

Social Activities of Non-Institutionalized Adults in the NHIS-D: Gender, Age, and Disability Differences

Introduction

The National Health Interview Survey (NHIS) conducted by the U.S. Bureau of the Census, National Center on Health Statistics, provides information on the health status and needs of Americans in the non-institutionalized population. In 1994-95, a special Disability Supplement (NHIS-D) was added to the NHIS Core Survey. The NHIS-D provides a rare opportunity to identify and compare groups of Americans with different types and degrees of disability on a wide range of demographic, health status, functional, socio-economic, and other factors.

Adults with disabilities are a heterogeneous group with regard to level of participation in, and access to, social activities.

To date, most available research on adults with disabilities has focused on subgroups of adults with specific types of disabilities and/or persons who are identified by being the recipients of particular types of services. Information on adults with disabilities within the general

household population, that is, persons living in non-specialized (“non-institutional”) housing, has been available from several national household surveys, including the NHIS, the Medical Expenditure Panel Survey, and the Survey of Income and Program Participation. These surveys have been limited, however, in the comprehensiveness of information gathered about adults with disabilities and, as a result, in their capac-

About This *Data Brief*

In *MR/DD Data Brief 3(1)*, we described the social activities of adults with intellectual and/or developmental disabilities (ID/DD) using the National Health Interview Survey Disability Supplement (NHIS-D). Our main finding was that the most common social activities for individuals with ID/DD were getting together with friends or neighbors, meeting relatives, and talking on the phone with friends or neighbors. This *DD Data Brief* takes the next step by comparing social activities of adults with ID/DD to those of adults with other types of disabilities. It also uses inferential statistics to identify factors (including access to transportation and work history) associated with differences in social activity participation.

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ity for identifying and grouping persons by number, severity, and/or nature of conditions causing limitations in major areas of daily activity. Most research on disability is designed to support societal commitments to improve treatment and understanding of, service delivery to, and quality of life for adults within established categories of disability or specific disability-related programs. This pragmatic tendency may overlook similar challenges and needs among adults with different “types” of disabilities, for example people with functional limitations first occurring in adulthood versus people with intellectual or developmental disabilities.

This *DD Data Brief* examines similarities among four groups of adults (persons aged 18 and older), examining the relationships between various social activities and age, gender, disability, health status, race, and work status for adults with disabilities. The four groups are:

- 1) Persons with one or two significant functional limitations but not intellectual and/or developmental disabilities (FL1).
- 2) Persons with three or more significant functional limitations but not intellectual or developmental disabilities (FL3).
- 3) Persons with intellectual disabilities only (i.e., they have the label of intellectual disabilities but no more than two significant functional limitations) (ID).
- 4) Persons with three or more significant functional limitations first occurring during the developmental period (i.e., developmental disabilities, or both intellectual and developmental disabilities) (IDD).

We also compare adults aged 18 to 34 years, adults aged 35 to 64 years, and adults aged 65 and older. These groups are compared on social activity, work status, and access to transportation.

Methodology

The NHIS-D collected nationally representative information on non-institutionalized persons with disabilities who were part of the annual NHIS sample of approximately 108,000 persons in 48,000 households. The NHIS-D gathered more specific information than the NHIS Core Survey on diagnostic, functional, social, and behavioral characteristics; service needs and use; and general circumstances and experiences of sample members with disabilities. The NHIS-D was conducted in two phases. Phase I was completed at the time of the initial NHIS household survey with reference to all household members. The NHIS Core and NHIS-D Phase I surveys were used to identify persons with disabilities to be included in Phase II follow-back surveys, which typically occurred three to eight months after the initial household visit. Separate Phase II surveys were developed for children and adults, and included detailed questions about in-home and out-of-home social and health services; housing and family structure; and physical, emotional, and social functioning of sample members. This *DD Data Brief* is based on items from the Core Survey and the Phase I and Phase II Disability Supplements.

Assignment of individuals to disability categories followed the protocol used by Larson, Lakin, Kwak, and Anderson (2001a) (please refer to that article for detailed operational definitions). The seven areas of functional limitation specified in the Developmental Disabilities Act were used to identify disability status. Persons who had three or more significant functional limitations that occurred before age 18 were assigned to the IDD group. Persons with one or two significant functional limitations who also had a label of intellectual disabilities were assigned to the ID only group. Persons with one or more functional limitations who did not meet the criteria for ID or IDD were assigned to one of two functional limitations “FL” groups: One group was for people with one or two functional limitations (FL1), the other was for people with three or more functional limitations (FL3) (see Larson et al., 2001a for a detailed operational definition).

The NHIS-D was conducted for two consecutive years. For this analysis, the 1994–95 samples were combined to create a sample of sufficient size to better represent low incidence disabilities such as ID. Because the NHIS-D is a stratified, non-random survey that over-samples minorities, population weights are assigned to each case. As the 1994–95 samples were combined, the final population weights were adjusted (divided by two) before computing population estimates. Statistical analyses were conducted using the SUDAAN statistical package to account for the weighting of data and for the complex sampling design used for the NHIS-D. Standard errors are presented as relative standard errors (RSE), which was computed by dividing the standard of error of estimate by the population estimate and multiplying the result by 100. Odds ratios were calculated using logistic regression. When odds ratios of less than 1 were reported, the inverse of the odds ratio was used to describe the percentage difference between the group of interest and the referent group. For example, an odds ratio of .54 was translated in the text to mean that the group was 85% less likely than the referent group to experience the dependent variable (1 divided by .54 = 1.85). For space reasons, beta's and *t*-test statistics are not presented for analyses using logistic regression. They are available from the first author upon request and are posted on the NHIS-D project Web site (<http://rtc.umn.edu/nhis/>).

