

# Functional Limitations and Key Indicators of Well-being in Children With Disability

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**Objectives:** To compare measures of well-being in children with and without different types and severity of limitations.

**Design:** Nationally representative data for American children aged 5 to 17 years were drawn from the 1994 and 1995 National Health Interview Surveys on Disability (NHIS-D) (N=41 300) and the Year 2000 Health Supplement to the 1994 NHIS-D (N=9530). Family resources, safety, health status, and health access were measures of environment. The presence and severity of limitations were measured in the domains of mobility, self-care, communication, and learning.

**Results:** Children with functional limitations were more likely to live in families with limited resources and have greater exposure to secondhand smoke, less access to

health care, and lower health status. Children with a limitation were not less likely to have a regular source of medical care, but they more often were delayed or prevented from getting necessary health care due to cost or insurance.

**Conclusions:** Standard measures of child well-being were appropriate for children with functional limitations and showed their unfavorable situations. Children with functional limitations more often have unfavorable family resources, less healthy home environments, poorer health status, and less health service access than other children, making them more susceptible to developmental difficulties beyond those difficulties associated with the challenges of their specific functional limitations.

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**T**HIS ARTICLE examines whether children's well-being, measured by established indicators of child well-being, differs between children without limitations and children with different types and severity of functional limitations. This research is possible now because of newly available nationally representative data on children and recent developments in the standardized measurement of child environment.

Since 1990 there has been renewed epidemiological interest in developing surveillance indicators of well-being for American children. Especially noteworthy developments were meetings of social scientists, policymakers, and specialists in the areas of family economics, child development, community, and health, which led to consensus recommendations about sound measures of child well-being on many aspects of children's lives.<sup>1</sup> (What these experts call "children's well-being" is sometimes referred to as the "children's environment" in medical research.) This effort has focused on

refining definitions of diverse outcomes, with an emphasis on developing uniform standards for the measurement of child well-being in studies that distinguish children according to race and Hispanic origin, family structure, and poverty status.

A second initiative comes from the Federal Interagency Forum on Child and Family Statistics, which annually (starting in 1997) presents key indicators of the well-being of children, covering economic security, health, behavior, social environment, and education. In *America's Children: Key National Indicators of Well-Being, 1998*,<sup>2</sup> there were 23 key indicators produced by 18 agencies. The emphasis was on assessing the well-being of all children and measuring trends over time. Children often were distinguished by age (preschool and school-age), race and Hispanic origin, and sometimes by poverty level.

This work on indicators of child well-being emphasizes obtaining measures that can be compared across data sets and over time. There has been much less emphasis on the identification of children (beyond those who are racial and ethnic minorities or poor) who may

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## METHODS

### DATA SOURCES

The data for this study were from the 1994 and 1995 National Health Interview Surveys and their concurrent Disability Supplements, and the Year 2000 Health (in 1994 only) Supplements (collectively signified as NHIS-D). The 1994 and 1995 NHIS-D included 41 300 children aged 5 to 17 years.<sup>4,5</sup> The NHIS-D included batteries of questions assessing medically diagnosed problems or conditions; limitations in daily activities or routine functions; developmental levels; the use of medical facilities, medications, special diets, and equipment; and participation in special programs or activities (eg, special education) that define functional limitations. The NHIS-D included measures of the family's resources and health status and health care access of children. The Year 2000 Health Supplement provided data on healthy home environments of school-aged children in the 1994 NHIS-D (N=9530).

The National Center for Medical Rehabilitation Research framework for the classification of disability emphasizes measures across various life domains involving physical functioning, social relationships, normal activities, and community life. In this framework, functional limitation is the lack of ability to perform an essential activity typical of peers.<sup>6</sup> A major advantage of the NHIS-D for our study was its usefulness in defining the dimensions and severity of functional limitations as appropriate under the National Center for Medical Rehabilitation Research model.

