

# Using National Health Interview Survey Data and State and Local Area Integrated Telephone Survey Data to Study Health Disparities<sup>1</sup>

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## Abstract

Examples from published analyses show the usefulness of data from the National Health Interview Survey (NHIS) and the State and Local Area Integrated Telephone Survey (SLAITS) for studying health disparities: Married adults were generally healthier than adults in other marital status categories (NHIS results); the prevalence of diabetes was higher among non-Hispanic black persons and Hispanic persons than among non-Hispanic white persons (NHIS results); Hispanic persons were more likely to be without health insurance coverage than non-Hispanic black persons and non-Hispanic white persons (NHIS results); and children in step, single-mother, or grandparent-only families had poorer health than children living with two biological parents (SLAITS results). Also, the major role played by the NHIS in providing data to track disparity-reducing objectives of the Healthy People Program is described.

**Key Words:** Health disparities, National Center for Health Statistics, National Health Interview Survey, State and Local Area Integrated Telephone Survey, Healthy People Program

## 1. Introduction

In this paper—and indeed in this conference session—about health disparities, it is appropriate to pause to think about the meaning of the word “disparities.” According to classical dictionaries, the word “parity” is defined as the quality or state of being equal or equivalent, and “disparity” means inequality, difference, or dissimilarity. Thus, “disparity” is not necessarily a negative term. However, the word “disparity” has at least informally come to mean “inequity” or “unfairness” or “unjustness” in today’s language. For example, the Healthy People 2010 Program has two overarching goals, which are prominently displayed on its Website: (1) Increase quality and years of healthy life, and (2) Eliminate health disparities. One can comfortably assume that the intention of the Healthy People Program is not to eliminate all health disparities, which would be an impossible objective in the presence of random variation, but rather to eliminate those disparities (or differences) that are by some measure unfair.

This paper provides examples of how data from selected surveys conducted by the National Center for Health Statistics (NCHS) are used to study health disparities. There are many users of NCHS data, and in particular, NCHS strives to provide data and analyses of use to policy makers whose programs aim to reduce health disparities. As the Federal Government’s official health statistics agency, the National Center for Health Statistics must be objective in its analyses and not make policy recommendations or make judgments about the fairness of differences identified among population subgroups. In the examples provided below, which are taken from published material by NCHS authors, differences among subgroups are identified. Further analysis could have been and may have been subsequently performed to increase understanding of those differences, e.g., to disentangle causes from effects, and to judge whether those differences are disparities in the negative sense of that word.

## 2. Examples from the National Health Interview Survey (NHIS)

### 2.1 About the National Health Interview Survey

The NHIS celebrated its 50<sup>th</sup> anniversary in 2007 (see Figure 1); it has been in the field continuously since 1957. The NHIS sample is representative of the noninstitutionalized civilian U.S. population. The NHIS is an in-person survey with four major core modules: the Household section (which obtains information on the structure and some

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<sup>1</sup> The findings and conclusions in this paper are those of the author and do not necessarily represent the views of the National Center for Health Statistics, Centers for Disease Control and Prevention.

basic demographic attributes of the household), the Family section (which obtains information on all members of each family in each household), the Sample Child section (which obtains information from a knowledgeable adult in each family about a randomly-selected child), and the Sample Adult section (in which a randomly selected adult in each family is interviewed, with proxy responses not permitted except in rare cases where health problems make it impossible to interview the subject directly). Core topics on the NHIS include health status, use of health care services, health insurance coverage, health-related behaviors (e.g., tobacco use, alcohol use, and physical activity), risk factors, and demographic and socio-economic information. Also, agencies outside NCHS sponsor additional questions—supplements on special topics—each year. For detailed information about the NHIS, see [www.cdc.gov/nchs/nhis.htm](http://www.cdc.gov/nchs/nhis.htm).

To study disparities among subpopulations, it is advantageous to have large sample sizes. The largest sample size that the NHIS ever had was 139,196 persons, in 1966/67. (Two years are identified in mentioning the 1966/67 NHIS because the NHIS releases microdata once per year, and that was done based on fiscal years at first and is now done based on calendar years.) The smallest sample size that the NHIS ever had was 62,052 persons, in 1986. Figure 2 shows the numbers of persons in the NHIS public use files from 1962/63 to 2007. Two big dips are notable in the graph, one in 1986 (when the NHIS sample was reduced because of budget constraints) and one in 1996 (when large numbers of interviews were used for pre-testing of NHIS' new computer assisted personal interviewing (CAPI) system and questionnaire that were implemented in 1997). Starting in 2002, the NHIS sample has been deliberately reduced each year (except in 2005) because of budget insufficiencies. Also, the new sample design implemented in 2006 imposed an indefinitely continuing sample cut that reduced the maximum NHIS sample size from about 100,000 persons to about 87,500 persons. The resulting numbers of persons in the NHIS public use files were 100,760 in 2001, 93,386 in 2002, 92,148 in 2003, 94,460 in 2004, 98,649 in 2005, 75,716 in 2006, and 75,764 in 2007. The sample size for the 2008 NHIS will be about the same as in 2007 because of a 50% sample reduction during October-December 2008, again necessitated by budget limitations.

