

Residential Duration in an Unusual and New Destination State (Utah) and the Health of Hispanics

Youngtae Cho (School of Public Health, Seoul National University)
H. Eddy Berry (Population Research Lab, Utah State University)
Michael B. Toney (Population Research Lab, Utah State University)

Direct all correspondence to professor Youngtae Cho, School of Public Health, Seoul National University (youngtae@snu.ac.kr). This research was supported by Community/University Research Initiative Grant, Utah State University.

Abstract

It has been well discussed that the health of Hispanics in the U.S. deteriorates as their residential duration in the U.S. increases. This paper examines if residential duration in Utah, an unusual and new destination state, has impact on the health of Hispanic Utahns. Utah has known to be a healthy state in various aspects. Hispanics may be acculturated to healthy Utah culture as the length of residential duration increases, which would be resulted in improved health of Hispanics. Based on the 2001 Utah Hispanic Health Survey, we find that residential duration in Utah does not have any significant influence on the health of Hispanic Utahns, while residential duration in the U.S. exerts substantial and significant effects in a direction which is consistent with previous studies based on national samples.

Introduction

In the past two decades, the growth of Hispanic population, in its size and rate, has outnumbered that of any other race/ethnic groups in the U.S. One of the most notable trends of Hispanics in recent years is their geographic redistribution. Hispanics are no longer confined to the traditional destination states, such as California, Texas, Florida, or New York (Suro 2002). Rather, a considerable number of Hispanics are moving to states where the visibility of this population has been low (Durand, Massey, and Fernando 2000). In the new destination states, it is probable that Hispanics will confront social and cultural climates substantially different from those in the traditional destination states, and they will experience health trajectories unobserved before. One of the commonly reported findings from previous studies on Hispanic health is that nativity and duration of residence in the U.S. are negatively associated with the health and health behaviors of this population (e.g., Hummer et al. 2000; Finch, Vega, and Kolody 2001; Gfroerer and Tan 2003; Cho, Frisbie, Hummer and Rogers 2004). Since most previous studies have been based on Hispanic data collected either from the traditional destination states or from national **samples** but mostly represented by Hispanics in the traditional destination states, the negative association of nativity/duration with Hispanic health may not hold true in new destination states.

Utah has become one of the new destination states for Hispanics since the 1990s. According to the counts from U.S. census, Hispanics comprise 9% of the total Utah population in 2000 and the number of Hispanics in Utah has increased 138% since 1990. Further, this notable increase in the size of Hispanic population in Utah has been mainly attributable to the gains from net migration (Schachter 2003). Utah is known for its unique social and cultural environment. For instance, over 85% of the total population is non-

Hispanic whites, and over 65% are members of the Church of Jesus Christ of Latter-Day-Saints (LDS, generally known as Mormons), and many aspects of Utah society are significantly affected by this religion (Toney, Keller, and Hunter 2004). More importantly, Utah has been known to be a healthy state with smoking, alcohol drinking, and drug use rates notably lower than those of the US average (Office of Executive Director 2003). Further, according to the recent report based on the Behavioral Risk Factor Surveillance System (BRFSS) survey results (Office of Public Health Assessment 2001), the rates of 'poor or fair' self-rated health status (10%) and overweight or obesity (50.9%) are considerably lower than those of the U.S. average (14.9% and 56.2%, respectively), while the proportion of persons who reported regular physical activities (27%) is higher than the average (20.7%). Given these clearly unique social and healthy context, it is plausible that Hispanics in Utah will have different levels of health than Hispanics in traditional destination states. Particularly, degradation of health as the level of acculturation to the U.S. culture increases among Hispanics may not be observable in Utah, since acculturation implies adopting the ways of the host community. Rather, increased level of acculturation to *Utah culture* may favorably affect the health of Hispanics.

This paper examines how unique cultural and social climate of Utah, a new destination state, affects the health of Hispanics. As the duration of residence in the U.S. has been utilized to measure the level of acculturation to the U.S. in a number of studies (e.g., Sonis 1998; Crump, Lipsky and Mueller 1999), we employ the duration of residence in Utah as a proxy measure of exposure to the cultural and social environment of Utah. We hypothesize that the length of residence in Utah is positively associated with the health of Hispanics in Utah.