An important potential threat to the representativeness of the sampled population in this study was its reliance on a household-based sample. Some small proportions of children, and possibly a disproportionate number of children with severe disabilities, were in institutionalized settings and not represented in the NHIS-D. Data from the 1990 Census of Population on children in institutions, from state and county data on handicap among children in foster care in nonhousehold settings,<sup>7</sup> and from Survey on Income and Program Participation estimates on the rate of disability,<sup>8</sup> provided the basis for our consistent estimate that only about 2.0% of all children with disability were missed by a household-based sample.

### METHODS

Indicators of child environment were developed in the areas of family resources, healthy and safe home environment, and health status and access to health care services. We examined all variables in the NHIS-D to judge their potential relevance for measuring children's environment. We attempted wherever possible to select variables that would replicate measures recommended in *Indicators of Children's Well-Being*<sup>1</sup> or that were used in the Federal

Interagency Forum on Child and Family Statistics in *America's Children: Key National Indicators of Well-Being, 1998*.<sup>2</sup> Measures of a healthy environment were developed on the basis of the National Center for Health Statistics' *Healthy People 2000 Review, 1997*.<sup>9</sup>

The results of these efforts to define measures of child well-being with the NHIS-D are displayed in **Table 1**. Indicators of family resources were family structure, poverty, and the educational level of the NHIS adult respondent for the household (typically the mother). Measures of a healthy home environment included the presence of a smoke detector, nonexposure to secondhand smoke, and absence of a handgun in the home. Indicators of health and health care included health status (excellent, very good, good, fair, or poor), whether the child had a usual place of care, and access to needed care.

In a previous article<sup>10</sup> we created measures that were appropriate for use with population survey data from the 1994 NHIS-D to assess functional limitations in mobility, self-care, communication, and learning for school-aged American children.<sup>10,11</sup> These measures improved on the usual analysis of data on child functioning by grouping multiple items into 4 key functional areas that were distinct and independently related to disability and family and societal perception of disability. Each type of function was calculated independently of the other; a child with 2 limitations appears in the tables twice, once for each type of limitation. Eighty-eight percent of all children have no limitation; 12% have 1 or more limitations. Limitations in learning (10.6% of all children) and communication (5.5% of all children) were the most common among children, while limitations in mobility (1.3% of all children) and self-care (0.9% of all children) occurred less often. These percentages sum to more than 100 because some children have more than 1 type of limitation: 3.5% have 2 types of limitation, and 1.1% have 3 or more types of limitation.

For the pooled 1994 and 1995 NHIS-D, taking into account the frequency of each type of limitation, this study calculated measures of the presence of limitations in mobility and self-care, and of the presence and severity of limitations in communication and learning. These measures of functional limitations were tabulated with each of the measures of child well-being. Inferential population estimates and statistics were prepared for these tabulations using specialized software<sup>12</sup> that takes into account the complex sample design of the NHIS-D, and thus our data produce true estimates of SEs. Significance levels for the association of each type of functional limitation with each measure of child well-being are designated. In addition, methods of demographic standardization were used to determine if deficits in healthy home environment, health status, and access to health care associated with limitations in functioning were accounted for by poverty level or single-parent family status.

be at high risk of unfavorable outcomes on measures of well-being. This has particularly been the case for children with disability. *America's Children: Key National Indicators of Well-Being, 1999*,<sup>3</sup> treats disability as an outcome to be assessed in terms of risk and numbers of children involved. Yet, unfavorable family environments and access to health care also may hamper the growth and development of children with disabilities.

While many studies have examined the family, social, and medical situations of children with specific health conditions and developmental disabilities, these studies have not assessed functional limitations or disability. Our purpose was to examine children with limitations in mobility, self-care, communication, and learning in a large, nationally representative survey of school-aged children with and without disabilities.

