HEALTH, PREVENTIVE HEALTH CARE, AND HEALTH CARE ACCESS AMONG WOMEN WITH DISABILITIES IN THE 1994–1995 NATIONAL HEALTH INTERVIEW SURVEY, SUPPLEMENT ON DISABILITY

Frances M. Chevarley, PhD[a]*, JoAnn M. Thierry, PhD[b], Carol J. Gill, PhD[c],
A. Blythe Ryerson, MPH[b], and Margaret A. Nosek, PhD[d]

[a]*Agency for Healthcare Research and Quality, Rockville, Maryland*
[b]*Centers for Disease Control and Prevention, Atlanta, Georgia*
[c]*University of Illinois at Chicago, Chicago, Illinois*
[d]*Baylor College of Medicine, Houston, Texas*

Objectives. **This study presents national estimates on the health, preventive health care, and health care access of adult women with disabilities. We compared women with 1 or 2 functional limitations (FLs) and ≥3 FLs with women with no FLs. Topics covered included demographic characteristics, selected reported health measures, selected clinical preventive services, and selected access to care indicators and health care coverage.**

Methods. **Estimates in this report were based on data from the 1994–1995 National Health Interview Survey, Supplement on Disability (NHIS-D). The sample size for women ≥18 years of age used in producing the estimates from the combined 1994 and 1995 NHIS-D was 77,762.**

Results. **An estimated 16% of women ≥18 years of age had difficulty with at least 1 FL. Women with FLs were less likely to rate their health as excellent or very good and more likely to report their health as fair or poor when compared with women with no FLs. Women with FLs were also more likely to report being a current smoker, having hypertension, being overweight, and experiencing mental health problems. Among women ≥65 years of age, those with FLs were also less likely to have received Pap smear tests within the past year and those with ≥3 FLs were less likely to have received mammograms within the past year than women with no FLs. Women with ≥3 FLs were more likely to report being unable to get general medical care, dental care, prescription medicines, or eyeglasses, regardless of age group, compared with women with no FLs. The main reasons reported for being unable to receive general care were financial problems or limitations in insurance. These findings suggest that increased attention to the health care needs of women with disabilities from researchers, clinicians, and public health professionals is warranted.**

The study of the health of women with disabilities began only a decade ago when a few researchers challenged 2 entrenched stereotypes—that disability is the opposite of health and that gender is far less important than the characteristics of a disability itself. This

interest in research on women with disabilities followed increased interest in wellness, women's health, and prevention of secondary conditions in people with disabilities. Several researchers and advocates for issues of concern to women with disabilities noted the gap in information about disability and gender (Altman, 1985; Deegan & Brooks, 1985; Fine & Asch, 1985). Before 1990, only 1 publication reported demographics about women with disabilities using national population-based data (Bowe, 1984), and only a few reported on access to

* Correspondence to: Frances M. Chevarley, PhD, Center for Financing Access and Cost Trends, Agency for Healthcare Research and Quality (AHRQ), 540 Gaither Road, Rockville, MD 20850.
E-mail: Fran.Chevarley@AHRQ.hhs.gov.

benefits for women with disabilities (Johnson, 1979; Kutza, 1981; Mudrick, 1988). Although some publications about people with disabilities included information about women with disabilities (Collins, 1993; LaPlante, 1988, 1991; McNeil, 1993, 1997), statistical information about risks, causes, and consequences of disability among women at the national level was not studied until 1996 (Altman, 1996). One study compiled data from multiple national statistical sources and individual research studies on the demographics, education, employment, and health status of girls and women with disabilities (Jans & Stoddard, 1999). However, this research addressed only a few health-related questions, and many of the study's comparisons focused on differences between women with disabilities and men with disabilities, rather than on health differences between women with and women without disabilities or differences between women with varying levels of disability.

Few studies to date have examined selected health issues for women with functional limitations (FLs) using data from the National Health Interview Survey (NHIS) Disability supplement conducted in 1994–1995. A study in 1998 (Centers for Disease Control and Prevention [CDC], 1998) examined breast and cervical cancer screening use and found that older women with ≥3 FLs were less likely than women with no limitations to receive screenings within the recommended time frame. These results were confirmed by studies in 2000 (Iezzoni, McCarthy, Davis, & Siebens, 2000) and 2001 (Iezzoni, McCarthy, Davis, Harris-David, & O'Day, 2001) that examined the use of screenings and preventive services among adults with mobility impairment and among women with disabilities, respectively. The 2000 study found that women with major mobility difficulties were significantly less likely to receive a Papanicolaou test or mammography, even after controlling for demographic characteristics and health care access. Reasons suggested in the 2000 study were shortened appointment times, physically inaccessible care sites, and inadequate equipment. The 2001 study found that although "disabled women generally reported screening and preventive services at rates comparable to all women, [women] with major lower extremity mobility difficulties had much lower adjusted odds of Papanicolaou smears, . . . mammograms, . . . and smoking queries" (Iezzoni et al., 2001, p. 135). The 2001 study also looked at conditions such as obesity and depression and found disparities for women with disabilities.

The purpose of this study is to explore health disparities between women with and without disabilities. Our study will add to the existing body of knowledge by using nationally representative data (including age-specific and age-adjusted findings) to examine a broad array of variables that have been linked to health.

National, population-based data on US women with disabilities are available from 4 primary sources. The NHIS is an annual nationwide household survey of the US civilian noninstitutionalized population, sponsored by the National Center for Health Statistics (NCHS) of the CDC. The 1994 and 1995 NHIS included a Disability Supplement (NHIS-D) consisting of an extensive set of items on many dimensions of the impact of disability on health and daily life, thereby creating a database of unparalleled scope on disability. The Survey of Income and Program Participation, a sample household survey of the civilian noninstitutional US population conducted by the US Census Bureau, is an ongoing study of economic well-being that periodically includes questions on disability. The Medical Expenditure Panel Survey, the third in a series of national probability surveys of the US civilian population, is conducted by the Agency for Healthcare Research and Quality and focuses on the cost and use of medical care in the United States. Finally, the Behavioral Risk Factor Surveillance System (BRFSS) is the CDC's unique state-based surveillance system used to collect data through monthly telephone interviews with civilian, noninstitutional US adults about major health risk behaviors. The BRFSS included a disability module in 1998–2000, but the questions were limited in scope and were administered in only 14 states. Two of these disability questions were added to the core questionnaire on a provisional basis in 2001. Beginning in 2003, these 2 items were made part of the annual core questionnaire and are now administered in all states. Within each of these 4 data sources, however, few analyses have specifically addressed women with disabilities.

We used the 1994–1995 NHIS-D to analyze data on health, preventive health care, and health care access of women with disabilities because of its unprecedented breadth of coverage of disability characteristics and its relevance to health issues raised in *Healthy People 2010* (US Department of Health and Human Services, 2000), including many of the leading indicators of health status (e.g., overweight and obesity [objective 19-2], tobacco use [objective 27-1a], substance abuse [objectives 26-10c and 26-11c], mental health [objective 18-9b], and access to health care [objectives 1-1 and 1-4a]). Of the disability-related *Healthy People 2010* objectives, we analyzed data regarding depression (objective 6-3), social participation (objective 6-4, operationalized in this study as education, marital status, and living arrangement), and employment (objective 6-8).

Widely disparate variables chosen to define disability complicate analyses of population-based data. Commonly accepted measures of disability focus on activity limitations ranging from personal care (e.g., bathing and eating) to social participation (e.g., employment and recreation). These definitions allow inclusion of people with many types of disabling conditions, including sensory, cognitive, emotional, and physical impairments and chronic health conditions. Although sensory, cogni-

tive, and emotional impairments can have concomitant physical symptoms, we were interested primarily in the effects of limitations in physical functioning on health, preventive health care and health care access. Therefore, we used *functional limitation*, a measure of physical functioning—which the NHIS-D clearly operationalized—to define parameters for our sample, instead of other variables, such as impairment category or activity limitation. We compared women with FLs—1 or 2 FLs and ≥3 or more FLs—with women who had no FLs. We chose these groups, rather than men with or without FLs, to enable close examination of conditions unique to women (such as breast and cervical cancer screening) and conditions that, in the literature, disproportionately affect women or affect women differently from men (such as depression, hypertension, unemployment, and lack of health insurance). By holding gender constant, we could focus on the effect of disability.

We examined disparities between women with and without FLs across a broad array of variables that have been empirically linked to health. Data fell logically into 4 categories: 1) demographic characteristics, 2) reported health measures, 3) clinical preventive services, and 4) access to care indicators and health insurance coverage.

Data and Methods

Survey Procedures

Data for this report are from the 1994–1995 NHIS-D. The NHIS has been in the field continuously since 1957. It collects data on the personal, sociodemographic, and health characteristics of all people in the sampled households. The survey includes a "core" set of questions used to collect comprehensive health status, health care use, and sociodemographic information; these "core" questions are updated approximately every 10 years. In addition, the NHIS includes special supplements with topics, questions, or both that might change from year to year. Key information about the NHIS survey, including details of the sample design and questionnaire contents, can be found in NCHS publications (Adams & Marano, 1995; Benson & Marano, 1998).

During 1994–1995, the CDC, 12 other federal agencies, and 1 foundation sponsored a disability survey as a special supplement to the NHIS (the NHIS-D). The NHIS-D was fielded in 2 phases: the Phase I Disability Supplement took place during the same interview as the core NHIS, during which a knowledgeable adult family member, along with other adults who might have been present during the interview, answered questions about disability (e.g., specific conditions, activity limitations, impairments, FLs, and participation restrictions) for themselves and for each family member. The Phase II Disability Supplement followed

up on people identified in Phase I as having a disability and asked those people more detailed, disability-related questions.

