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Reported Child Health Status, Hispanic Ethnicity, and Language of Interview: United States, 2011–2012

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Abstract

Objectives—This report has three objectives: a) to describe the reported health status of four subgroups of school-age children: Hispanic children with a Spanish interview (Hispanic–Spanish interview), Hispanic children with an English interview (Hispanic–English interview), non-Hispanic black children, and non-Hispanic white children; b) to describe selected characteristics of children in the four subgroups; and c) to consider whether the characteristics of children account for subgroup variations in reported health status.

Data source and methods—Data from the 2011–2012 National Survey of Children's Health were used to describe the health status of children aged 5–17 years using three categories: a) poor or fair, b) good, and c) very good or excellent health. The reported health status of children in the four subgroups was examined using multinomial logistic regression, controlling for the effects of demographic and socioeconomic characteristics and a measure of acculturation.

Results—Compared with children in the other subgroups, Hispanic–Spanish interview children were more likely to have reports of poor or fair health (10.6% compared with 1.8%–4.4%) and good health (39.7% compared with 7.7%– 14.4%). Controlling for demographic and socioeconomic characteristics and a measure of acculturation eliminated the subgroup differences in poor or fair health, but not good health. Even after adjustment for confounders, Hispanic– Spanish interview children more often were reported to have good health rather than very good or excellent health compared with children in the other subgroups.

Conclusions—Worse reported health status of Hispanic–Spanish interview children, compared with children in other subgroups, could not be explained completely by the confounders in the analysis. Additional research is needed to determine whether the worse reported health status of Hispanic children with Spanish interviews reflects the actual health conditions of these children or difficulties in translating the health status question.

Keywords: poor or fair child health • household interviews • parent-reported health status • National Survey of Children's Health

Introduction

Epidemiological studies have documented that Hispanic adults in the United States report worse health status than non-Hispanic adults, even though Hispanic adults have lower death rates than non-Hispanic adults at most ages (1,2). Additionally, several studies of Hispanics have noted that Spanish-speaking Hispanic adults more often report worse health status than English-speaking Hispanic adults, despite evidence of lower death rates among Spanish-speaking Hispanic adults (3–7). While a number of factors have been cited as possible explanations for the worse self-reported health among Hispanic adults, especially Spanish-speaking Hispanic adults, recent national and community-based studies have focused on the possibility that Spanish language translations of the health status question may be an important factor (4,5). Bzostek et al., using results from the first wave of the Los Angeles Family and Neighborhood Survey, found that the language of interview was a better predictor of the self-reported health status of Hispanic adults than any of the other measures of acculturation (1). The study also found that adjustment for socioeconomic status narrowed, but did not eliminate, the difference between the

health status of non-Hispanic white and Hispanic adults. A similar study by Kandula et al., using data from the 2001 California Health Interview Survey, also noted worse self-reported health status for Hispanic adults with limited English proficiency compared with Hispanic adults who were proficient in English (3).

Studies of adult health status have suggested that difficulties in the translation of specific response categories may contribute to worse health reports by particular ethnic groups. After analyzing responses from the Chicago Community Adult Health Study (2001–2003) and the 2003 Behavioral Risk Factor Surveillance System, Viruell-Fuentes et al. suggested that the Spanish translation of the English word fair to *regular* induced Spanish-speaking respondents to report worse health status than they might have reported in English (5). An investigation by Seo et al., based on two consecutive waves of the California Health Interview Survey, also showed that responses to the five-category health status question may have been influenced by a respondent's language of interview (4). Hispanic respondents interviewed in Spanish, compared with respondents interviewed in English, tended to choose a lower level of health status and more often selected fair health and less often selected very good or excellent health. As Seo et al. noted in their study, treating responses in different languages as equivalent, particularly the responses of adults in Hispanic and Asian subgroups, had the effect of exaggerating the racial and ethnic differences in health status between adults in these subgroups and non-Hispanic white adults (4).

Few studies have examined the factors associated with differences in proxy-reported health status of Hispanic and non-Hispanic children. A small study of children in Arizona in 1989 found worse reported health status among Hispanic children whose parents were interviewed in Spanish, compared with Hispanic children whose parents were interviewed in English (8). While the results of recent national surveys have shown a higher percentage of Hispanic children with reports of poor

or fair or good health compared with non-Hispanic children, no recent studies have examined the effect of language of interview on the reporting of child health status by parents (9–12). Recent studies of the health status of Hispanic children using parent-reported data in national surveys have primarily focused on household language and, in some cases, the immigrant status of parents and children (13–15). Avila and Bramlett, however, suggest in the discussion of the results of their analysis of the 2007 National Survey of Children's Health (NSCH) that additional research might explore why Hispanic parents compared with non-Hispanic white parents report poorer overall child health status despite reporting lower rates of illness and special health care needs for their children (14).