Among the NHIS data products authored by NCHS staff are three periodic reports released online by the NHIS Early Release Program. One of these is a quarterly report containing estimates for 15 health indicators: usual place to go for medical care; obtaining needed medical care; influenza vaccination; pneumococcal vaccination; obesity; health insurance coverage; leisure-time physical activity; current smoking; alcohol consumption; HIV testing; general health status; personal care needs; serious psychological distress; diabetes; and asthma. Graphs and tables, by time, age, sex, race/ethnicity, etc., and highlights of the results are provided for each of these health indicators. Two of the NHIS examples below are drawn from Early Releases. For more information on the Early Release program, see [www.cdc.gov/nchs/about/major/nhis/releases.htm](http://www.cdc.gov/nchs/about/major/nhis/releases.htm).

## 2.2 Study of marital status using NHIS data

A study of marital status (see Schoenborn, 2004) analyzed data from 127,545 sample adults in the 1999-2002 National Health Interview surveys who were asked, “Are you now married, widowed, divorced, separated, never married, or living with a partner?” The authors studied differences in health by marital status, as well as by age, sex, race, ethnicity, education, poverty status, and nativity. A main conclusion from this study was that “Married persons were healthier [than persons in other marital status categories] for nearly every measure of health—the one important exception being body weight status.” The one exception was results for obesity, for which results are summarized below.

NHIS sample adults self-report their height and weight, from which Body Mass Index (BMI, which is weight in kilograms divided by the square of height in meters) can be calculated. Using standard definitions of overweight as  $25 \leq \text{BMI} < 30$  and obesity as  $\text{BMI} \geq 30$ , the Schoenborn (2004) study concluded that

$$\begin{aligned} \Pr(\text{overweight or obese} \mid \text{woman}) &= .485; \\ \Pr(\text{overweight or obese} \mid \text{never married women}) &= .482; \\ \Pr(\text{overweight or obese} \mid \text{married woman}) &= .486; \\ \Pr(\text{overweight or obese} \mid \text{man}) &= .651; \\ \Pr(\text{overweight or obese} \mid \text{never married man}) &= .535; \text{ and} \\ \Pr(\text{overweight or obese} \mid \text{married man}) &= .710 \text{ (estimated)}. \end{aligned}$$

Note that the effect of marital status on weight is small for women but large for men, with married men faring much more poorly than never married men. These are but a few of the results in the report, which contains highlights, graphs, and many multivariate summary tables.

## 2.3 Results for diabetes and health insurance coverage from the NHIS Early Release Program

Figures 3 and 4 are graphs taken from the Early Release of December 2008, which updated previously-released NHIS estimates to cover up to June 2007 (see Barnes and Heyman, 2007). Figure 3 shows that the prevalence of diabetes was significantly higher among non-Hispanic black persons (12.4%) and Hispanic persons (10.5%) than among non-Hispanic white persons (6.0%). Figure 4 shows that Hispanic persons (30.6%) were most likely to be without health insurance at the time of interview, followed by non-Hispanic black persons (14.3%) and non-Hispanic white persons (10.1%). The Early Release Program is aptly named, in that these quarterly releases become publicly available only six months after the end of the quarter whose data are used to update the estimates.

## 3. Use of National Health Interview Survey data to track Healthy People Program objectives

### 3.1 About the Healthy People Program and its use of NHIS data

The Healthy People 2010 Program, managed by the Department of Health and Human Services, has 28 focus areas that together comprise hundreds of national health objectives aimed at achievement by 2010. The Healthy People Program began decades ago and is updated for each new decade; Healthy People 2020 objectives are now being planned. As mentioned previously, Healthy People 2010 has two overarching goals: (1) Increase quality and years of health life, and (2) Eliminate health disparities. NHIS data since 1998 have been and are being used to track progress toward 71 objectives and 111 measures of Healthy People 2010. Six examples of the many focus areas, objectives, and measures that are tracked using NHIS data are as follows:

#### **Healthy People Focus Area (Objective number) and short title of measure**

Access to quality health services (01-01)

*Persons with health insurance, ages <65*

Arthritis, osteoporosis, and chronic back conditions (02-02)

