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ABSTRACT

This report uses data from the California Work and Health Survey (a random sample of 2,310 California adults), conducted in July 1996, to compare labor force status, employment history, and experience of work for persons with and without disabilities. Results found: (1) the largest difference in the employment experience of persons with and without physical functional limitations is in their labor force participation rate, with persons with functional limitations less than half as likely to be in the labor force; (2) part-time employment is more common among persons with many functional limitations; (3) persons with fewer limitations in physical functioning are more likely to be employed in skilled trade occupations; (4) persons with more limitations in physical functioning report less satisfaction with their current jobs and are less optimistic about future prospects; (5) loss of a job during the past five years is no more common for persons with physical functional limitations than for those without; and (6) among persons who are not currently in the labor force, those with more functional limitations are less likely to report a desire to work. Appendices include statistical charts on labor force status and functional limitation status. (Contains 27 references and 5 tables.) (CR)

NATIONAL INSTITUTE ON DISABILITY AND REHABILITATION RESEARCH

REPORT 12

Disability Statistics Report

The Employment Experience of Persons with Limitations in Physical Functioning

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OFFICE OF SPECIAL EDUCATION AND REHABILITATIVE SERVICES

The Employment Experience of Persons with Limitations in Physical Functioning

An Analysis of the 1996 California Work and Health Survey

by

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CONTENTS

INTRODUCTION

The literature on employment among persons with disabilities indicates that such persons experience lower labor force participation rates, higher unemployment rates, and higher rates of part-time employment than persons without disabilities (Yelin, 1997; Bennefield & McNeil, 1989). These findings are consistent across numerous national surveys, including the Current Population Survey (CPS), Survey of Income and Program Participation (SIPP), and the National Health Interview Survey (NHIS) (Yelin & Katz, 1994a; Trupin & Armstrong, 1998; Trupin, Sebesta, Yelin & LaPlante, 1997). They also hold for several definitions of disabilities, including work capacity, activity limitation, or functional limitation (McNeil, 1993). Moreover, disabilities appears to accentuate other labor market liabilities, including gender, age, and race (Yelin & Katz, 1994b). A recent national survey on disabilities found that two-thirds of working-age adults with disabilities were not employed and that nearly 80 percent of them wanted to work (National Organization on Disability, 1994).

In contrast to information on labor force status, much less is known about the differences between persons with and without disabilities in such qualitative aspects of employment as expectations for the future, job satisfaction, and job content. Research on the impact of the shifting economy during the 1980s indicated that workers with disabilities experienced greater losses in declining industries, such as manufacturing, and greater gains in the rapidly growing service industry than their counterparts without disabilities (Yelin, 1992).

Have these patterns continued in this decade? Are persons with disabilities typically employed in large or small firms? Are they more likely to work for themselves, to work at home, or to work in temporary jobs than their counterparts without disabilities?

This report describes differences between persons with and without disabilities over a greater range of employment characteristics than those used in prior studies. It then compares the qualitative aspects of employment, including job content, job satisfaction, and expectations of future employment, among the two groups. As part of these analyses, the report compares persons with and without disabilities in measures of underemployment as defined by Clogg and Sullivan (1983) and in history of job loss.

Documenting differences in the qualitative aspects of work between persons with and without disabilities is important because of the association between such characteristics and numerous health outcomes, including morbidity, disability, and mortality (Adler & Matthews, 1994; Lerner, Levine, Malspeis, & D'Agostino, 1994). Persons in highly stressful jobs may be at increased risk for occupational injury or chronic disabling conditions. Persons with disabilities in such jobs may be at greater risk of exiting the labor force, or of developing secondary conditions. Yelin and colleagues have found that autonomy and decision latitude on the job serve to enable persons with chronic disease to remain at work longer (Yelin, Greenblatt, Hollander, & McMaster, 1991; Yelin, Henke, & Epstein, 1987). Other researchers have found a link between job insecurity and health outcomes (Heaney, Israel & House, 1994, Catalano & Dooley, 1983).

This report uses data from the California Work and Health Survey (CWHS), conducted in July 1996. Based on a random sample of 2,310 California adults, the survey allows us to compare labor force status, employment history, and experience of work for persons with and without disabilities. We use physical functional limitation status as a proxy for disability.

HIGHLIGHTS

- The largest difference in the employment experience of persons with and without physical functional limitation is in their labor force participation rate. Even after adjusting for age and gender differences, persons reporting "a lot of functional limitation" are less than half as likely to be in the labor force. Persons with "a little functional limitation" had a labor force participation rate close to that of those without functional limitation.

- Part-time employment is more common among persons with a lot of functional limitation than among those with a little or no functional limitation.

- Persons with a little limitation in physical functioning are more likely to be employed in skilled trade occupations than those with no limitation or those with a lot of functional limitation.

- Persons with a lot of limitation in physical functioning report less satisfaction with their current job, and are less optimistic about their future prospects than those with a little or no limitation. Compared to persons with a little or no limitation, roughly twice the proportion of persons with a lot of functional limitation are very dissatisfied with the opportunity to increase their skills, with the opportunity for advancement, and with the security of their employment.

- Persons with a lot of functional limitation are less likely to report having autonomy at work than those with a little functional limitation who, in turn, are less likely to report having such autonomy than those without limitation.