This study considers the association between Spanish-language interviews and the reporting of child health status by comparing the health status of Hispanic children with a Spanish-language interview with the health status of children in three other subgroups: Hispanic children with English language interviews, non-Hispanic black children, and non-Hispanic white children. Differences between Hispanic children with a Spanish interview and children in the other subgroups were examined before and after adjusting for two sets of confounding factors: (a) demographic and socioeconomic characteristics and (b) a measure of acculturation. The two socioeconomic characteristics included in the analysis were the child's health insurance coverage and household income as a percentage of the poverty threshold. Because both of these factors have been shown to be significantly associated with both the child's health status and the child's Hispanic ethnicity and race, it seemed likely that these characteristics might account for the ethnic and racial differences in the reported health status of children (16). An acculturation measure, primary household language, was added to the analysis in an effort to take into account the household's cultural and social connections with the larger community. Findings from studies of adult

self-reported health status have suggested that language of interview has a stronger effect on responses to the health status question than other variables measuring acculturation (1). In an analysis of data from the 2007 NSCH, Singh et al. found that Hispanic immigrant parents compared with non-Hispanic white parents more often reported children's overall health to be poor or fair (15). To date, though, no studies have examined both the effects of other measures of acculturation and language of interview on the reporting of the health status of Hispanic children.

This study uses data from the 2011–2012 NSCH to: a) describe the reported health status of Hispanic children with a Spanish interview (Hispanic–Spanish interview), Hispanic children with an English interview (Hispanic–English interview), non-Hispanic black children, and non-Hispanic white children; b) describe the characteristics of children in four Hispanic ethnicity, language of interview, and race subgroups; and c) examine whether differences in selected demographic and socioeconomic characteristics, and a measure of acculturation account for the variations in the reported health status of school-age children in the four subgroups.

Methods

The data for this report are from the 2011–2012 NSCH. NSCH is a nationally representative survey conducted by CDC's National Center for Health Statistics (NCHS) as a module of the State and Local Area Integrated Telephone Survey, with direction and principal funding from the Health Resources and Services Administration's Maternal and Child Health Bureau.

The 2011–2012 NSCH was fielded as a random-digit-dial telephone survey of households with children aged 0–17 years; the survey included both landlines and cell phones. Contacted households were screened for the presence of children, and one child was randomly selected from identified households with children to be the subject of the survey. The respondent was a parent or guardian in the household, usually a mother, who

was knowledgeable about the child's health. These respondents are referred to as parents throughout this report. A total of 95,677 interviews were completed from February 2011 through June 2012 for the 2011–2012 NSCH. The overall response rate in the 2011–2012 was 23.0%; see Technical Notes for more information. Nonresponse bias analyses suggest that, although the potential for bias cannot be ruled out, differences between respondents and nonrespondents should not have a major impact on the conclusions in this report (17).

The health status of children was determined by responses to the question, "Would you say [your child's] health in general is excellent, very good, good, fair, or poor?" For households interviewed in Spanish, the health status of children was determined by responses to the question, "*En general, ¿cómo describiría la salud de [S.C.]? ¿Diría que su salud es excelente, muy buena, buena, regular, o mala?*" In this analysis, responses to the health status question were grouped into three categories: 1) poor or fair (*mala o regular*) health, 2) good (*buena*) health, and 3) very good or excellent (*muy buena o excelente*) health. The combined category of poor or fair health was necessary due to the small percentage (less than 1.0%) of children reported to have poor health. The categories of very good health and excellent health were combined because of the similar use of health care for children in these categories (18).

Children were classified into four Hispanic ethnicity, language of interview, and race subgroups: Hispanic–Spanish interview, Hispanic–English interview, non-Hispanic white, and non-Hispanic black. Several variables were included as potential factors confounding the relationship between health status and the child's subgroup. The confounding variables were the following demographic variables: child's age and child's sex, and socioeconomic variables—household income as a percentage of the poverty threshold [which is based on the U.S. Department of Health and Human Services (HHS)

poverty guidelines] and the child's health insurance coverage at the time of interview. A widely used measure of acculturation was also included in the analysis: primary household language (classified as English or not English). Because the nonresponse rates for questions about household income were relatively high in 2011–2012, the analysis included multiply imputed household income data (17,19).

