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Demographic Characteristics of Persons with MR/DD Living in Their Own Homes or With Family Members: NHIS-D Analysis

Introduction

Few studies of persons with mental retardation and/or developmental disabilities (MR/DD) use census-based household surveys. As a result, we have little information about the characteristics, needs, and service use patterns of non-institutionalized people with MR/DD in the general population. The Disability Supplement (NHIS-D) to the 1994 and 1995 National Health Interview Surveys provides a unique opportunity to learn about the demographic characteristics, including economic status, of people with MR/DD.

An estimated 32.6% of non-institutionalized U.S. residents with MR/DD live in households with incomes below the poverty level, compared with 12.9% of all other residents.

To identify NHIS-D sample members with MR/DD we developed operational definitions that corresponded to accepted definitions of mental retardation as a specific "condition" and developmental disabilities as manifested in substantial impairments in major life activities attributable to one or more of many possible conditions. "Mental retardation" was identified among sample members when a) people were identified by household respondents as having mental retardation; b) mental retardation was cited as the cause of age-specific general activity limitations, limitations in specific skill areas (e.g., communication) or reasons for specific services; and c) persons with reported primary conditions that were highly related to mental retarda-

About the NHIS

In 1994 and 1995, the National Health Interview Survey included a Disability Supplement (NHIS-D) that collected extensive information about disabilities among the individuals sampled as part of the annual census-based household interview surveys. The NHIS focuses on the civilian, noninstitutionalized population in the United States, describing demographic characteristics, health status, functional limitations, and supports and services used.

We identified 3,076 individuals in the combined 1994/1995 NHIS-D sample as having mental retardation and/or developmental disabilities (MR/DD), estimating that 3,887,158 (plus or minus 1.9%) non-institutionalized Americans meet the criteria for one or both of these categories, a prevalence rate of 1.49%. An additional 245,720 people with MR/DD are estimated to be living in nursing homes, psychiatric facilities or congregate care (institutional) settings of four or more residents.

This issue of *MR/DD Data Brief* describes people with MR/DD living in the community in terms of demographic characteristics and economic status. Those characteristics are analyzed to determine how they are interrelated, and are compared to those of the general population.

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tion (e.g., autism, cerebral palsy, Down syndrome, hydrocephalus) were reported to have limitations in major life activities and substantial limitations in the area of learning. "Developmental disabilities" was identified among sample members when specific items within the NHIS-D interviews indicated that the person was "unable" or "has serious difficulty" in performing age-appropriately in three or more of seven areas – self-care, expressive or receptive language, learning, mobility, self-direction, capacity for independent living and economic self-sufficiency – and the difficulty was evident before age 22 and expected to last longer than a year. Specific details of the items and wordings making up the "mental retardation" and "developmental disabilities" definitions are provided in *MR/DD Data Brief,* volume 2, number 1.

Our initial identification of persons with MR/DD within the NHIS-D revealed that while there is overlap between mental retardation (as defined categorically) and developmental disabilities (as defined by functional limitations), the groups are not the same (Larson et al., 2001). Across all age groups, 28% of people who met the criteria for mental retardation or developmental disabilities met both criteria, 24% met the criteria for mental retardation but not for developmental disabilities, and 48% met the criteria for developmental disabilities but not for mental retardation. That earlier work also described age-related differences in the proportion meeting one or both criteria. In this *Data Brief,* we extend those analyses by examining the interaction between the disability categories and race, gender, economic status, family status, living arrangement, and education.

Methodology

In 1994 and 1995, a special supplement was appended to the National Health Interview Survey (NHIS) to gather nationally representative information on non-institutionalized persons with disabilities who were identified as part of the annual NHIS sample of approximately 108,000 persons in 48,000 households. This special Disability Supplement (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 regular NHIS Core and Phase I supplemental data were used to identify persons with disabilities to be included in Phase II follow-back interviews, which occurred several months after the initial household visit. Separate Phase II interviews 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.

One of the strengths of the NHIS-D is that the same survey was given to independent samples in each of the two years. This increased sample size allowed more reliable sampling of low-incidence disabilities such as mental retardation and developmental disabilities. To use this strength, we combined the 1994 and 1995 samples using the final population weights divided by two before computing the estimates reported here. We provide estimates of characteristics of non-institutionalized people without MR/DD based on the NHIS samples for the sake of comparison.