- The likelihood of reporting that one has inadequate time to complete work tasks increases with increasing levels of functional limitation; this sense of time pressure is least common among persons with no functional limitation, and most common among those with a lot of limitation.

- Among persons in the labor force, loss of a job during the past five years is no more common for persons with physical functional limitation than for those without. However, the Work and Health Survey collected information on job loss only among those currently in the labor force.

- Among persons with a lot of functional limitation who have experienced a job loss, nearly three-quarters report that this loss created a major problem in their life, compared to less than half of those with little or no limitation.

- Among persons who are not currently in the labor force, those with a lot of functional limitation are less likely to report a desire to work than those with a little or no functional limitation.

METHODS

Data Source

The California Work and Health Survey (CWHS) is the source of data for this report. The survey, conducted in July 1996 by the Field Institute, includes detailed information on employment status, industries and occupations, work environment, job satisfaction, job content, anticipated layoffs and promotions, history of job loss, and desire for work among the unemployed. Survey respondents were recruited in two ways. Random-digit dialing methods, which give all Californians with telephones an equal probability of selection, resulted in a sample of 1,771 respondents. An additional 539 respondents were selected on the basis of a screening questionnaire designed to identify individuals with various employment problems. This resulted in an oversampling of persons who were: i) unemployed or out of the labor force but wanting to work, ii) working part time or self-employed involuntarily, iii) very likely to lose their job in the next year and very worried about it, iv) whose household income was less than 125 percent of poverty level, or v) who had been unemployed for 15 or more weeks in the prior year. To account for the differing probabilities of selection, we applied relative weights to all observations. Seventeen cases were dropped due to missing data. Thus, the final sample consisted of 2,293 California residents, aged 18 and over.

Telephone surveys are more efficient and less expensive than in-person interviews, although they probably have a higher non-response rate as well. In the CWHS sampling process, approximately 43 percent of working telephones yielded a survey respondent. The use of the telephone also may lead to a differential in non-response rates based on disability status. Some subgroups of the disabled population, such as those with hearing impairments or very ill persons, may be underrepresented in such surveys, while older persons and those who do not work may be somewhat overrepresented. The present survey did not make use of proxy respondents, which may have eliminated some non-response bias but would likely have introduced other types of bias.

Disability Measures

Using the CWHS to compare persons with and without disabilities presents certain challenges. The survey includes numerous measures of health, functioning, and disability, but none of them conform perfectly to the definition of disability suggested by the Americans with Disabilities Act (ADA). Nor do these measures match any of those found in national surveys often used for disability research. For example, the questions on activity limitation ask whether physical or mental health problems during the prior four weeks limited how much a respondent accomplished at work or in other regular activities. Because the questions specify a short time frame and refer to regular activities, we felt that they would likely elicit responses about acute health problems, rather than about the effects of chronic illness or impairment. Moreover, the wording of the actual questions in the CWHS is very convoluted, making it difficult to discern just what is being measured. The basic employment status question includes "disabled" as one of the possible responses, and as such assumes that disability is incompatible with work, a fact contravened by the millions of persons with disabilities currently in the labor force. Also, comparing differences in employment based on a disability measure that is embedded in employment status is tautological, and would misclassify persons whose disabilities are successfully accommodated in their jobs (Kirchner, 1996). The only other candidate measures of disability are questions related to functional limitation. Although we believe that this concept is not the same as disability, the wording is more precise than the activity limitation questions, and the functional limitation questions are not confounded by the employment status measure. Therefore, we use functional limitation as a proxy for disability status for all analyses. The definition of functional limitation is based on responses to these questions:

1. *Does your health now limit you from doing moderate activities, such as moving a table, pushing a vacuum cleaner, bowling or playing golf? (If YES, ask: Does your health limit you a lot or only a little?)*
2. *Does your health now limit you from climbing several flights of stairs? (If YES, ask: Does your health limit you a lot or only a little?)*

Respondents who report a lot of either type of limitation are considered to have a lot of functional limitation. Those who report a little of either and a

lot of neither type are included in the little functional limitation group. Throughout the report, we compare results for three levels of functional limitation: a lot, a little, and none.

In Table A, we compare the three functional status groups in terms of their responses to the other measures of health and disability. Those reporting functional limitation are significantly more likely to report work disabilities, activity limitations due to physical health, and poorer physical health status ($p<.001$). Moreover, more than 60 percent of persons with a lot of functional limitation and more than 35 percent of those with a little limitation report activity limitations due to physical health. Physical functioning is also significantly associated with activity limitations due to mental health and with slightly lower mean scores on the mental health component of the SF-12, a short-form health survey (Ware, Kosinski, & Keller, 1996). However, less than 35 percent of persons with a lot and less than one-quarter of those with a little functional limitation report activity limitations due to mental health. Thus, functional limitation status seems to work well as a proxy for disability associated with physical conditions, but probably fails to account for persons with disabilities due to mental conditions. It is likely that this measure also misses persons with disabilities resulting from hearing, vision, or speech impairments.