Percentages and standard errors were calculated using SUDAAN software, which takes into account the sampling weights and the complex sample design of NSCH. The Taylor series linearization method was used for variance estimation in SUDAAN (20). Two-tailed tests of significance were performed on all comparisons discussed in the Results section. No adjustments were made for multiple comparisons. Multinomial logistic regression (PROC MULTI-LOG in SUDAAN) was used to generate model-adjusted estimates (percentages) adjusting for selected confounding variables (20). Adjusted estimates were calculated to determine whether the relationship between the child's subgroup and reported health status could be explained by the effects of selected confounding variables.

The 2011–2012 NSCH collected information about the reported health status of 61,863 Hispanic, non-Hispanic white, and non-Hispanic black children aged 5–17 years. Children in other racial subgroups were not included in the analysis because the numbers of children of races other than white and black were too small to provide meaningful results. Seventeen children with unknown reported health status and 478 with unknown language of interview were excluded from the analysis. The final analytic sample included 61,368 children.

More information about NSCH, including its sample design, data collection procedures, and questionnaire content, is available from: http://www.cdc.gov/nchs/slaits/nsch.htm.

Results

Health status of children, by Hispanic ethnicity, language of interview, and race

Hispanic–Spanish interview children (10.6%) were more likely to have a parent report of poor or fair health compared with children in the other three subgroups. Similar percentages of Hispanic–English interview (3.8%) and non-Hispanic black (4.4%) children were reported to be in poor or fair health. Non-Hispanic white children (1.8%) were least likely to have a parental report of poor or fair health compared with children in the other three subgroups (Figure 1).

Hispanic–Spanish interview children (39.7%) were also more likely to have a report of good health compared with children in the other three subgroups. Again, similar percentages of Hispanic–English interview (13.1%) and non-Hispanic black (14.4%) children were reported to be in good health. Non-Hispanic white children (7.7%) were least likely to have a parental report of good health compared with children in the other three subgroups. Non-Hispanic white children (90.5%) were more likely to have a report of very good or excellent health than children in any of the other three subgroups (49.7%–83.1%).

Selected demographic and socioeconomic characteristics and an acculturation measure, by Hispanic ethnicity, language of interview, and race

Demographic and socioeconomic characteristics

The ages of children in the four subgroups varied (Table 1). The percentage of children aged 5–11 years was similar among Hispanic–Spanish interview and Hispanic–English interview children. However, a higher percentage of Hispanic children (both with Spanish and English interviews) (57.9%–58.0%) compared with non-Hispanic white (50.7%) and non-
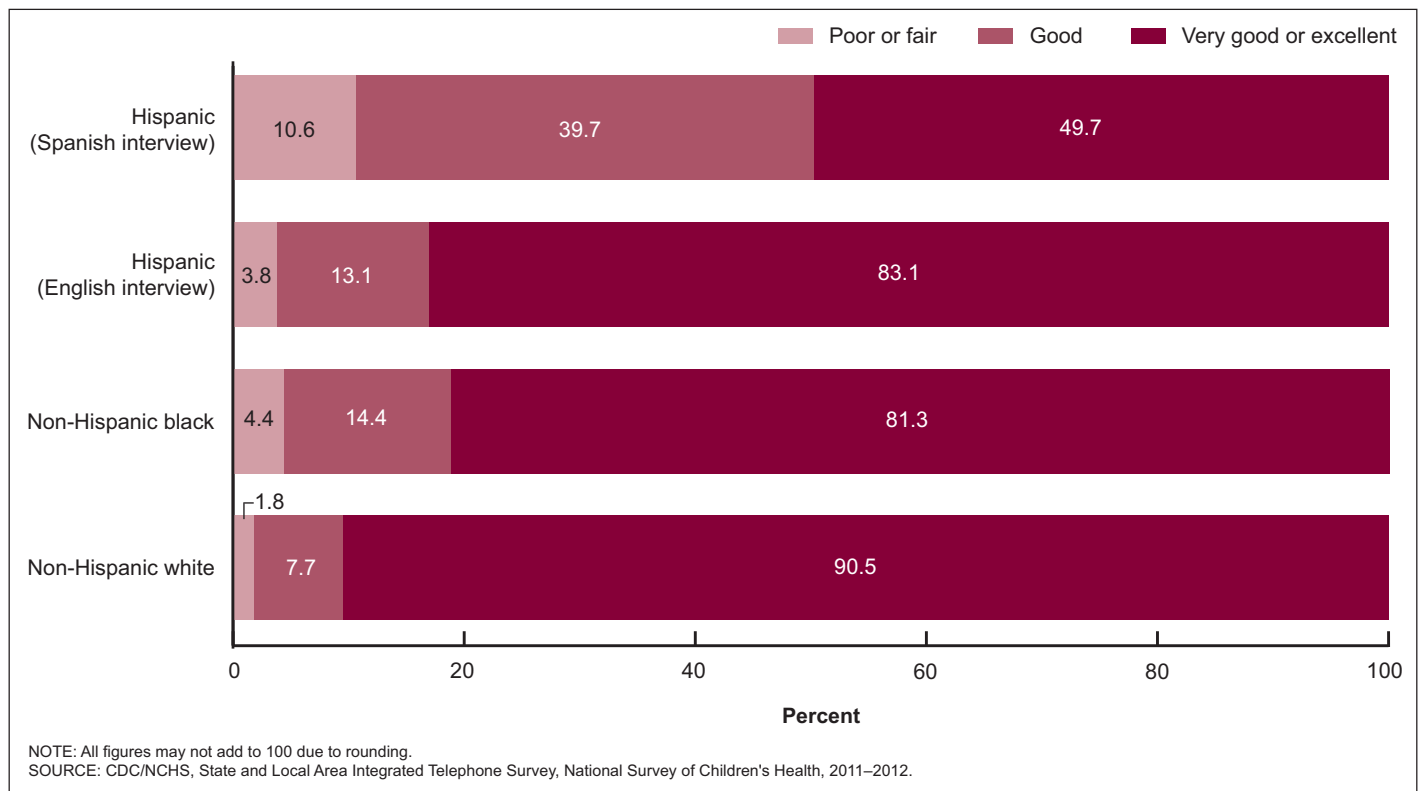
Figure 1. Percentages of children aged 5–17 years in poor or fair, good, and very good or excellent health, by Hispanic ethnicity, language of interview, and race: United States, 2011–2012