For this report, we used information from the 1994–1995 core NHIS, as well as the Phase I Disability Supplement. We also used information from the following additional supplements to the 1994–1995 NHIS: Family Resources (including access to care, health care coverage, and detailed income); and Year 2000 Objectives (including environmental health, tobacco, heart disease and stroke, and clinical preventive services). This report presents the findings from these linked data; the sample size of women ≥18 years of age from the 1994–1995 combined Phase I Disability Supplement was 77,762.

Analysis

We estimated numbers of women, and age-specific (for age categories 18–44 years, 45–64 years, and ≥65 years of age), and age-adjusted percentage distributions for women ≥18 years of age, according to specified characteristics and number of FLs. Age-adjusted percentage distributions were calculated because they are better indicators than unadjusted percentage distributions when comparisons are made between women with and women without FLs. Age-adjusted percentages were based on the projected 2000 Census total population using the following age categories: 18–24 years, 25–34 years, 35–44 years, 45–64 years, 65–74 years, 75–84 years, and ≥85 years of age (Day, 1996).

Estimated frequencies, percentages, and standard errors were calculated using SUDAAN, a statistical program for survey data analysis that adjusts for the effects of complex sampling designs (Shah, Barnwell & Bieler, 1997) Additional information about SUDAAN can be obtained from the website (www.rti.org/sudaan/). Two-sided *z*-tests with Bonferroni adjustments for multiple comparisons were used to assess statistical significance of differences. Statistical significance for comparisons by FL are indicated in the tables for $p \leq .01$ and for $.01 < p \leq .05$. All differences discussed in the text were statistically significant at the 0.05 level or better.

The tables include only age-adjusted (Tables 1–4) and very limited age-specific percentages (Table 5) because of space considerations. Additional age-specific tables (≥18 years of age, 18–44 years, 45–64 years, and ≥65 years of age) are available from the authors.

Measures

Disability. We identified women as having a disability by FL status. Respondents were asked in the NHIS-D whether they or a family member had difficulty with ≥1 of the following 8 FLs: a) lifting 10 pounds; b) walking up 10 steps without resting; c) walking ¼ mile; d) standing for about 20 minutes; e) bending

Table 1. Age-Adjusted Percentage Distributions (With Standard Errors) of Selected Demographic Characteristics for Women ≥18 Years of Age According to Number of Functional Limitations: United States, 1994 and 1995

Selected Demographic Characteristics	Number of Functional Limitations ,Percent distributions (standard errors)						Significance		
	None		1–2		≥3		None vs 1–2	None vs ≥ 3	1–2 vs ≥3
Race and Hispanic origin	100.0		100.0		100.0				
White, non-Hispanic	75.7	(0.4)	75.5	(0.9)	70.1	(1.2)		‡	‡
Black, non-Hispanic	11.1	(0.3)	12.4	(0.7)	18.0	(1.0)		‡	‡
Hispanic	8.6	(0.2)	8.5	(0.6)	8.7	(0.7)			
Other	4.7	(0.2)	3.5	(0.4)	3.2	(0.4)	†	‡	
Marital status	100.0		100.0		100.0				
Married	62.5	(0.2)	55.0	(0.8)	47.6	(1.2)	‡	‡	‡
Widowed	10.1	(0.1)	12.6	(0.3)	14.0	(0.4)	‡	‡	‡
Divorced/separated	10.9	(0.1)	15.7	(0.6)	20.1	(0.8)	‡	‡	‡
Never married	16.3	(0.2)	16.6	(0.7)	17.8	(1.1)			
Living arrangement[1]	100.0		100.0		100.0				
Living alone	14.8	(0.2)	17.7	(0.6)	20.4	(0.9)	‡	‡	†
Living with others	85.2	(0.2)	82.3	(0.6)	79.6	(0.9)	‡	‡	†
Only children <18 years of age	5.7	(0.1)	10.9	(0.6)	14.2	(1.0)	‡	‡	†
Only adults ≥18 years of age	54.3	(0.2)	52.6	(0.8)	50.0	(1.3)		‡	
Both children and adults	39.9	(0.2)	36.5	(0.9)	35.8	(1.2)	‡	‡	
Education	100.0		100.0		100.0				
Less than high school	16.8	(0.2)	26.7	(0.8)	35.8	(1.1)	‡	‡	‡
High school graduate	38.7	(0.3)	40.2	(0.8)	38.1	(1.2)			
College, <4 years	23.2	(0.2)	19.5	(0.7)	17.3	(1.0)	‡	‡	
College, ≥4 years	20.6	(0.2)	12.9	(0.5)	8.3	(0.6)	‡	‡	‡
Employment status	100.0		100.0		100.0				
Currently employed	60.4	(0.2)	45.8	(0.8)	26.3	(1.1)	‡	‡	‡
Unemployed	2.7	(0.1)	3.4	(0.3)	4.4	(0.7)		†	
Not in labor force	36.9	(0.2)	50.8	(0.8)	69.3	(1.1)	‡	‡	‡
Monthly household income[2]	100.0		100.0		100.0				
<$1,000	16.1	(0.2)	27.8	(0.8)	39.1	(1.2)	‡	‡	‡
$1,000–$1,999	20.6	(0.2)	24.6	(0.7)	25.7	(1.0)	‡	‡	
$2,000–$2,999	17.8	(0.2)	17.4	(0.6)	13.5	(0.7)		‡	‡
$3,000–$3,999	13.7	(0.2)	10.6	(0.5)	9.2	(0.8)	‡	‡	
≥$4,000	31.8	(0.3)	19.6	(0.7)	12.5	(0.7)	‡	‡	‡
Poverty	100.0		100.0		100.0				
At or above poverty level	82.8	(0.3)	71.5	(0.8)	61.8	(1.3)	‡	‡	‡
Below poverty level	9.4	(0.2)	20.7	(0.7)	29.1	(1.2)	‡	‡	‡
Sources of income[3]	100.0		100.0		100.0				
Disability income only[4]	1.1	(0.0)	6.8	(0.5)	19.6	(0.9)	‡	‡	‡
Other Government income only[5]	5.3	(0.1)	12.1	(0.6)	16.8	(1.0)	‡	‡	‡
Both[6]	0.3	(0.0)	2.8	(0.3)	7.7	(0.6)	‡	‡	‡
Neither[7]	93.3	(0.1)	78.3	(0.8)	55.9	(1.2)	‡	‡	‡
Place of residence	100.0		100.0		100.0				
Metropolitan statistical area	79.3	(0.5)	76.6	(0.8)	75.6	(1.0)	†	‡	
Not metropolitan statistical area	20.7	(0.5)	23.4	(0.8)	24.4	(1.0)	†	‡	
Geographic region	100.0		100.0		100.0				
Northeast	21.4	(0.3)	17.2	(0.7)	17.5	(0.8)	‡	‡	
Midwest	24.5	(0.4)	23.7	(0.8)	23.1	(1.1)			
South	33.3	(0.5)	35.6	(1.0)	39.2	(1.3)		‡	
West	20.7	(0.4)	23.5	(1.0)	20.2	(1.0)	†		

(0.0) Quantity more than zero but < .05.

Notes: Percentages do not necessarily add up to 100 because of missing values and/or rounding. Standard errors were calculated using SUDAAN Release 7.50.

[1]In a small number of cases there is a discrepancy between the family relationship and relationship to reference person variables due to the exclusion of military persons.

[2]Household income is imputed for missing values.

[3]"Sources of income" includes disability-related income and other government income.

[4]"Disability income only" includes people with social security or railroad retirement income due to their own disability; people <65 years of age with supplemental security income; or people with other disability pensions.

[5]"Other government income only" includes people ≥65 years of age receiving public assistance or welfare, food stamps, or supplemental security income.

[6]The category "Both" includes people with both disability income and other government income.

[7]The category "Neither" includes people with neither disability income nor with other government income.

†Indicates significance (.01 < p ≤ .05) based on a 2-sided z-test with Bonferroni adjustment.

‡Indicates significance (p ≤ .01) based on a 2-sided z-test with Bonferroni adjustment.