Employment Measures

The CWHS includes such basic labor force measures as employment status, self-employment, hours and terms of employment, and industry and occupation classifications. Additional quantitative characteristics about the employment situation include the size of firm, length of time on job, health benefits provided, and history of reductions in pay and loss of jobs. The survey also elicits information on respondents' experience of their jobs. It includes several questions regarding time pressure, learning new skills, and decision latitude, which are adapted from the Job Content Questionnaire (Karasek, 1985). There are also numerous questions of a more subjective nature. Self-employed respondents are asked whether they want to remain self-employed and part-time workers are asked whether they would rather work full time. Employed respondents provide information about their expectations of layoffs or raises in the coming year, about their level of job satisfaction, and about the perceived effects of their jobs on their health.

In addition to comparing persons with and without functional limitation on each of these employment measures, we construct an index of underemployment. Modeled after Clogg's formulation of underemployment that includes wages and skill utilization (Clogg & Sullivan, 1983), our measure defines underemployment as employment in an occupation with median earnings below the fortieth percentile of earnings for one's age, gender, and education. We calculate median earnings by occupation, age, gender, and education from the 1995 Current Population Survey (CPS, 1995). Another way to conceptualize underemployment is as the inability to provide a substantial wage for one's household, despite being employed. Accordingly, we compare the three functional limitation status groups with respect to the proportion of each accounted for by employed persons whose household income is below 125 percent of the federal poverty threshold.

Statistical Analysis

We report the distribution of values for all demographic and employment measures within each functional status group, and for the entire sample. We use the F-test to determine statistical association of continuous measures of employment with functional limitation status; for categorical measures, we use chi-square tests.

Many of the survey questions have multiple possible responses, for example, responses ranging from "very unlikely" to "very likely." Because we are more interested in the extreme responses, we present the proportion of each functional status group selecting one extreme of the possible responses (in the example above, very unlikely). We then use the chi-square test to determine whether there is an association between functional status and selecting that response rather than any other. For purposes of space efficiency, we show only the proportion selecting the extreme response.

Because of the established relationship of age and gender to disability and to employment, we also examined the relationship between functional limitation and all employment variables after adjusting for age and gender differences. To accomplish this, we modeled each employment variable as a function of age, gender, and functional limitation status, using ordinary least squares regression for continuous variables and logistic regression equations for dichotomous variables. Age was included in the model as a linear variable; we tested a quadratic (squared) term as well, but found the linear term to be a better fit. From the regression

Table A - Distribution of Various Health and Disability Measures, by Functional Limitation Status

	All persons		Functional limitation status: None		A little		A lot	
	Sample size and percent of row total							
All persons	2,293	100.0	1,839	80.2	230	10.0	224	9.8
Health and Disability Measures	Sample size and percent of column total							
Disabled, per employment status question[1]	98	4.3	11	0.6	10	4.3	77	34.4
In past 4 weeks:								
Physical health limits *how much accomplished* in work/regular activities	377	16.4	162	8.8	82	35.5	137	61.0
Physical health limits *kind of* work/regular activities	379	16.5	142	7.7	91	39.4	147	65.5
Emotional problems limit *how much accomplished* in work/regular activities	388	16.9	259	14.1	52	22.7	77	34.5
Emotional problems limit *how carefully* work/regular activities done	300	13.1	185	10.1	46	19.9	69	31.0
SF-12 health survey[2]	Mean and standard deviation							
Physical health component	51.3	9.1	54.4	5.0	44.0	7.6	31.4	10.0
Mental health component	50.8	9.1	51.2	8.6	49.3	9.8	48.8	12.1
	Sample size and percent of column total							
Employed persons	1,366	111.9	1,225	110.9	99	99.9	42	100.0
Amount physical/mental health affects how much accomplished at work								
A lot	565	41.4	529	43.2	22	22.2	14	33.3
Somewhat	292	21.4	246	20.1	33	33.3	13	31.0
A little	181	13.3	155	12.7	24	24.2	2	4.8*
Not at all	311	22.8	280	22.9	19	19.2	11	26.2
No response	18	13.0	15	12.0	1	1.0	2	4.8

Source: California Work and Health Survey, July 1996.

Notes: All estimates have been weighted to account for oversampling.

Some columns do not sum to total due to missing data and rounding of weighted estimates.

Functional limitation status is significantly associated with all variables shown ($p<.001$).

* Relative Standard Error (RSE) > 30%

[1] This is one of several possible responses to the employment status question; it is not mutually exclusive with employment.

[2] The SF-12 is a 12 item short-form health survey that measures mental and physical health status (Ware, Kosinski, & Keller, 1996).

regression output, we calculated adjusted means for continuous variables and the adjusted probability of a positive response for dichotomous variables.

The differences we find among the three limitation groups are apparently not accounted for by differences in age or gender; hence, the adjusted estimates differed little from the unadjusted data. We therefore present only the unadjusted results in the tables, and mention the adjusted rates in the few cases where there are important variations.

All analyses used relative weights to account for oversampling of underemployed individuals. Relative weights adjust for the greater probability

of being sampled without changing the number of cases used for statistical comparisons. All estimates may thus be viewed as representative of people over the age of 18 in 1996 in California households with telephones.

For much of the analysis, we focus on persons employed as of the interview date. Due to the low employment rate among persons with a lot of functional limitation, there are only 42 employed persons in this category. This limits our ability to detect small differences between functional limitation status groups.