Hispanic black (52.6%) children were younger (5–11 years).

In terms of household poverty status and health insurance coverage, Hispanic–Spanish interview children differed substantially from children in the other three subgroups (Table 1). Hispanic–Spanish interview children were more than five times as likely to live in a poor household (less than 100% of the poverty threshold) (57.8%) as non-Hispanic white children (10.0%), and were also more likely to live in poverty than either non-Hispanic black (33.6%) or Hispanic–English interview (18.7%) children. Hispanic–Spanish interview children (69.0%) were also more likely than their counterparts in the other three subgroups to be covered by public health insurance. The percentages of children in the three other subgroups covered by public insurance ranged from 21.8% for non-Hispanic white children to 40.1% for Hispanic–English interview children to 54.0% for non-Hispanic black children. Compared with children in the other subgroups, Hispanic–Spanish interview children were more likely to be uninsured. Hispanic–Spanish

interview children were more than four times as likely to be uninsured (17.1%) as non-Hispanic white children (3.9%). Hispanic–Spanish interview children were about three times as likely to be uninsured as non-Hispanic black (5.5%) and Hispanic–English interview (5.7%) children.

In contrast to Hispanic–Spanish interview children, non-Hispanic white children were more likely to live in a nonpoor household (200% or more of the poverty threshold) (71.8%) and were more likely than children in the three other subgroups to have private health insurance (74.2%). The poverty status and insurance status of Hispanic–English interview children and non-Hispanic black children were between the values for the Hispanic–Spanish interview children and non-Hispanic white children. Hispanic–English interview children (18.7%) were more likely than non-Hispanic white children (10.0%) to live in a poor household, but were less likely when compared with Hispanic–Spanish interview (57.8%) children. Similarly, Hispanic–English interview children (40.1%) were more likely to be covered by public health

insurance than non-Hispanic white children (21.8%), but less likely than Hispanic–Spanish interview children (69.0%) to be covered by public health insurance. Non-Hispanic black children (33.6%) were less likely to live in a poor household than Hispanic–Spanish interview children (57.8%), but were more likely to live in a poor household than either Hispanic–English interview (18.7%) or non-Hispanic white (10.0%) children. Non-Hispanic black children (54.0%) were also less likely to be covered by public insurance than Hispanic–Spanish interview children (69.0%), but were more likely to be covered by public insurance than either Hispanic–English interview (40.1%) or non-Hispanic white (21.8%) children.

Acculturation measure

Among Hispanic children, 6.0% of those with a Spanish interview lived in a household in which the primary language was English compared with 86.3% of Hispanic children with an English interview (Table 1). Among non-Hispanic children, nearly all children lived in a household in which

the primary language was English (98.1% of non-Hispanic black children and 99.0% of non-Hispanic white children).

