NCPH
North Carolina Public Health

SCHS Studies

A Special Report Series by the State Center for Health Statistics
1908 Mail Service Center, Raleigh, N.C. 27699-1908
www.schs.state.nc.us/SCHS/

No. 143 **July 2004**

Spanish-Speaking Hispanics in North Carolina: Health Status, Access to Health Care, and Quality of Life

Results from the 2002 and 2003 NC BRFSS Surveys

by

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ABSTRACT

Purpose: The purpose of this study is to provide data on key public health indicators for the state's Hispanic Spanish-speaking population, and to compare these results with those for English-speaking Hispanics and non-Hispanic African Americans and whites. Comparison with other demographic groups provides the context for evaluating the health risks and health care needs of the Spanish-speaking population.

Methods: Respondents who completed the North Carolina Behavioral Risk Factor Surveillance System (BRFSS) 2002 and 2003 Spanish questionnaires comprised the Spanish-speaking group. Respondents who self-identified as Hispanic and completed the questionnaire in English comprised the English-speaking Hispanic group. The results for the Spanish-speaking group were then compared with those of the English-speaking Hispanic group and those of non-Hispanic African Americans and whites. Overall, the two-year study population consisted of 376 Spanish-speaking respondents; 264 English-speaking Hispanic respondents; 2,898 non-Hispanic African Americans; and 11,892 non-Hispanic whites. From the BRFSS Survey, 17 indicators were constructed to cover the topics of behavioral and health risk, access to health care, use of preventive services, quality of life, and prevalence of chronic disease.

Results: Spanish-speaking Hispanics represent a distinct demographic population, characterized by young age and very low levels of education and income. They constitute a high-risk group, characterized by a combination of limited access to health care, limited use of preventive services, and poor health status. For example, more than two-thirds (69%) of Spanish-speaking Hispanics were uninsured during the study period and fewer than 20 percent reported having a personal doctor. Similarly, access to preventive care was also limited; Spanish-speaking Hispanics were the least likely of any group to report having a dental visit or flu shot in the past year. Moreover, more than one-third (38%) of Spanish-speaking Hispanics reported being in fair or poor health, and more than half (57%) reported no leisure-time physical activity.

Conclusion: The elevated risks of fair/poor health, lack of adequate nutrition, low level of leisure-time physical activity, and lack of health insurance among Spanish-speaking Hispanics in North Carolina call for public health action to remedy negative health outcomes. Furthermore, the persistence of these problems among Spanish-speakers could lead to an excess burden of chronic disease and morbidity as that population ages.

Introduction

Background

North Carolina has seen more than a tripling of the number of resident Latinos, or Hispanics, from 1990 to 2000; during that time, their numbers rose from 105,963 to 378,942 (U.S. Census). The number of Hispanics with very limited English-speaking ability has also increased dramatically. Over the last two Censuses, the number of adults in North Carolina ages 18 and older who reported speaking Spanish at home and speaking English either "not well" or "not at all" (referred to by the Census as "linguistically isolated"), jumped from about 13,000 in 1990 to 128,000 in 2000 – nearly a ten-fold increase.

Results from the 2000 Census also delineate some of the demographic characteristics of the Hispanic or Latino population in North Carolina. For example, Hispanics, as a group, are younger than whites or African Americans: the median age of Hispanics was 24, compared to a median age of 31 for African Americans and 38 for whites. Hispanics were also more likely to live in larger households than whites or African Americans: the average family size was 3.92 for Hispanics, 3.21 for African Americans and 2.88 for whites.

Until recently, there has been little information on the health characteristics of North Carolina's Spanish-speaking Hispanic population such as health risk behaviors, prevalence of chronic diseases, or immunization rates. It is known, however, that the Spanish-speaking Hispanic population in North Carolina, as in much of the country, is facing a health care system which has predominantly been oriented toward serving English speakers. And we know from the 2003 Current Population Survey in North Carolina that half (51.5%) of all Hispanics (English- and Spanish-speaking) had no health insurance during any part of 2002 – in contrast to 22.6 percent of African Americans and 12.0 percent of whites.