**Table 1. Indicators of Child Well-being From the 1994 and 1995 National Health Interview Surveys (NHIS)**

Indicator	NHIS Questionnaire Item(s)	Source*	Definition
<b>Family resources</b>			
Family structure	1994, 1995 NHIS: Part L—Demographic Background Page 7. Is ___now married, widowed, divorced, separated, or has ___never been married?	1, 2	Recode: 2 parents, 1 parent, 1 parent and other, 0 parents and other
Poverty	L8a-b. Recode NHIS poverty index (imputed information used)	1, 2	Recode: at or above poverty level vs below poverty level
Education of adult respondent	1994, 1995 NHIS: Part L—Demographic Background Page 2a. What is the highest grade or year of regular school ___has ever attended? 2b. Did ___finish the grade/year?	R	Recode: completed years of education of responsible adult in household (less than high school, high school graduate, some college, college graduate or more)
<b>Health and health care</b>			
Health status	1994, 1995 NHIS: Part G—Health Indicator Page 4. Would you say this child's health in general is excellent, very good, good, fair, or poor?	1, 2	Percent distribution
Access to care	1994, 1995 Supplement Family Resources: Part A—Access to Care 14a. During the past 12 months, was there any time when someone in the family needed medical care or surgery, but did not get it?	R	Recode: did not get care vs delayed care vs care on time or did not need care
	15a. During the past 12 months, has anyone in the family delayed seeking medical care because of worry about the cost?	R	
Usual source of care	1994, 1995 Supplement Family Resources: Part A—Access to Care 2. 1a. Is there a particular person or place that this child usually goes to when he/she is sick or needs advice about his/her health?	1, 2	Yes/no
<b>Healthy home</b>			
Smoke detectors	1994 Supplement Year 2000 Objectives: Part A—Environmental Health 2a. How many smoke detectors are installed in this home?	9	Indicator of a healthy environment as posed in the Year 2000 Health Supplement of the 1994 NHIS (asked of 50% of sample). Recode: none vs 1 or more
Smoking	1994 Supplement Year 2000 Objectives: Part A—Environmental Health 8a. Does anyone who lives here smoke cigarettes, cigars, or pipes anywhere inside this home?	9	Exposure to secondhand smoke, yes/no
Handguns	1994 Supplement Year 2000 Objectives: Part G—Firearm Safety G1. Are any firearms now kept in or around your home? Include those kept in a garage, outdoor storage area, truck, or car. 2. Is there 1 or more than 1 firearm? 3a. What kind of firearm is it? (If only 1) 4a. What kinds of firearms are they? (If more than 1)	1, 9	Recode: presence of a handgun (pistol or revolver) in the household, yes/no

\*Source listed as reference number or authors' recommendation (R).

**Table 2. Family Resources by Type and Severity in Functional Limitation: Percent Distribution (SE)\***

Family Resources Indicator	Mobility		Communication			
	No Limitation	Any	No Limitation	Mild	Moderate	Severe
Sample size (n)	40 800	500	39 110	1140	608	442
Population (1000s)	49 354 (568)	617 (33)	47 329 (543)	1357 (55)	753 (35)	532 (30)
Family structure	$\chi^2 = 17.25, P < .01$		$\chi^2 = 117.56, P < .01$			
2 Parents	74.2 (0.4)	63.8 (2.6)	74.9 (0.4)	59.2 (1.7)	65.3 (2.3)	58.8 (2.7)
1 Parent	18.9 (0.3)	27.9 (2.4)	18.4 (0.3)	30.8 (1.6)	25.4 (2.2)	29.9 (2.5)
1 Parent and other	4.3 (0.2)	4.5 (1.2)	4.2 (0.2)	4.6 (0.8)	5.0 (1.0)	6.2 (1.2)
0 Parents and other	2.6 (0.1)	3.8 (1.0)	2.5 (0.1)	5.4 (0.9)	4.3 (1.0)	5.2 (1.2)
Poverty	$\chi^2 = 2.97, P = .08$		$\chi^2 = 73.81, P < .01$			
At or above poverty level	79.9 (0.4)	75.8 (2.3)	80.4 (0.4)	67.0 (1.7)	72.4 (2.1)	70.9 (2.5)
Below poverty level	20.1 (0.4)	24.2 (2.3)	19.6 (0.4)	33.0 (1.7)	27.6 (2.1)	29.1 (2.5)
Education	$\chi^2 = 5.15, P = .16$		$\chi^2 = 108.62, P < .01$			
Less than high school	12.3 (0.3)	16.4 (1.9)	12.0 (0.3)	19.0 (1.4)	18.3 (1.7)	19.3 (2.2)
High school graduate	34.0 (0.4)	33.3 (2.5)	33.7 (0.4)	41.9 (1.8)	34.0 (2.4)	36.6 (2.6)
Some college	24.8 (0.4)	24.7 (2.3)	24.9 (0.4)	21.0 (1.4)	25.7 (2.1)	23.1 (2.2)
College graduate	28.9 (0.5)	25.7 (2.5)	29.4 (0.5)	18.1 (1.4)	22.0 (1.9)	21.0 (2.2)