RESULTS

Sociodemographic Characteristics of Sample

Approximately 20 percent of survey respondents report some level of functional limitation, divided equally between those reporting a little limitation and those reporting a lot (Table 1). Women are more likely to report functional limitations than men. The proportion of persons reporting either level of functional limitation increases by age, rising sharply after age 65. There is no difference in the rate of functional limitation between whites and non-whites, but lower levels of education are associated with higher rates of either level of functional limitation. Persons who are widowed, separated or divorced report higher rates of functional limitation than either married or never married persons. We also observe a lower rate of functional limitation among immigrants and higher rates among persons living alone or those without children under age 18. Rates of functional limitation do not significantly differ in these data between persons with and without health insurance, nor do they differ between those who do and do not own a home.

Labor Force Status

Consistent with other research on disability and employment, we find that functional limitation has a large impact on the likelihood of being in the labor force and on having a job (Table 2). Even after adjusting for age and gender differences, persons reporting a lot of functional limitation are less than half as likely to be in the labor force as those with no functional limitation, with adjusted labor force participation rates of 32.4 and 71.2 percent, respectively. Persons with a little functional limitation have an adjusted labor force participation rate of 58.8 percent, much closer to—but still lower than—the rate of persons with no limitation. The employment/population ratio, the proportion of the total population with a job, also varies greatly by functional limitation status, ranging from 66.8 percent for persons with no limitation to 18.9 percent for those with a lot of functional limitation.

Unemployment rates, as measured by this survey, are much higher for persons with functional limitation than for those without.[1] Persons with no functional limitation have an unemployment rate of 9.2 percent, compared to 16.9 percent for those with a little limitation, and 24.2 percent of those with a lot. These differences are not, however, due to any clustering of persons with functional limitation in economically depressed areas of California. The unemployment rates of these three groups do not significantly differ from one another when the comparison is made only among persons living in counties with 1996 unemployment rates above the median for all counties, as reported by the California Employment Development Department (1997b).

Among employed persons, those with functional limitation are no more likely to be self-employed than those without. Persons with a lot of functional limitation typically work fewer hours per week than either those with a little limitation or those with none. The shorter average workweek among such persons reflects two distinct phenomena: a larger proportion of part-time workers and somewhat fewer hours per week among those working part time than among those with little or no functional limitation. However, persons reporting no, a little, or a lot of functional limitation do not differ in the proportion of workers who work part time due to economic circumstances, such as the inability to find full-time work.

Industries and Occupations

Most of the differences in the distribution of occupations and industries for the three functional limitation status groups do not reach statistical significance, although this may be due to the small number of employed persons with a lot of functional limitation (Table 2). The pattern for the skilled trade occupations is somewhat unique, however.

[1] The overall unemployment rate in this survey of 10.4 percent is higher than the 7.6 percent reported by the California Employment Development Department for July 1996 (1997a). This difference is likely due to the more stringent criteria for unemployment used by the Current Population Survey (CPS), upon which the California Employment Development Department rate is based. In the CPS, a person is considered unemployed only if he or she has no job and is actively seeking work, on lay-off from a job and awaiting a callback, or going to be starting a new job within the month. In the CWHS, no such criteria are established. However, anyone who says they do not have a job is asked whether they are actively seeking work; 55.9 percent of the unemployed report so doing. We did not limit the definition of unemployment to active job-seekers, because that would not take into account the other two CPS criteria. The proportion of unemployed persons actively seeking work does not vary greatly by functional limitation status; thus the differences in unemployment rates between functional status groups is probably not a result of the less stringent definition used in the CWHS.

The group reporting a little limitation in physical functioning is most likely to work in these occupations. More than 16 percent of this group work in the skilled trades, in comparison to 9.4 percent of those with no limitation, and 5.0 percent of those with a lot of limitation. It appears that persons with a lot of functional limitation are the least likely to work in these occupations, but the small size of this group limits our ability to make a conclusive inference from these data. After adjusting for age and gender, the difference between the two functional limitation groups is greater, although still not significant—with 21.4 percent of those with a little functional limitation working in the skilled trades, and only 4.4 percent of those with a lot of limitation working in these jobs.

Objective Job Characteristics

The Work and Health Survey does not give evidence that employed persons with functional limitation are significantly any more or less likely than those with no limitation to work in large firms, to work at home, to have had a recent cut in pay, or to have health benefits through work, nor is there evidence of a differential in job tenure based on functional limitation status (Table 3). Persons with functional limitations appear to be more than twice as likely to hold temporary jobs than those with no limitation, but this difference does not reach statistical significance.

Likely because of the small sample size, neither the underemployment variable measured by occupation, nor that based on household income show evidence of statistically significant differences by functional limitation status. Note, however, that the two measures tend toward opposite conclusions: persons with a lot of functional limitation have a lower rate of occupation-based underemployment, and a higher income-based rate than persons without functional limitations. The former measure is sensitive to education level, and is therefore somewhat biased against persons with disabilities, who typically have lower levels of education than their non-disabled peers (Ficke, 1992).

Subjective Job Characteristics and Job Content

Regardless of functional limitation status, roughly a third of the respondents report that they work more than they want, and fewer than a quarter want to work more hours than they do (Table 4). Persons with functional limitation also do not differ significantly from those without in terms of the proportion expecting a raise or a layoff in the year following the survey.