Research findings

The research literature speaks strongly to the fact that among Hispanics, a lack of English fluency is a marker for poor health care and poor health status, independent of other risk factors such as poverty or low education. A systematic review of studies published between 1990 and 2000 in bio-medical journals, examining the effects of language barriers in health care for Hispanic populations, showed that language barriers can adversely affect access to health care, the quality of health care, and the health status of Hispanics who lack English fluency.[1]

Objective

In this study, we examined demographic characteristics, health-risk characteristics, and use of medical care among Spanish-speaking Hispanics in North Carolina. We used 2002 and 2003 data collected from the North Carolina Behavioral Risk Factor Surveillance System (BRFSS). This is the first large, statistically sound sample of Spanish-speaking Hispanics that we have had in North Carolina. Prior to 2002, the North Carolina BRFSS conducted interviews only in English.

The purpose of this study is to provide data on key public health indicators for the state's Spanish-speaking Hispanic population and to compare these results with those for English-speaking Hispanics and non-Hispanic African Americans and whites. Comparison with other demographic groups provides the context for evaluating the health risks and health care needs of the Spanish-speaking population.

Methods

Survey and Sample

The North Carolina BRFSS is an ongoing calendar-year survey, with data collected monthly. The survey is a list-assisted, *random digit dial* (RDD) telephone survey of the state's non-institutionalized adult population ages 18 and older with household (land-line) telephones. With continuing support from the Centers for Disease Control and Prevention (CDC), the North Carolina BRFSS has been collecting telephone interviews since 1987.

Recognizing the need for public health surveillance of the state's Spanish-speaking population, the North Carolina BRFSS introduced the Spanish questionnaire in January of 2002. Respondents who completed the 2002 and 2003 Spanish questionnaire comprised the Spanish-speaking group for this study. Respondents who self-identified as Hispanic and completed the questionnaire in English comprised the English-speaking Hispanic group. The other study groups were non-Hispanic African Americans and non-Hispanic whites. Overall, the two-year study population included 376 Spanish-speaking Hispanic respondents, 264 English-speaking Hispanic respondents, 2,898 non-Hispanic African-American respondents, and 11,892 non-Hispanic white respondents.

Analysis

From the BRFSS survey, 17 indicators were constructed to address the topics of health and behavioral risk, access to health care, quality of life, chronic disease, and perceived racism. For all but four of these 17 indicators, two years of respondent data were aggregated. Those indicators for which we had only a single year of data were selected because of their particular relevance to the study.

All analyses were performed with the SUDAAN software, designed for the analysis of complex sample designs such as the BRFSS survey. The percentages are weighted to represent the total adult (18+ yrs.) North Carolina population and therefore cannot be calculated directly from the numbers of respondents in the tables. The prevalence percentages and their 95% confidence intervals were calculated for each of the study indicators across the four study groups. When comparing percentages between groups, non-overlapping 95% confidence intervals were used to signify statistically significant differences between percentages.

In addition to percentage comparisons, we tested whether adjusted odds ratios for the risk indicators were significantly different from 1.00, using non-Hispanic whites as the referent or comparison group. Multiple logistic regression was used to generate the adjusted odds ratios. These adjusted odds ratios controlled for sex, age, and education, all of which are known to have an independent effect on the selected study indicators.

We begin with a demographic description of the study groups, taken from the demographic questions on the BRFSS survey.

Results

Demographic Characteristics

Table 1 shows that, among adult respondents ages 18 and older, 65 percent of Spanish-speaking Hispanics were males and 35 percent were females. Among English-speaking Hispanics, the male/female ratio was about 50/50. Males were 42.4 percent of the non-Hispanic African American population and 48.1 percent of the non-Hispanic white population. In comparison, the 2000 US Census showed that Hispanic adult males in North Carolina represented about 59 percent of Hispanic adults (English- and Spanish-speaking).