Table 2. Age-Adjusted Percentage Distributions (with Standard Errors) of Selected Reported Health Measures for Women ≥18 years of Age According to Number of Functional Limitations: United States, 1994 and 1995

Selected Reported Health Measures	Number of Functional Limitations Percent distributions (standard errors)						Significance		
	None		1–2		≥3		None vs 1–2	None vs ≥3	1–2 vs ≥3
General Health									
Health status	100.0		100.0		100.0				
Excellent	32.4	(0.3)	11.2	(0.5)	3.4	(0.4)	‡	‡	‡
Very good	32.2	(0.2)	20.2	(0.6)	10.4	(0.9)	‡	‡	‡
Good	27.2	(0.2)	35.0	(0.8)	22.4	(0.9)	‡	‡	‡
Fair	6.6	(0.1)	24.6	(0.7)	32.0	(1.1)	‡	‡	‡
Poor	0.9	(0.0)	8.3	(0.4)	31.2	(1.1)	‡	‡	‡
Unknown[1]	0.7	(0.0)	0.7	(0.1)	0.6	(0.1)			
Physical health									
Told had hypertension ≥2 times[2]	100.0		100.0		100.0				
Yes	14.8	(0.4)	26.7	(1.8)	33.7	(1.9)	‡	‡	†
No	83.4	(0.5)	70.5	(1.8)	63.9	(2.1)	‡	‡	
Unknown[1]	1.8	(0.1)	*2.8	(0.9)	*2.4	(0.9)			
Now has hypertension[2]	100.0		100.0		100.0				
Yes	7.3	(0.3)	16.2	(1.7)	19.8	(1.5)	‡	‡	
No	90.1	(0.3)	79.5	(1.7)	74.6	(1.9)	‡	‡	
Unknown[1]	2.6	(0.2)	4.2	(1.0)	5.6	(1.2)		†	
Smoking in the home[2]	100.0		100.0		100.0				
Yes	29.4	(0.6)	39.8	(2.1)	44.0	(2.8)	‡	‡	
No	69.9	(0.6)	59.5	(2.2)	55.8	(2.8)	‡	‡	
Unknown[1]	0.7	(0.1)	*0.7	(0.6)	*0.1	(0.1)			
Smoking status[3,4]	100.0		100.0		100.0				
Never smoked	58.3	(0.4)	45.2	(1.6)	47.3	(2.1)	‡	‡	
Current smoker	21.5	(0.4)	33.3	(1.7)	32.3	(1.8)	‡	‡	
Former smoker	19.5	(0.4)	21.0	(1.2)	20.1	(1.8)			
Smoker, don't know current status[1]	0.1	(0.0)	*0.0	(0.0)	*0.1	(0.1)			
Don't know if ever smoked[1]	0.6	(0.1)	*0.5	(0.2)	*0.2	(0.1)			
Body mass index	100.0		100.0		100.0				
Underweight	8.6	(0.1)	6.9	(0.5)	9.7	(0.9)	‡		†
Average	66.6	(0.2)	52.7	(0.9)	43.9	(1.2)	‡	‡	‡
Overweight	21.6	(0.2)	37.2	(0.8)	43.2	(1.2)	‡	‡	‡
Unknown[1]	3.2	(0.1)	3.1	(0.3)	3.2	(0.4)			
Mental health									
Frequently depressed/anxious	100.0		100.0		100.0				
Yes	4.1	(0.1)	18.4	(0.6)	34.5	(1.2)	‡	‡	‡
No	95.1	(0.1)	81.2	(0.6)	64.9	(1.2)	‡	‡	‡
Unknown[1]	0.8	(0.1)	0.4	(0.1)	0.6	(0.2)			
Major depression in past 12 months	100.0		100.0		100.0				
Yes	1.2	(0.1)	5.8	(0.4)	13.6	(0.8)	‡	‡	‡
No	98.0	(0.1)	93.8	(0.4)	85.9	(0.8)	‡	‡	‡
Unknown[1]	0.8	(0.1)	0.4	(0.1)	*0.5	(0.1)	‡		

down from a standing position; f) reaching up over the head or reaching out; g) using fingers to grasp or handle something; and h) holding a pen or a pencil. We grouped women with FLs into 3 disability categories: difficulty with none of the 8 FLs, difficulty with 1 or 2 of the 8 FLs, and difficulty with ≥3 of the 8 FLs. We based our analyses on disability defined in terms of these 8 FLs, which are sometimes referred to as *Nagi-type measures* (Nagi, 1969).

Body Mass Index. Overweight was defined in terms of the body mass index (BMI) ≥ the 85th percentile for women 20–29 years of age (Najjar & Rowland, 1987).

Health Insurance. Women were classified into the following health insurance categories: private insurance (included people who had at least 1 general-purpose health plan or who had a hospitalization plan only); Medicare and Medicaid; Medicare only; Medicaid only; and other (included people who had any type of military coverage including CHAMPUS, CHAMP-VA, or other military, or who had Indian Health Service coverage, or other public assistance). A person with >1 type of health insurance was assigned to the highest ranking category in the following hierarchy: private insurance; Medicare and Medicaid; Medicare only; Medicaid only; and other.

Table 2. Continued

Selected Reported Health Measures	Number of Functional Limitations Percent distributions (standard errors)						Significance		
	None		1–2		≥3		None vs 1–2	None vs ≥3	1–2 vs ≥3
Difficulty with day-to-day stress	100.0		100.0		100.0				
Yes	1.4	(0.1)	8.3	(0.5)	21.1	(1.0)	‡	‡	‡
No	97.7	(0.1)	91.1	(0.5)	78.2	(1.0)	‡	‡	‡
Unknown[1]	0.8	(0.1)	0.6	(0.1)	0.8	(0.2)			
Alcohol abuse disorder	100.0		100.0		100.0				
Yes	0.2	(0.0)	0.9	(0.2)	1.4	(0.4)	‡	‡	
No	99.0	(0.1)	98.7	(0.2)	97.8	(0.5)		†	
Unknown[1]	0.8	(0.1)	0.4	(0.1)	*0.8	(0.3)			
Drug abuse disorder	100.0		100.0		100.0				
Yes	0.1	(0.0)	0.6	(0.1)	*1.3	(0.4)			
No	99.0	(0.1)	99.0	(0.2)	97.8	(0.5)			
Unknown[1]	0.9	(0.1)	0.4	(0.1)	*0.9	(0.3)			

(0.0) Quantity more than zero but < .05.

Notes: Percentages do not necessarily add up to 100 because of rounding. Standard errors were calculated using SUDAAN Release 7.50.

*Figure has a relative standard error of >30% and is considered to be statistically unreliable.

[1]Includes not ascertained, don't know, or refused.

[2]Data are from the 1994 Year 2000 file. Because the weights have not been adjusted for disability records missing in the Year 2000 file, the 1994 Year 2000 estimated total of 98,611 is slightly less than the combined 1994 and 1995 disability files total of 99,378.

[3]Data are from the combined 1994 and 1995 Year 2000 files. Because the weights have not been adjusted for disability records missing in the Year 2000 file, the combined 1994 and 1995 Year 2000 estimated total of 99,100 is slightly less than the combined 1994 and 1995 disability files total of 99,378.

[4]Data are based on the following 2 questions: "Have you smoked at least 100 cigarettes in your entire life?" and "Do you now smoke cigarettes everyday, some days, or not at all?"

†Indicates significance (.01 < p ≤ .05) based on a 2-sided z-test with Bonferroni adjustment.

‡Indicates significance (p ≤ .01) based on a 2-sided z-test with Bonferroni adjustment.

Results

Age-adjusted analyses on selected demographic variables are contained in Table 1, selected reported health measures in Table 2, selected clinical preventive services in Table 3, and selected access to care indicators and health care coverage in Table 4. Table 5 contains limited age-specific percentage findings.

Demographic Characteristics

Data were analyzed on the following sociodemographic characteristics items: age, race, ethnicity, marital status, living arrangement, education, employment status, monthly household income, poverty status, sources of disability income, residence in a metropolitan statistical area, and geographic region.

In 1994–1995, there were an estimated 99.1 million noninstitutionalized women in the United States ≥18 years of age including 54.6 million women aged 18–44 years, 26.3 million women aged 45–64 years, and 18.2 million women ≥65 years of age. Of these women, an estimated 16% (15.9 million women) had at least 1 FL. The prevalence of having at least 1 FL increased with age from 6% for women aged 18–44 years up to 65% for women ≥85 years of age. The proportion of Black non-Hispanic women who had ≥3 FLs (12.1%) was higher than for Hispanic women (8.8%) and white non-Hispanic women (7.1%).

The more FLs a woman had, the less likely she was to report being married (47.6% with ≥3 FLs, 55.0% with 1 or 2 FLs, and 62.5% with no FLs were married; Table 1). This same pattern held within each of the 3 age groups: 18–44 years, 45–64 years, and ≥65 years of age. Although women in all age and limitation groups were more likely to live with others than by themselves, their likelihood of living alone increased with age within each limitation group (e.g., for those with ≥3 FLs, 9.9% of women aged 18–44 years, 24.4% of women aged 45–64 years, and 48.2% of women ≥65 years of age lived alone; Table 5). Having a FL was associated with living alone for women aged ≥45 years of age.