Acculturation and Hispanic Health in the United States

To be added

Methods

Data

The major source of data for this research is the 2001 Utah Hispanic Health Survey (UHHS). The following description of the 2001 UHHS is heavily driven from information provided by the Bureau of Health Promotion in the Utah Department of Health (Bureau of Health Promotion 2002). With the unprecedented increase of the size of Hispanic population in Utah during the 1990s, interest in health issues for this population has also increased. This survey was conducted to obtain baseline data and identify health risk factors for the Hispanic population, and its results have been provided to Utah health care professionals and policy makers to address the health care needs of this population. Important health issues for Hispanics in Utah are addressed in the survey, including general health status, specific disease status, health care access, preventive care, health-related lifestyle behaviors, and social/demographic characteristics. Basically, a recently modified version of the Behavioral Risk Factor Survey System (BRFSS) questionnaire was employed as a template for this survey, but several questions were added to measure acculturation and specific issues related to injury. The questionnaire was administered by Clearwater Research, Inc. both in English and Spanish, and samples drawn from an Hispanic surname list obtained from Genesys Sampling Systems were contacted by telephone. The response rate was 42% and the final data set includes a total of 939 Hispanic respondents in Utah, aged 18 and over. Due to attrition of missing cases, 898 respondents are subjects for this research.

Variables and Measures

Three general health indicators are utilized: self-rated health status, daily activity limitation status, and body mass index (BMI). Actual questions for health indicators are congruent with those appearing in the BRFSS, and conventional ways of coding for these questions are utilized here to be consistent with previous studies. For self-rated health status, we combine responses of excellent, very good, and good together as to represent "good" health, where responses of fair and poor are combined for "poor" health. For daily activity limitations, respondents who have disability (yes) are compared with those who do not (no). We trichotomize the BMI into "normal (BMI < 24.9)", "overweight (25.0 < BMI < 29.9)", and "obesity (BMI > 30.0)." As mentioned already, we use duration of residence in Utah as a measure of the level of acculturation to Utah culture and society. Although the duration was measured in years (a continuous variable) on the UHHS, we classify it into three categories (0-4 years, 5-9 years and 10 or plus years), because our preliminary analysis showed non-linear relationship of duration in Utah with dependent variables. Further, the process of acculturation to Utah culture may not be linearly related with the years spent in Utah, as has been the case of the duration of residence in the U.S. from a number of previous studies (e.g., Kuo and Porter 1998; LeClere, Jensen, and Biddlecom 1994; Frisbie, Cho, and Hummer 2001) Control variables involved in this research are age, sex, marital status, educational attainment, employment status, family income, smoking, regular exercise, and nativity/duration of residence in the U.S. Except age, we measure these controls as categorical variables, and the categorization of each variable is straightforward. Past research has shown these variables to be related to health and the composition of

Results

Table 1 shows the descriptive results of bivariate associations of control variables (upper panel) and health indicators (lower panel) with duration of residence in Utah. Hispanics with 10 or plus years of duration in Utah are older than Hispanics with shorter-term durations in Utah. It appears that Hispanic with less than 10 years of duration in Utah are more likely to be married than their counterparts with longer years of residential history. Hispanics tend to have a higher level of socioeconomic status (SES) as their duration of residence in Utah gets longer. That is, longer term duration in Utah is positively associated with higher levels of educational attainments, employed status, and family incomes. Hispanics with 10 or plus years in Utah show the highest proportion of currently smoking status (about 20%). This result is somewhat surprising because we expected that Hispanics may be more acculturated to Utah culture as their duration of residence gets longer: culture that discourages smoking. Longer duration in Utah is positively related with the regular exercise status among Hispanics. Majority of Hispanics with 10 or plus years in Utah are US-born (65.2%), while majority of their counterparts with shorter-term duration in Utah is foreign-born.