Adjusted differences in health status, by Hispanic ethnicity, language of interview, and race

Adjusted differences in poor or fair health

Adjusting for only demographic and socioeconomic characteristics did not eliminate the differences between the percentages of children with poor or fair health in Hispanic–Spanish interview children compared with children in the other three subgroups (Table 2). A higher percentage of Hispanic–Spanish interview children continued to have reports of poor or fair health compared with Hispanic–English interview, non-Hispanic black, and non-Hispanic white children. However, adjusting for only the acculturation measure eliminated significant differences between Hispanic–Spanish interview

children and children in two subgroups (Hispanic–English interview and non-Hispanic black). Further, adjusting for both sets of confounders (demographic and socioeconomic characteristics and an acculturation measure) eliminated significant subgroup differences in the percentages of children in poor or fair health.

Adjusting for differences in demographic and socioeconomic characteristics narrowed the gap between Hispanic–Spanish interview and non-Hispanic white children more than adjusting for differences in the acculturation measure (Table 2). Before adjustment for any confounders, the percentage of Hispanic–Spanish interview children reported to have poor or fair health was almost six times the percentage of non-Hispanic white children. After adjustment including both sets of confounders, the percentage of Hispanic–Spanish interview children reported to have poor or fair health did not differ significantly from the percentages in the other subgroups. The percentages of children in poor or fair

health were: 5.0% for Hispanic–Spanish interview, 3.6% for Hispanic–English interview, 3.6% for non-Hispanic black, and 2.7% for non-Hispanic white children (Figure 2).

Adjusted differences in good health

Adjusting for demographic and socioeconomic characteristics decreased the percentage of Hispanic–Spanish interview children in good health by approximately one-quarter, from 39.7% to 28.9%, but adjusting for these characteristics had no significant effect on the percentages of children reported to be in good health in the three other subgroups. Adjusting for the acculturation measure did not lessen the differences among the subgroups. Even after adjustments for both demographic and socioeconomic characteristics and the acculturation measure, significant differences were noted between Hispanic–Spanish interview children and children in the other subgroups in the percentages reported to have good health.

NOTE: Percentages are adjusted for child's age, sex, poverty status, health insurance, and primary household language.
SOURCE: CDC/NCHS, State and Local Area Integrated Telephone Survey, National Survey of Children's Health, 2011–2012.
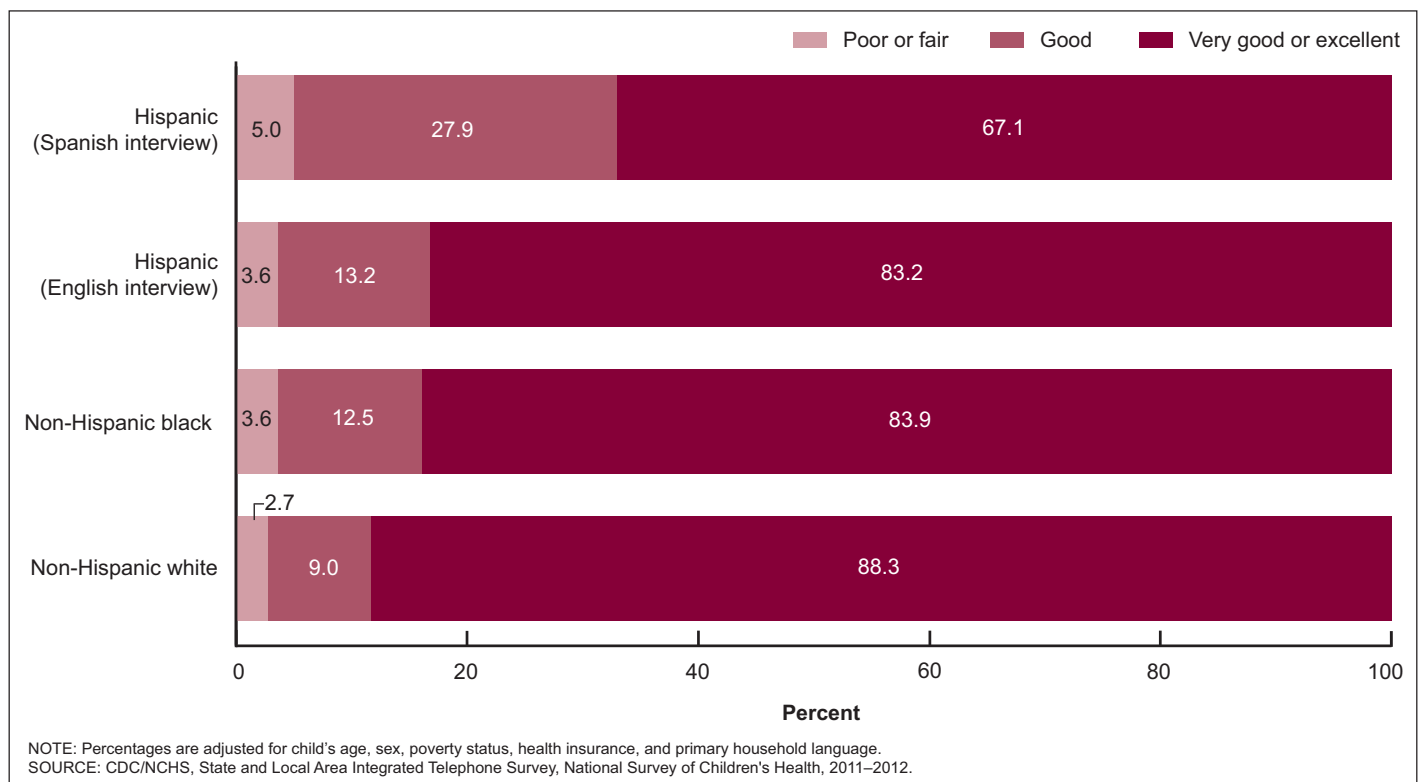
Figure 2. Adjusted percentages of children aged 5–17 years in poor or fair, good, and very good or excellent health, by Hispanic ethnicity, language of interview, and race: United States, 2011–2012