Regardless of age group, the more FLs a woman had, the less likely she was to have completed ≥4 years of college and the more likely she was to have not completed high school. Approximately 35.8% of women with ≥3 FLs and 16.8% of women with no FLs had less than a high school education (Table 1). Women with more FLs were less likely to be employed (26.3% for women with ≥3 FLs, 45.8% for women with 1 or 2 FLs, and 60.4% for women with no FLs) and more likely not to be in the labor force (69.3% for women with ≥3 FLs, 50.8% for women with 1 or 2 FLs, and 36.9% for women with no FLs). Women with FLs (29.1% of women with ≥3 FLs and 20.7% of women with 1 or 2 FLs) were more likely than women with no FLs (9.4%) to be living in households with

Table 3. Age-Adjusted Percentage Distributions (With Standard Errors) of Selected Clinical Preventive Services for Women ≥18 Years of Age According to Number of Functional Limitations: United States, 1994 and 1995

Selected Clinical Preventive Services[1]	Number of Functional Limitations Percent distributions (standard errors)						Significance		
	None		1–2		≥3		None vs 1–2	None vs ≥3	1–2 vs ≥3
Reason for last doctor visit	100.0		100.0		100.0				
New problem	22.3	(0.5)	22.3	(2.1)	18.8	(2.8)			
Follow-up old problem	27.4	(0.6)	52.8	(2.5)	65.5	(3.0)	‡	‡	‡
General physical examination	25.3	(0.6)	11.8	(1.2)	6.3	(0.8)	‡	‡	‡
OB/GYN checkup	15.7	(0.5)	6.2	(1.1)	*2.8	(1.0)	‡	‡	‡
Combined general and OB/GYN checkup	1.6	(0.2)	*0.5	(0.2)	*0.7	(0.4)	‡	‡	
Related to pregnancy	2.4	(0.2)	2.6	(0.7)	*2.6	(1.3)			
Other	2.9	(0.2)	2.1	(0.5)	*1.6	(0.5)		‡	†
Unknown[2]	2.4	(0.2)	*1.8	(0.7)	*1.8	(0.8)	‡	‡	
Time since last routine physical examination /checkup[1]	100.0		100.0		100.0				
Never	56.2	(0.5)	59.9	(1.6)	67.8	(2.0)			
Within the past year	26.1	(0.4)	24.9	(1.5)	17.2	(1.7)		‡	‡
1–2 years ago	13.8	(0.3)	11.4	(1.0)	10.8	(1.3)		‡	‡
≥3 years ago	2.1	(0.1)	*1.8	(0.5)	1.5	(0.4)			
Unknown[2]	1.7	(0.1)	2.0	(0.5)	2.7	(0.6)			
Asked about diet/eating habits[3]	100.0		100.0		100.0				
Yes	42.9	(0.9)	45.1	(2.5)	50.7	(3.4)			
No	53.2	(0.9)	51.6	(2.5)	46.6	(3.4)			
Unknown[2]	3.9	(0.3)	3.3	(1.0)	*2.6	(0.9)			
Asked about physical activity/exercise[3]	100.0		100.0		100.0				
Yes	46.3	(0.9)	48.1	(2.4)	46.0	(3.3)			
No	49.9	(0.8)	47.1	(2.3)	51.4	(3.4)			
Unknown[2]	3.8	(0.3)	4.8	(1.2)	*2.6	(0.9)			
Asked about smoking[3]	100.0		100.0		100.0				
Yes	50.9	(0.8)	56.6	(2.4)	49.4	(3.4)			
No	45.7	(0.8)	39.9	(2.3)	46.2	(3.5)			
Unknown[2]	3.4	(0.3)	*3.5	(1.1)	*4.4	(1.6)			
Asked about drinking habits[3]	100.0		100.0		100.0				
Yes	40.6	(0.8)	43.9	(2.6)	41.1	(3.1)			
No	55.4	(0.8)	52.1	(2.6)	55.5	(3.2)			
Unknown[2]	4.1	(0.3)	4.0	(1.1)	*3.4	(1.1)			
Asked about drug use[3]	100.0		100.0		100.0				
Yes	22.4	(0.6)	23.6	(2.0)	22.7	(2.6)			
No	73.4	(0.6)	72.9	(2.3)	72.1	(2.8)			
Unknown[2]	4.2	(0.3)	3.6	(0.9)	5.2	(1.5)			
Asked about STDs[3,4]	100.0		100.0		100.0				
Yes	24.2	(0.7)	27.2	(2.3)	24.7	(3.3)			
No	71.6	(0.8)	68.2	(2.4)	70.5	(3.6)			
Unknown[2]	4.2	(0.3)	4.6	(1.2)	4.9	(1.4)			
Asked about contraceptives[3,5]	100.0		100.0		100.0				
Yes	36.6	(0.9)	29.3	(2.8)	31.2	(4.8)	†		
No	59.0	(0.9)	66.0	(2.8)	66.5	(4.8)			
Unknown[2]	4.3	(0.3)	*4.7	(1.4)	*2.3	(1.3)			
Time since last Pap smear test	100.0		100.0		100.0				
Never	5.7	(0.3)	2.7	(0.5)	*4.1	(1.5)			
Within the past year	49.6	(0.7)	47.9	(2.2)	45.1	(3.0)			
1–3 years ago	24.9	(0.6)	24.6	(1.7)	26.6	(2.7)			
>3 years ago	16.2	(0.5)	22.0	(1.7)	19.0	(1.8)	‡		
Unknown[2]	3.7	(0.2)	*2.8	(0.9)	*5.3	(2.4)			
Time since last breast examination[6]	100.0		100.0		100.0				
Never	5.0	(0.3)	7.4	(1.4)	5.1	(0.9)			
Within the past year	53.7	(0.8)	51.7	(2.4)	54.4	(2.8)			
1–2 years ago	18.7	(0.6)	17.9	(1.9)	16.4	(2.0)			
>2 years ago	18.5	(0.6)	20.3	(2.0)	20.3	(2.4)			
Unknown[2]	4.1	(0.3)	2.7	(0.8)	3.8	(0.7)			
Time since last mammogram[6]	100.0		100.0		100.0				
Never	35.9	(0.6)	35.2	(2.5)	36.5	(2.5)			
Within the past year	29.6	(0.6)	32.3	(2.3)	28.2	(2.1)			

Table 3. Continued

Selected Clinical Preventive Services[1]	Number of Functional Limitations Percent distributions (standard errors)						Significance		
	None		1–2		≥3		None vs 1–2	None vs ≥3	1–2 vs ≥3
1–2 years ago	16.1	(0.5)	12.6	(1.3)	15.9	(2.2)	†		
>2 years ago	14.8	(0.5)	16.6	(1.4)	16.3	(1.8)			
Unknown[2]	3.5	(0.3)	3.2	(0.9)	3.1	(0.6)			

Notes: Percentages do not necessarily add up to 100 because of rounding. Standard errors were calculated using SUDAAN Release 7.50.
*Figure has a relative standard error of >30% and is considered to be statistically unreliable.
[1]All data are from the 1994 Year 2000 file except "Time since last routine physical examination /checkup" which is from the combined 1994 and 1995 Year 2000 files. Because the weights have not been adjusted for disability records missing in the Year 2000 file, the 1994 Year 2000 estimated total of 98,611 and the combined 1994 and 1995 Year 2000 estimated total of 99,100 are slightly less than the combined 1994 and 1995 disability files total of 99,378.
[2]Includes not ascertained, don't know, or refused.
[3]Excludes people whose last physical examinations occurred ≥3 years ago.
[4]Excludes people ≥65 years of age.
[5]Excludes people ≥50 years of age.
[6]Excludes people <30 years of age.
†Indicates significance (.01 < p ≤ .05) based on a 2-sided z-test with Bonferroni adjustment.
‡Indicates significance (p ≤ .01) based on a 2-sided z-test with Bonferroni adjustment.

incomes below the poverty level. For ages 18–44 years and 45–64 years, women with FLs were more likely than women with no FLs to receive disability income with or without other government income. However, 55.9% of all women with ≥3 received neither disability nor other government income.

Reported Health Measures

General Health. To determine perceived health status, respondents were asked to rate their health as excellent, very good, good, fair, or poor. Women with FLs were less likely than women with no FLs to rate their health as excellent or very good, and more likely to report their health as fair or poor. For example, 13.8% of women with ≥3 FLs and 31.4% of women with 1 or 2 FLs rated their health as excellent or very good compared with 64.6% of women with no FLs (Table 2).

Physical Health. As indicators of physical health, respondents were asked: 1) whether they had been told by a doctor or other health professional ≥2 times that they had hypertension, 2) about their smoking status, and 3) whether someone in their home smoked. In addition, BMI was calculated based on reported height and weight to determine whether a woman was underweight, average weight, or overweight. Women with FLs were more likely to have been told by a doctor or other health professional on multiple occasions that they had hypertension. Specifically, 33.7% of women with ≥3 FLs, and 26.7% of women with 1 or 2 FLs were told they had hypertension, compared with 14.8% of women without FLs (Table 2). Women in all age groups who had FLs more often reported hypertension than did women without FLs.

An estimated 33.3% of women with 1 or 2 FLs and

32.3% of women with ≥3 FLs reported being current smokers, compared with 21.5% of women without FLs (Table 2). Women aged 18–44 and 45–64 years who had FLs were more likely to have reported being current smokers than women of the same age without FLs (e.g., 42.0% of women aged 18–44 years with 1 or 2 FLs and 43.3% with ≥3 FLs, compared with 25.1% of women with no FLs); with women aged 18–44 years with FLs having higher rates than women aged 45–64 years with FLs (Table 5).

Women with FLs were more likely to be overweight than were women without FLs. Of women with ≥3 FLs and women with 1 or 2 FLs, 43.2% and 37.3%, respectively, were overweight, compared with 21.6% of women without FLs (Table 2). Women with FLs were more likely than women without FLs to be overweight across all age groups (Table 5). Among women aged 45–64 years with ≥3 FLs, 52.0% were overweight, compared with 26.1% of women of the same age with no FLs.