Results

Prevalence of Disability and Limitations
The 1994-95 NHIS-D yielded estimates of 15.4 million adults with one or more substantial functional limitations but not intellectual and/or developmental disabilities. Another 1.5 million adults were identified with intellectual and/or developmental disabilities (Larson, et al., 2001b). Table 1 shows the gender, age, and disability distribution of the sample population of non-institutionalized adults. The sample included 3,874 men and 6,076 women with disabilities. Based on the population weights, we estimate that there were approximately 6.5

million men (plus or minus 2.75%) and 9.5 million women (plus or minus 2.55%) with disabilities in the U.S. non-institutionalized population in 1995. An estimated 2.8 million adults with disabilities were in the 18 to 34 year old age group, 6.5 million were aged 35 to 64, and 6.7 million were 65 years and older. As for the distribution of disability groups, an estimated 411,000 had only an intellectual disability; 1,149,000 had developmental disabilities or both intellectual and developmental disabilities; 11,629,000 adults experienced one or two significant functional limitations but not intellectual or developmental disabilities; and an estimated 2,861,000 adults had three or more significant functional limitations but not intellectual or developmental disabilities.

Earlier studies have reported that age is associated with the presence of functional limitations (Doljanac, Larson, and Lakin, 2004). To gather additional information about this, a series of *t*-tests were used to compare mean age across disability type within age groupings (see Table 2). For persons aged 18 to 34 years, indi-

Table 1: Gender, Age and Disability Group of Adults with Disabilities in the NHIS-D

	Sample Size	Estimated Population in 1,000's	RSE
Gender			
Male	3,874	6,476	2.75
Female	6,076	9,575	2.55
Age Categories			
18 - 34	1,549	2,823	3.43
35 - 64	4,070	6,507	2.87
65 and above	4,331	6,721	2.90
Disability Groups			
ID Only	223	411	7.74
IDD	659	1,149	5.54
FL1	7,203	11,629	2.55
FL3	1,865	2,861	3.29

ID = Intellectual Disabilities with no more than two functional limitations; IDD = Intellectual Disabilities and or those with three or more Developmental Disabilities; FL1 = One or Two Significant Functional Limitations but not ID or IDD; FL3 = Three or More Significant Functional Limitations but not ID or IDD; RSE = Relative Standard Error

viduals with three or more functional limitations were significantly older than any of the three other disability groups. In the 35 to 64 years of age group, persons in the IDD group and those with ID only were significantly younger than persons in either FL group and again, those with three or more functional limitations were older than those with two or fewer limitations. An identical pattern was found for individuals 65 years of age and older. Again, individuals with ID or IDD were significantly younger than those in either FL group, and those with two or fewer FL's were younger than persons with three or more limitations. The pattern of ages for men and women were very similar to the pattern for the group as a whole.

Social Activities in the Previous Two Weeks

A series of chi-square analyses were used to examine the relationship between common social activities and disability status. Table 3 summarizes the percentages of non-institutionalized adults engaging in each of 10 social activities investigated in this study. There were significant differences between the four disability groups in reported prevalence of social activities in the previous two weeks for all 10 activities. The mean reported number of social activities across disability groups can be found in Appendix A.

Individuals in the FL1 group were most likely to report meeting with their friends and neighbors (67% did so). Adults in either the ID or IDD groups were the next most likely to have those interactions (65% and 63%). Adults in the FL3 group were the least likely to report meeting with friends or neighbors (50%). In terms of talking on the phone with friends or neighbors, adults with FL1 were most likely to engage in the behavior (77%) and adults with IDD were least likely to do so (53%). This particular difference is probably related to the increased likelihood that adults with IDD have significant functional limitations with communication compared with adults who have only functional limitations (Larson et al., 2001a).

Adults with one to two functional limitations were most likely to meet with family members during the previous two weeks (71%)

followed by adults with three or more functional limitations (67%). This compares to 63% for adults with ID only and 62% for adults with IDD (62%). The differences between the groups were larger with regard to talking on the phone with relatives or family members. Most adults in the FL1 group talked on the phone with family in the previous two weeks (82%), as did most of the adults in the FL3 group (64%). Fewer adults in the ID (63%) or IDD (56%) groups used the phone to talk with family members. This particular difference between the groups is probably due to the fact that adults with intellectual and/or developmental disabilities are much more likely to live with family members than adults with functional limitations (see Larson et al., 2001a).

Persons in the FL1 group were most likely to report attending a religious activity in the previous two weeks (38%). ID and IDD group members came next with no major differences in percentages (34% and 35%). Individuals in the FL3 group had the lowest attendance at religious activities (26%).

When asked about attending activities such as movies or sporting events, persons with ID and IDD reported the highest rates of attendance (29%). They were closely followed by individuals with two or fewer FL's (25%). Persons with three or more FL's were much less likely to have attended such events in the previous two weeks (11%). Another common social activity is eating out at restaurants. Nearly 58% of persons with two or fewer FL's reported performing this activity. They were closely followed by individuals with ID (55%) and then by those with IDD (51%). Only 36% of individuals with three or more FL's reported engaging in this social activity during the previous two weeks.

Overall, adults with ID only were the most likely to have left their home every day for the past two weeks (66%). An estimated 56% of adults with one or two FL's, and 53% of adults with IDD left home every day. However, only 27% of adults with three or more FL's reported leaving home every day in the past two weeks. Fewer than 10% of adults in the IDD, ID and FL1 groups never left their homes in the past

Table 2: Average Age for Adults in the U.S. Non-Institutionalized Population by Disability Group