We conducted Chi-square analyses using the Taylor Linearization Method in the SUDAAN statistical package to account for the weighting of data and for the complex sampling design used in the NHIS-D (Shah, Barnwell, & Bieler, 1997). Where we provide population estimates, we calculated the standard error of estimate using SUDAAN. We present standard error as relative standard error (RSE), which was computed by dividing the standard error of estimate by the population estimate and multiplying the result by 100. Since the NHIS-D was administered to a sample of people from the population rather than to every person in the U.S., we can only use its findings to estimate the true number in the population with a particular characteristic. Adding and subtracting the RSE to and from the population estimate indicates the range of values into which the true population value can be expected to fall 68 times out of 100. Plus or minus twice the RSE provides the range of values that would include the true population value for a characteristic 95 times out of 100. As the RSE increases, the precision of the estimate

decreases and our confidence about the estimate decreases. By convention, an RSE exceeding 30% indicates an unreliable population estimate (Adams & Marano, 1995).

For this *MR/DD Data Brief*, the category MR/DD includes all persons identified from the NHIS-D who had mental retardation (as defined categorically), developmental disabilities (as defined functionally), or both. This combined group was used for most of the analyses. For age-specific analyses, we separated individuals who met the categorical definition for mental retardation from those who met the functional definition for developmental disabilities. Four resulting groups were analyzed:

- MR not DD – individuals who met the categorical definition for mental retardation but who did not have the three or more significant functional limitations required for the developmental disabilities category;
- DD not MR – individuals who had three or more significant functional limitations that occurred during the developmental period but who did not meet the categorical definition of mental retardation;
- MR and DD – individuals who met both the categorical definition of mental retardation and the functional definition for developmental disabilities;
- Neither MR nor DD – individuals who did not meet either definition.

The definitions and process used to identify these categories was fully described in a previous *MR/DD Data Brief* (Larson et al., 2000).

Results

Prevalence of MR/DD

This *Data Brief* contains a series of analyses to clarify the characteristics of people with MR/DD. The first set of analyses simply describes the population estimates, prevalence estimates, and RSE for people with MR/DD. For this first set of analyses, all persons who met the criteria for mental retardation, developmental disabilities, or both are combined.

Prevalence by Demographic Groups. Table 1 shows the prevalence of mental retardation and developmental disabilities by age, gender, racial group, economic status, educational status, and place of residence (for unmarried individuals under 25 years old). Based on the NHIS-D 1994/1995, the overall prevalence of mental retardation and/or developmental disabilities was 14.9 per 1,000 of the general population. When persons living in institutions (i.e., places with four or more residents) are included, the prevalence was 15.8 per 1,000. This suggested that an estimated 3,887,158 non-institutionalized Americans (plus or minus 2.4% or 93,292) had either mental retardation or developmental disabilities or both. The prevalence of MR/DD in relation to six demographic characteristics was as follows:

- **Age.** In 1994/1995, an estimated 939,617 (+/- 4.3% or 43,222) young children from 0-5 years old, 1,452,359 children 6-17 years old, and 1,495,183 adults in the U.S. had either mental retardation, developmental disabilities, or both. Prevalence estimates ranged from 38.4 per 1,000 for young children to 7.9 per 1,000 for persons ages 18 and older.
- **Race.** Due to sample size limitations, race was defined as white, black, and other. An estimated 2,930,031 people with MR/DD in the United States were white, 800,040 were black, and 157,088 were from other racial backgrounds. Prevalence estimates were 13.3 per 1,000 for persons of "other" races, 13.6 per 1,000 for persons who were white, and 24.3 per 1,000 for persons who were black.
- **Gender.** An estimated 2,378,766 males in the U.S. had MR/DD (18.7 per 1,000), compared with 1,508,392 females (11.3 per 1,000).
- **Economic Status.** An estimated 2,380,584 of the people living at or above poverty level had MR/DD (11.3 per 1,000 living at or above poverty level). By contrast, 1,152,200 of the people living below the poverty level had MR/DD (36.1 per 1,000 persons living below poverty level).
- **Education.** An estimated 170,899 adults with MR/DD had no formal education, 290,829 had 1-8 years of education, 255,945 had 9-11 years of education, and 701,082 had 12 or more years of education. As the prevalence column indicates, approximately 1 in 5 adults in the non-institutionalized population who had no formal education had MR/DD (221.1 per 1,000 persons with no formal education). This is

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Table 1: Prevalence of MR/DD in Various Segments of the U.S. Non-Institutionalized Population

