112	14.0	1.00	
Midwest	1313	171	13.0	1.22	0.97–1.54
South	1644	151	9.2	0.59	0.47–0.75
West	1182	168	14.2	1.23	0.98–1.53
Urban residence (population > 100,000)	3705	479	12.9	1.29	1.01–1.66
Income >\$35,000	2401	303	12.6	1.08	0.89–1.30
Variables related to the work					
Standard occupational codes					
Executive professional	1156	183	15.8	1.00	
Sales	414	39	9.4	0.56	0.39–0.80
Administrative support	664	123	18.5	1.80	1.44–2.24
Service occupations	786	81	10.3	0.62	0.47–0.82
Farming	94	10	10.6	0.76	0.38–1.54
Mechanics/Construction	464	20	4.3	0.23	0.14–0.38
Machine operators	345	26	7.5	0.47	0.31–0.70
Transport handlers	383	25	6.5	0.34	0.22–0.53
Laborers	631	95	15.1	0.96	0.73–1.26
Standard Industrial Codes					
Agriculture/mining/construction	247	15	6.1	0.37	0.21–0.64
Manufacturing	748	53	7.1	1.00	
Transport/public utilities	301	23	7.6	0.48	0.31–0.74
Retail/wholesale trade	814	63	7.7	0.47	0.35–0.62
Insurance/real estate	245	41	16.7	1.54	1.10–2.14
Personal services	472	68	14.4	1.23	0.97–1.57
Professional service	1112	182	16.4	1.52	1.25–1.84
Public administration	257	52	20.2	1.60	1.16–2.21
Unknown not coded	625	94	15.0	1.24	0.97–1.57
Self-employed	415	55	13.3	0.46	0.30–0.71
Works full time (compared with part time)	884	219	24.8	2.96	2.45–3.56
Variables related to health/impairments					
Health excellent/good	3653	391	10.7	0.64	0.52–0.78
Impairment began after 1990	642	97	15.1	0.52	0.4–0.67
Measures of impairments severity					
Kasper's measure					
0 Domain	2850	128	4.5	1.00	
1 Domain	1153	163	14.1	3.49	2.64–4.62
2 Domains	672	183	27.2	8.24	6.12–11.11
3 Domains	214	97	45.3	17.04	12.09–24.02
4 Domains	48	31	64.6	44.70	22.73–87.93

TABLE 2
Continues

Predictor	No. With Risk Factor (Unweighted)	Number with Risk Factor Accommodated		OR	95% CI
		n	%		
Loprest's measure					
Class 1	2623	107	4.1	1.00	
Class 2	869	91	10.5	2.75	2.01–3.78
Class 3	428	88	20.6	6.02	4.23–8.56
Class 4	598	179	29.9	9.80	7.33–13.10
Class 5	419	137	32.7	11.18	8.07–15.47
1 or more medications taken	2798	456	16.3	2.86	2.34–3.50
Severe hearing problem	429	29	6.8	0.51	0.32–0.81
Severe vision problem	267	33	12.4	1.00	0.64–1.55
Main conditions causing impairments (from Baldwin's diagnostic codes)					
Cardiovascular	82	27	32.9	3.37	2.06–5.51
Overall musculoskeletal	660	204	30.9	4.26	3.42–5.32
Musculoskeletal/back/spine/neck	132	42	31.8	3.67	2.40–5.61
Upper extremities	40	20	50.0	5.80	2.92–11.51
Lower extremities	215	58	27.0	2.90	2.02–4.16
Other musculoskeletal	269	94	34.9	4.27	3.15–5.78
Respiratory	54	19	35.2	3.86	2.06–7.24
Sensory	11	7	63.6	14.39	3.86–53.68
Other condition	561	243	43.3	8.84	7.12–10.97
Mental Health Conditions (from Phase I)					
Overall mental health	1311	99	7.6	0.54	0.44–0.66
Schizophrenia	40	7	17.5	1.83	0.63–5.30
Paranoid/delusional disorder	56	4	7.1	0.60	0.21–1.72
Bipolar disorder	196	15	7.7	0.70	0.39–1.26
Major depression	698	60	8.6	0.62	0.45–0.85
Severe personality disorder	181	18	9.9	0.68	0.41–1.14
Alcohol abuse	296	11	3.7	0.30	0.15–0.59
Drug abuse	114	4	3.5	0.34	0.12–0.93
Other mental/emotional disorders	192	19	9.9	0.77	0.46–1.29

and full-time work status remain significant predictors of accommodation. A Hosmer-Lemeshow¹⁸ goodness-of-fit test yields a *P* value of .70, indicating an adequate fit for the base model.