Age Group		Total Sample				Sig. Group Differences
		ID Only	IDD	FL1	FL3	
18 - 34 years	Mean	25.3	25.9	26.0	30.7	3, 5, 6
	SD	5.1	5.1	5.4	2.5	
35 - 64 years	Mean	46.5	44.9	50.2	52.1	2, 3, 4, 5, 6
	SD	8.2	7.9	8.8	8.2	
65 years and older	Mean	72.2	72.7	76.9	77.7	2, 3, 4, 5, 6
	SD	6.1	7.0	7.5	8.4	
Age Group		Females Only				Sig. Group Differences
		ID Only	IDD	FL1	FL3	
18 - 34 years	Mean	25.6	25.7	26.4	30.4	3, 5, 6
	SD	4.9	4.9	5.2	2.8	
35 - 64 years	Mean	47.6	45.2	50.4	52.3	3, 4, 5, 6
	SD	8.6	7.9	8.7	8.2	
65 years and older	Mean	73.5	73.4	77.3	78.4	3, 5, 6
	SD	6.6	7.1	7.5	8.6	
Age Group		Males Only				Sig. Group Differences
		ID Only	IDD	FL1	FL3	
18 - 34 years	Mean	25.0	26.0	25.5	30.9	3, 5, 6
	SD	5.3	5.3	5.6	2.1	
35 - 64 years	Mean	45.6	44.6	50.0	52.0	2, 3, 4, 5, 6
	SD	7.7	7.9	8.9	8.2	
65 years and older	Mean	70.0	71.9	76.1	76.2	2, 3
	SD	4.5	7.0	7.4	8.0	

Significant Group Differences (*t*-test): 1 = ID vs. IDD; 2 = ID vs. FL1; 3 = ID vs. FL3; 4 = IDD vs. FL1; 5 = IDD vs. FL3; 6 = FL1 vs. FL3

two weeks compared with 16% of adults in the FL3 group. Adults with ID only and one or two FL's were most likely to report being satisfied with the frequency of social activity (56% and 60% respectively). Adults with IDD or three or more FL's were less likely to be satisfied (45%).

Variables Associated with Participation in Social Activities

Based on our previous research on characteristics and needs of adults with disabilities, we know that type of disability, gender, age, health status, race, and income status are related to many of the outcomes experienced by individuals with disabilities (Doljanac, Larson, and

Table 3: Prevalence of Social Activities in the Previous Two Weeks for Adults in the U.S. Non-Institutionalized Population by Disability Group

Social Activity	ID Only			IDD			FL1			FL3			X ²	Sig.
	%	Est. Pop. in 1,000's	RSE	%	Est. Pop. in 1,000's	RSE	%	Est. Pop. in 1,000's	RSE	%	Est. Pop. in 1,000's	RSE		
Meet with friends or neighbors	64.5	262	0.9	63.2	711	6.9	67.5	7,631	2.8	50.3	1,325	4.3	120.46	***
Talk on phone to friends or neighbors	56.3	22	9.6	52.8	41	7.0	76.8	228	2.6	63.9	64	3.8	168.08	***
Meet with relatives or family	62.7	24	9.6	61.6	48	6.9	70.9	210	2.6	67.1	64	3.6	25.51	***
Talk on phone with relatives or family	62.8	252	10.9	55.9	621	6.7	82.1	9,251	2.6	74.1	1,976	3.6	139.85	***
Attend religious services	33.9	137	13.8	34.5	385	8.5	38.3	4,314	3.1	26.1	699	5.4	84.64	***
Attend events, e.g. movies, sports, etc.	28.6	116	14.9	28.5	319	9.2	25.0	2,816	3.6	11.0	295	7.8	186.43	***
Eat at a restaurant	54.6	221	10.9	50.7	569	7.1	57.9	6,519	2.8	35.9	958	5.2	229.08	***
Go out every day	65.9	267	10.1	52.8	591	6.9	56.2	6,293	3.0	27.3	721	5.6	308.85	***
Did not leave home at all	1.6	3	45.4	8.1	17	19.3	4.7	33	6.2	16.4	30	6.9	130.75	***
Satisfied with frequency of social activities	56.4	152	12.1	45.1	251	10.1	59.7	5,842	2.9	45.2	908	5.4	77.48	***

Italics = Relative Standard Error exceeding 30% (the estimate is considered unreliable)

*** p < .001; ** p < .01; * p < .05

RSE = Relative Standard Error

Table 4: Transportation Activities and Related Issues for Adults in the U.S. Non-Institutionalized Population by Disability Group

Transportation Activity in the Previous Two Weeks	ID Only			IDD			FL1			FL3			X ²	Sig.
	%	Est. Pop. in 1,000's	RSE	%	Est. Pop. in 1,000's	RSE	%	Est. Pop. in 1,000's	RSE	%	Est. Pop. in 1,000's	RSE		
Drove a car	37.4	154	12.2	28.4	327	9.6	65.2	7,568	2.9	37.9	1,084	4.8	432.13	***
Used public transportation†	38.1	99	12.2	29.7	225	10.2	21.9	1,675	4.2	11.0	205	10.4	124.32	***
Used special transportation†	68.4	214	11.7	68.7	680	7.3	65.9	6,154	3.2	68.3	1,586	4.4	4.08	
Had difficulty using public transportation†	18.1	42	21.1	52.0	342	9.7	32.6	2,096	3.9	69.2	1,061	5.0	276.11	***
Impairment caused problems in use of public transportation†	17.8	7	26.4	53.0	26	10.1	20.9	53	4.5	58.9	44	4.8	365.90	***

† = The analyses regarding use of public or special transportation only included people who reported living in communities where such transportation was available.

*** p < .001; ** p < .01; * p < .05

RSE = Relative Standard Error

Lakin, 2004; Anderson, Larson, Lakin, and Kwak, 2003). Here we will examine how those factors are associated with participation in social activities. However, before doing so, we will look at two other factors that we hypothesize are associated with outcomes related to social activities: access to transportation and work status.

Access to Transportation. Closely related to engaging in social activities is the ability to get to the activity. We hypothesize that affordable and accessible transportation is an important factor in social participation by adults with disabilities. Table 4 summarizes the types of transportation used by non-institutionalized adults with disabilities in the two weeks prior to the survey. (The mean number of transportation activities reported in this study can be found in Appendix B). With the exception of special transportation use (where available), there were significant differences between the disability groups in rated transportation activities. Between 65% and 68% of all adults with disabilities who had access to special transportation reported using it. However, the use of other forms of transportation varied. A total of 63% of adults with one to two FL's reported driving a car within the previous two weeks while only 28% of those with IDD indicated similar experiences. Approximately one-third of adults with ID only (37%) or three or more FL's (38%) reported driving a car. Conversely, the highest percentage of public transportation use was reported by those with ID only (38%) and those with IDD (30%), while those with more than three FL's had the lowest use at 11%.