Characteristic	Population Estimate	Prevalence of MR/DD (N per 1,000)	Relative Standard Error (RSE)
Total	3,887,158	14.9	2.4%
Age Group			
0-5 years	939,617	38.4	4.3%
6-17 years	1,452,359	31.7	3.8%
18+ years	1,495,183	7.9	3.7%
Gender			
Male	2,378,766	18.7	2.9%
Female	1,508,392	11.3	3.3%
Racial Group			
White	2,930,031	13.6	2.6%
Black	800,040	24.3	5.5%
Other	157,088	13.3	13.7%
Education (Adults only)			
None	170,899	221.1	10.8%
1-8 years	290,829	20.3	7.6%
9-11 years	255,945	12.2	7.7%
12+ years	701,082	4.6	5.2%
Economic Status			
At or above poverty level	2,380,584	11.3	3.0%
Below poverty level	1,152,200	36.1	4.2%
Never Married, Under 25, Lives With:			
Both parents	1,638,729	27.1	3.4%
Mother	832,617	47.3	4.8%
Father	53,833	28.9	16.9%
Other relative	115,374	43.5	13.2%
Other	32,157	6.7	22.2%

Relative Standard Error = Standard Error / N * 100

considerably higher than the overall prevalence rate for MR/DD among adults (7.9 per 1,000). On the other hand, of all adults in the United States with 12 or more years of education, only 4.6 per 1,000 had MR/DD.

- **Living Arrangement.** An estimated 1,638,729 unmarried children (ages 0-17) and young adults (ages 18-24) with MR/DD lived with both parents. Of all children and young adults living with both parents, 27.1 per 1,000 were individuals with MR/DD. Among children and young adults with MR/DD, 832,617 lived with only their mothers, 53,833 lived with only their fathers, 115,374 lived with other relatives, and 32,157 lived with non-relatives. Of all children and young adults who lived only with their mothers, 47.3 per 1,000 had MR/DD.

Differences Between Persons With MR/DD and the General Population

The second set of analyses compared the characteristics of individuals with MR/DD to those not meeting the MR/DD criteria (see Table 2). We observed dramatic and statistically significant age differences between persons with MR/DD and those who did not meet the MR/DD criteria. For example, while 73.5% of the general population was 18 years or older, only 38.5% of the individuals with MR/DD were 18 years or older (X^2 = 720.21, p < .001). These differences were probably related to differences in how developmental disabilities were defined for children versus adults, as well as to differences in role expectations (e.g., academic achievement for children in school, independent living for adults).

The groups also varied in gender with females comprising 51.5% of the general population but only 38.8% of individuals with MR/DD.

While not as pronounced, there were also significant racial differences between these groups. Specifically, while 83.0% of the general population was white, only 75.4% of the MR/DD group was. Conversely, while only 12.5% of the general population was black, 20.6% of individuals with MR/DD were.

The groups also differed significantly in regard to educational attainment, economic status, and living arrangement. Adults with MR/DD had significantly lower educational attainment than those without MR/DD. Individuals with MR/DD were significantly more likely to be living below the poverty level (32.6% vs. 12.9%).

Table 2: Demographic Characteristics of the U.S. Non-Institutionalized Population – All Ages

Characteristic	People With MR/DD	People Without MR/DD	X^2
Age Group			
0-5 years	24.2%	9.2%	720.21**
6-17 years	37.4%	17.3%	
18+ years	38.5%	73.5%	
Gender			
Male	61.2%	48.5%	167.89**
Female	38.8%	51.5%	
Racial Group			
White	75.4%	83.0%	73.81**
Black	20.6%	12.5%	
Other	4.1%	4.5%	
Education (Adults only)			
None	12.1%	0.3%	222.29**
1-8 years	20.5%	7.5%	
9-11 years	18.0%	11.0%	
12+ years	49.5%	81.2%	
Economic Status			
At or above poverty level	67.4%	87.1%	281.97**
Below poverty level	32.6%	12.9%	
Never Married, Under 25 Lives With:			
Both parents	61.3%	69.5%	169.2**
Mother	31.2%	19.8%	
Father	2.0%	2.1%	
Other relative	4.3%	3.0%	
Other	1.2%	5.6%	

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

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Finally, children and young adults with MR/DD were less likely to be living with both parents and more likely to be living with just their mother or with another relative.

Prevalence by Age Group

Table 3 shows that prevalence estimates for MR/DD varied across the lifespan. Clearly, the prevalence of MR/DD was highest for young children and lowest for older adults. Some age-related differences in prevalence were due to differences in the definition of mental retardation and developmental disabilities across age groups. Those differences in definition occurred both because the NHIS-D asked different questions of persons of different ages, and because the DD Act definition for young children is less proscriptive than for older children and adults. These differences made it easier for young children to be classified as having MR/DD. As a result, definitional differences likely account for much of the difference in prevalence of MR/DD between individuals ages 0-5 and those ages 6-17. Even though the definition of developmental disabilities specifies significant functional limitations in three or more areas, two of the seven areas (economic self-sufficiency and capacity for independent living) are not relevant for individuals younger than 18 years. Table 3 shows a substantial drop in the estimated prevalence of MR/DD between school-age children and adults. This decline continues in adulthood so that among individuals ages 25-34 years, 0.9% met the criteria for MR/DD, while only 0.4% of individuals 65 years or older met the criteria.