The largest percentage (39.4%) of the Spanish-speaking Hispanic group was in the 25-34 age group. Only one percent of the Spanish-speaking Hispanic population was age 65 and older, compared to 8.3 percent of the English-speaking Hispanic population. Compared to non-Hispanic whites, Spanish-speaking Hispanics were significantly more likely to be represented in the two youngest age groups (ages 18-24 and 25-34) and significantly *less* likely to be represented in the three oldest age groups (age 45 and older).

Approximately 70 percent of the Spanish-speaking Hispanic population had less than a high school education, compared to 17.9 percent of English-speaking Hispanics, 19.6 percent of non-Hispanic African Americans, and 13.2 percent of non-Hispanic whites.

Less than one percent of Spanish-speaking Hispanics were college graduates, compared to almost 19 percent of English-speaking Hispanics.

The Spanish-speaking Hispanic group was significantly more likely than all other study groups to report total household incomes of less than $15,000 and of $15,000 to $24,999.

The results in Table 1 also show that the number of adults in the household was considerably larger for the Spanish-speaking Hispanic group than for any of the other study groups. Almost half (45.5%) of all Spanish-speaking Hispanic households had four or more adults living in the household. Among English-speaking Hispanics, this percentage was 6.9, and among non-Hispanic African Americans and whites, this percentage was less than 9.

Selected Risk Indicators

Table 2 features the prevalence rates and adjusted odds ratios for the 17 selected risk indicators. Spanish-speaking Hispanics were significantly less likely (Adj. OR=0.25) than non-Hispanic whites to report smoking (controlling for sex, age, and education, all of which are associated with smoking rates). Spanish-speaking Hispanics were significantly more likely (Adj. OR=2.35) to eat less than the recommended number of fruit/vegetable servings per day; not be tested for HIV/AIDS (Adj. OR=1.56) at any time prior to the interview; and have no leisure-time physical activity (Adj. OR=3.19). Among English-speaking Hispanics, the prevalence rates and adjusted odds ratios for these *same* behavioral risk factors were not significantly different from those of non-Hispanic whites.

Table 1. Demographic Characteristics of (4) Study Groups: Results from the 2002 and 2003 NC BRFSS