Individuals were also asked if they had difficulties using public transportation. Adults with more than three FL's (69%) and IDD (52%) reported the highest level of problems in using public transportation. Those with ID only (18%) or one or two FL's (33%) were less likely to report difficulties with public transportation. Similar patterns were found when adults were asked if their impairment caused problems in using public transportation. Again, the highest indicated percentage of problems was for those with three or more

FL's (59%), followed by adults with IDD (53%).

To better explain how some factors impacted transportation activities and problems related to the use of transportation, a series of logistic regressions was performed, the results of which can be found in Table 5. For driving a car, the variables used in this analysis accounted for nearly 27% of the explained variance. Persons with FL's were significantly more likely to have driven a car than those in the ID or IDD. Adults with two or fewer FL's and those with three or more FL's were respectively over 5 times and over 2 times more likely to have driven a car than adults with ID or IDD. The influence of work status is also evident as those who are currently working are over 7 times more likely to have driven a car than those who had never worked. Adults who were retired or had formerly worked were 2.8 and 2.2 times respectively more likely to driven in the previous two weeks than were persons who had never been employed. Adults with disabilities who were in poor to fair health (84%) and those who had incomes below the poverty level (76%) were significantly less likely to have driven in the previous two weeks. Women were 71% less likely to have driven a car, and those who lived with other family members were 69% less likely to drive a car. Race also played a significant role as those identified as Black (46%) or Other (63%) were significantly less likely to have driven a car in the previous two weeks when compared to Whites. And as expected, those 65 years of age and older were 24% less likely to drive when compared to those in the youngest age group.

The variables used in this analysis accounted for approximately 10% of the variability in the use of public transportation by adults with disabilities. Race and economic status had positive influences on public transportation use, while age, disability group, sex, and living situation had negative influences. Those who reported themselves as Black were twice more likely to use public transportation as Whites. Adults living below the poverty level were 50% more likely to use this form of transportation as the comparison group. Individuals with the most disabilities (IDD and FL3) were the least likely to use public transportation. Women

Table 5: Logistic Regression for Transportation Activities in the Previous Two Weeks for Adults with Disabilities in the U.S. Non-Institutionalized Population†

Characteristic	Drove a Car		Used Public Transportation		Had Difficulty Using Public Transportation	
	Odds Ratio	Sig.	Odds Ratio	Sig.	Odds Ratio	Sig.
Intercept	0.36	***	1.07		0.12	***
Disability Group						
ID Only	1.00		1.00		1.00	
IDD	0.90		0.55	**	5.33	***
FL1	5.85	***	0.74		1.29	
FL3	2.02	***	0.32	***	4.68	***
Gender						
Male	1.00		1.00		1.00	
Female	0.71	***	0.78	***	1.36	***
Age						
18 to 34 years	1.00		1.00		1.00	
35 to 64 years	0.94		0.72	**	1.92	***
65 years and above	0.24	***	0.29	***	4.18	***
Overall Health Status						
Excellent or very good	1.00		1.00		1.00	
Good	0.92		1.01		1.29	*
Fair to poor	0.84	*	0.95		1.55	***
Race						
White	1.00		1.00		1.00	
Black	0.46	***	2.06	***	0.99	
Other	0.63	*	1.52		1.34	
Work Status						
Never worked	1.00		1.00		1.00	
Currently working	7.68	***	0.87		0.36	***
Retired	2.82	***	0.84		0.81	
Formerly worked	2.18	***	1.04		0.66	**
Economic Status						
At or above the poverty level	1.00		1.00		1.00	
Below the poverty level	0.76	***	1.53	***	0.89	
Living Situation						
Lives alone or with non-relative	1.00		1.00		1.00	
Lives with spouse	1.70	***	0.43	***	1.12	
Lives with other family relation	0.69	***	0.67	***	1.45	***
R ²	0.269	***	0.099	***	0.192	***

† = Phase 2

*** p < .001; ** p < .01; * p < .05

were 78% less likely to use public transportation than men. Adults between 35 to 64 years of age and those older than 65 were respectively 72% and 29% less likely to use public transportation than those in the younger age group. Persons who lived with their spouse or with other family members were 43% and 67% less likely to use public transportation than adults who lived alone or with a non-relative.

The variables in this analysis accounted for 19% of the variability in difficulties using transportation. Adults with the most disabilities (IDD and FL3) reported significantly more difficulty using transportation than the ID and FL1 groups. Adults with disabilities who were 65 and older were 4.2 times more likely to report difficulties using transportation than adults ages 18 to 34. Individuals who were not in excellent health, adult women, and those who lived with non-spousal family members were all significantly more likely to report difficulties in using transportation. Persons either currently working or who had formerly worked were less likely to have transportation difficulties when compared to those who had never worked.

Work Status. Work provides the context for one of the more common social activities for adults. Table 6 summarizes the work status of adults with disabilities. A chi-square analysis was performed to examine the relationship between disability type and work. There are significant differences between disability groups in their workforce participation. Overall, 34% of adults with IDD and over 25% of those with ID only have never worked compared with fewer than 10% of adults in the FL1 and FL3 categories. By contrast, nearly 43% of those with one to two FLs were working at the time of the survey. They were followed by adults with ID only (35%) and those with IDD (27.2%). Only 9.7% of those with three or more FLs indicated that they were working. There were also major differences in retirement status. More than 54% of those with three or more FLs were retired compared to 22.3% of adults with one or two significant FLs and only 11% of adults with ID only or IDD. The proportion of adults in each

group who had worked at one time but who were neither currently working nor retired was very similar across the groups (ranging from 28% to 29%).