The proportion of persons expressing dissatisfaction with their job overall does not vary significantly by functional status group. However, functional limitation is associated with greater dissatisfaction with several specific aspects of one's job, including job security, the opportunity to increase skills, and the opportunity for advancement. Nearly 40 percent of those with a lot of functional limitation consider themselves to be in jobs with limited opportunities for advancement.

Persons with a lot of functional limitation are more likely to report that they do not have freedom to decide how to do their own work than are those with a little functional limitation who, in turn, are more likely to report lacking such autonomy than those without any limitation—with rates of 31.3, 21.9, and 12.3 percent, respectively. The likelihood of reporting that one does not have time to get the job done also rises with increasing levels of functional limitation; such time pressure is reported by 9.8 percent of persons with no limitation, by 16.6 percent of those with a little, and by 20.2 percent of those with a lot of limitation.

A large proportion of persons with functional limitations report serious problems with stress, fatigue, and back pain due to their jobs. More than 60 percent of those with a lot of limitation report problems with stress, as compared to about 40 percent of those with no limitation. Nevertheless, only a very small percentage of any of the functional status groups reports that their jobs have a very negative effect on their health.

Job Loss and Unemployment

The Work and Health Survey collected information on job loss only from those currently in the labor force, which is likely to have biased the results for this section (Table 5). Compared with persons in the labor force with no functional limitation, those with limitation are not significantly more likely to have experienced job loss in the past five years or past year, nor are they more likely to have lost a job held longer than three years, the traditional definition of displacement (Gardner, 1993). Given that a history of job loss is probably more common among persons out of the labor force, and that persons with functional limitations are more likely to be out of the labor force, the differences in job-loss history by functional status groups are probably underestimated.

For persons with a lot of functional limitation

who have experienced a job loss, nearly three-quarters report that this loss created a major problem in their life, compared to less than half of those with little or no limitation. However, we cannot conclude from these data that those with a lot of functional limitation are more likely than those in the other limitation groups to report going without health insurance between jobs or that their new job paid less than the one previously held. The observed differences across these groups do not reach statistical significance, probably due to small numbers of cases in the functionally limited subgroups.

A large proportion—about 42 percent—of the California population was unemployed at least once during the past five years. Despite the fact that persons with functional limitation have much higher unemployment rates at the time of the survey than those without limitation (see discussion of Table 2, above), there are no differences among the functional status groups in the proportion of currently employed persons who were unemployed at any point in the past five years. However, for those who were unemployed during the past year, a moderate association exists between functional limitation status and the number of weeks of unemployment, although this association fails to meet the traditional criterion for statistical significance. Persons with no limitation report a mean of 12.8 weeks of unemployment in the year prior to the survey, compared to 16.9 and 20.0 weeks among those with a little and a lot of limitation, respectively.

Among those persons who are out of the labor force, the unadjusted proportion wanting to work declines sharply with increasing degrees of functional limitation. The mean length of time wanting work increases with increased limitation in functioning, although this difference does not reach statistical significance. The unadjusted proportions also indicate that, among those wanting work, persons with a little limitation are the least likely to be actively seeking work, with 22.8 percent looking for a job in the past four weeks, followed by 30.3 and 46.6 percent of those with a lot of limitation and no limitation, respectively. Much of this observed variation, however, can be attributed to age- and gender-related differences in wanting and seeking work. After adjusting for age and gender, none of the differences remain statistically significant.

DISCUSSION

This analysis of California adults in households with telephones indicates that persons with functional limitation are less likely to be in the labor force, and more likely to be unemployed, to work part time, or to hold temporary jobs, particularly if they report a lot of physical limitation. However, the CWHS does not give evidence of differences based on functional limitation status in size of firm, benefits, likelihood of self-employment, or working at home.

The similarities found in many of these quantitative aspects of employment across functional limitation status groups may mask differences in the quality of the employment experience for persons with and without functional limitation. Persons with a lot of functional limitation report that they have less autonomy, more time pressure, and fewer opportunities for advancement in their current job. They are also less optimistic about their future prospects, and more likely to have had major problems caused by job loss in the past. All of these factors may present risks for poor employment and health outcomes in the future.

While most of the differences reported here are between persons with any functional limitation and those with none, persons with a little limitation seem to differ from those with a lot in several important ways. Those with a little limitation are twice as likely to have a job as those with a lot of limitation, and employed persons with a little limitation are less than half as likely to work part time as their counterparts with a lot of limitation. The relative frequency of employment in the skilled trades for the three functional limitations groups is an example of how those with a little and a lot of functional limitation differ from each other and from those with no limitation ($p.$ = .06) Persons with a little functional limitation are almost twice as likely to work in these occupations than those with no limitation, and more than three times more likely than those with a lot of limitation. This pattern may indicate that such jobs put people at risk for disability, but that once the level of limitation reaches a certain point, an individual is unable to continue in the job. Such a conclusion must be considered speculative, in light of the cross-sectional design of the CWHS, and of the small number of employed persons with a lot of functional limitations. Moreover, this pattern is not apparent for the other highly physically demanding occupations, such as operators and laborers.