The adjusted percentage of Hispanic–Spanish interview children reported to have good health (27.9%) was three times the percentage of non-Hispanic white children (9.0%), and more than twice the percentage of non-Hispanic black (12.5%) and Hispanic–English interview (13.2%) children (Table 2).

Summary and Conclusions

Hispanic–Spanish interview children more often had reports of poor or fair health than children in the other subgroups (10.6% compared with 1.8%–4.4%). Hispanic–Spanish interview children also more often had reports of good health compared with children in the other subgroups (39.7% compared with 7.7%–14.4%). Adjusting for demographic and socioeconomic characteristics and an acculturation measure accounted for the subgroup differences in the reporting of poor or fair health, but not for differences in the reporting of good health. Compared with children in the other subgroups, Hispanic–Spanish interview children more often had parental reports of good health than very good or excellent health.

Studies of child health status over several decades have described racial and ethnic differences in parental reports of child health status (11,12,16). Most of the early studies of child health status focused on the strong association between poor or fair health and lower socioeconomic status. Findings from this study indicate that the subgroup differences in parental reports of poor or fair health were accounted for by controlling for the demographic and socioeconomic characteristics and a measure of acculturation. More detailed measure, including measures of acculturation and information about the child's past and present socioeconomic status, would help to define the importance of each of these sets of factors.

For reports of good health, several explanations have been suggested for the finding that Hispanic–Spanish interview children were more likely to have a report of good health compared with Hispanic–English interview, non-Hispanic black, and non-Hispanic white children—even after adjustment for demographic and socioeconomic characteristics and a measure of acculturation. One plausible, and commonly assumed, explanation for this finding is that true health conditions are more prevalent among Hispanic–Spanish interview children compared with children in other subgroups. If children's health conditions could be measured by direct examination rather than by parental reports of diagnosed conditions, it might be possible to determine if those with reports of good health status actually have more health conditions than those with reports of very good or excellent health status. Several researchers have noted that the children of immigrants from Latin America, even when insured, face more barriers to receiving medical and dental health care compared with other children in the United States (21). The difficulties that Hispanic–Spanish interview children experience in the health care system compared with other children may lead to delayed health diagnoses and treatment (22,23). These problems in accessing health care may result in more serious health conditions among Hispanic–Spanish interview children compared with other children.

Another possible explanation that may account for the findings in this report may be that the Spanish translation of the health status question is not equivalent to the English version. As a result, the responses to the Spanish language version of the question may not have the same meaning as the responses to the English language version. This hypothesis has been examined in several studies using the self-reported health status question for adults interviewed in English and Spanish. More studies will be needed to further clarify the importance of Spanish-language interviews for proxy reports of child health status. Before deciding how parents' answers are influenced by the specific wording and response categories of the health status question, though, it may be necessary to know more about what parents include in their definition of child health (24). Does a parent think about both physical and mental health? Does a parent consider both chronic and acute problems? Does a parent compare the child with a specific group of children? What does a parent believe the term good or *buena* means? Additional questions may be needed to obtain a valid and reliable measure of children's health status in multicultural and multilingual populations.