Mental Health. As indicators of mental health, respondents were asked if they were frequently depressed or anxious, if they had experienced a major depression during the last 12 months, if they experienced difficulty with day-to-day stress, and if they had experienced alcohol or drug abuse disorders in the past 12 months. Regardless of age group, the more FLs a woman had the more likely being frequently depressed or anxious was reported, and the more likely having had a major depression was reported. Overall, 34.5% of women with ≥3 FLs, 18.4% of women with 1 or 2 FLs, and 4.1% of women with no FLs reported being frequently depressed or anxious (Table 2). Similarly, 13.6% for women with ≥3 FLs, 5.8% for women with 1 or 2 FLs, and 1.2% for women with no FLs

Table 4. Age-Adjusted Percentage Distributions (With Standard Errors) of Selected Access to Care Indicators and Health Care Coverage for Women ≥18 Years of Age According to Number of Functional Limitations: United States, 1994 and 1995

Selected Access to Care Indicators and Health Care Coverage	Number of Functional Limitations Percent distributions (standard errors)						Significance		
	None		1–2		≥3		None vs 1–2	None vs ≥3	1–2 vs ≥3
Access to care									
Usual source of medical care	100.0		100.0		100.0				
1	86.7	(0.2)	87.8	(0.6)	90.9	(0.7)		‡	‡
≥2	0.4	(0.0)	0.5	(0.1)	*0.6	(0.2)			
No usual source of care	10.6	(0.2)	9.9	(0.6)	6.6	(0.6)		‡	‡
Unknown[1]	2.3	(0.1)	1.8	(0.2)	1.9	(0.3)			
Place of usual care[2]	100.0		100.0		100.0				
Doctor's office/clinic	96.6	(0.2)	95.6	(0.5)	95.3	(0.6)			
Emergency room	0.8	(0.0)	1.6	(0.3)	1.9	(0.5)	†		
Other	1.9	(0.1)	2.3	(0.3)	1.9	(0.4)			
Unknown[1]	0.7	(0.0)	0.6	(0.1)	0.8	(0.2)			
Type of health professional[3]	100.0		100.0		100.0				
Doctor	97.7	(0.1)	97.4	(0.3)	96.5	(0.6)			
Nurse	0.2	(0.0)	*0.2	(0.1)	*0.2	(0.1)			
Nurse practitioner	0.5	(0.0)	*0.6	(0.2)	0.5	(0.1)			
Physician's assistant	0.3	(0.0)	0.5	(0.1)	*0.9	(0.4)			
Chiropractor	0.2	(0.0)	*0.4	(0.1)	*0.3	(0.1)			
Other	0.2	(0.0)	*0.3	(0.1)	*0.4	(0.2)			
Unknown[1]	0.9	(0.1)	0.5	(0.1)	1.1	(0.3)	†		
Type of doctor[4]	100.0		100.0		100.0				
General practitioner/ internist	87.6	(0.2)	84.4	(0.7)	79.8	(1.1)	‡	‡	‡
OB/GYN	7.4	(0.2)	4.5	(0.5)	1.9	(0.5)	‡	‡	‡
Other specialist	3.9	(0.1)	9.5	(0.6)	16.6	(1.0)	‡	‡	‡
Unknown[1]	1.2	(0.1)	1.7	(0.3)	1.6	(0.3)			
Delayed care due to cost	100.0		100.0		100.0				
Yes	8.6	(0.1)	20.7	(0.8)	25.9	(1.0)	‡	‡	‡
No	89.2	(0.2)	77.5	(0.8)	72.2	(1.0)	‡	‡	‡
Unknown[1]	2.2	(0.1)	1.8	(0.2)	1.8	(0.3)			
Unable to get medical care	100.0		100.0		100.0				
Yes	2.3	(0.1)	7.6	(0.5)	13.9	(0.9)	‡	‡	‡
No	95.3	(0.1)	90.4	(0.5)	84.1	(0.9)	‡	‡	‡
Unknown[1]	2.4	(0.1)	2.0	(0.2)	2.0	(0.3)			
Main reason didn't get care[5]	100.0		100.0		100.0				
Financial/insurance	67.7	(1.8)	71.9	(2.4)	69.2	(2.6)			
Other	25.3	(1.7)	24.0	(2.3)	25.6	(2.5)			
Unknown[1]	7.0	(0.9)	4.1	(1.1)	5.2	(1.1)			
Unable to get mental health care	100.0		100.0		100.0				
Yes	0.5	(0.0)	1.9	(0.2)	3.7	(0.4)	‡	‡	‡
No	97.3	(0.1)	96.2	(0.3)	94.3	(0.6)	‡	‡	‡
Unknown[1]	2.2	(0.1)	1.9	(0.2)	2.0	(0.3)			
Unable to get dental care	100.0		100.0		100.0				
Yes	7.2	(0.1)	17.7	(0.7)	22.0	(1.0)	‡	‡	‡
No	90.6	(0.2)	80.3	(0.7)	76.0	(1.0)	‡	‡	‡
Unknown[1]	2.2	(0.1)	1.9	(0.2)	2.0	(0.3)			
Unable to get prescription medicines	100.0		100.0		100.0				
Yes	2.2	(0.1)	7.7	(0.4)	14.7	(0.8)	‡	‡	‡
No	95.6	(0.1)	90.5	(0.5)	83.4	(0.9)	‡	‡	‡
Unknown[1]	2.2	(0.1)	1.8	(0.2)	1.8	(0.3)			
Unable to get eyeglasses	100.0		100.0		100.0				
Yes	3.1	(0.1)	10.0	(0.6)	14.0	(0.8)	‡	‡	‡
No	94.4	(0.1)	87.9	(0.7)	83.4	(0.8)	‡	‡	‡
Unknown[1]	2.5	(0.1)	2.0	(0.2)	2.6	(0.4)			
Health care coverage									
Health insurance	100.0		100.0		100.0				
Private	74.5	(0.3)	60.2	(0.9)	47.1	(1.2)	‡	‡	‡
Medicare and Medicaid	0.8	(0.0)	2.7	(0.3)	7.2	(0.5)	‡	‡	‡
Medicare only	2.8	(0.1)	3.6	(0.2)	6.6	(0.3)	‡	‡	‡

Table 4. Continued

Selected Access to Care Indicators and Health Care Coverage	Number of Functional Limitations Percent distributions (standard errors)						Significance		
	None		1–2		≥3		None vs 1–2	None vs ≥3	1–2 vs ≥3
Medicaid only	4.7	(0.1)	13.3	(0.6)	19.9	(1.1)	‡	‡	‡
Other	1.7	(0.1)	2.9	(0.4)	2.8	(0.5)	‡		
Uninsured	12.6	(0.2)	14.9	(0.6)	14.0	(0.8)	‡		
Unknown[1]	2.9	(0.1)	2.5	(0.3)	2.5	(0.4)			

(0.0) Quantity more than zero but < .05.
Notes: Percentages do not necessarily add up to 100 because of rounding. Standard errors were calculated using SUDAAN Release 7.50.
*Figure has a relative standard error of >30% and is considered to be statistically unreliable.
[1]Includes not ascertained, don't know, or refused.
[2]Includes people with 1 usual source of medical care.
[3]Includes people with 1 usual source of medical care who usually see a particular person at this source.
[4]Includes people with 1 usual source of medical care who usually see a particular doctor at this source.
[5]Includes people unable to get medical care.
[†]Indicates significance ($0.01 < p \leq .05$) based on a 2-sided z-test with Bonferroni adjustment.
[‡]Indicates significance ($p \leq .01$) based on a 2-sided z-test with Bonferroni adjustment.

reported a major depression (Table 2). There was a positive association between difficulty with stress and number of FLs (with 21.1% of women with ≥3 FLs, 8.3% of women with 1 or 2 FLs, and 1.4% of women with no FLs having difficulty with day-to-day stress; Table 2). More women with FLs who were 18–44 years of age reported alcohol and drug abuse than did women of the same age with no FLs, but the frequency was low overall (<2%).

Clinical Preventive Services
As indicators of selected clinical preventive services, participants were asked the reason for their last doctor visit and the length of time since their last routine examination/checkup. Respondents indicated whether their doctors had asked them during their last routine physical examination/checkup about their diet and eating habits, exercise and physical activity, smoking, drinking, drug use, sexually transmitted diseases, and use of contraceptives. Respondents were also asked the length of time since their last Pap smear test; a breast physical examination; and mammogram.

Among several possible response options cited for their reason for their last doctor's visit, women with FLs were more likely to select "Follow-up of a previous problem" and less likely to select "An ob/gyn checkup" or "A general physical exam" than women without FLs. An estimated 6.3% of women with ≥3 FLs and 11.8% of women with 1 or 2 FLs selected general physical examination compared with 25.3% of women with no FLs (Table 3). Women aged 18–44 years with 1 or 2 FLs were less likely to have gone to the doctor for an ob/gyn checkup for their last visit (8.1% for women with 1 or 2 FLs, compared with 22.1% for women with no FLs; Table 5).

During their last routine physical examination/checkup women aged 18–44 years with 1 or 2 FLs

(35.3%) and ≥3 FLs (32.7%) were asked by their health care provider less often about contraceptives than women with no FLs (44.8%; Table 5). Women aged 45–64 years with FLs were more likely than women with no FLs to be asked about diet or eating habits during their last routine physical examination/checkup (57.7% of women with ≥3 FLs and 53.6% of women with 1 or 2 FLs compared with 47.4% of women with no FLs; Table 5).

Women ≥65 years of age with ≥3 FLs were less likely than women with no FLs to have had a Pap test within the past year (24.3% for women with ≥3 FLs compared with 33.7% for women with no FLs.) Women ≥65 years of age with ≥3 FLs (28.3%) were less likely than women with no FLs (37.9%) to have had a mammogram within the past year (Table 5).

Access to Care
We analyzed items that asked about where women usually went for medical care, what types of medical services they were unable to obtain, and whether or not cost issues caused a delay in seeking care. Among women with a usual source of care who saw a particular doctor, those with FLs were less likely to have their usual source of care in the offices of family doctors or general practitioners, or in the offices of ob/gyns, and more likely to receive their usual health care from other types of physician specialists (Table 4).