Age-Specific Demographic Characteristics

The differences in prevalence and in the definitions used across ages made additional analysis of demographic characteristics within age groups necessary to provide more clarity about the interaction between MR/DD and various demographic characteristics. This section examines demographic characteristics by the age groups we used in developing MR/DD definitions (0-5 years, 6-17 years, 18+ years).

Children Ages 0-5. Very few (12%) of the young children who were identified by our MR/DD definitions met the categorical definition for mental retardation. Therefore, in this analysis we combined all children with MR/DD who were ages 5 and younger into a single group. As Table 4 shows, young children with MR/DD differed from young children without MR/DD in gender, economic status, and living arrangements. Specifically, while 48.9% of young children without MR/DD were female, only 38.8% of young children with MR/DD were female. Young children with MR/DD were more likely to be living in households with incomes below the poverty level (32.7% vs. 21.8%). They were also less likely to be living with both parents, and more likely to be living with just their mother, or with other relatives. There were no differences in race between young children with MR/DD and those without.

Children Ages 6-17. Table 5 shows differences in demographic characteristics for children ages 6-17 by disability group. Children without MR/DD were nearly equally divided by gender with

Table 3. Estimated Ages of People With MR/DD in U.S. Non-Institutionalized Population

Age Group	N in Sample with MR/DD	Estimated N with MR/DD	Total N in Population	% of Population with MR/DD	RSE
0-5 years	767	939,617	24,465,484	3.8%	4.3%
6-16 years	1,119	1,358,311	42,364,761	3.2%	3.9%
17-24 years	296	424,645	28,625,499	1.5%	7.3%
25-34 years	289	388,776	41,072,850	0.9%	5.9%
35-44 years	272	356,187	41,930,078	0.8%	7.0%
45-54 years	159	203,726	30,321,785	0.7%	8.9%
55-64 years	78	101,023	20,742,253	0.5%	11.6%
65+ years	96	114,875	31,406,065	0.4%	10.4%

Table 4: Demographic Characteristics of the U.S. Non-Institutionalized Population – Children Ages 0-5

Characteristic	Young Children With MR/DD	Young Children Without MR/DD	X^2
Estimated Population[a]	939,617	23,525,867	
Gender			
Male	61.2%	51.1%	24.62**
Female	38.8%	48.9%	
Racial Group			
White	76.2%	78.8%	3.33
Black	19.4%	16.2%	
Other	4.4%	5.0%	
Economic Status			
At or above poverty level	67.3%	78.2%	28.31**
Below poverty level	32.7%	21.8%	
Lives With:			
Both parents	66.2%	76.3%	28.49**
Mother	29.1%	21.1%	
Father	1.3%	1.2%	
Other relative	3.5%	1.4%	
Other	0.0%	0.0%	

[a] From Larson et al., 2000
* $p < .05$; ** $p < .01$; *** $p < .001$

49.5% female. Among children with developmental disabilities (DD not MR or MR and DD), about 30% were female, while 38.5% of children with MR but not DD were female.

Children in the four groups also differed in race. Among children without MR/DD, almost 80% were white, 15.6% were black, and 4.7% were another race. All three of the disability groups deviated from those without MR/DD. Children identified as having mental retardation but not developmental disabilities were much more likely to be black than those without MR/DD and were less likely to be white or of another race. Similarly, children with both mental retardation and developmental disabilities were more likely to be black and less likely to be white, but did not differ from those without MR/DD in the proportion of another race (i.e., not white, not black). Children with developmental disabilities but not mental retardation were racially similar to those without MR/DD, in that the proportion who were white in each group was very similar. Children with developmental disabilities but not mental retardation, however, were more likely to be black and less likely to be of another race than those without MR/DD. In summary, then, children with mental retardation (whether or not they also had developmental disabilities) were much more likely to be black than those in the general population or those with developmental disabilities but not mental retardation.