The analysis has several limitations. As a sample survey, NSCH is subject to nonrandom error, including coverage bias and nonresponse bias. The inclusion of more detailed measures of the child's socioeconomic status and better indicators of acculturation could have narrowed the gap between Hispanic–Spanish interview children and children in the other subgroups. Another acculturation variable might have provided a better measure of the degree to which a child and his or her household was integrated into the larger society. Additionally, NSCH includes parental reports of diagnosed child health conditions. These measures of child health depend on access to health care. Data from the 2011–2012 NSCH have shown that parental reports of diagnosed health conditions and missed school days are less frequent among Hispanic–Spanish interview children than among other subgroups of children (data not shown). Similar results based on the 2007 NSCH have also been reported for Hispanic immigrant children and Hispanic children from Spanish-speaking households (14).

The growing number and diversity of Hispanic households in the United States underscore the need to monitor the health of Hispanic children (25). This report examines the worse health status reported for Hispanic children with Spanish interviews compared with Hispanic children with English interviews and non-Hispanic white and non-Hispanic black children. While demographic and socioeconomic characteristics, and to a lesser extent levels of acculturation, accounted for the subgroup differences in the reporting of poor or fair health, the significantly greater percentage of Hispanic children

with Spanish interviews reported to have good rather than very good or excellent health remained unexplained. The problems of language translation of responses to the health status question may be another explanation for the differences in health status reported for Hispanic children with Spanish interviews compared with children in other subgroups. The findings from the present study suggest the need for more research to improve the measurement of reported child health status in culturally and linguistically diverse subgroups in the U.S. population.

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Table 1. Selected characteristics of children aged 5–17 years, by Hispanic ethnicity, language of interview, and race: United States, 2011–2012

		Hispanic		Non-Hispanic	
	All children	Spanish interview	English interview	Black	White
Characteristic	*n* = 61,368	*n* = 3,081	*n* = 5,656	*n* = 6,597	*n* = 46,034
Sex			Percent (standard error)		
Male	51.4 (0.5)	52.6 (1.8)	52.5 (1.6)	*48.3 (1.2)	51.7 (0.5)
Female.	48.6 (0.5)	47.4 (1.8)	47.5 (1.6)	*51.7 (1.2)	48.3 (0.5)
Age (years)					
5–11	52.8 (0.5)	58.0 (1.8)	57.9 (1.7)	*52.6 (1.2)	*50.7 (0.5)
12–17	47.2 (0.5)	42.0 (1.8)	42.1 (1.7)	*47.4 (1.2)	*49.3 (0.5)
Poverty status[1]					
Less than 100%	20.2 (0.4)	57.8 (1.9)	**18.7 (1.2)	**33.6 (1.2)	**10.0 (0.3)
100%–199%	22.0 (0.4)	35.1 (1.9)	**23.7 (1.4)	**25.8 (1.1)	**18.2 (0.4)
200% or more	57.7 (0.5)	7.1 (0.9)	**57.7 (1.6)	**40.6 (1.2)	**71.8 (0.5)
Health insurance[2]					
Private	59.4 (0.5)	13.9 (1.3)	**54.2 (1.6)	**40.5 (1.1)	**74.2 (0.5)
Public[3]	34.7 (0.5)	69.0 (1.7)	**40.1 (1.6)	**54.0 (1.2)	**21.8 (0.4)
Uninsured	5.9 (0.3)	17.1 (1.3)	**5.7 (0.8)	**5.5 (0.6)	**3.9 (0.2)
Primary household language					
English.	86.3 (0.4)	6.0 (0.8)	**86.3 (1.2)	**98.1 (0.3)	**99.0 (0.1)
Not English	13.7 (0.4)	94.0 (0.8)	**13.7 (1.2)	**1.9 (0.3)	**1.0 (0.1)

* Difference from Hispanic–Spanish interview children significant at *p* < 0.05.
** Difference from Hispanic–Spanish interview children significant at *p* < 0.001.
[1]Household income as a percentage of the federal poverty threshold.
[2]Health insurance coverage at the time of interview.
[3]Public insurance may include other types of insurance.
SOURCE: CDC/NCHS, State and Local Area Integrated Telephone Survey, National Survey of Children's Health, 2011–2012.