Regarding the bivariate association between health indicators and duration of residence in Utah, Hispanics with longer duration seem to have inferior health than their counterparts with shorter duration in Utah, except for self-rated health status. Compared to about 6% for those with 0-4 years in Utah, about 15% of Hispanics with 10 plus years are daily activity limited. Proportion of “normal” BMI decreases from 50% to 45% to about 37%, as respondent's duration of residence in Utah increases. On the other hand,

proportion of assessing one's own health being “excellent, very good, or good” slightly increases with increased duration in Utah.

-- Table 1 About Here --

To partial out the effect of duration in Utah on Hispanic health, we run three progressive regression models for each health outcome, and the results are presented in Table 2. Model 1 is a baseline model that includes respondent's age and sex in addition to the main effect of this research (duration in Utah). Model 2 additionally considers respondent's marital status, education, employment status, family income, smoking status, and exercise status. Model 3 is a full model that includes the effect of duration of residence in the U.S. in addition to all other controls in the previous model. This model shows the relationship between the durations in Utah and in the U.S. with respect to their impact on health outcomes. Odds ratios and 95% confidence intervals of the main effect and duration in the U.S. are shown in Table 2.

-- Table 2 About Here --

In the base line model, only two odds ratios are statistically significant, although the pattern of association between each health outcome and duration of residence in Utah is not different from what was observed from bivariate analysis in Table 1. Hispanics who have resided 10 or plus years in Utah are substantially less likely to assess their own health being “fair or poor,” but are twice more likely to suffer from weight problems, compared to their counterparts with 0-4 years of residential duration in Utah, net of age and sex. When SES and demographic covariates are considered in Model 2, the relative effect of 10 or plus years of duration in Utah on self-rated health has decreased in its magnitude and lost its statistical significance, while that for disability increases and becomes statistically

significant (odds ratio: 2.33). In this model, relative disadvantage of longer-term duration in Utah (10 or plus years) on obesity status among Hispanics still remains almost unchanged, compared to the previous model. It suggests that duration of residence in Utah significantly deteriorates the health (at least in terms of daily activity limitations and obesity) of Hispanic Utahns, independent of individual's SES and demographic characteristics, which is certainly the opposite of our hypothesis. In Model 3 where the length of duration in the U.S. is additionally considered, none of the odds ratios of duration in Utah for three health indicators are significant, and even their magnitudes become close to the unity. On the other hand, odds ratios of the effect of duration in the U.S. indicate that US-born Hispanic Utahns are at substantially higher risks of daily activity limitations (odds ratio: 3.84) and obesity (odds ratio: 7.56) compared to foreign-born Hispanic Utahns with a very short residential duration in the US (0-4 years). Further, the directions of association between each health outcome and the length of duration in the U.S., although not all odds ratios are statistically significant, are consistent with the general patterns observed from previous studies based on the nation or traditional destination states of Hispanics.

Although the effect of duration in Utah on health outcomes is neither significant nor substantial when duration of residence in the U.S. is controlled, it is probable that the effect of duration in Utah may interact with the effect of duration in the U.S. For instance, the effect of residence in Utah for 0-4 years on health may vary for U.S.-born Hispanics and for foreign-born Hispanics. To test the interaction effect, we run models separately for U.S.-born Hispanics and for foreign-born Hispanics (Table 3). We do not separate out foreign-born Hispanics into subgroups by their duration in the U.S. (e.g., 0-4, 5-9, and 10+ years) to maintain large enough sample size for parameter estimates. None of the odds ratios

presented in Table 3, except for the effect of 0-4 years of duration in Utah on obesity for foreign-born Hispanics (odds ratio: 2.26), is statistically significant. Some different patterns of association between U.S.- and foreign-born Hispanic groups are observed. For instance, the odds of obesity decreases as duration of residence in Utah increases among the U.S.-born, while it increases among the foreign-born. However, we do not suggest such interpretation is valid because of the lack of statistical significance in each odds ratio presented in Table 3. In other words, we do not observe any notable interaction effect between durations of staying in Utah and in the U.S. on health indicators among Hispanic Utahns.