The economic status of children ages 6-17 also varied by disability group. Only 17.6% of children 6-17 years old who did not have MR/DD lived in households whose income was below the federal poverty level. Among children who had developmental disabilities (either alone or concurrently with mental retardation), about 30% lived in households with incomes below the

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Table 5: Demographic Characteristics of the U.S. Non-Institutionalized Population – Children Ages 6-17

Characteristic	MR not DD	DD not MR	MR and DD	Neither MR nor DD	X^2
Estimated Population[a]	558,828	829,658	372,637	44,431,286	
Gender					
Male	61.5%	70.9%	69.6%	50.5%	82.89**
Female	38.5%	29.1%	30.4%	49.5%	
Racial Group					
White	71.6%	78.0%	72.7%	79.7%	27.81**
Black	26.0%	19.2%	23.0%	15.6%	
Other	2.4%	2.8%	4.3%	4.7%	
Economic Status					
At or above poverty level	60.0%	71.7%	69.1%	82.4%	71.50**
Below poverty level	40.0%	28.3%	30.9%	17.6%	
Never Married, Lives With:					
Both parents	61.1%	58.3%	57.0%	74.3%	102.95**
Mother	31.1%	33.8%	36.4%	20.5%	
Father	3.1%	2.6%	2.0%	2.4%	
Other relative	4.7%	5.3%	4.6%	2.6%	
Other	0.0%	0.0%	0.0%	0.2%	

[a] From Larson et al., 2000
* $p < .05$; ** $p < .01$; *** $p < .001$

federal poverty level. By contrast, 40% of children who met the categorical definition of mental retardation but who did not have three or more significant functional limitations (developmental disabilities) lived in households with incomes below the federal poverty level.

The pattern of living arrangements for children was more consistent across the three disability groups. Most children without MR/DD (74.3%) lived with both parents, and most of the rest lived with their mothers only (20.5%). Children in all three of the disability groups were less likely to be living with both parents (57.0-61.1%) and more likely to be living with just their mothers (31.1-36.4%) or with another relative (4.6-5.3%).

Adults. Among adults without MR/DD, 47.8% were male compared to 55.2-56.4% of adults with MR/DD (see Table 6). Unlike school-age children, the gender distribution was fairly consistent across the three disability groups for adults. As with young children and school-age children, the proportion of males was higher among persons with MR/DD than among individuals without MR/DD; among adults, however, the degree of difference was less. These findings support observations that males are more likely to be identified as having MR/DD during their school years but often shed their identity as a person with MR/DD in adulthood. Males with MR/DD are also more likely in adulthood to be institutionalized than females (e.g., the Online Survey Certification and Reporting data for 1999 indicated that 57.8% of ICF-MR residents were male; Karon & Beutel, 2000). The NHIS-D data do not permit further exploration of these explanations.

Among adults, the biggest racial differences occurred between the general population (those without MR/DD) and adults who had both mental retardation and developmental disabilities. Adults with both MR and DD were less likely to be white (71.4% vs. 84.3%) than the general population and more likely to be black (22.4% vs. 11.3%) or of another race (6.2% vs.

Table 6: Demographic Characteristics of the U.S. Non-Institutionalized Population – Adults Ages 18+

Characteristic	MR not DD	DD not MR	MR and DD	Neither MR nor DD	X^2
Estimated Population[a]	386,263	829,658	606,023	188,918,705	
Gender					
Male	55.2%	56.4%	55.3%	47.8%	24.80**
Female	44.8%	43.6%	44.7%	52.3%	
Racial Group					
White	77.1%	80.8%	71.4%	84.3%	42.63**
Black	19.3%	15.2%	22.4%	11.3%	
Other	3.6%	4.0%	6.2%	4.4%	
Education					
None	3.2%	3.3%	25.7%	0.3%	229.68**
1-8 years	25.6%	15.1%	21.9%	7.5%	
9-11 years	21.9%	18.3%	15.3%	11.0%	
12+ years	49.3%	63.3%	37.1%	81.2%	
Economic Status					
At or above poverty level	71.5%	63.2%	70.5%	89.3%	141.42**
Below poverty level	28.5%	36.8%	29.5%	10.7%	
Living Arrangement					
Alone or with unrelated persons	16.0%	32.4%	18.1%	16.7%	495.7***
With spouse	22.2%	23.8%	9.3%	63.4%	
With relative (parent, sibling, etc.)	61.8%	43.9%	72.6%	19.9%	

[a] From Larson et al., 2000

*p<.05, **p<.01, ***p<.001

4.4%). Among adults with MR but not DD and adults with DD but not MR, individuals who were black were also over-represented. There was less variation from the racial distributions of the general population among these groups than among persons with both MR and DD.

The three disability groups all differed from the general population in their educational status. While 81.2% of the non-MR/DD population was estimated to have completed 12 or more years of schooling, those with MR/DD were much less likely to have done so. Among the three disability groups, adults with developmental disabilities but not mental retardation were most likely to have completed 12 or more years of schooling (63.3%). About half (49.3%) of adults with mental retardation but not developmental disabilities had completed 12 or more years of education, while only 37.1% of adults with both mental retardation and developmental disabilities had. One in four (25.7%) adults with both mental retardation and developmental disabilities reported having no public education, and one in five (21.9%) reported having only 1-8 years of education.