	Spanish-speaking Hispanics			English-speaking Hispanics			Non-Hispanic African Americans			Non-Hispanic Whites		
	N	%*	95% C.I.	N	%*	95% C.I.	N	%*	95% C.I.	N	%*	95% C.I.
Gender												
Male	219	65.0	57.5-71.7	110	50.6	41.2-59.9	964	42.4	39.4-45.3	4,487	48.1	46.7-49.6
Female	157	35.0	28.3-42.5	154	49.4	40.1-58.8	1,934	57.6	54.7-60.6	7,405	51.9	50.4-53.3
Age												
18-24	63	27.2	19.9-36.0	33	21.9	14.3-32.2	236	15.3	12.8-18.3	676	11.4	10.2-12.7
25-34	160	39.4	32.1-47.2	60	25.4	18.1-34.5	472	19.0	16.8-21.5	1,726	17.2	16.2-18.4
35-44	97	22.9	17.3-29.6	64	25.4	17.9-34.6	604	20.9	18.7-23.2	2,184	20.2	19.1-21.3
45-54	31	6.9	4.2-11.1	41	12.7	8.0-19.5	629	19.7	17.6-21.9	2,319	18.5	17.4-19.6
55-64	16	2.7	1.3-5.4	23	6.3	3.4-11.3	412	11.2	9.7-12.8	1,943	14.4	13.5-15.3
65+	7	1.0	0.3-3.1	42	8.3	5.4-12.6	509	14.0	12.3-15.8	2,964	18.3	17.4-19.3
Education												
Less than H.S.	261	70.3	62.4-77.2	46	17.9	11.2-27.4	641	19.6	17.3-22.0	1,572	13.3	12.3-14.3
H.S. or G.E.D.	81	25.1	18.5-33.2	98	41.5	32.5-51.0	992	36.2	33.4-39.1	3,449	30.6	29.3-32.0
Some Post-H.S.	22	3.6	2.1-6.3	53	22.0	15.3-30.6	715	26.7	24.1-29.4	2,965	26.3	25.0-27.6
College Graduate	9	0.9	0.4-2.2	67	18.7	12.9-26.3	534	17.6	15.7-19.6	3,879	29.8	28.6-31.1
Household income												
Less than $15,000	81	25.4	18.7-33.6	28	12.3	6.3-22.5	494	17.3	15.0-19.8	1,073	9.4	8.5-10.3
$15,000- 24,999	172	56.2	47.4-64.7	61	33.3	23.4-45.1	664	30.2	27.0-33.5	1,767	17.6	16.4-18.9
$25,000- 34,999	31	13.5	8.2-21.3	34	16.2	10.2-24.7	385	18.7	16.0-21.6	1,323	14.6	13.5-15.8
$35,000- 49,999	4	1.5	0.4-5.2	34	16.8	10.4-26.0	323	17.3	14.8-20.0	1,697	18.9	17.7-20.1
$50,000+	7	3.4	1.3-8.2	47	21.4	14.2-30.9	330	16.6	14.3-19.2	3,270	39.6	38.0-41.1
Adults (18+ yrs.) living in household												
One adult	46	5.0	3.0-8.4	82	17.2	12.3-23.5	1,331	27.0	24.9-29.1	4,297	20.3	19.4-21.2
Two adults	157	30.0	23.9-36.8	151	58.7	49.0-67.7	1,186	48.6	45.7-51.5	6,539	61.8	60.4-63.2
Three adults	69	19.5	14.4-26.0	23	17.3	10.5-27.3	291	16.0	13.7-18.6	830	12.1	11.0-13.2
Four or more adults	104	45.5	37.5-53.6	8	6.9	2.7-16.5	90	8.5	6.3-11.3	226	5.9	4.9-7.0
Total	376	100.0		264	100.0		2,898	100.0		11,892	100.0	

*Weighted percentages.

Table 2. Prevalence Rates and Adjusted Odds Ratios for Selected Risk Indicators by (4) Study Groups: Results from the 2002 and 2003 NC BRFSS

	Spanish-speaking Hispanics		English-speaking Hispanics		Non-Hispanic African Americans		Non-Hispanic Whites[2]	
	% Yes	Adjusted Odds Ratio	% Yes	Adjusted Odds Ratio	% Yes	Adjusted Odds Ratio	% Yes	Adjusted Odds Ratio
Behavioral Risk Factors								
Current smoker	18.3	0.25*	27.5	0.76	23.1	0.70*	26.6	1.00
Binge drinking	14.7	0.86	9.1	0.61	7.1+	0.64	10.1	1.00
Less than 5 daily servings F/V[1]	91.6+	2.35*	78.2	1.08	81.3+	1.40*	74.5	1.00
Never tested for HIV/AIDS	61.3	1.56*	42.6	0.66	43.3+	0.61*	56.2	1.00
No leisure time physical activity	56.5+	3.19*	28.1	1.25	33.4+	1.49*	23.9	1.00
Health Care Access								
No health insurance	69.0+	5.87*	31.8+	2.33*	19.3+	1.40*	12.6	1.00
No personal doctor	74.8+	8.04*	31.4+	1.86*	18.1	1.11	15.5	1.00
No routine checkup past year*2003*	51.4+	1.63	34.4	1.17	17.5+	0.55	26.1	1.00
Preventive care								
No flu shot past year **(all ages)**	81.4+	1.22	64.4	0.65	72.1+	1.21*	65.0	1.00
No dental visit past year*2002*	59.2+	2.30*	33.8	1.31	37.1+	1.57*	26.6	1.00
Quality of Life								
Perceived fair/poor health	38.4+	2.63*	13.5	0.83	23.7+	1.39*	18.0	1.00
Activity limitation	6.4+	0.31*	11.0	0.66	16.4	0.88	18.4	1.00
Chronic Disease								
Diabetes	1.2+	0.33*	5.5	1.24	11.7+	2.02*	7.1	1.00
Current asthma	2.6+	0.28*	8.2	1.21	7.9	1.10	6.7	1.00
Arthritis	7.6+	0.27*	21.7	0.91	28.0	0.94	30.5	1.00
Perceived Racism *2002*								
Recent emotional symptoms/racism	20.6+	5.63*	2.2	0.60	17.7+	6.02*	3.2	1.00
Recent physical symptoms/racism	9.8+	5.71*	6.9	5.22*	9.0+	7.85*	1.2	1.00