\*Some percentages do not sum to 100 because of rounding.

Functional limitations were measured in detail, taking into account different types and levels in the domains of mobility, self-care, communication, and learning and behavior. We assessed whether children with functional limitations compared with children without limitation have poorer family resources (in terms of parental structure, income below poverty level, and parental education), less safe home environments (lack of smoke detector, firearms in the home, tobacco smoke exposure), or lower health status with less health care access than other children. We thus examine children with functional limitations relative to other children using indicators of well-being that were applicable to all children.

## RESULTS

In terms of family resources, children with mobility, self-care, communication, or learning limitations were less likely to live in homes with 2 parents present, and more frequently lived in single-parent and other arrangements (**Table 2**). For example, 59% of children with a mild limitation in communication lived in a 2-parent family compared with 75% of children without a communication limitation. While three quarters of children without functional limitations lived in a 2-parent household, fewer than two thirds of children with any functional limitation had a 2-parent household. Children from families without 2 parents, regardless of whether only a mother, mother and another adult, or nonparental household, did not differ systematically by limitations in function. While only 20% of children without limitations lived in households below the poverty level, at least 27.6% of children with limitations in self-care, communication, or learning were in poverty. Similarly, children without functional limitations were less likely to have a parent with less than a high school education and more likely to have a parent who was a college graduate. Although greater limitations in function were associated with especially unfavorable family resources, the biggest differences were between children with and without limi-

tations. While children with mobility limitation shared similar relationships to family resources, the relationships did not achieve statistical significance ( $P < .05$ ) except in the case of family structure.

Children with limitations in mobility or self-care were equally likely as children without limitations to have a usual place of medical care (**Table 3**). However, approximately 10% of children did not have a usual source of care. Children with communication or learning limitations were somewhat more likely to have a regular source of care. Since medical conditions associated with limitation in function often would have resulted in contact with a physician or a specialist in the past, it was not surprising that children with each type of limitation were at least as likely as other children to have a usual place of care.

Children with each type of limitation in function had markedly poorer access to needed medical care compared with children without functional limitations. They more often received delayed care or did not receive care at all due to cost or insurance reasons. The lack of access to medical care without financial constraint for children is a major issue for advocates of child well-being and is a focus of national discussion. Because these children needed expensive medical care and rehabilitation services more often than children who had no limitations in function, they were more likely to be denied access to care due to cost or insurance reasons. This observation is equally true for children with less as well as more serious limitations in function.

A limitation in each area of functioning was associated with poorer health status. Even mild limitations in communication and learning were associated with poorer health status, with the decline in health status being greater among those with more serious limitations. Twenty percent of children with a mobility limitation and 28% of children with a limitation in self-care had health status that their parent regarded as fair or poor, compared with less than 3% of children without limitations. Communication and learning limitations showed a similar pattern, but the magnitude of difference was less (about