Among adults, the three disability groups also differed from the general population in regard to their economic status. Specifically, while only 10.7% of adults in the general population reported living in households with incomes below the federal poverty level, approximately 30% of adults with mental retardation with or without developmental disabilities and 36.8% of adults with developmental disabilities (but not mental retardation) lived in households with income below the federal poverty level.

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Living arrangements varied dramatically for adults depending on their disability status. Adults with neither MR nor DD most often lived with a spouse (63%). Fewer than one in five lived alone or with a relative. The pattern was different for adults with DD but not MR. In that group, 44% lived with a family member, 32% lived alone, and 24% lived with a spouse. Most adults with MR but not DD lived with a relative such as a parent or sibling, with fewer than one in four living alone or with a spouse. Adults with both MR and DD were least likely to live with a spouse (9%) and most likely to live with a relative (73%).

Factors Associated with Disability Group and Poverty Status

Our initial analyses examined the association of various characteristics with disability group one variable at a time. The next step was to use a logistic regression analysis to identify the relative contribution each characteristic makes in predicting membership in the various disability groups. Because of the substantial age-related differences in both the definition of disability and in the demographic characteristics of individuals, a series of three analyses were used, one for each age group (0-5 years, 6-17 years, and 18+ years).

Young Children and Disability Group. The first logistic regression analysis examined the relationship between various socioeconomic factors and the presence of mental retardation or developmental disabilities among children ages 0-5. Earlier, we reported racial differences in the proportion of children with MR/DD versus the general population. This analysis was undertaken to account for other factors including gender, poverty status, parental education, and living arrangement to see if those racial differences persisted. The overall effect of these variables on disability group was significant (Wald F for model minus intercept = 17.35; df = 5; $p < .001$). As Table 7 shows, once gender, poverty status, parental education, and living arrangement were accounted for, racial group no longer was a significant factor in discriminating between young children with and without MR/DD. All of the other factors added significantly to discriminating between disability groups for

Table 7. Logistic Regression Results for Children Ages 0-5: Factors Associated With Disability Group

Variable	Beta	T-Test	Odds Ratio
Intercept	-3.717	-43.688***	0.02
Gender		4.559***	
Male	0.395		1.48
Female	0.00		1.00
Racial Group		-.209	
White	0.00		1.00
Other	-0.024		0.98
Household Economic Status		2.829**	
At or above poverty level	0.00		1.00
Below poverty level	0.315		1.37
Living Arrangement		3.579***	
Both parents	0.00		1.00
Single parent or other	0.383		1.47
Highest Education of Adult Family Member		2.113*	
High school or less	0.198		1.22
One or more years of college	0.00		1.00

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

young children. Specifically, after accounting for all of the other factors, young boys were 1.48 times more likely to have been identified as having MR/DD than young girls, and children living in a household with incomes below the poverty level were 1.37 times more likely to have MR/DD than children living in households with incomes at or above the poverty level. Children whose parent with the most formal education had not gone beyond high school were 1.22 times more likely to have MR/DD than children who had at least one parent with some college education. Finally, children who were living with a single parent or who were living with someone other than their parents were 1.47 times more likely to have MR/DD than those living with both parents. Among young children, gender, poverty, family education level, and living arrangements were all associated with having MR/DD.

Young Children and Economic Status. A second analysis of young children examined whether, controlling for other factors, children's living below the poverty level was associated with their being identified with MR/DD (see Table 8). The overall effect of these variables on poverty status was significant (Wald F for model minus intercept = 349.2; $df = 5$; $p < .001$). Poverty status was associated with racial group (individuals who were not white were 2.10 times more likely to live in poverty), parental education (families whose most educated adult had a high school education or less were 6.27 times more likely to live in poverty), and living arrangement (children who did not live with both parents 4.54 times more likely to live in poverty). Once race, disability status, education, and living arrangements were accounted for, the gender of the child was not related to whether that child lived in a home with an income lower than the poverty level. However, once all of those factors were accounted for, the disability status of young children was associated with poverty status. Specifically, children with MR/DD were 1.41 times more likely to live in households with less than poverty level income than children who did not have these disabilities.