By delving into the employment experience of persons with and without disability, the California Work and Health Survey has broken new ground in employment and disability research. However, as is often the case with a new endeavor, the survey has certain limitations. First, the cross-sectional nature of CWHS does not allow us to draw conclusions about directions of causality with respect to functional limitation status and employment characteristics. For example, the employment patterns seen here may be due to changes made in response to the onset of disability. Or, it may be that different job situations present varying degrees of risk for developing functional limitations. Both of these relationships could, in fact, exist simultaneously. Only a longitudinal study would enable us to track the effect of the employment situation on disability status and the effect of disability on employment. Confounding by variables other than age and gender may also be influencing our results.

One of the less-developed concepts in research in disability and employment that we explore here is underemployment. This concept may become important as a refined measure of progress under the ADA employment provisions. Yet, the information available in the CWHS for measuring underemployment is limited by the lack of detail on individual earnings. This prevents us from comparing respondents' actual earnings to the mean earnings reported in national surveys for their occupation groups. Thus, an individual who is employed in an occupation typical for his/her age, gender, and educational level, but who is nevertheless earning below the average for his/her age, gender, education, and occupation, would not be included in our measure of underemployment, but could certainly be considered underemployed. A recent analysis of the Current Population Survey indicates that persons with disabilities earn less than those without at the same levels of education, after adjusting for age, gender and occupation. (Yelin, 1996). The second measure of underemployment—household earnings under 125 percent of poverty—would also be improved with the use of individual earnings, to account for the fact that some members of a household may compensate for the lower earnings of a person with disabilities by increasing the house-

hold's hours of employment.

Clogg and Sullivan (1983) suggest three properties of underemployment: inadequate use of skills, inadequate income, and inadequate hours of work. The first two properties align with the two measures described above. The third property is captured in the CWHS by a question that asks part-time employees whether they work part time due to the inability to find satisfactory employment or because of personal circumstances or family obligations. We consider the former response to be indicative of involuntary part-time employment, and found no differences based on disability status. However, the complex interactions between the personal circumstances of those with disabilities and the social and physical environments in which they live and work may blur the distinction between voluntary and involuntary part-time employment for this group. For example, the added time required to get to work due to special transportation needs might preclude full-time employment, but nevertheless be viewed by the respondent as related to personal circumstances. We may therefore be underreporting this aspect of underemployment for persons with disabilities.

The particularities of the California economy may limit the generalizability of our findings to other regions of the country. In July 1996, the California economy was still lagging somewhat behind the national economy, as evidenced by an unemployment rate that was two percentage points higher in California than in the nation as a whole. Numerous researchers have suggested that persons with disabilities are part of a secondary labor market, and as such, have particularly high unemployment rates during slower economic periods. In that case, we would expect that the unemployment rates among persons with disabilities in California during this period would be elevated relative to those of the entire U.S. population with disabilities. In addition, those Californians with disabilities who were employed during this period may represent a special subgroup of the disabled population with more secure employment. It may be, therefore, that the higher proportion of persons with functional limitation than without who are dissatisfied with their job security should be viewed as a conservative estimate of the differences between persons with and without disabilities.

Despite these limitations, this analysis has identified several important differences in the quality of the employment experience for persons with and without functional limitation. Of serious concern are the differences in autonomy and time pressures reported by persons with severe functional limitations. In order to remain employed, persons with disabilities may need flexibility in scheduling of work activities and in the manner in which their jobs are performed. Such accommodations are now mandated by the Americans with Disabilities Act of 1990 (Feldblum, 1991). In addition, prior research has linked job autonomy with continued employment among persons with disabilities. Thus, the lower degree of autonomy and the greater time pressures reported by persons with severe functional limitations in California bode poorly for their long-term ability to remain in the labor force, and may indicate that persons with disabilities are not receiving the accommodations needed to maintain employment.

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LIST OF DETAILED TABLES

Table 1. Rates of Functional Limitation by Demographic Characteristics, and Health Insurance and Home Ownership Status.

	All persons		Functional limitation status							
			None		A little		A lot		Statistical test	
	N	(%)	*N*	(%)	*N*	(%)	*N*	(%)	χ^2	p
All persons	2,293	100.0	1,839	80.2	230	10.0	224	9.8		
Gender									42.9	<0.001
Men	1,122	100.0	961	85.7	78	7.0	83	7.4		
Women	1,171	100.0	878	75.0	152	13.0	141	12.0		
Age									212.1	<0.001
18–24	351	100.0	311	88.6	25	7.1	14	4.0		
25–44	1,041	100.0	902	86.6	93	8.9	47	4.5		
45–64	550	100.0	433	78.7	42	7.6	76	13.8		
65+	351	100.0	193	55.0	71	20.2	87	24.8		
Race/ethnicity									1.7	0.42
White	1,402	100.0	1,128	80.5	133	9.5	140	10.0		
Non-white	892	100.0	711	79.7	97	10.9	84	9.4		
Education									64.9	<0.001
Did not finish high school	528	100.0	379	71.8	70	13.3	80	15.2		
High school graduate	498	100.0	373	74.9	67	13.5	58	11.6		
Some college	716	100.0	599	83.7	60	8.4	58	8.1		
College graduate	550	100.0	487	88.5	34	6.2	29	5.3		
Marital Status									116.8	<0.001
Married	1,239	100.0	1,024	82.6	125	10.1	90	7.3		
Widowed/separated/divorced	498	100.0	325	65.3	69	13.9	104	20.9		
Never married	547	100.0	482	88.1	36	6.6	29	5.3		
Born in U.S.									10.1	0.01
No	510	100.0	419	82.2	58	11.4	32	6.3		
Yes	1,782	100.0	1,417	79.5	173	9.7	192	10.8		
Household size									57.1	<0.001
One person	480	100.0	339	70.6	54	11.3	87	18.1		
Two or more persons	1,799	100.0	1,485	82.5	176	9.8	137	7.6		
Children under 18									26.2	<0.001
None	1,413	100.0	1,098	77.7	141	10.0	174	12.3		
Any	865	100.0	726	83.9	89	10.3	50	5.8		
Health Insurance (<65 only)									0.5	0.80
No	482	100.0	411	85.3	40	8.3	30	6.2		
Yes	1,446	100.0	1,225	84.7	116	8.0	105	7.3		
Own home									3.6	0.17
No	1,069	100.0	843	78.9	106	9.9	120	11.2		
Yes	1,202	100.0	976	81.2	123	10.2	104	8.7		