The more FLs a women had the more likely she was to delay care because of cost (25.9% of women with ≥3 FLs, 20.7% for women with 1 or 2 FLs, and 8.6% for women with no FLs; Table 4). Regardless of age group, the more FLs a woman had, the more likely care was delayed due to cost and the more likely she was unable to get medical care (Table 5). For all FL groups, women aged 18–44 years and 45–64 years were more likely to report delayed care due to cost

Table 5. Selected Age-Specific Percentages (With Standard Errors) of Selected Demographic Characteristics, Reported Health Measures, Clinical Preventive Services, and Access to Care Indicators According to Number of Functional Limitations: United States

Selected age-specific Percentages	Number of Functional Limitations Percentages (standard errors)						Significance		
	None		1–2		≥3		None vs1–2	None vs ≥3	1–2 vs ≥3
Selected demographic characteristics									
Living arrangement[1]									
Percentage living alone									
18-44 years	7.5	(0.2)	8.7	(0.8)	9.9	(1.0)			
45-64 years	12.4	(0.3)	19.5	(1.0)	24.4	(1.2)	‡	‡	†
≥65 years	38.0	(0.6)	44.9	(1.0)	48.2	(1.1)	‡	‡	
Selected reported health measures									
Smoking status[2,3,4]									
Percentage current smoker									
18–44 years	25.1	(0.5)	42.0	(2.6)	43.3	(3.5)	‡	‡	
45–64 years	21.9	(0.8)	29.2	(2.5)	29.9	(2.2)	†	‡	
≥65 years	10.8	(0.7)	12.2	(1.2)	11.6	(1.1)			
Body mass index[2] (% overweight)									
18–44 years	19.3	(0.3)	36.1	(1.2)	40.2	(1.8)	‡	‡	
45–64 years	26.1	(0.4)	43.5	(1.1)	52.0	(1.2)	‡	‡	‡
≥65 years	21.9	(0.5)	31.9	(1.0)	36.3	(0.9)	‡	†	‡
Selected clinical preventive services									
Reason for last doctor visit[2,5]									
Percentage OB/GYN checkup 18–44 years	22.1	(0.7)	8.1	(1.7)	*4.7	(1.7)	‡		
During last routine physical examination[2,3,6]									
Percentage asked about contraceptives 18–44 years	44.8	(0.9)	35.3	(3.3)	32.7	(4.3)	†	†	
During last routine physical examination[2,3,6]									
Percentage asked about diet/eating habits 45–64 years	42.4	(1.5)	53.6	(3.6)	57.7	(3.2)	†	‡	
Time since last Pap smear test[2,5]									
Percentage within the past year ≥65 years	33.7	(1.5)	27.6	(2.5)	24.3	(2.0)		‡	
Time since last mammogram[2,5]									
Percentage within the past year ≥65 years	37.9	(1.3)	31.6	(2.4)	28.3	(2.3)		‡	
Selected access to care indicators									
Percentage delayed care due to cost[2]									
18–44 years	11.0	(0.2)	26.6	(1.2)	33.2	(1.6)	‡	‡	‡
45–64 years	8.0	(0.2)	20.0	(1.0)	26.7	(1.1)	‡	‡	‡
≥65 years	2.6	(0.2)	4.5	(0.4)	7.3	(0.5)	†	‡	‡
Percentage unable to get medical care[2]									
18–44 years	3.0	(0.1)	9.8	(0.7)	17.5	(1.3)	‡	‡	‡
45–64 years	2.1	(0.1)	6.9	(0.6)	13.1	(0.9)	‡	‡	‡
≥65 years	0.8	(0.1)	1.7	(0.3)	2.7	(0.3)	‡	‡	†
Main reason didn't get care[2,7]									
Percentage with financial/insurance									
18–44 years	77.1	(1.4)	84.6	(2.8)	75.3	(3.4)			
45–64 years	67.3	(2.6)	77.6	(4.9)	77.4	(2.7)		†	
≥65 years	41.5	(6.4)	34.6	(7.6)	49.2	(4.7)			
Percentage unable to get mental health care[2]									
18–44 years	0.7	(0.0)	2.9	(0.4)	5.7	(0.7)	‡	‡	‡
45–64 years	0.3	(0.0)	1.5	(0.3)	2.5	(0.4)	‡	‡	
≥65 years	*0.1	(0.0)	*0.1	(0.1)	*0.2	(0.1)			

(0.0) Quantity more than zero but < .05.

Notes: Percentages do not necessarily add up to 100 because of rounding. Standard errors were calculated using SUDAAN Release 7.50.

*Figure has a relative standard error of >30% and is considered to be statistically unreliable.

[1]In a small number of cases there is a discrepancy between the family relationship and relationship to reference person variables due to the exclusion of military persons.

[2]Percentages calculated with unknown in the denominator.

[3]Data are from the combined 1994 and 1995 Year 2000 files. Because the weights have not been adjusted for disability records missing in the Year 2000 file, the combined 1994 and 1995 Year 2000 estimated total of 99,100 is slightly less than the combined 1

[4]Data are based on the following 2 questions: "Have you smoked at least 100 cigarettes in your entire life?" and "Do you now smoke cigarettes everyday, some days, or not at all?"

[5]Data are from the 1994 Year 2000 file. Because the weights have not been adjusted for disability records missing in the Year 2000 file, the 1994 Year 2000 estimated total of 98,611 is slightly less than the combined 1994 and 1995 disability files total.

[6]Excludes people whose last physical examinations occurred ≥3 years ago.

[7]Includes people unable to get medical care.

†Indicates significance (.01 < $p \leq$ .05) based on a 2-sided z-test with Bonferroni adjustment.

‡Indicates significance ($p \leq$ .01) based on a 2-sided z-test with Bonferroni adjustment.

when compared with women ≥65 years of age (Table 5). Women with ≥3 FLs most frequently reported being unable to get dental care, prescription medicines, and eyeglasses, regardless of their age (Table 4). Similarly women aged 18–44 and 45–64 years with FLs were more likely than women without FLs to report being unable to get mental health care (Table 5), although the percentages were small.

Women aged 18–44 and 45–64 years were more likely to report being unable to get needed medical care than women ≥65 years of age in all FL groups (Table 5). Of women unable to get needed medical care, those aged 18–44 and 45–64 years in all FL groups reported financial problems or limitations in insurance as the main reasons for not getting the needed medical care. In addition, women aged 45–64 years with ≥3 FLS who were unable to get needed medical care more often reported financial problems or limitations in insurance than similar women with no FLs (77.4% vs. 67.3%; Table 5).

Health Care Coverage

Health insurance coverage is important because it facilitates access to the health care system. To determine health care coverage, respondents were asked about the type of health insurance they had. Women with FLs were less likely to be covered by private health insurance than women with no FLs (47.1% of women with ≥3 FLs, 60.2% of women with 1 or 2 FLs, and 74.5% of women with no FLs; Table 5). Women with FLs were more likely to be covered only by Medicare, Medicaid, or both, when compared with women with no FLs. Women aged 45–64 years with FLs were more likely to be uninsured (14.5% for women with 1 or 2 FLs, and 14.9% for women with ≥3 FLs) than similarly aged women without FLs (10.8%).

Discussion

The findings of this study indicate problems that are likely to affect the health, preventive health care, and health care access of women with disabilities. These problems warrant increased attention by researchers, clinicians, and public health professionals.

Demographics

Our results demonstrate a consistent positive association between age and FLs, a finding consistent with previous analyses of the relation between age and various indices of disability (Guralnik, Leveille, Hirsch, Ferrucci, & Fried, 1997; Hoffman, Rice, & Sung, 1996; McNeil, 1993). For women ≥65 years of age, 40% had at least 1 FL. Furthermore, a higher percentage of black non-Hispanic women had ≥3 FLs than White non-Hispanic women and Hispanic women, suggesting that risk factors for the development of secondary

conditions or more extensive disabilities may be greater for Black women.

In women, having a FL was also associated with having lower income, less education, and lower rates of employment than not having a FL. This pattern supports the view that women with disabilities experience heightened sociodemographic disadvantages (Fine & Asch, 1998; Nosek, 2000).

Reported Health

General Health. Maintaining good health for women with disabilities requires not only engaging in health-promoting behaviors, but also minimizing the effects of disabilities and the secondary conditions that often accompany them. Our analysis found that women with FLs reported significantly poorer health than women with no FLs.

Physical Health. We examined 3 common health problems experienced by women (hypertension, smoking, and overweight and obesity) and identified disparities in their prevalence among women with and those without FLs. Information about hypertension in women with disabilities is limited. Although the risk of hypertension generally increases with age, in our sample, a high percentage of younger women with FLs were told ≥2 times by a health professional they had hypertension (20.8% of women aged 18–44 years with ≥3 FLs). Our analyses also indicated that a larger percentage of younger women with FLs reported smoking than those in other age groups or than women without FLs. A previous study also found higher rates of smoking among women with a variety of physical disabilities than typically occur in the general population (Nosek, Howland, Rintala, Young, & Chanpong, 2001). Cigarette smoking plays a major role in the mortality of women, and is one of the most preventable causes of disease and death in the United States, yet smoking has not been adequately addressed for disabled women.

Overweight and obesity are known contributors to many preventable causes of death. We found that women with FLs were more likely to be overweight across all age groups, particularly those aged 45–64 years. Little exists in the literature about appropriate BMI goals for women with specific disabilities. Weight control is a very serious problem for women who, because of physical limitations, might have difficulty participating in physical activities or exercise, or might not have control of the selection and preparation of their food.