Children and Disability Status. Because the operational definition of mental retardation and developmental disability varied substantially for young children and school-age children (with the

Table 8. Logistic Regression Results for Children Ages 0-5: Factors Associated With Household Poverty

Variable	Beta	T-Test	Odds Ratio
Intercept	-3.005	-45.25***	
Gender		0.20	
Male	0.01		1.01
Female	0.00		1.00
Racial Group		10.78***	
White	0.00		1.00
Other	0.74		2.10
Living Arrangement		24.99***	
Both parents	0.00		1.00
Single parent or other	1.51		4.54
Highest Education of Adult Family Member		28.19***	
High school or less	1.84		6.27
One or more years of college	0.00		1.00
Disability Status (MR/DD)		3.14**	
No	0.00		1.00
Yes	0.34		1.41

*$p < .05$; ** $p < .01$; *** $p < .001$; R^2=.224

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criteria making it easier for young children to be identified as having developmental disabilities than older children), we replicated the logistic regression analysis conducted for young children with school-age children (ages 6-17). In the first analysis for school-age children, we analyzed what factors contributed to whether a child would be identified as having mental retardation or developmental disabilities. The results are shown in Table 9. The overall effect of these variables on disability group was significant (Wald F for model minus intercept = 60.79; df = 5; $p < .001$). The pattern of results on Tables 7 and 9 is almost identical, with the odds ratios for older children being slightly higher for each factor than with young children. Specifically, once gender, poverty status, highest education of an adult family member, and living arrangement were accounted for, race was not associated with the presence of MR/DD among children ages 6-17. The presence of MR/DD was associated with gender (with boys 2.02 times more likely than girls to have MR/DD), poverty status (with children living in homes with incomes below the poverty level 1.65 times more likely to have MR/DD), parental education level (with children whose parents had a high school education or less being 1.62 times more likely to have MR/DD), and living arrangement (with children living in single parent or other types of homes 1.55 times more likely to have MR/DD).

Children and Economic Status. The second analysis for school-age children examined whether disability group was associated with household poverty level after gender, racial group, parental education, and living arrangement were accounted for (see Table 10). The overall effect of these variables on poverty status was significant (Wald F for model minus intercept = 356.31; df = 5; $p < .001$). As with young children, gender of a school-age child was not associated with household economic status. Among school-age children, household poverty status was associated with race (with children who were not white being 2.17 times more likely to be living in a household with income less than the poverty level), highest level of education of an adult family member (with children living with a parent with high school education or less 5.44 times more likely to be living in poverty), and living arrangement (with children living

Table 9. Logistic Regression Results for Children Ages 6-17: Factors Associated With Disability Group

Variable	Beta	T-Test	Odds Ratio
Intercept	-4.37	-57.66***	0.01
Gender		9.19***	
Male	0.71		2.02
Female	0.00		1.00
Racial Group		-0.93	
White	0.00		1.00
Other	-0.82		0.92
Household Economic Status		5.04***	
At or above poverty level	0.00		1.00
Below poverty level	0.50		1.65
Living Arrangement		5.05***	
Both parents	0.00		1.00
Single parent or other	0.44		1.55
Highest Education of Adult Family Member		5.64***	
High school or less	0.48		1.62
One or more years of college	0.00		1.00

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

Table 10. Logistic Regression for Children Ages 6-17: Factors Associated With Household Economic Status

Variable	Beta	T-Test	Odds Ratio
Intercept	-3.28	-55.90***	0.04
Gender		0.10	
Male	0.00		1.00
Female	0.00		1.00
Racial Group		12.81***	
White	0.00		1.00
Other	0.77		2.17
Living Arrangement		31.07***	
Both parents	0.00		1.00
Single parent or other	1.51		4.55
Highest Education of Adult Family Member		29.19***	
High school or less	1.69		5.44
One or more years of college	0.00		1.00
Disability Status (MR/DD)			
Neither MR nor DD	0.00		1.00
MR not DD	0.27	1.59	1.31
DD not MR	0.89	5.60***	2.43
Both MR and DD	0.30	1.68	1.35

*$p < .05$; ** $p < .01$; *** $p < .001$; R^2=.191

with a single parent or a non-parent 4.55 times more likely to be living in poverty). Once these factors were accounted for, disability status was also associated with household poverty status among school-age children. Specifically, school-age children with mental retardation who did not have three or more substantial functional limitations (as required for identification as having a developmental disability) were 2.43 times more likely to be living in poverty than children without MR/DD. Among school-age children, having mental retardation (with or without a developmental disability) was not significantly associated with living in poverty.