A logistic regression was conducted using only those adults under the age of 65 to examine the factors associated with work status for working age adults with disabilities (see Table 7). Nearly 9% of the variability in whether a person was currently working was accounted for by disability group, gender, health status, race, and living situation. Adults with ID were significantly less likely to be working than adults with one or two FLs or adults with three or more FLs but not adults with IDD. Race was another important variable as adults identified as Black or Other were respectively 59% and 46% less likely to be currently working compared to Whites. Women were 44% less likely to be working than men and adults who lived with family members other than their spouse were 41% less likely to be employed as compared to those who either lived alone or with non-relatives. Reported difficulties in transportation use was also important as adults who reported difficulties in accessing transportation were over 90% less likely to be working than those without transportation issues.

Factors Associated with Frequency of Social Activities

Given the pattern of associations between access to transportation, work participation and disability status for our analysis of factors associated with social participation we will include those variables along with those examined in previous research (gender, age, health status, race, income status, and living situation).

Frequency of Participation. Table 8 summarizes the factors associated with frequency of social activities in the previous two weeks for non-institutionalized adults. In a logistic regression, 29% of the variability in “Going outside the house every day” was accounted for by gender, age, health status, work status, and difficulty accessing transportation. Women were 72% less likely than men to go outside the

Table 6: Work Activities for Adults in the U.S. Non-Institutionalized Population by Disability Group

Work Activity	ID Only			IDD			FL1			FL3		
	%	Est. Pop. in 1,000's	RSE	%	Est. Pop. in 1,000's	RSE	%	Est. Pop. in 1,000's	RSE	%	Est. Pop. in 1,000's	RSE
Never worked	25.1	95	14.2	34.0	364	9.3	6.8	438	6.6	7.2	100	15.3
Currently working	35.0	133	16.2	27.2	292	9.6	42.8	2,767	3.6	9.7	134	13.0
Retired	10.7	41	25.2	11.0	118	14.6	22.3	1,442	4.2	54.5	755	5.5
Formerly worked	29.2	111	13.7	27.9	299	9.8	28.2	1,821	4.3	28.6	396	6.7
Work Activity	X ²		Sig.									
	469.00		***									

RSE = Relative Standard Error
 *** p < .001; ** p < .01; * p < .05

Table 7: Logistic Regression Factors Affecting Currently Working Adults Age 18 to 64 Years with Disabilities in the U.S. Non-Institutionalized Population†

	Odds Ratio	Sig.
Intercept	16.65	***
Disability Group		
ID Only	1.00	
IDD	0.80	
FL1	3.37	***
FL3	4.27	***
Gender		
Male	1.00	
Female	0.44	***
Overall Health Status		
Excellent or very good	1.00	
Good	0.78	
Fair to poor	0.89	
Race		
White	1.00	
Black	0.59	**
Other	0.46	*
Living Situation		
Lives alone or with non-relative	1.00	
Lives with spouse	0.81	
Lives with other family relation	0.41	***
Difficulty Accessing Transportation		
Not difficult	1.00	
Difficult	0.52	***
R ²	0.087	***

† = Phase 2

*** p < .001; ** p < .01; * p < .05

home daily. Age also played a major role as individuals 65 and older were 275% less likely to go outside the home daily than those in the 18 to 34 age group. Adults in the 35 to 64 age group were 49% less likely to leave their homes daily than those in the younger comparison group. Adults who identified themselves as being in fair to poor health were 55% less likely to leave their homes daily than those in excellent health. Work status was also important as those who were currently working and those who were retired were respectively nearly 8 times and 34% more likely to leave their homes daily as those who never worked. Adults who

reported having difficulties in accessing transportation were over 2.75 times more likely to not leave their house on a daily basis than those adults without transportation issues.

Desire for More Participation. A separate logistic regression analysis revealed that 6% of the variability in reporting the desire to engage in more social activities could be accounted for by age, race, health status, work status, income level, and problems in accessing transportation (see Table 8). Adults 65 years of age and above were 77% more likely to desire more social activities than those in either of the other age groups. Blacks were 26% more likely than Whites to indicate that they desire more social activities. Persons with fair to poor health were 55% more likely to report having enough social activities than adults in excellent health. Those who had formerly worked but were not retired were 82% less likely to want to do more activities than were those who never worked, were currently working or had retired. Persons living below the poverty level were 24% more likely to be content with their level of social activities than those at or above the poverty level. Adults who reported having difficulties in accessing transportation were 72% more likely to report that they did not desire to engage in more social activities beyond their present level.

Participation in Seven Specific Social Activities

Table 9 summarizes the factors associated with participation in seven types of social activities in the previous two weeks for non-institutionalized adults with ID, IDD, FL1 or FL3.

Getting Together with Friends or Neighbors. Overall, nearly 9% of the variability in getting together with friends or neighbors was accounted for by the variables used in this logistic regression analysis. Adults who had two or fewer FL's were 15% more likely to interact with their friends or neighbors than were adults with ID only while those with IDD were 7% more likely to engage in this activity than adults with ID only. Adults who were working were 53% more likely to socialize with

Table 8: Logistic Regression Factors Affecting Social Activities in the Previous Two Weeks for Adults with Disabilities in the U.S. Non-Institutionalized Population†

	Went Outside the House Every Day		Would Like to Do More Social Activities	
	Odds Ratio	Sig.	Odds Ratio	Sig.
Intercept	2.86	**	1.68	***
Disability Group				
ID Only	1.00		1.00	
IDD	0.95		0.71	
FL1	1.31		1.26	
FL3	0.69		1.02	
Gender				
Male	1.00		1.00	
Female	0.58	***	1.01	
Age				
18 to 34 years	1.00		1.00	
35 to 64 years	0.67	**	1.11	
65 years and older	0.36	***	1.77	***
Overall Health Status				
Excellent or very good	1.00		1.00	
Good	0.85		0.94	
Fair to poor	0.65	***	0.65	***
Race				
White	1.00		1.00	
Black	0.85		1.26	*
Other	0.76		0.86	
Work Status				
Never worked	1.00		1.00	
Currently working	7.98	***	0.86	
Retired	1.34	*	0.75	
Formerly worked	1.30		0.55	***
Economic Status				
At or above poverty level	1.00		1.00	
Below poverty level	0.87		0.81	*
Living Situation				
Lives alone or with non-relative	1.00		1.00	
Lives with spouse	1.09		1.10	
Lives with other family relation	0.85	**	0.93	
Difficulty Accessing Transportation				
Not difficult	1.00		1.00	
Difficult	0.36	***	0.58	***
R ²	0.288	***	0.059	***