*Activity limitations due to arthritis, age adjusted, ages 18+*

Cancer (03-11b)

*Pap tests within past 3 years, age adjusted, ages 18+*

Diabetes (05-03)

*Prevalence of diabetes, age adjusted*

Disability and secondary conditions (06-08)

*Employment parity – Ages 18-64, with disabilities*

Physical activity and fitness (22-01)

*No leisure-time physical activity, age adjusted, ages 18+*

The following are examples of some of the vision questions in a 2008 NHIS supplement sponsored by the National Institutes of Health's National Eye Institute that will be used to track progress of Healthy People Program 2010 objectives:

#### **Asked about the sample child (SC)**

Has {SC} had {his/her} vision tested by a doctor or other health professional?

When was {his/her} vision last tested? [time intervals specified]

Does {SC} wear eyeglasses (because of nearsightedness) to read road and street signs, see the blackboard, play sports, watch TV, see things in the distance?

Does {SC} wear eyeglasses (because of farsightedness) to read books, write, play handheld games (like Gameboy), or to do other things that require {him/her} to see well up close?

Does {SC} participate in sports, hobbies, or other activities that can cause eye injury?...

How often does {he/she} wear eye protection when doing these activities?...

#### **Asked of the sample adult**

Have you EVER been told by a doctor or other health professional that you had...

...Diabetic retinopathy?

...Cataracts?

...Glaucoma?

...Macular degeneration?

Do you have any vision loss because of...[same list]

Have you ever had a cataract operation?

Do you wear eyeglasses or contact lenses? [If yes, 2 questions re farsightedness & nearsightedness]

Do you use any adaptive devices such as telescopic or other prescriptive lenses, magnifiers, large print or talking materials, CCTV, white cane, or guide dog?

[Etc.]

## 4. Examples from the State and Local Area Integrated Telephone Survey (SLAITS)

### 4.1 About the State and Local Area Integrated Telephone Survey

SLAITS uses the sampling frame of CDC's National Immunization Survey (NIS); after the telephone interview for the NIS is completed, the SLAITS interview is administered, as appropriate. SLAITS surveys are customized, with new questions on emergent topics developed for sponsors from outside NCHS. The focus of SLAITS surveys has been on policy-relevant topics such as health insurance, health care utilization, unmet health care needs, child well-being, family functioning, and program participation. Recent surveys conducted using the SLAITS mechanism are: the National Survey of Early Childhood Health, the National Survey of Children with Special Health Care Needs, the National Asthma Survey, and the National Survey of Children's Health. The example presented here of a study of disparities is from the 2003 National Survey of Children's Health (NSCH), which was conducted again in 2007-08. See the SLAITS homepage at [www.cdc.gov/nchs/slaits.htm](http://www.cdc.gov/nchs/slaits.htm).

### 4.2 Study of children's physical and mental health, by family structure, using SLAITS data

SLAITS' 2003 National Survey of Children's Health (NSCH) was sponsored by the Health Resources and Services Administration, Maternal and Child Health Bureau. The national sample size was about 102,000 children. Questionnaire topics included: health and functional status; health insurance coverage; health care access and utilization; medical home; child well-being; family functioning and parental health; and neighborhood characteristics. A study by Bramlett and Blumberg (2007), published in *Health Affairs*, analyzed children's health status by six family structures, i.e., children living with: two biological parents; a biological parent and a stepparent (blended step family); a biological parent and an adoptive parent (blended adoptive family); the biological mother only; the biological father only; and one or more grandparents, but no biological, step, foster, or adoptive parents.

The authors performed multiple logistic regressions for each of the six family structure types and for each of many different child health indicators used as dependent variables. Four examples of dependent variables describing the child's physical health are: overall health excellent/very good (ages 1-17); overall dental health excellent/very good (ages 1-17); had injury requiring medical attention in last year (ages 0-5); and missed 11+ school days due to illness in past year (ages 6-17). Four examples of dependent variables describing the child's mental health are: has moderate/severe difficulty with emotions/concentration/behavior/getting along (ages 3-17); parents ever told child has learning disability (ages 3-17); parents ever told child has ADD/ADHD (ages 2-17); and parents ever told child has behavioral/conduct problems (ages 2-17). The independent variables for each regression consisted of eight socioeconomic and demographic characteristics: household poverty level; highest parental education; residence in Metropolitan Statistical Area; primary language spoken (English, not English); mean number of children; child's age; child's sex; and child's race/ethnicity.

Selected results from this NSCH study were as follows:

Compared with children living with two biological parents,...

...for every health indicator studied except those identifying allergies, children in blended step families had poorer health.

...for most health indicators, children in single-mother families had poorer health.