Although the body of literature concerning the effectiveness of health promotion theory and practice has grown steadily over the past 2 decades, research addressing health promotion for women with disabilities is sparse. Research is needed to identify factors that are

associated with hypertension, smoking and obesity by women with various degrees of severity of FLs.

Mental Health. We found a consistent positive association between the number of FLs and the frequency of several mental health problems, including frequent depression or anxiety, the experience of major depression in the preceding 12 months, and difficulty with day-to-day stress. Women with FLs in all age groups were more likely than women without FLs to report mental health problems. Furthermore, mental health problems were particularly evident among women of working age (age groups 18–44 years and 45–64 years) who had FLs. This pattern parallels the finding that younger women (aged 18–44 years) with FLs reported problems with alcohol and drug abuse more frequently than women in the same age group with no FLs.

Extensive research on gender and mental health has consistently indicated that women, in general, are approximately twice as likely as men to experience depression (Nolen-Hoeksema, Larson, & Grayson, 1999). Our current findings also suggested that women with >3 FLs might be 8–15 times more likely to report mental health problems than women with no FLs. This pattern is consistent with published accounts suggesting that women with disabilities experience multiple risk factors for emotional distress, including social isolation; abuse; loss of roles; and stressors related to poverty, lack of access to the environment, and difficulty securing needed services and supports (Fine & Asch, 1998; Gill, 1997; Jans & Stoddard, 1999; Krause, Kemp, & Coker, 2000; Nosek, 2000; Rintala, Hart, & Fuhrer, 1996).

Clinical Preventive Services
Numerous studies of health care services and people with disabilities have found high usage of health care services, frequent expressions of dissatisfaction with their care, particular susceptibility to disparities in care that may result from a failure to provide safe and accessible services, and experiences of widespread lack of appropriate accommodations (Panko-Reis, Breslin, Iezzoni, & Krishner, 2004). Our study showed that women with FLs were less likely than women without FLs to be asked during general medical examinations about contraceptive use. Women with FLs are just as likely to be at risk for breast and cervical cancer as women with no FLs, but physical and attitudinal barriers reduce the likelihood that these women receive the recommended preventive screenings (CDC, 1998; Nosek & Howland, 1997; Nosek et al., 2001). Studies have found that women with disabilities are often told that a pelvic examination will not be necessary because it would be too difficult to perform (Nosek & Howland, 1997; Welner, Nosek, Foley, & Holmes, 1999). Many women with disabilities report avoiding these examinations be-

cause of difficulty in transferring to the examining table, or an inability to assume the position required for a mammogram (Nosek & Howland, 1997; Nosek et al., 2001; Welner et al., 1999). This might explain in part our finding that older women with severe FLs were significantly less likely than women without FLs to receive regular Pap smear tests, mammograms, or both (CDC, 1998; Iezzoni et al., 2000; Nosek & Howland, 1997; Nosek et al., 2001).

Access to Care and Health Care Coverage
The findings of this study indicated that substantial numbers of women with FLs, particularly those in the 2 younger age groups, experienced problems such as being unable to access health care and delaying care due to costs. Part of this might be associated with women with FLs having poorer reported health status resulting in a need for more health care than women without FLs. The fact that this was more of a problem for women <65 years of age may reflect the influence of Medicare coverage for women ≥65 years of age. In addition, women with FLs were more likely to be unable to get dental care, prescriptions, and eyeglasses. Many of these problems might have been associated with their lower rates of employment, higher rates of poverty, and lower levels of education. Not having access to private group insurance plans or accumulation of Social Security credits through one's own, a spouse's, or another family member's employer might have left many women with disabilities without enough resources to pay for primary care or care specific to their disabling condition. The likely result is worsening of primary health problems and disability symptoms and delay in seeking health care, with heavier reliance on county health care systems (Baker, Sudano, Albert, Borawski, & Dor, 2002; Pane, Farner, & Salness, 1991). In addition, women with FLs most frequently reported being unable to get dental care, prescription medicines, and eyeglasses, regardless of age, which might reflect less comprehensive coverage of some or all of those items by both private insurance and Medicare. Problems with access to health care and insurance coverage for people with disabilities has been well documented; however, further research is needed on how these limitations affect women with disabilities and their health outcomes (DeJong, 1997; DeJong, Batavia, & Griss, 1989).

Women with FLs were more likely than women without FLs to receive their usual medical care from a specialist than from a general practitioner/internist or ob/gyn. Our analysis was consistent with the results of the National Study of Women with Physical Disabilities, which found that 91% of the women surveyed had seen specialists of some type within the past year (Nosek et al., 2001). One study examined outcomes such as functional status, number of painful joints, and overall pain rating for people with muscu-

loskeletal conditions who saw rheumatologists versus nonrheumatologists, and found evidence of advantage for people who saw a rheumatologist as the main rheumatoid arthritis physician, although no statements were made about people with other disabling conditions (Yelin, Such, Criswell, & Epstein, 1998). Another study found that among women aged 65–69 years on Medicare, those with a gynecologist as their usual source of care had the highest rates of mammography screening followed by those with internists, and then general practitioners; women with other specialists as their usual source of care had the lowest rates (Finison, Wellins, Wennberg, & Lucas, 1999). Having a specialist might be good for some things, but may not be for other things. More research is needed on the best continuity of care arrangement in terms of provider specialty; training; and other physician or practice-level characteristics; the coordination of the range of medical services (including clinical preventive services); and the health outcomes of women with FLs.

Limitations of Data

The findings in this study are subject to at least 6 limitations. First, the sample included only noninstitutionalized people; thus, nursing home residents, who represent a disproportionate number of women and who might have high levels of FLs, were not represented. Second, the estimates had sampling errors that were relatively large for estimates based on small populations, such as certain age groups of women with certain characteristics. Third, a few of the reported FLs (<1%) were not associated with chronic conditions and might have been temporary. Fourth, we acknowledge that although these are older data, there has not been a more recent national disability survey since the 1994–1995 NHIS-D, and there is much information still to be gleaned from the NHIS-D. Fifth, these are cross-sectional data and therefore we only can identify associations and directionality cannot be determined. Finally, proxy responses were allowed for questions from the core NHIS, NHIS-D, and Family Resources supplement, and proxy respondents are known to report limitations and other characteristics differently from self-respondents.

Implication for Future Research and Translation Into Practice

This study has reported noteworthy health disparities between women with and those without physical disabilities, seen most obviously in substantially higher rates of depression, hypertension, obesity, and lower reported general health status. In addition, the reported rate of smoking among younger women with FLs was nearly double the rate among younger women with no FLs. Together with these disparities, we found inequities in basic life resources, from less education and higher rates of unemployment and poverty to lower rates of health insurance. Women who lack basic resources are much less likely to be able to access health care for acute and chronic conditions, and even less likely to access preventive services. When environmental and architectural barriers are added to the equation, health care access problems can be even greater.

Research to identify factors associated with these disparities is needed. Our analysis, while presenting age-adjusted estimates, did not adjust for other demographic or socioeconomic status variables. Further research is needed to explore the relationships between demographic variables such as race, ethnicity, income, education, and employment to health outcomes and access to health care services in this population of women.

Further research is also needed on rates of screening for many other conditions that are disproportionately prevalent among women with FLs. Such conditions include depression, hypertension, diabetes, and osteoporosis (Nosek et al., 2006). NHIS files do not contain data on these types of screenings, necessitating the exploration of other population-based data sets.

The translation of these findings into practice depends on research to develop feasible and effective interventions to address disparities. Interventions for women with FLs, such as proper exercise and good nutrition, effective use of smoking cessation strategies, disability-sensitive gynecologic care, depression management, and promoting heart-healthy lifestyles need to be designed, implemented, and evaluated. Further research and interventions in these areas can inform clinical practice and the education of medical, mental health, and social service professionals.

The data presented here also suggest additional efforts are needed to raise the awareness about the specific needs of women with disabilities with the expectation that existing programs will incorporate this information into their regular programming. Thus, in the same manner as the movement to increase cultural competence, there could be a coordinated and focused effort to make all medical and social services disability competent.

The roots of many of the health and health care access problems faced by women with disabilities might lie in their higher levels of poverty and lower levels of educational attainment and employment than women without disabilities. To address these problems, traditional strategies need to be reexamined and gender and disability-specific approaches need to be developed to promote educational pursuits, vocational training, job placement, and career advancement for women with disabilities. To be successful, these strategies need to confront existing negative social attitudes and gender inequities. This may help to diminish the educational, economic, and environmental barriers and help women with disabilities

obtain equitable social status and, consequently, their maximum level of health and well-being.

References

Adams, P. F., & Marano, M. A. (1995). Current estimates from the National Health Interview Survey, 1994. National Center for Health Statistics. *Vital Health Statistics, 10,* 193.

Altman, B. M. (1985) Disabled women in the social structure. In S. E. Browne, D. Conners, & N. Stern (Eds.), *With the power of each breath* (pp. 69–76). Pittsburgh: Cleis Press.

Altman, B. M. (1996). Causes, risks, and consequences of disability among women. In D. M. Krotoski, M. A. Nosek, & M. A. Turk (Eds.), *Women with physical disabilities: Achieving health and well-being* (pp. 35–55). Baltimore: Paul H Brooks.