† = Phase 2; *** p < .001; ** p < .01; * p < .05

their friends or neighbors than were the other work categories. Age, health, race, living situation, and transportation difficulties were all negatively related to socializing in person with friends or neighbors. Adults 35 to 64 years and 65 years and above were 200% and over 233% less likely to get together with friends or neighbors than those in the youngest age group. Those in fair to poor health were 49% less likely to meet with friends or neighbors. Blacks were 61% less likely to interact with their friends or neighbors. Adults living with family members other than their spouse were 35% less likely to meet with their friends or neighbors than were those who lived in other settings. Adults who had difficulty accessing transportation were 75% less likely to have met with friends or neighbors in the past two weeks.

Talking on Phone with Friends or Neighbors. Similar patterns were found for talking on the phone with friends or neighbors where the variables used accounted for nearly 9% of the variability. Here, disability type, gender, age, work status, economic status, living situation, and transportation difficulties all had influences on this behavior. Adults with either two or fewer FL's or more than three FL's were respectively over 3 and over 2 times more likely to talk on the phone with their friends or neighbors than adults with ID only or those with IDD. Women were over 2 times more likely to engage in this behavior than were their male counterparts. Work status again played a major role as those who were working, had worked or were retired were respectively 230%, 63% and 39% more likely to talk on the phone with their friends or neighbors than were those who had never worked. Age, poverty, living situation, and transportation difficulties were all negatively related to talking on the phone with friends or neighbors. Adults 35 to 64 years and 65 years and above were 45% and over 200% less likely to talk on the phone with friends or neighbors than those in the youngest age group. Individuals living below the poverty level were 54% less likely to engage in this activity. In the area of living situations, adults living with their spouse were

Table 9: Logistic Regression Factors Affecting Social Activities for Adults with Disabilities in the U.S. Non-Institutionalized Population†

	Meet with Friends or Neighbors		Talk on Phone with Friends or Neighbors		Meet with Family or Relatives		Talk on Phone with Family or Relatives		Attend Religious Services		Attend Events, e.g., movies		Eat at a Restaurant	
	Odds Ratio	Sig.	Odds Ratio	Sig.	Odds Ratio	Sig.	Odds Ratio	Sig.	Odds Ratio	Sig.	Odds Ratio	Sig.	Odds Ratio	Sig.
Intercept	2.87	***	1.26		2.61		1.00		0.41	**	0.61		2.779	***
Disability Group														
ID Only	1.00		1.00		1.00		1.00		1.00		1.00		1.00	
IDD	2.07	**	1.62		1.14		1.07		1.23		1.41		1.25	
FL1	2.15	**	3.35	***	1.08		1.80	**	0.83		1.29		1.19	
FL3	1.52		2.29	***	0.91		1.26		0.58	*	0.88		0.68	
Gender														
Male	1.00		1.00	***	1.00	***	1.00	***	1.00	***	1.00	*	1.00	
Female	1.12		2.32	***	1.13	***	2.53	***	1.51	***	1.22		1.17	
Age														
18 to 34 years	1.00		1.00		1.00		1.00		1.00		1.00		1.00	
35 to 64 years	0.50	**	0.69	**	1.01		1.21		1.52	***	0.61	***	0.72	**
65 years and older	0.43	**	0.44	***	1.04		0.89		1.62	***	0.35	***	0.61	***
Overall Health Status														
Excellent or very good	1.00		1.00		1.00		1.00		1.00		1.00		1.00	
Good	0.97		0.98		1.02		1.14		0.93		0.78	**	0.73	*
Fair to poor	0.67	***	0.96		0.98		1.15		0.78	*	0.54	***	0.56	***
Race														
White	1.00		1.00		1.00		1.00		1.00		1.00		1.00	
Black	0.62	***	0.97		0.99		1.19		2.27	***	0.68	**	0.36	**
Other	0.93		0.64		0.84		0.63		0.59	*	0.64	*	0.73	
Work Status														
Never worked	1.00		1.00		1.00		1.00		1.00		1.00		1.00	
Currently working	1.53	**	2.30	***	1.14		2.65	***	1.26		2.65	***	2.77	***
Retired	1.18		1.63	**	1.17		2.25	***	1.08		1.85	**	1.43	*
Formerly worked	1.12		1.39	*	1.17		2.00	***	0.96		1.65	**	1.19	
Economic Status														
At or above poverty level	1.00		1.00	***	1.00	***	1.00	***	1.00	**	1.00	***	1.00	***
Below poverty level	0.92		0.65		0.73		0.65		0.75		0.47		0.55	
Living Situation														
Lives alone or with non-relative	1.00		1.00	***	1.00		1.00		1.00		1.00		1.00	
Lives with spouse	0.84		0.69	***	1.19		1.02		1.30	**	0.78	*	0.91	***
Lives with other family relation	0.74	**	0.45	***	0.96		0.45	***	0.98		0.89		0.73	***
Difficulty Accessing Transportation														
Not difficult	1.00		1.00	**	1.00		1.00	**	1.00	***	1.00	***	1.00	***
Difficult	0.57	***	0.77		0.73		0.77		0.57	***	0.56		0.53	***
R ²	0.087	***	0.088	***	0.013	***	0.084	***	0.058	***	0.128	***	0.171	***

† = Phase 2; *** p < .001; ** p < .01; * p < .05

45% and those living with other family members were over 200% less likely to talk on the phone with their friends or neighbors than were those who lived alone or with non-relatives. Adults who reported difficulty in using transportation were 30% less likely to talk on the phone than those without such difficulties.