Source: California Work and Health Survey, July 1996.

Note: All estimates have been weighted to account for oversampling. Some columns do not sum to total due to missing data and rounding of weighted estimates.

Table 2. Labor Force Status, Industry and Occupation, and Hours and Terms of Employment, by Functional Limitation Status.

	All persons	Functional limitation status				
		None	A little	A lot	Statistical test	
	N	*N*	*N*	*N*		
All persons	2,293	1,839	230	224		
Labor Force Status		Percent			χ^2	p
Labor force participation rate	66.6	73.6	51.6	24.9	227.1	<0.001
Employment/population ratio	59.7	66.8	42.9	18.9	223.0	<0.001
Unemployment rate	10.4	9.2	16.9	24.2	15.4	<0.001
% living in counties with high unemployment[1]	12.7	12.2	14.9	15.0	2.4	0.30
	N	*N*	*N*	*N*		
All employed persons	1,366	1,225	99	42		
		Percent			χ^2	p
Self-employed	20.7	20.9	16.4	24.1	1.5	0.47
% of self-employed wanting to remain self-employed	83.9	84.7	74.1	76.4	1.1	0.57
Employed part time	18.6	18.0	18.7	34.9	6.6	0.04
% of part-time workers working part time for economic reasons	23.0	22.7	25.3*	24.8*	0.1	0.96
Usual hours worked		Mean hours per week			F	*p*
All workers	41.9	42.1	41.8	37.4	2.7	0.07
Full-time workers	46.1	46.2	45.8	46.4	0.1	0.94
Part-time workers	23.6	23.7	24.6	20.7	1.8	0.16
Industry						
Percentage in:		Percent			χ^2	p
Manufacturing	15.3	15.1	19.6	11.1*	1.6	0.44
Wholesale/retail trade	15.7	16.0	10.3	17.8*	2.6	0.28
Household service	16.1	15.6	22.7	15.6*	3.2	0.20
Other service	9.1	8.9	10.3	11.1*	0.4	0.81
Utilities	3.9	4.2	1.0*	2.2*	3.6	0.16
Construction	7.1	7.3	6.2*	6.7*	0.4	0.82
Professional services	14.7	15.3	9.3*	8.9*	4.6	0.10
Government	9.6	9.4	8.2*	17.8*	2.9	0.24
Other	8.5	8.2	12.4	8.9*	1.8	0.40
Occupation						
Percentage in:		Percent			χ^2	p
Professions	18.1	17.9	21.4	12.5*	1.6	0.44
Managers	19.0	19.0	15.3	27.5	2.9	0.23
Technical/sales	30.0	30.4	24.5	35.0	1.9	0.38
Service	10.0	9.7	11.2	17.5*	2.3	0.32
Farm/fish/forest	2.7	2.7	3.1*	–	–	–
Skilled trades	9.7	9.4	16.3	5.0*	5.7	0.06
Operators/laborers	10.6	11.0	8.2*	2.5*	4.0	0.14

Source: California Work and Health Survey, July 1996.

Note: All estimates have been weighted to account for oversampling.

[1] Based on 1996 average county unemployment rates, from California Employment Development Department, Labor Market Information Division. Counties above the median are considered to have high unemployment, with 1996 rates between 9.2 and 29.4 percent. California average unemployment was 7.2 percent in 1996.

* Relative Standard Error (RSE) > 30%

– Cannot calculate statistical test.

Table 3. Objective Employment Characteristics, by Functional Limitation Status.

	All persons	Functional limitation status				
		None	A little	A lot	Statistical test	
	N	*N*	*N*	*N*		
All employed persons	1,366	1,225	99	42		
		Percent of employed persons			χ^2	p
Work in large firm 50+ employees	57.4	57.7	54.7	55.0	0.4	0.814
Work in high-tech job[1]	37.3	38.1	33.8	20.5*	3.8	0.15
Work in exports[1]	29.7	29.8	30.5	22.1*	1.0	0.61
Work at home	10.2	10.4	7.5*	11.5*	1.0	0.62
Had pay cut in past 5 years[2]	11.6	11.7	10.2*	13.0*	0.2	0.89
Have a temporary job	2.4	2.0	6.2*	4.8*	5.9	0.05
Have health benefits from job	56.3	56.8	49.9	54.1	1.8	0.40
		Mean years in current job			F	p
Length of time at this job	7.0	6.9	8.3	8.1	2.0	0.14
		Percent underemployed			χ^2	p
Underemployment[3]	34.6	35.6	29.0	20.1*	6.0	0.05
		Percent			χ^2	p
Household income below 125% of poverty threshold	7.2	6.7	10.6*	11.9*	2.9	0.24

Source: California Work and Health Survey, July 1996.
Note: All estimates have been weighted to account for oversampling.