[1] Fruits and vegetables.
[2] Referent group – non-Hispanic Whites.
+ 95% C.I. non-overlapping with referent group confidence interval.
* Statistically significant Adjusted Odds Ratio – $p < 0.05$.
Note: Percentages are weighted to represent the entire population of North Carolina.

More than two-thirds of Spanish-speaking Hispanics reported that they did not have health insurance, and almost three-quarters did not have a personal doctor. When controlling for sex, age, and education, these risks remained significantly elevated compared to non-Hispanic whites (Adj. OR=5.87 for no health insurance; Adj. OR=8.04 for no personal doctor). Though the differences were not as large, the risks of not having health insurance and not having a personal doctor were also significantly higher among English-speaking Hispanics, compared to non-Hispanic whites. Among non-Hispanic African Americans, the risk of not having health insurance was significantly higher than that of whites, but the risk of not having a personal doctor was not significantly different from that of the referent group.

Perhaps associated with the higher incidence of not having health insurance, the Spanish-speaking group had the highest percentages related to no routine or preventive care, i.e., no recent checkup, no flu shot, or no

dental visit in the past year. More than 51 percent of Spanish-speaking Hispanics (18+ yrs.) had no routine checkup in the past year and more than 80 percent had no recent flu shot. When adjusted for sex, age, and education, the data showed they were significantly more likely (Adj. OR=2.30) than non-Hispanic whites to have had no recent dental visit.

We also found that the Spanish-speaking Hispanic group was significantly more likely than any other group to report being in fair or poor health. This pattern persisted after controlling for sex, age, and education. By contrast, the prevalence of having an activity limitation (cannot carry out some routine daily activities) was significantly lower among Spanish-speaking Hispanics than among non-Hispanic whites.

The percentage of respondents with doctor-diagnosed arthritis was significantly lower among Spanish-speaking Hispanics, compared to English-speaking Hispanics and non-Hispanic African Americans and whites. The percentages with diabetes and current asthma were also lowest among the Spanish-speaking Hispanic group. These results are most likely explained by the very young age of the Spanish-speaking Hispanic population in North Carolina, and the possibility of underdiagnosis due to lack of access to health care.

In 2002 North Carolina was one of several states to participate in a pilot BRFSS module, entitled "Reaction to Race." The module consisted of six questions; the results from two of these questions are featured in Table 2. The question pertaining to emotional symptoms due to racism reads: *Within the past 30 days, have you felt emotionally upset, for example angry, sad, or frustrated, as a result of how you were treated based on your race?* The question on physical symptoms is similarly constructed: *Within the past 30 days, have you experienced any physical symptoms, for example headache, an upset stomach, tensing of your muscles, or a pounding heart, as a result of how you were treated based on your race?* The results demonstrate that both Spanish-speaking Hispanics and non-Hispanic African Americans reported about the same level of emotional and physical reaction to perceived racism. Also, the levels for these two groups were significantly higher than those for English-speaking Hispanics and non-Hispanic whites.