Getting Together with Family or Relatives. The variables examined accounted for only 1% of the variability in meeting with family members or relatives. Adult women were 13% more likely to meet with family members than their respective comparison groups. Persons living below the poverty level were 37% less likely to meet with their family members. This was one of the most common activities for all the groups. Along with talking on the phone to family members and friends, it is the activity least affected by age, race, health, and disability status.

Talking on Phone with Family or Relatives. Over 8% of the variability in talking on the phone with family members or relatives was accounted for by the variables examined. Gender, work status, and disability type had positive effects on this behavior. Women were over two and one-half times more likely to talk on the phone than males. Work status was also especially relevant as those who were either currently working, retired, or had formerly worked were approximately two to two and one-half times more likely to talk on the phone to family members than those who had never worked. Living situation, poverty level, and difficulty using transportation due to disability were negatively associated with talking on the phone with family members. Adults who lived with other family members were over twice as likely as those living alone or with non-relatives to not talk on the phone with family members. Persons living in households with incomes of less than the federal poverty level were approximately 54% less likely to use the phone to talk with their family. Adults with disabilities who reported experiencing difficulties in using public transportation were 30% less likely to talk on the telephone with family members.

Going Out to Religious Services. The factors examined in this study accounted for nearly 6% of the variability in participation in religious activity. Race, gender, age, and living status were all positively associated with religious attendance. Among adults with disabilities, people self-identified as being Black were over twice as likely to attend religious services as Whites. Women were 50% more likely to attend services than men. Adults 35 to 64 years and those older than 65 years were respectively 52% and 62% more likely to attend religious services than adults younger than 35. Disability group, health status, race, poverty level, and difficulty in transportation use all had negative effects on religious attendance. Adults with three or more FL's were 70% less likely to attend religious services than those in the other disability groups. Persons of Other races were 69% less likely to go to services than were Whites. Those in fair to poor health were 28% less likely to go to religious services than those in excellent health. Adults living below the poverty level were 33% less likely to attend services as those living at or above the poverty line. Lastly, adults who reported having difficulty using transportation due to their disability were 75% less likely to attend religious services than those without transportation issues.

Going Out to Events. The variables examined accounted for nearly 13% of the explained variance in going out to movies or sporting events. Work status and gender were positively associated with going to events such as movies. Those who were currently working, had worked, or were retired were respectively 265%, 85% and 65% more likely to go outside the house for an event than those who never worked. Women were also 22% more likely to go to an event than were males. Factors that had a negative effect on going out to an event or activity included age, health status, race, poverty level, living situation, and transportation difficulties. Adults between 35 and 64 years of age were 64% less likely to go out to an event while those 65 and older were over 250% less likely to go out than those aged 34 and younger. Individuals who reported themselves

to be in good health were 28% less likely to go out to an event while those in fair to poor health were 85% less likely to not go out as those in excellent health. Persons who were Black or Other were 47% and 56% less likely to go out to an event as were Whites. Individuals who lived with their spouse were 28% less likely to go out than those living alone or with a non-relative and adults living below the poverty level were twice as less likely to go out to events as adults living above the poverty level. Adults who had transportation difficulties were 79% less likely to attend social events as those without transportation problems.

Going Out to Eat. The variables examined also accounted for 17% of the variability in going out to eat in a restaurant. Work status had a positive association with this behavior as individuals who were currently working were two and three-quarters more likely to go out to a restaurant than those who had never worked. Those who were retired were 35% more likely to go out to eat than those who had never worked. Age, race, poverty, living situation, and transportation difficulties all had strong negative associations with going out to eat. Persons older than 65 years of age were 64% less likely to go out to eat than those in the youngest age group. Those aged 35 to 64 were 39% less likely to go out to eat than the comparison group. Blacks were over two and three-quarters times less likely to go out to eat as Whites. Persons living below the poverty level were 82% less likely to eat out than those above this level. Adults living with non-spousal family members were 37% less likely to eat at restaurants than were those living alone or with non-relatives. Those individuals reporting transportation problems were 89% less likely to go out to a restaurant as those without transportation issues.

Discussion

Previous issues of *DD Data Brief* have described some of the differences between non-institutionalized persons with intellectual disabilities, intellectual and/or developmental disabilities, and those with other types of significant functional limitations. In this issue, we have examined the differences between adults in these groups in participation in common social activities and discovered a number of key findings for consideration in policy and program development.

Effect of Intellectual or Developmental Disability on Social Participation

The presence of an intellectual or developmental disability affected social participation.

Specific findings of interest are the following:

- Adults in the ID only group were less likely to either meet or talk on the phone with friends or neighbors than those in the IDD, FL1, or FL3 groups.
- Those with the most functional limitations were the least likely to attend religious services.

These findings suggest that those with ID living in the community should receive support in developing skills to meet and interact with their neighbors. A lack of personal phones or the need to use “communal” phones may account for the lack of phone use. Additional community support also appears to be necessary for those with the most limitations to attend and participate in religious services.

Consistent Factors Associated with Social Participation

Some of the most consistent factors associated with participation in social activities were work status/history, living situation, transportation difficulties, age, and gender. Findings included:

- Adults who had ever worked were consistently more likely to interact with friends, neighbors, or family, to go out for social events, and to have recently attended religious services.

- Adults living with either their spouse or with other family members were less likely to socialize with friends or neighbors, talk with family or go out for events than persons who lived alone or with non-family members.
- Difficulties in using transportation had a negative affect on participation in all social activities used in this study.
- Age contributed to the results as adults 35 and older were less likely to interact with their friends or neighbors and attend social events or go to restaurants than those in the younger age group.
- Gender was important as women were consistently more likely to engage in all the social behaviors used in this study.

The findings from this analysis support the important role that work and the opportunity to work plays in social interactions; those adults who have worked were significantly more likely to engage in social activities than those who had never worked. Transportation was also found to be important because problems in the use of public transportation had a negative effect on all forms of social participation. Some expected findings were confirmed: women were found to be more likely to engage in social activities than their male counterparts, and adults over the age of 35 were found to have lower rates of social participation than adults under the age of 35.