Self-care		Learning Ability				Total
No Limitation	Any	No Limitation	Mild	Moderate	Severe	
40 926	374	36 995	1405	1622	1278	41 300
49 533 (569)	438 (26)	44 745 (526)	1704 (57)	1960 (61)	1562 (54)	49 971 (574)
$\chi^2 = 19.99, P < .01$		$\chi^2 = 168.20, P < .01$				
74.2 (0.4)	61.4 (2.8)	75.4 (0.4)	65.4 (1.5)	62.7 (1.5)	59.7 (1.7)	74.1 (0.4)
18.9 (0.3)	28.6 (2.7)	18.0 (0.3)	25.6 (1.4)	27.7 (1.4)	30.2 (1.5)	19.0 (0.3)
4.3 (0.2)	6.0 (1.3)	4.2 (0.2)	4.6 (0.6)	5.6 (0.7)	4.8 (0.7)	4.3 (0.2)
2.6 (0.1)	4.0 (1.2)	2.4 (0.1)	4.3 (0.6)	4.0 (0.6)	5.3 (0.8)	2.6 (0.1)
$\chi^2 = 9.87, P < .01$		$\chi^2 = 118.06, P < .01$				
79.9 (0.4)	71.0 (2.8)	80.9 (0.4)	71.3 (1.4)	71.0 (1.4)	68.8 (1.6)	79.8 (0.4)
20.1 (0.4)	29.0 (2.8)	19.1 (0.4)	28.7 (1.4)	29.0 (1.4)	31.2 (1.6)	20.2 (0.4)
$\chi^2 = 29.64, P < .01$		$\chi^2 = 215.60, P < .01$				
12.03 (0.3)	19.1 (2.2)	11.8 (0.3)	14.9 (1.1)	16.6 (1.2)	18.6 (1.3)	12.3 (0.3)
33.9 (0.4)	40.9 (2.8)	33.2 (0.4)	40.3 (1.6)	40.6 (1.5)	41.1 (1.7)	34.0 (0.4)
24.8 (0.4)	21.8 (2.3)	24.9 (0.4)	25.2 (1.5)	23.8 (1.2)	22.7 (1.4)	24.8 (0.4)
29.0 (0.5)	18.3 (2.2)	30.1 (0.5)	19.6 (1.2)	19.0 (1.1)	17.6 (1.3)	28.9 (0.5)

2 to 5 times instead of 10 times). Even so, the majority of parents considered their child to be of excellent or very good health status despite the functional limitations.

The home of a child with each type of limitation was no more often equipped with at least 1 working smoke detector (Table 4). But further investigation showed that every one of the 93 sample children with a serious limitation in mobility in NHIS-D lived in a home equipped with a smoke detector, and this difference is statistically significant (data not shown). The presence of smoke detectors also did not differ by limitation in self-care, communication, or learning ability. About 17% of American children live in a home with 1 or more handguns; this does not vary by limitations in functioning.

Children with limitations in function were particularly likely to live in homes in which another member smokes tobacco. Overall, 33% of children without a limitation in function were exposed to secondhand smoke in their home. This compared with 48% of children with any limitation in self-care and 49% with a mobility limitation. In addition to being more likely to be exposed to secondhand smoke, children with mobility or self-care limitations will on average spend more time at home, increasing further their exposure to secondhand smoke. Ex-

posure to secondhand smoke increased with the severity of learning limitation.

More vulnerable populations (single mothers and the poor) have higher rates of tobacco use, and these risk factors may account for the apparent association between the child's limitations in function and the presence of secondhand smoke in the home. Controlling for covariates was based on data from our earlier work that demonstrated that children with functional limitation more often experienced a home environment with a parent absent and poverty.<sup>10</sup> We used demographic standardization methods to recalculate all of the rates reported in Tables 2, 3, and 4 to control for the compositional effects of family structure and poverty. These controls do not eliminate the observed differences between children who are limited in function and those without limitations. The largest reduction of effects associated with the standardization procedure relates to secondhand smoke exposure. For example, the 15.1-point difference in secondhand smoke exposure associated with a self-care limitation is reduced to 12.6 points. In the case of mobility limitation, the greater likelihood of secondhand smoke in the home is reduced from 15.4 percentage points to 12.6 percentage points. Children with a severe limitation in learning are 17.5% more often exposed to sec-