Discussion

Access to health care

A major finding of this study is the high rate of no health insurance coverage among Spanish-speaking Hispanics. More than two-thirds (69%) of this group had no health insurance, compared to about one-third (32%) of English-speaking Hispanics, 19 percent of non-Hispanic African Americans, and 13 percent of non-Hispanic whites. Combining the Spanish-speaking and English-speaking Hispanic groups, the total rate of no health insurance for Hispanics was 59 percent (NC BRFSS). Shedding light on this lack of insurance coverage, the 2003 Current Population Survey of North Carolina found that only 12 percent of Hispanics were insured by Medicaid and only 6 percent were insured by Medicare.

Most Americans enjoy health benefits such as primary health care, dental care, and vision care coverage from their employers. However, most Spanish-speaking Hispanics in North Carolina do not enjoy these benefits. Data from the NC BRFSS indicated that 75 percent of Spanish-speaking Hispanics between the ages of 18 and 64 were employed for wages (the highest employment rate of any study group), but only 35 percent had health insurance. Among English-speaking Hispanics of the same age group, 64 percent were employed for wages, while 75 percent had health insurance. Similarly, among non-Hispanic African Americans (18-64 yrs.), 64 percent were employed for wages and 83.9 percent had health insurance.

Lack of access to employment-based or private health insurance is one of the principal reasons for low rates of health insurance coverage among Hispanics in the United States. Hispanics often work in occupations that do not provide health insurance. A summary of findings from a study of the occupational status and disparity in health insurance coverage among Hispanics revealed that: (1) Hispanics were five times as likely as non-Hispanic whites to work in agricultural jobs (which often don't provide health benefits); (2) they were half as likely to work in administrative or managerial jobs; and (3) they were twice as likely to belong to families where the primary wage-earner makes less than $7 dollars an hour.[2] Under these circumstances, the cost of health insurance premiums for these low-income families is often prohibitive – even if health insurance is offered.

The problem of limited health insurance coverage among Hispanics has been made worse with the passage of the 1996 welfare and immigration reform laws. These laws have restricted non-citizen eligibility for a wide range of public benefits, including Medicaid. Legal immigrants are now barred for a period of five years from means-tested benefits for which they were previously eligible, and states have been given authority to decide whether to provide state- or county-funded medical coverage to qualified or unqualified (undocumented) immigrants who arrived in the state after the law was passed in August of 1996. In a study of the effect of these laws on immigrant ability to access Medicaid and health care services, researchers found evidence that immigrants' ability and willingness to access these services had been adversely affected since the enactment of these laws. The researchers also found that longstanding barriers related to vulnerable and low-income population status compounded the difficulties in obtaining health insurance and health care services for Hispanic immigrants.[3]

In North Carolina, the problem of lack of health insurance for Hispanic mothers is reflected in the results from the North Carolina Pregnancy Risk Assessment Monitoring System (PRAMS) survey of new mothers. Among Spanish-speaking Hispanic women who gave birth in North Carolina from 1997 through 2001, 86 percent reported that Medicaid had paid for their delivery, while less than half (42.6%) of these mothers reported that Medicaid had paid for their *prenatal* care. In most states, as in North Carolina, Medicaid coverage for newborn delivery costs is not restricted by the mother's immigrant status. Restrictions for non-eligible immigrants, however, do apply for Medicaid coverage of prenatal care.

Poor health status

A second major finding of this study is the very high percentage of perceived fair or poor health (38%) among Spanish-speaking Hispanics, as compared to English-speaking Hispanics (14%). Furthermore, English-speaking Hispanics had the lowest rate of perceived fair/poor health of any of the four study groups, and, in general, the health-risk profile of English-speaking Hispanics more closely resembled that of whites than that of Spanish-speaking Hispanics.

The problem of poor general health among Spanish-speaking Hispanics is likely related to their low socio-economic status, their lack of health care, the presence of social inequalities, and possible encounters with anti-immigrant sentiment resulting in higher levels of stress (see Table 2, *Perceived Racism*). It should also be noted that the high percentage of perceived fair or poor health exists despite the very young average age of this population. In addition, it was found that inadequate nutrition (i.e., failure to eat the recommended amount of daily fruits and vegetables) was highest among the Spanish-speaking Hispanic group.