Table 2. Unadjusted and adjusted percentages of children aged 5–17 years in poor or fair health and good health, by Hispanic ethnicity, language of interview, and race: United States, 2011–2012

	Hispanic		Non-Hispanic	
	Spanish interview	English interview	Black	White
Characteristic	n = 3,081	n = 5,656	n = 6,597	n = 46,034
Poor or fair health	Percent (standard error)			
Unadjusted	10.6 (1.1)	**3.8 (0.7)	**4.4 (0.5)	**1.8 (0.1)
Adjusted for:				
Demographic and socioeconomic characteristics[1]	6.6 (0.9)	*3.5 (0.7)	**3.3 (0.4)	**2.5 (0.2)
Acculturation measure[2]	7.5 (1.8)	3.8 (0.7)	4.7 (0.5)	*2.0 (0.2)
Both demographic and socioeconomic characteristics and acculturation measure	5.0 (1.3)	3.6 (0.7)	3.6 (0.5)	2.7 (0.3)
Good health				
Unadjusted	39.7 (1.8)	**13.1 (1.1)	**14.4 (0.8)	**7.7 (0.3)
Adjusted for:				
Demographic and socioeconomic characteristics[1]	28.9 (1.8)	**13.1 (1.1)	**12.4 (0.8)	**8.9 (0.4)
Acculturation measure[2]	37.2 (3.3)	**13.1 (1.1)	**14.7 (0.9)	**7.7 (0.3)
Both demographic and socioeconomic characteristics and acculturation measure	27.9 (3.0)	**13.2 (1.1)	**12.5 (0.8)	**9.0 (0.4)

* Difference from Hispanic–Spanish interview children significant at $p < 0.05$.
** Difference from Hispanic–Spanish interview children significant at $p < 0.001$.
[1]Demographic and socioeconomic characteristics include the child's age, sex, and household income as a percentage of the federal poverty threshold, and the child's health insurance coverage at time of interview.
[2]Based on primary household language.

SOURCE: CDC/NCHS, State and Local Area Integrated Telephone Survey, National Survey of Children's Health, 2011–2012.

Technical Notes

Response rate and analysis of nonresponse

The 2011–2012 National Survey of Children's Health (NSCH) overall response rate was 23.0%. The low response rate was largely due to the inclusion of cell phone interviews, which was necessary to provide good coverage of the population of children, but which resulted in lower response rates compared with previous iterations of the survey that included only landline numbers in the sample. The lower response rates for cell phone interviews largely resulted from the higher proportion of telephone numbers that were not answered and, therefore, provided no indication of whether the number belonged to an eligible household. When only noncooperation among eligible households was examined, more than one-half of eligible parents and guardians who were contacted to participate in the survey did so.

To reduce the potential for bias, the sampling weights were adjusted for nonresponse and further adjusted to match external demographic control totals. As summarized in the online documentation (17), nonresponse bias analyses were conducted using several recommended approaches to examine estimates before and after the nonresponse weighting adjustment. Bias was found to greatly decrease after the weighting adjustment, and estimated

biases using the final weights were small—in each case, the maximum estimated bias was within the 95% confidence interval for the survey estimate, indicating that nonresponse bias was consistently smaller than potential sampling error. Bias estimates were so small that, for most of the key survey variables examined, changing the method used to estimate bias changed the estimated direction of the bias.

Definition of terms

Health insurance coverage—Type of health insurance coverage at the time of interview is determined by two questions in NSCH. The first question asks whether a child has any kind of health care coverage, including health insurance, prepaid plans such as health maintenance organizations, or government plans such as Medicaid. The second question asks whether the child is insured by Medicaid or the State Children's Health Insurance Program. Children who are insured but do not have public insurance are coded as having private insurance.

Health status—Responses to the following question determined a child's health status, "Would you say [your child's] health in general is excellent, very good, good, fair, or poor?" For households interviewed in Spanish, the health status of children was determined by responses to the question, "*En general, ¿cómo describiría la salud de [S.C.]? ¿Diría que su salud es excelente, muy buena, buena, regular o mala?*"

Language of interview—Recorded by the interviewer in response to the question, "Was this interview completed using English only?" In the sample, the interview language was assumed to be Spanish for Hispanic respondents for whom the interviewer recorded that the interview had not been completed using English only.

Poverty status—Based on total household income, number of people residing in the household, and state. The U.S. Department of Health and Human Services poverty guidelines are derived from U.S. Census Bureau poverty thresholds and are issued annually. More information is available from: http://aspe.hhs.gov/poverty/index.cfm.

Primary household language—Based on the question, "What is the primary language spoken in the household?" Responses were recoded to "English" or "language other than English." The primary household language of Hispanic respondents was assumed to be Spanish.

Race and Hispanic ethnicity—The revised 1997 Office of Management and Budget standards for race were used for the classification of race and Hispanic ethnicity. A person's race is described by one or more of five racial groups: white, black or African American, American Indian or Alaska Native, Asian, and Native Hawaiian or Other Pacific Islander. Data on race and Hispanic ethnicity are collected separately but combined for reporting. Persons of Hispanic origin may be of any race.

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