Table 4 presents the associations between workplace accommodations and the specific functional limitations and medical diagnoses. In this model, we enter variables individually after controlling for the demographic factors in the base logistic regression model. As in the bivariate analysis, self-rating of excellent or good health and a recent onset of limitation are associated with a reduced likelihood of accommodation.

Table 4 shows that both the Kaspar and Loprest severity of limitation measures are significantly associated

with accommodation and show a clear dose-response pattern. Both the overall category of mental health conditions as well as the specific conditions of major depression and alcohol abuse disorder remain significantly associated with a reduced self-reported provision of accommodations after adjustment for the demographics.

Discussion

Using a nationally representative sample of working Americans, aged 18 to 69 years with a wide range of impairments, we found that only 12% reported receiving workplace accommodations. Males and Southerners were less likely than others to receive workplace accommodations. College gradu-

ates, older workers, full-time workers, and the self-employed were more likely to receive accommodations.

After controlling for demographic variables, we found that those with the most severe impairments (whether measured using Loprest's scale¹⁵ or Kaspar's domains¹⁴) were most likely to receive accommodations. Those with a wide range of specific impairments were more likely to report being accommodated. However, those with several specific impairments or diagnoses were less likely to report being accommodated, including those with severe hearing problems, mental health problems, major depression, and alcohol abuse.

TABLE 3

Base Logistic Regression Model of Workplace Accommodation Among a Study Population with Impairments from the National Health Interview Survey-Disability Supplement 1994–1995

Variable	Odds Ratio	95% CI
Age (continuous)	1.01	(1.00–1.01)
Male	0.64	(0.53–0.78)
College graduate or more	1.53	(1.22–1.91)
Region south	0.57	(0.47–0.70)
Executive professionals	1.00	–
Sales	0.60	(0.41–0.88)
Admin. support	1.35	(1.02–1.78)
Service occupations	0.79	(0.58–1.07)
Farming	0.66	(0.31–1.40)
Mechanics/Construction	0.33	(0.20–0.55)
Machine operators	0.63	(0.40–0.97)
Transport handlers	0.52	(0.33–0.84)
Laborers	1.30	(0.97–1.75)
Self employed	1.76	(1.28–2.41)
Works full time	3.19	(2.63–3.87)

In defining our cohort, we attempted to carefully define disability. As mentioned, there has been considerable discussion about the most appropriate measure of disability.^{6,8,19} For our purposes, we relied on the Institute of Medicine's conceptual model²⁰ that distinguishes functional limitations and impairments (characteristics of individuals) from disabilities (characteristics of the interactions of individuals with the demands of their environments).

We chose not to define our cohort based on work disability that could be measured by asking "Do you have any impairment or health problem that limits your ability to work?" This definition would have excluded from our cohort workers with severe impairments who did not perceive their impairments as work limiting.⁶ Instead, we defined our cohort broadly as including all those individuals with a variety of impairments and medical conditions.

There have been few nationally representative surveys of the prevalence of workplace accommodations. Using the HRS, Yelin et al²¹ found that among older workers (51 to 61 years) with musculoskeletal conditions, 17.9% received workplace accommodations. Fully 12.1% had

"someone to help you out" and 9.5% enjoyed "more breaks and rest periods." Also analyzing the HRS, Daly and Bound²² found that among employees who remain with their employer after the onset of a health impairment, 29.2% of the men and 36.9% of the women received workplace accommodations. The lower prevalence rate of accommodations in our cohort may be a consequence of our broader age range as well as the broader range of included medical conditions.