Lack of leisure-time physical activity

A third important finding of this study is the absence of leisure-time physical activity among more than half (57%) of Spanish-speaking Hispanics. Corroborating this finding, a study using data from the Third National Health and Nutrition Examination Survey (NHANES III) found that Spanish-speaking Mexican Americans had a higher prevalence of no leisure-time physical activity than those who spoke mostly English, independent of place of birth. The authors concluded that "acculturation seems to be positively associated with participation in leisure-time physical activity."[4]

Lack of leisure-time physical activity among Spanish-speaking Hispanics may be partly explained by the high proportion of those who work in physically demanding jobs, which may discourage participation in after-work leisure time physical activities. Results from the North Carolina BRFSS Physical Activity Module indicate that about 75 percent of Spanish-speaking Hispanics reported doing either "mostly walking" while at work, or doing "mostly heavy labor or physically demanding work." This compares to about 35 percent for both non-Hispanic African Americans and whites.

Study implications

Given that young adulthood is usually associated with being in good health, a disturbing finding from this study is the very high rate of self-perceived fair or poor health among Spanish-speaking Hispanics. Among just those respondents who reported being in fair or poor health, the median age for Spanish-speaking Hispanics was 33, compared to a median age of 53 for English-speaking Hispanics, and 56 and 62 respectively for non-Hispanic African Americans and whites, who reported being in fair or poor health. Indeed, the combined effects of high current levels of fair or poor health, lack of adequate nutrition, lack of leisure time physical activity, and lack of health insurance among Spanish-

speaking Hispanics in North Carolina pose an immediate need for public health intervention to reduce negative health outcomes. Furthermore, the persistence of these problems among Spanish-speakers could lead to an excess burden of chronic disease and morbidity with the aging of that population.

Having health insurance is, of course, integral to gaining access to medical care, but research has also shown that having a personal provider or regular source of care can greatly promote the use of health care, particularly the use of preventive services. A study of health care use among Hispanic adults found that those with no regular doctor, who were predominantly those who spoke Spanish only, were least likely to have seen a physician or to have had their blood pressure checked in the past year.[5] In the present study, Spanish-speaking Hispanics were the least likely of the four study groups to have a personal doctor and the least likely to have received preventive services in the past year.

Though not measured in the North Carolina BRFSS Survey, the quality of health care is also an important factor influencing the use of health care services. For Spanish-speaking Hispanics, poor patient/provider communication and poor quality of or lack of interpreter services have been shown to reduce the amount of medical care received, even among those with health insurance. For example, a large case control study (*N*=4,380) of Portuguese- and Spanish-speaking patients found that there was a significant increase in office visits, prescriptions written, prescriptions filled, and a significant increase in the use of preventive services among Spanish-speaking patients who received professional, comprehensive interpreter services, compared to those who did not.[6] Similarly, inadequacies in interpreter services in North Carolina's health care system may reduce Spanish-speaking patients' satisfaction with patient/provider communication and thereby decrease their use of medical services, particularly non-urgent care services.

Conclusion

The elevated risks of fair/poor health, lack of adequate nutrition, low level of leisure-time physical activity, and lack of health insurance among Spanish-speaking Hispanics in North Carolina could lead to an excess burden of morbidity and chronic disease with the aging of the population, unless these risks are addressed.

North Carolina, along with many states, faces a difficult challenge in the provision of health insurance and quality health care services to Spanish-speaking Hispanics, especially in times of rising Medicaid costs and state budget shortfalls. The challenge is made more difficult given that the great majority of Spanish-speaking Hispanics do not appear to enjoy the benefits of employer-based health insurance – even though as a group they have the highest percentage of employed 18 to 64 year-olds in the state. A strong commitment from the public health community and the business community will be required to improve health care access and the quality of health care services for North Carolina's Spanish-speaking Hispanic population.

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350 copies of this public document were printed at a total cost of $115.72 or 33¢ per copy. 07/04

Department of Health and Human Services
State Center for Health Statistics
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