Other Factors Associated with Social Participation

Additional factors associated with participation in social activities included health, race, and income. Specifically:

- Those with the poorest health were less likely to interact with their neighbors or to go out of the house to participate in religious services or other social events. However, this group also indicated a desire to engage in more social activities.
- Race played a role in social participation as those identifying as Black or Other were less likely to interact with neighbors, use the phone to communicate with family or go out for social events. However, Blacks were significantly more likely to attend religious events than Whites.
- The impact of income on socialization was observed in the finding that those living below the poverty level were less likely to engage in any social activities when compared to their financially better-off peers.

The results of this series of analyses confirm findings from other studies that health lessens individuals' ability to leave their homes and interact with others, despite a strong desire to pursue more activities. This suggests the need for additional analyses to determine why this happens (e.g. transportation issues, frailty), in order to develop processes that help such persons better engage in activities. Similar confirmatory results were found for individuals living below the poverty level because there was a direct relationship between financial level and social participation. While a lack of money might be a continuing problem, developing an easily accessible system for identifying free local events would be advantageous. Findings on race also confirmed expectations as Blacks were much more likely to attend religious services than their White peers. Further studies need to examine why Blacks have lower interactions with their neighbors and attendance at social events. Improved transportation and knowledge of available events might address this issue.

The Role of Transportation

While having a desire and interest in attending and participating in social activities is important, having the ability to actually get around is just as relevant. Findings showed the following:

- Only those with few functional limitations had high rates of car usage. Given this finding, persons with ID, IDD or FL3, must rely on other forms of transportation to participate in social activities.
- Adults with ID and IDD had the highest reported use of public transportation, but only 30 to 38% of adults in these categories actually used it. A closer examination of public transportation use indicated that

those with the most limitations used public transportation the least.

- Women, those older than 34, and persons who lived with family members were also infrequent users of this mode of transportation.
- The highest users of public transportation were Blacks and those adults living below the poverty level.

The finding that persons with ID, IDD or FL3 had low rates of auto use suggests the importance of public transportation for these individuals to access their communities. This finding was confirmed for those in the ID and IDD groups as they had high reported use. However, more work is required to identify why less than 40% of persons in these groups actually used public transportation and develop approaches to improve this rate of usage. This may indicate a need for more training and better support in the use of available public transportation.

The Role of Work

Work, especially in our culture, plays another major role in the life of adults. It helps define who we are as well as enabling the full participation in the social fabric of our culture.

Specific findings related to work as an area of social participation are:

- Persons with significant FL's were between 3 to 4 times more likely to be working than those with ID.
- Over one-third of adults with ID and over one-quarter of those with IDD were currently working.
- However, 25% of adults with ID and 34% of those with IDD have never worked compared to approximately 7% of those with FL's.

Given the importance of work, it is disturbing that so many adults with ID and IDD have never worked in their lives. Continued training and support for persons with ID or IDD in finding and keeping decent-paying jobs must be a priority as work allows for greater participation in the social fabric of their communities.

Conclusion

Clearly adults with disabilities are a heterogeneous group with regard to social activities, as well as level of participation and means of access to them. Many factors influence participation. As policies are developed around public transportation, employment, and personal supports, the impact of these supports on social roles should be considered. A one-size-fits-all policy might be the easiest to implement, but is unlikely to meet the heterogeneous social roles and needs of adults with various types of disabilities. Understanding the patterns of participation in various social activities and roles can assist in creating policies that will meet the unique needs of various groups of constituents with disabilities.

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Appendix A: Mean Frequency of Social Activities in the Previous Two Weeks for Adults in the U.S. Non-Institutionalized Population by Disability Group

Social Activity	ID Only	IDD	FL1	FL3	Significant <i>t</i> -tests Between Groups
Meet with friends or neighbors	3.59	3.30	3.26	2.40	5, 6
Talk on phone to friends or neighbors	1.44	1.48	1.24	1.36	2, 4, 6
Meet with relatives or family	2.75	2.63	3.34	3.33	
Talk on phone to relatives or family	3.24	3.88	6.27	6.21	2, 3, 4, 5
Attend religious services	0.97	0.83	0.99	0.64	5, 6
Attend events, e.g. movies, sports, etc.	0.74	0.81	0.63	0.24	3, 5, 6
Eat at a restaurant	1.75	1.44	1.98	1.07	4, 5, 6
Go out every day*	0.64	0.50	0.55	0.27	1, 3, 5, 6
Did not leave home**	0.98	0.92	0.95	0.84	1, 2, 3, 5, 6
Satisfied with frequency of social activities	0.56	0.45	0.60	0.46	4, 6

Significant differences between groups: 1 = ID vs. IDD; 2 = ID vs. FL1; 3 = ID vs. FL3; 4 = IDD vs. FL1; 5 = IDD vs. FL3; 6 = FL1 vs. FL3.

* 1 = Yes; 0 = No

** 1 = Not enough; 0 = Enough

Appendix B: Percent of People Using Transportation Options and Related Issues in the Previous Two Weeks for Adults in the U.S. Non-Institutionalized Population by Disability Group

Social Activity	ID Only	IDD	FL1	FL3	Significant <i>t</i> -tests Between Groups
Drove a car	36.7	26.6	63.9	37.1	2, 4, 5, 6
Used public transportation*	40.1	31.6	22.5	11.5	2, 3, 4, 5, 6
Used special transportation*	70.0	67.3	66.0	68.7	
Received transportation services*	5.5	20.1	4.1	9.3	1, 4, 5, 6
Had difficulty using transportation*	22.3	51.7	33.4	68.9	1, 2, 3, 4, 5, 6
Impairment caused problems in transportation use*	21.7	55.4	21.9	58.5	1, 3, 4, 6

Significant differences between groups: 1 = ID vs. IDD; 2 = ID vs. FL1; 3 = ID vs. FL3; 4 = IDD vs. FL1; 5 = IDD vs. FL3; 6 = FL1 vs. FL3.

* 1 = Yes; 0 = No

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