**Table 3. Health and Health Care by Type and Severity in Functional Limitation: Percent Distribution (SE)\***

Health and Health Care Indicator	Mobility		Communication			
	No Limitation	Any	No Limitation	Mild	Moderate	Severe
Sample size (n)	40 800	500	39 110	1140	608	442
Health status	$\chi^2 = 151.84, P < .01$		$\chi^2 = 324.39, P < .01$			
Excellent	52.0 (0.4)	22.0 (2.3)	52.7 (0.4)	37.1 (1.7)	33.5 (2.2)	21.6 (2.2)
Very good	28.0 (0.4)	21.2 (2.3)	28.0 (0.4)	26.4 (1.7)	26.4 (2.0)	21.9 (2.1)
Good	17.5 (0.3)	36.6 (2.5)	17.0 (0.3)	29.0 (1.6)	30.1 (2.0)	39.4 (2.8)
Fair	2.2 (0.1)	13.4 (1.6)	2.0 (0.1)	6.2 (0.7)	8.2 (1.2)	12.0 (1.7)
Poor	0.3 (0.0)	6.8 (1.2)	0.3 (0.0)	1.3 (0.4)	1.8 (0.6)	5.2 (1.3)
Access to care	$\chi^2 = 13.39, P < .01$		$\chi^2 = 22.73, P < .01$			
Received care when needed	96.0 (0.1)	90.7 (1.4)	94.9 (0.2)	92.9 (0.9)	92.8 (1.3)	93.5 (1.2)
Delayed care due to cost or insurance reasons	2.9 (0.1)	4.7 (1.0)	2.8 (0.1)	4.5 (0.6)	4.2 (1.1)	4.0 (1.1)
Did not get care due to cost or insurance reasons	1.1 (0.1)	4.6 (1.2)	1.1 (0.1)	2.6 (0.6)	3.0 (0.7)	2.5 (0.7)
Usual source of care	$\chi^2 = 0.03, P = .85$		$\chi^2 = 10.74, P < .05$			
Yes	90.0 (0.3)	89.7 (1.6)	90.0 (0.3)	89.3 (1.2)	92.4 (1.2)	93.3 (1.3)
No	10.0 (0.3)	10.3 (1.6)	10.0 (0.3)	10.7 (1.2)	7.6 (1.2)	6.7 (1.3)

\*Some percentages do not sum to 100 because of rounding.

**Table 4. Healthy Home Environment by Type and Severity in Functional Limitation: Percent Distribution (SE)**

Healthy Home Indicator*	Mobility		Communication			
	No Limitation	Any	No Limitation	Mild	Moderate	Severe
Sample size (n)	9402	106	9007	273	141	109
Smoke detector(s)	$\chi^2 = 0.05, P = .83$		$\chi^2 = 3.60, P = .31$			
Yes	90.4 (0.5)	89.7 (3.2)	90.4 (0.5)	91.9 (1.7)	91.5 (2.3)	84.7 (4.1)
No	9.6 (0.5)	10.3 (3.2)	9.6 (0.5)	8.1 (1.7)	8.5 (2.3)	15.3 (4.1)
Smoking in the house	$\chi^2 = 8.15, P < .01$		$\chi^2 = 15.75, P < .01$			
Yes	33.2 (0.8)	48.6 (5.2)	32.9 (0.8)	43.7 (3.8)	45.9 (5.0)	37.8 (5.0)
No	66.8 (0.8)	51.4 (5.2)	67.1 (0.8)	56.3 (3.8)	54.1 (5.0)	62.2 (5.0)
Handgun(s) in the house	$\chi^2 = 0.09, P = .76$		$\chi^2 = 3.93, P = .27$			
Yes	16.9 (0.7)	18.2 (4.4)	16.9 (0.7)	13.0 (2.3)	20.3 (3.3)	17.0 (3.7)
No	83.1 (0.7)	81.8 (4.4)	83.1 (0.7)	87.0 (2.3)	79.7 (3.3)	83.0 (3.7)

\*Data available only for one half of the 1994 sample.

ondhand smoke compared with children without limitations. This is reduced to a 13.7% difference once family structure and poverty level are taken into account. Thus, the risk factors of single-parent household and poverty account for less than one quarter of the overall association of functional limitations with exposure to secondhand smoke. We suspect that the greater exposure to secondhand smoke in the household of children with limitations in functioning may be associated with the great stresses many parents of disabled children face.