Baker, D. W., Sudano, J. J., Albert, J. M., Borawski, E. A., & Dor, A. (2002). Loss of health insurance and the risk for a decline in self-reported health and physical functioning. *Medical Care, 40,* 1126–1131.

Benson, F., & Marano, M. A. (1998). Current estimates from the National Health Interview Survey, 1995. National Center for Health Statistics. *Vital Health Statistics, 10,* 199.

Bowe, F. (1984). *Disabled women in America.* Washington, D.C.: President's Committee on Employment of the Handicapped.

Centers for Disease Control and Prevention. (1998). Use of cervical and breast cancer screening among women with and without functional limitations—United States, 1994–1995. *Morbidity and Mortality Weekly Report, 1998 47,* 853–856

Collins, J. G. (1993). Prevalence of selected chronic conditions, United States, 1986–1988: National Center for Health Statistics. *Vital Health Statistics, 10,* 1–5.

Day, J. C. (1996). Population projections of the U.S. by age, sex, race, and Hispanic origin: 1995 to 2050, U.S. Bureau of the Census, Current Population Reports [no. P25-1130]. Washington, D.C.: US Government Printing Office. Available: www.census.gov/prod/1/pop/p25-1130/. Accessed October 31, 2006.

Deegan, M. J., & Brooks, N. A. (1985). *Women and disability: The double handicap.* New Brunswick, NJ: Transaction Books.

DeJong, G. (1997). Primary care for persons with disabilities: An overview of the problem. *American Journal of Physical and Medical Rehabilitation, 76*(Suppl), S2–8.

DeJong, G., Batavia, A. I., & Griss, R. (1989). America's neglected health minority: Working-age persons with disabilities. *Milbank Quarterly, 67*(Suppl 2), 311–351.

Fine, M., & Asch, A. (1985). Disabled women: Sexism without the pedestal. In M. J. Deegan, & N. A. Brooks (Eds.), *Women and disability: The double handicap* (pp. 6–22). New Brunswick, NJ: Transaction, Inc.

Fine, M., & Asch, A. (Eds.). (1998). *Women with disabilities: Essays in psychology, culture, and politics.* Philadelphia: Temple University Press.

Finison, K. S., Wellins, C. A., Wennberg, D. E., & Lucas, F. L. (1999, May/June). Screening mammography rates by specialty of the usual care physician. Effective clinical practice. Available: www.acponline.org/journals/ecp/mayjun99/finison.htm. Accessed October 31, 2006.

Gill, C. J. (1997). The last sisters: Disabled women's health. In S. B. Ruzek, V. Olesen, & A. Clarke (Eds.), *Women's health: Complexities and differences.* Columbus: Ohio State University Press.

Guralnik, J. M., Leveille, S. G., Hirsch, R., Ferrucci, L., & Fried, L. P. (1997). The impact of disability in older women. *Journal of the American Medical Womens Association, 52,* 113–120.

Hoffman, C., Rice, D., & Sung, H. Y. (1996). Persons with chronic conditions: Their prevalence and costs. *Journal of the American Medical Association, 276,* 1473–1479.

Iezzoni, L. I., McCarthy, E. P., Davis, R. B., Harris-David, L., & O'Day, B. (2001). Use of screening and preventive services among with disabilities. *American Journal of Medical Quality, 16,* 135–144.

Iezzoni, L. I., McCarthy, E. P., Davis, R. B., & Siebens, H. (2000). Mobility impairments and use of screening and preventive services. *American Journal of Public Health, 90,* 955–961.

Jans, L., & Stoddard, S. (1999). *Chartbook on women and disability in the United States: An Info Use Report.* Washington, D.C.: US Department of Education, National Institute on Disability and Rehabilitation Research.

Johnson, W. G. (1979). Disability, income support, and social insurance. In E. D. Berkowitz (Ed.), *Disability policies and government programs* (pp. 87–132). New York: Praeger.

Krause, J. S., Kemp, B., & Coker, J. (2000). Depression after spinal cord injury: Relation to gender, ethnicity, aging, and socioeconomic indicators. *Archives of Physical and Medical Rehabilitation, 81,* 1099–1109.

Kutza, E. (1981). Benefits for the disabled: How beneficial for women? *Journal of Sociology and Social Welfare, 8,* 298–319.

LaPlante, M. P. (1988). *Data on disability from the National Health Interview Survey, 1983–1985.* Washington, D.C.: National Institute on Disability and Rehabilitation Research, US Department of Education.

LaPlante, M. P. (1991). *Disability risks of chronic illnesses and impairments: Disability statistics report: Report 2.* Washington, D.C.: National Institute on Disability and Rehabilitation Research, US Department of Education.

McNeil, J. M. (1993). *Americans with Disabilities: 1991–92, Current Population Reports* [no. P70-33]. Washington, D.C.: Bureau of the Census.

McNeil, J. M. (1997). *Americans with disabilities: 1994–95, Current Population Reports* [series P70-61]. Washington, D.C.: Bureau of the Census.

Mudrick, N. R. (1988). Disabled women and public policies for income support. In: M. Fine, A. Asch (Eds.). *Women with disabilities: Essays in psychology, culture, and politics.* Philadelphia: Temple University Press.

Nagi, S. Z. (1969). *Disability and rehabilitation: Legal clinical and self-concepts and measurement.* Columbus: Ohio State University Press.

Najjar, M. F., Rowland, M., & National Center for Health Statistics. (1987, October). *Anthropometric reference data and prevalence of overweight, United States, 1976–80. Vital and Health Statistics* [series 11, No. 238. DHHS Pub. No. (PHS) 87-1688]. Washington, D.C.: US Government Printing Office.

Nolen-Hoeksema, S., Larson, J., & Grayson, C. (1999). Explaining the gender difference in depressive symptoms. *Journal of Personality & Social Psychology, 77,* 1061–1072.

Nosek, M. A. (2000). Overcoming the odds: The health of women with physical disabilities in the United States. *Archives of Physical and Medical Rehabilitation, 81,* 135–138.

Nosek, M. A., & Howland, C. A. (1997). Breast and cervical cancer screening among women with physical disabilities. *Archives of Physical and Medical Rehabilitation, 78*(12 Suppl 5), S39–S44.

Nosek, M. A., Howland, C. A., Rintala, D. H., Young, M. E., & Chanpong, G. F. (2001). National study of women with physical disabilities: Final report. *Sexuality and Disability, 19,* 5–39.

Nosek, M. A., Hughes, R. B., Petersen, N. J., Taylor, H. B., Robinson-Whelen, S., Byrne, M., et al. (2006). Secondary conditions in a community-based sample of women with physical disabilities over a 1-year period. *Archives of Physical and Medical Rehabilitation, 87,* 320–327.

Pane, G. A., Farner, M. C., & Salness, K. A. (1991). Health care access problems of medically indigent emergency department walk-in patients. *Annals of Emergency Medicine, 20,* 730–733.

Panko-Reis, J., Breslin, M. L., Iezzoni, L. I., & Krishner, K. L. (2004). *It takes more than ramps to solve the crisis of health care for people with disabilities.* Chicago: Rehabilitation Institute of Chicago.

Rintala, D. H., Hart, K. A., & Fuhrer, M. J. (1996). Perceived stress in individuals with spinal cord injury. In D. M. Krotosk, M. A. Nosek, & M. A. Turk (Eds.), *Women with physical disabilities: Achieving and maintaining health and well-being.* Baltimore: Paul H. Brookes.

Shah, B. V., Barnwell, B. G., & Bieler, G. S. (1997). *SUDAAN user's manual, release 7.5.* Research Triangle Park, NC: Research Triangle Institute.

US Department of Health and Human Services. (2000). *Healthy people 2010. Disability and secondary conditions.* Washington, D.C.

Welner, S., Nosek, M. A., Foley, C. C., & Holmes, S. A. (1999). Practical considerations in the performance of physical examinations on women with physical limitations and disabilities. *Obstetrical and Gynecological Survey, 54,* 457–462.

Yelin, E. H., Such, C. L., Criswell, L. A., & Epstein, W. V. (1998). Outcomes for persons with rheumatoid arthritis with a rheumatologist versus a non-rheumatologist as the main physician for this condition. *Medical Care, 36,* 513–522.

Author Descriptions

Frances M. Chevarley, PhD, is a senior survey statistician in the Center for Financing, Access, and Cost Trends at the federal Agency for Healthcare Research and Quality. Her disability research focuses on health care for persons with disabilities and disability measurement in national surverys.

JoAnn M. Thierry, PhD, is a behavioral scientist in the National Center on Birth Defects and Developmental Disabilities at the Centers for Disease Control and Prevention. Her research focuses on health promotion for women with disabilities, health communication, and the prevention of secondary conditions.

Carol J. Gill, PhD, is an Associate Professor in the Deparment of Disability and Human Development at the University of Illinois at Chicago, and Director of Graduate Studies for the Interdisciplinary PhD Program in Disability Studies. Her research focuses on disability identity development, health service experiences of women with disabilities, bioethical issues, and professional training.

A. Blythe Ryerson, MPH, is an epidemiologist in the Division of Cancer Prevention and Control at the Centers for Disease Control and Prevention. Her current research focuses on the clinical patterns of care for women diagnosed with breast and ovarian cancer.

Margaret A. Nosek, PhD, is Executive Director of the Center for Research on Women with Disabilities and Professor in the Department of Physical Medicine and Rehabilitation, Baylor College of Medicine. Her research focuses on the health of women with disabilities, particularly health promotion, eHealth interventions, and access to health care.