One previous study²² examined the associations between workplace accommodation and several personal attributes. In accord with our findings, they found that the provision of any accommodation was associated with more severe functional limitation. They also found that those with higher income were more likely to be accommodated.

The negative association between severe hearing loss and accommodations is of particular interest because of our previous work^{11–13} showing a consistent association between hearing impairment and occupational injuries. The increased injury rates among the hearing impaired may be related to the relative lack of work-

place accommodations for their impairments.

We also found that those with mental health conditions were about 50% less likely to receive accommodations than those with other disabilities. This difference could be explained by the stigma associated with mental health conditions, by the difficulty in designing accommodations for episodic mental illnesses, or by underreporting of accommodations for mental health impairments. Of the 17 questions in the Disability Follow-Back Survey on the nature of accommodations, only three are likely to identify accommodations for mental health conditions. These results are consistent with a previous study¹⁵ in which we reported that those with mental health impairments were less likely to be employed than those with other disabilities.

As mentioned, this study has a number of limitations. First, all the data on accommodations are based on employees' self-report and may be subject to recall bias. No employer records were available for verification. Second, similar concerns may be raised about the self-reported health data. No doctors' diagnoses were available. Third, the choice of impairments as inclusion criteria was particular to our study. Other researchers might have chosen different measures. Fourth, workers may have accommodated themselves by changing jobs or informally exchanging duties with fellow workers. This study cannot take into account such accommodations. Fifth, we have no information whether or not the employer was aware of the disabilities.

Despite limitations, this study has unique strengths. It is based on a large, representative sample of working Americans with impairments. In particular, it includes workers from age 18 to 69. Because of the cohort's size, we were able to examine a large number of potential predictors of workplace accommodations. The present investigation illustrates the

TABLE 4

Associations of Predictors with Workplace Accommodations after Controlling for Age, Race, Sex, Education, Region of Residence, Occupation, Self-Employment, and Part-Time Employment Among Persons with Impairments in the National Health Interview Survey–Disability Supplement 1994–1995

Variable Entered After Base Model	OR	95% CI
Urban residence (population > 100,000)	1.14	(0.91–1.42)
Income greater than \$35,000	0.90	(0.75–1.09)
Health excellent/good	0.72	(0.59–0.88)
Impairment began after 1990	0.49	(0.37–0.64)
Measures of impairments severity		
Kasper's Measure		
0 Domains	1.00	
1 Domains	2.93	(2.25–3.81)
2 Domains	6.07	(4.58–8.04)
3 Domains	13.07	(9.11–18.75)
4 Domains	38.36	(19.02–77.35)
Loprest's Measure		
Class 1	1.00	–
Class 2	2.01	(1.47–2.76)
Class 3	4.69	(3.30–6.67)
Class 4	7.67	(5.64–10.43)
Class 5	10.21	(7.33–14.23)
One or more medications taken	2.24	(1.81–2.77)
Severe hearing problem	0.61	(0.43–0.87)
Severe vision problem	1.21	(0.85–1.73)
Main conditions causing impairments (from Baldwin's diagnostic codes)		
Cardiovascular	2.94	(1.75–4.93)
Overall musculoskeletal	3.45	(2.78–4.28)
Musculoskeletal/back/spine/neck	2.90	(1.92–4.40)
Upper extremities	3.96	(2.08–7.55)
Lower extremities	2.19	(1.55–3.07)
Other musculoskeletal	3.27	(2.42–4.41)
Respiratory	3.09	(1.64–5.81)
Sensory	16.09	(4.13–62.63)
Other condition	7.78	(6.26–9.66)
Mental Health Conditions (from Phase I)		
Overall mental health conditions	0.56	(0.44–0.70)
Schizophrenia	2.26	(1.01–5.09)
Paranoid/delusional disorder	0.69	(0.27–1.80)
Bipolar disorder	0.76	(0.46–1.26)
Major depression	0.58	(0.44–0.78)
Severe personality disorder	0.81	(0.48–1.36)
Alcohol abuse	0.50	(0.28–0.89)
Drug abuse	0.58	(0.24–1.40)
Other mental/emotional disorders	0.77	(0.47–1.26)

need for further detailed investigations of the nature of workplace accommodations.

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