...for most health indicators, children in grandparent-only families differed significantly and had the poorest health status of all groups of children.

...children living with single fathers had better health.

Subsequent analyses of other data could, for example, investigate factors causing poor health of children residing in grandparent-only families, looking at what comes first, the children's poorer health or their living only with their grandparents.

### References

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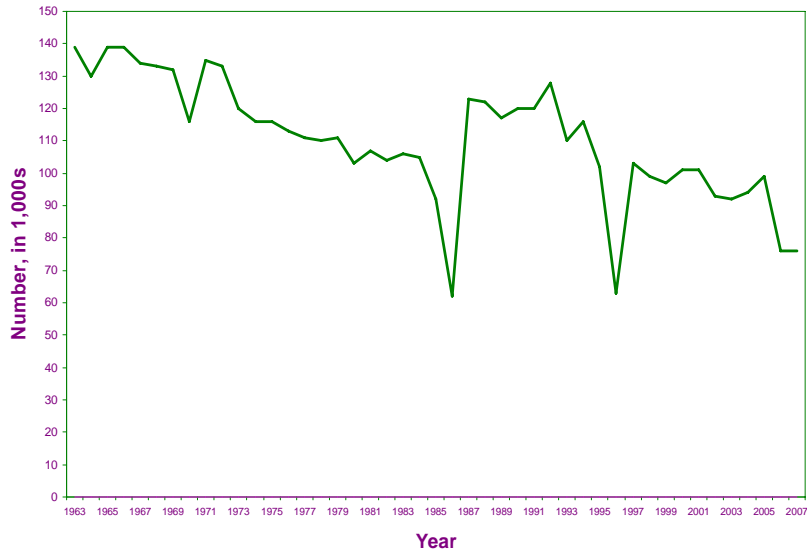
## The National Health Interview Survey (NHIS)

In the field virtually continuously since 1957



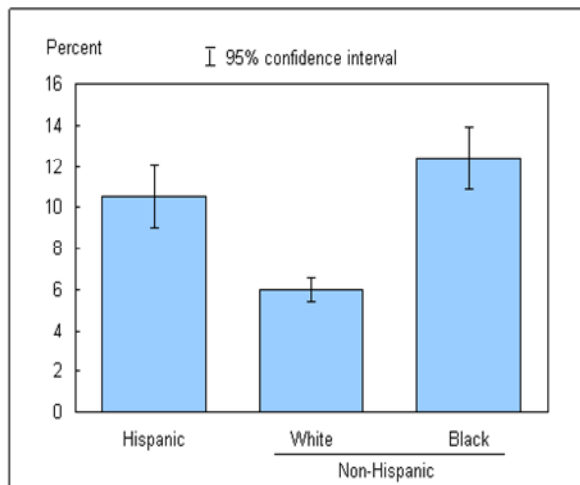
**Figure 1:** NHIS celebrates its 50th anniversary in 2007

### Number of persons in NHIS sample, 1962/63-2007



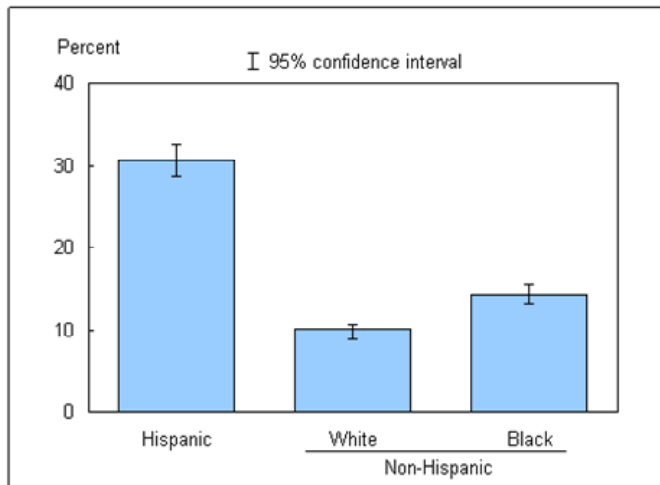
**Figure 2:** The decline of the NHIS sample size over the years

### Age-sex-adjusted prevalence of diagnosed diabetes, adults aged 18+, by race/ethnicity, January-June 2007



**Figure 3.** Diabetes estimates from the NHIS Early Release Program

Age-sex-adjusted percentage of persons without health insurance coverage at the time of interview, all ages, by race/ethnicity: January-June 2007



**Figure 4.** Estimates of lack of health insurance coverage, from the NHIS Early Release Program

SLAITS Website:

<http://www.cdc.gov/nchs/slait.htm>



NHIS Website:  
<http://www.cdc.gov/nchs/nhis.htm>