**COMMENT**

Functional limitations and disability are often treated as negative outcomes in studies of child well-being. But children who are limited in mobility, self-care, communication, or learning are like other children—as part of their development, they go to school, play with friends, and learn a variety of social and citizenship skills needed to prepare for future adult roles. We know from studies of children without functional limitations that many aspects of the child's environment are critical to successful development. The situation of children with disability is similar, but the child's environment is also known to be impor-

tant in dealing with medical conditions, functional limitations, or disability roles. Other aspects of environment are as important in the development of children with disability as they are for children without disability.

A clear picture of disadvantage emerged from this study—children with limitations in mobility, self-care, communication, or learning lived in homes with fewer resources, and their homes were less likely to be healthy and safe. Compared with children without limitations, they were more likely to face cost or insurance obstacles to needed medical care. Their health status as perceived by parental report was markedly worse.

The clearest divide was between children with a limitation and those without. Even mild limitations were consistently associated with poorer child well-being. A higher degree of limitation in learning was associated with increased disadvantage on indicators of child well-being, while their relation was not demonstrated in limitation in communication.

The poorer socioeconomic and family situations of children with limitations pervade this analysis. This in part may be due to delays in diagnosis and treatment of potentially disabling medical conditions associated with disadvantaged family resources. Moreover, these family

Self-care		Learning Ability				Total
No Limitation	Any	No Limitation	Mild	Moderate	Severe	
40 926	374	36 995	1405	1622	1278	<b>41 300</b>
$\chi^2 = 170.70, P < .01$		$\chi^2 = 429.05, P < .01$				
52.0 (0.4)	16.4 (2.3)	53.5 (0.4)	42.0 (1.6)	37.6 (1.4)	28.2 (1.5)	51.7 (0.4)
28.0 (0.4)	16.4 (2.2)	27.9 (0.4)	28.8 (1.4)	28.6 (1.4)	24.0 (1.4)	27.9 (0.4)
17.6 (0.3)	38.9 (2.6)	16.5 (0.3)	24.1 (1.3)	26.6 (1.3)	35.8 (1.6)	17.8 (0.3)
2.2 (0.1)	18.4 (2.2)	1.8 (0.1)	4.4 (0.6)	6.0 (0.7)	9.7 (0.9)	2.3 (0.1)
0.3 (0.0)	9.8 (1.8)	0.2 (0.0)	0.7 (0.2)	1.2 (0.4)	2.3 (0.5)	0.3 (0.0)
$\chi^2 = 10.41, P < .01$		$\chi^2 = 51.85, P < .01$				
96.0 (0.1)	90.1 (1.1)	96.3 (0.2)	92.9 (0.8)	93.9 (0.7)	91.2 (0.9)	95.9 (0.1)
2.9 (0.1)	5.9 (0.8)	2.7 (0.1)	4.9 (0.7)	4.1 (0.6)	5.7 (0.8)	2.9 (0.1)
1.1 (0.1)	4.0 (0.8)	1.1 (0.1)	2.2 (0.5)	2.0 (0.4)	3.1 (0.6)	1.1 (0.1)
$\chi^2 = 0.48, P = .49$		$\chi^2 = 8.36, P < .05$				
90.0 (0.3)	91.3 (1.8)	89.9 (0.3)	89.9 (0.9)	91.3 (0.8)	92.4 (1.0)	90.0 (0.3)
10.0 (0.3)	8.7 (1.8)	10.1 (0.3)	10.1 (0.9)	8.7 (0.8)	7.6 (1.0)	10.0 (0.3)