Adults and Economic Status. For adults, we tested the impact of gender, race, disability status, educational attainment, and living arrangement on whether an adult lived in a household with poverty-level income (see Table 11). The overall effect of these variables on poverty status was statistically significant (Wald F for model minus intercept = 1322.79; df = 10; $p < .001$). Adult poverty status was associated with gender (women were 1.34 times more likely to live in poverty), racial group (people who were not white were 2.37 times more likely to live in poverty), education level (people with no education were 5.7 times more likely, people with 1-8 years of education were 5.0 times more likely, and people with 9-11 years of education were 3.33 times more likely than those with a high school diploma or equivalent to live in poverty), and living arrangements (people living alone or with a non-relative were 1.43 times more likely to live in poverty than people living with a relative; people living with a spouse were 2.54 times less likely to be living in poverty than people living with a relative).

After these factors were taken into account, disability group was associated with poverty status such that adults with mental retardation but not developmental disabilities were 3.04 times more likely to live in poverty than adults without MR/DD, and people with developmental disabilities but not mental retardation were 1.52 times more likely to live in poverty than adults without MR/DD. There was no difference in poverty status (once the other factors were taken

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Table 11. Logistic Regression Results for Adults: Factors Associated With Household Economic Status

Variable	Beta	T-Test	Odds Ratio
Intercept	-2.13	-74.62	0.12
Gender		-12.92***	
Male	-0.29		0.75
Female	0.00		1.00
Racial Group		21.64***	
White	0.00		1.00
Other	0.86		2.37
Highest Education			
None	1.75	14.91***	5.74
1-8 years	1.61	40.76***	5.00
9-11 years	1.20	36.86***	3.33
12+ years	0.00		1.00
Living Arrangement			
Alone or with unrelated person	0.36	6.66***	1.43
With relative (parent, sibling, other)	0.00		1.00
With spouse	-0.93	-30.21***	0.39
Disability Status (MR/DD)			
Neither MR nor DD	0.00		1.00
MR not DD	1.11	8.30***	3.04
DD not MR	0.42	2.21*	1.52
Both MR and DD	0.12	0.67	1.13

*$p < .05$; ** $p < .01$; *** $p < .001$; R^2=.085

into account) between people who had both mental retardation and developmental disabilities and those without MR or DD in terms of the likelihood of living in poverty. This counter-intuitive finding – that people with the most significant levels of disability (those with both MR and DD) were least likely of the three disability groups to live in poverty – was most likely due to the fact that the majority of adults who have both MR and DD who are not in "institutional settings" (i.e., places with four or more unrelated residents) live with family members. Poverty status in the NHIS-D is based on total household income (i.e., the total income of all related family members) so the income of the family members of these people with both mental retardation and developmental disabilities is likely to have kept many of them out of poverty.

Discussion

One of the most important contributions of the NHIS-D was that its large sample size permitted the analysis of age-related changes in the prevalence of MR/DD. These analyses have further shown that the prevalence of MR/DD among the non-institutionalized population continues to decline throughout adulthood. For example, the prevalence of MR/DD among adults over 65 years is less than half of that of young adults. A small part of this variability is likely attributable to the increasing likelihood of "institutionalization" as individuals move through adulthood (e.g., 30.6% of the adult NHIS-D sample members with MR/DD were 45 or older as compared with 36.2% of ICF-MR residents). But given the relatively small ratio of institutionalized to non-institutionalized adults, most of the variability observed must be due to other factors. Most likely, the decline in the prevalence of MR/DD is

associated with progressively lower survival rates among the MR/DD groups in comparison to the general population. The declining prevalence of MR/DD among adults of increasing age has important implications for public policy and service planning.

There were some notable differences between children and adults who have MR/DD and those who did not. The presence of these disabilities in childhood was associated with gender, income, living arrangements, and educational status of the adults in the household. While the prevalence of mental retardation and developmental disabilities varied by racial group, once other socioeconomic factors were considered, children of white and non-white racial backgrounds were no more or less likely to have MR/DD.

Finally, important relationships were noted between poverty and MR/DD. Among children, living in poverty was associated with a higher likelihood of being identified as having MR/DD. Among adults, having mental retardation but not developmental disabilities, or having developmental disabilities but not mental retardation, were both associated with a higher likelihood of living in poverty. While public policy for persons with MR/DD tends to focus on social services, more non-institutionalized adults with MR/DD live in poverty (an estimated 422,562 people) than receive traditional social services for persons with MR/DD. Advocacy and policy-making for persons with MR/DD must attend to the contributing effects of general poverty. Given the much higher prevalence of poverty among adults with MR/DD, employment supports, welfare-to-work programs, and other income maintenance programs should be particularly attentive to providing accommodations for persons with MR/DD. Furthermore, the accommodations needed by people with mental retardation but not developmental disabilities may be different from the accommodations needed by people with developmental disabilities but not mental retardation.

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