* Relative Standard Error (RSE) > 30%

[1] Asked only of those employed in retail or wholesale trade, manufacturing, financial, business or professional services, or "other" industries.

[2] Not asked of the self-employed.

[3] Underemployment is defined as employment in an occupation with median earnings below the 40th percentile of earnings for one's age, gender and education.

Table 4. Subjective Employment Characteristics, by Functional Limitation Status.

	All persons	Functional limitation status			Statistical test	
		None	A little	A lot		
	N	*N*	*N*	*N*		
All employed persons	1,366	1,225	99	42		
		Percent			χ^2	p
Number of hours worked						
More than want	38.1	38.2	36.5	37.9	0.1	0.94
Fewer than want	16.5	16.0	21.0	21.7	2.4	0.31
Job prospects[1]						
Percentage who say that:						
Raise very unlikely in year following survey	36.5	36.3	33.9	50.5	3.2	0.21
Layoff very likely in year following survey	6.3	6.3	5.7*	6.0*	0.1	0.97
Very worried new job would be worse than current job	30.4	29.6	39.6	32.5	3.7	0.16
Job satisfaction						
Percentage *very dissatisfied* with:						
Job (overall)	2.9	2.8	4.6*	2.2*	1.0	0.60
Work hours	5.9	5.9	6.2*	5.2*	0.1	0.97
Health benefits	21.6	21.6	20.2	26.7	0.7	0.69
Opportunities to increase skills	7.9	7.1	13.4	19.2*	10.0	0.01
Job security	6.8	6.3	7.5*	18.9*	7.3	0.03
Opportunities for advancement	15.1	14.2	16.0	39.8	15.9	<0.001
Health & safety	4.7	4.5	6.4*	6.9*	1.1	0.58
Salary or rate of pay	9.3	9.3	9.8*	10.3*	0.1	0.96
Job content						
Percentage who say that:						
Job does not require learning new things	5.2	5.0	7.8*	1.9	2.5	0.29
Have little freedom to decide how to do work	13.6	12.3	21.9	31.3	15.6	<0.001
Do not have enough time to get the job done	10.6	9.8	16.6	20.2*	7.4	0.02
Effect of job on health						
Percentage who feel that:						
Job has very negative effect on health	2.7	2.7	1.3*	6.6*	2.7	0.27
Job creates a serious problem regarding:						
Stress	40.8	39.3	50.6	61.2	12.0	<0.01
Fatigue	30.5	28.8	45.5	44.1	14.7	<0.001
Eye strain	24.2	23.7	31.8	20.8*	3.3	0.19
Back pain	22.2	19.6	42.3	50.0	39.7	<0.001

Source: California Work and Health Survey, July 1996.

Note: All estimates have been weighted to account for oversampling.

* Relative Standard Error (RSE) > 30%

[1] These questions not asked of the self-employed.

Table 5. Job Loss, Displacement, and Unemployment Among Persons In and Out of Labor Force, by Functional Limitation Status.

	All persons	Functional limitation status			Statistical test	
		None	A little	A lot		
	N	*N*	*N*	*N*		
All persons in labor force	1,524	1,350	119	56		
	Percent				χ^2	p
Job loss in past 5 years	30.0	29.9	31.4	30.5	0.1	0.94
Job loss in past year	11.1	10.7	15.8	12.5*	2.8	0.25
Displacement[1]	13.7	13.9	12.5	12.4*	0.3	0.88
	Percent of those with job loss in past 5 years					
Loss of job created major problem in life	46.1	44.8	48.2	74.2	5.5	0.06
Went without health insurance	60.8	59.5	67.3	80.6	0.2	0.92
New job had lower salary	38.7	38.3	36.2	55.2	1.1	0.57
	Mean number of months, if ever				F	p
Length of time to find another job	6.8	6.7	7.7*	5.7	0.1	0.90
	N	*N*	*N*	*N*		
All employed persons	1,366	1,225	99	42		
	Percent				χ^2	p
Unemployment in past 5 yrs	41.9	42.2	38.9	39.4	0.5	0.77
Unemployment in past year	17.3	17.3	17.1	20.4*	0.3	0.88
	Mean number of weeks				F	p
Weeks unemployed in year	13.4	12.8	16.9	20.0	2.1	0.12
	N	*N*	*N*	*N*		
All persons out of labor force	769	489	112	168		
	Percent				χ^2	p
Would like to work	27.7	33.3	23.4	14.2	25.8	<0.001
	Mean number of years				F	p
Number of years wanting work	3.3	2.9	3.8	5.8*	1.8	0.18
	Percent of those wanting to work				χ^2	p
Actively seeking work	41.8	46.6	22.8*	30.3	7.0	0.03

Source: California Work and Health Survey, July 1996.

Note: All estimates have been weighted to account for oversampling.

* Relative Standard Error (RSE) > 30%

[1] Displacement is defined as loss of a job held longer than three years.

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