Self-care		Learning Ability				Total
No Limitation	Any	No Limitation	Mild	Moderate	Severe	
9429	38	8506	336	392	296	<b>9530</b>
$\chi^2 = 0.18, P = .67$		$\chi^2 = 3.34, P = .34$				
90.4 (0.5)	91.5 (2.8)	90.5 (0.6)	90.8 (1.7)	89.5 (1.7)	86.6 (2.3)	90.4 (0.5)
9.6 (0.5)	8.5 (2.8)	9.5 (0.6)	9.2 (1.7)	10.5 (1.7)	13.4 (2.3)	9.6 (0.5)
$\chi^2 = 10.03, P < .01$		$\chi^2 = 34.83, P < .01$				
33.2 (0.8)	48.3 (5.3)	32.1 (0.8)	40.9 (3.2)	43.5 (3.1)	49.6 (3.4)	33.4 (0.8)
66.8 (0.8)	51.7 (5.3)	67.9 (0.8)	59.1 (3.2)	56.5 (3.1)	50.4 (3.4)	66.6 (0.8)
$\chi^2 = 0.23, P = .63$		$\chi^2 = 6.23, P = .10$				
16.9 (0.7)	15.2 (3.5)	17.1 (0.8)	15.9 (2.1)	12.7 (1.8)	15.8 (2.4)	16.9 (0.7)
83.1 (0.7)	84.8 (3.5)	82.9 (0.8)	84.1 (2.1)	87.3 (1.8)	84.2 (2.4)	83.1 (0.7)

resource disadvantages continue beyond the onset of functional limitations as an unfavorable environment for children with functional limitations. In addition, single-parent and poverty situations in the family did not account for the more disadvantaged home environment and health and health care access of children with functional limitations. Even in the case of smoking, three quarters of the disadvantage was unexplained by these aspects of family resources.

Besides family resources, parents bring to childrearing behaviors, beliefs, and practices that affect the healthy home environment. These include nutrition, exercise, drug and alcohol use, seatbelt use, bicycle helmet use, and (measured in this study) use of smoke detectors, tobacco smoking, and handguns. Recently, the Centers for Disease Control and Prevention has become alerted to the importance of these measures of healthy life practices for disabled adults as well as for the general public. The findings in this article suggest that the same attention should be directed to households with a child who has a serious medical condition, is functionally limited, or is disabled. Children with functional limitations, especially those with serious limitations, were much more likely to be exposed to secondhand smoke than children without limitations. This is a situation in which public health intervention might be especially useful.

The impact of these family dynamics on the environment of the nation's situation is profound. If children who are functionally limited had the same proportion with favorable outcomes as found among children without limitations, 727 000 more of the functionally limited children would be in 2-parent households, 595 000 fewer would live in poverty, and 204 000 more would have access to needed medical care. Clearly, the disadvantages in child environment experienced by functionally limited school-aged children are significant for the children involved as well as for the well-being of the nation's children. These disadvantages are particularly significant given the noteworthy challenges these children face to achieve functional independence in everyday living, to achieve expected play with peers and school roles, and to develop the capacity to lead productive and independent lives as adults.

Future studies of child well-being need to incorporate attention to the special situations of disabled children. This effort can only be successful if existing government surveys used to assess child well-being collect the data needed to identify children with medical conditions, functional limitations, and disability. Conversely, investigators of studies that have specialized in the child disability process need to renew their awareness that these children—even ones with severe functional limitations—also experience life circumstances common to all children that impact on their well-being. These may include reduced family resources, a less healthy environment, and poorer health care access and health status. With the cooperation of committed medical professionals and social scientists with interests in children, the Federal Interagency Forum on Child and Family Statistics could provide strong leadership to accomplish these objectives.

In addition, this approach might help develop a better understanding of the gaps in current programs whether

(1) in Supplemental Security Income eligibility for children in poverty with disability, (2) in family supports for children with severe functional limitations whatever the family resources, (3) in comprehensiveness of Individualized Education Plans in school systems, or (4) in after-school family supports (recreation, scouts, peer group involvement, as well as after-school child care and respite). There have also been several initiatives to change coverage of children in poverty with special health care needs from traditional Medicaid to managed care. Our data demonstrate significant challenges in at least 10% of children with functional limitations in accessing health care services. Finally, while precise rules vary considerably across states, the Welfare Reform Act requires mothers to work, typically after about 2 years. Given the number of single and impoverished mothers, this will not be without consequences in families with a child with a serious chronic medical condition, a limitation in function, or disability.

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