-- Table 3 About Here --

Discussion

This paper investigated if acculturation to Utah culture has any effect on the health of Hispanics residing in Utah. In terms of the effect of acculturation to US culture, it has been well documented that U.S. culture negatively affects the health of Hispanic populations, in that foreign-born immigrant Hispanics enjoy superior health and mortality status to their US-born counterparts, and their health advantage diminishes as their residential duration in the US becomes longer. Although uncertainties have been expressed about these claims, such as the possibility of selection bias (often termed as ‘Salmon bias’) (e.g., Palloni and Morenoff 2001), a burgeoning number of studies have shown evidence of epidemiological paradox of Hispanic health. Just as the process of acculturation to U.S. culture, it seemed probable that Hispanics would be acculturated to local culture as their duration of local residence increases. Further, if local culture is distinctively different from that of the nation, the effect of acculturation on the health of Hispanics would be different

from what has been reported based on the national data. Utah has long been described as one of the most unusual states, if not the most unusual, because of its high fertility, low mortality, and religious based migration patterns and for the influences of religion on the state's residents (Foltz 2000; Toney, Keller and Hunter 2004). Thus, we hypothesized that the duration of residence in Utah would improve the health of Hispanic Utahns through the process of acculturation to *healthy* Utah culture that discourages unhealthy behaviors such as drinking, smoking, and illicit drug uses.

From the descriptive analysis, it was divulged that duration of residence in Utah notably aggravated daily activity limitations and BMI status of Hispanic Utahns, while it had a slightly positive effect on self-rated health status. This result is substantially different from our hypothesis. When confounders (viz., demographic, SES, smoking, and exercise status) were taken into account in the multivariate models (Models 1 and 2 in Table 2), negative effect of duration in Utah on activity limitations and BMI became more pronounced, whereas its effect on self-rated health status disappeared. However, in the full model where the effect of duration of residence in the U.S. was additionally considered, the effect of the duration in Utah on all health outcome variables became non-significant, while the effect of duration in the U.S. was mostly significant in a direction consistent with that previously reported. That is, the longer the duration of residence in the U.S., the worse the health of Hispanic Utahns, while no significant effect of residential duration in Utah was found. Moreover, no significant interaction effect of duration in Utah and duration in the U.S. was found, except for the elevated risk of obesity among foreign-born Hispanics whose residential duration in Utah was 10 or plus years.

Therefore, we reject our main hypothesis that increased duration of residence in Utah, a particularly healthy state, will result in improved health among Hispanic populations. Rather, our findings reinforce the well-known Hispanic health trajectory of deteriorated health with increased residential duration in the U.S., even in a new Hispanic destination state. At least two explanations are possible. First, it may be that the length of residential duration in Utah does not appropriately measure the level of acculturation to Utah culture, particularly health-related behaviors and attitudes, among Hispanics. The process of acculturation is multifaceted of which quantity and quality could not be satisfactorily measured by a single aspect of residential duration (Hunt, Schneider, and Comer 2004). It would be more so when the boundary of host society which we attempt to measure the scope of acculturation is a subpart of larger host society (i.e., Utah is a subpart of the U.S.), since acculturation to smaller range host society occurs simultaneously with that to larger host society. Thus, the residential duration could be of an appropriate measure of acculturation in a nation level but inappropriate in a state level.

Second, it is also probable that acculturation to Utah culture among Hispanics does not exist, no matter what the residential duration is. Since Hispanics in Utah are small in their size, they may have social exposure to the main stream Utah culture at a larger extent than Hispanics in their traditional destination states do. However, Hispanics in Utah are minorities regarding not only race/ethnicity but also religion, they may have developed tendency to seek for references for their general attitudes or behaviors, including health-related ones, from coethnics and their own culture in Utah or in the nation, rather than from non-Hispanic prevailing Utah society. Therefore, increased duration of residence in Utah among Hispanics accelerates their process of acculturation to U.S. culture that has negative

influence on the health of Hispanics, rather than increased level of acculturation to health protective Utah culture.

We believe these two explanations are compromising, rather than competing, to each other. There must exist an acculturation process among Hispanics to dominant Utah culture which is too multidimensional and complex to be captured by a single measurement tool. While some dimensions are parts of the acculturation process to U.S. culture, others are distinctive to unique Utah culture. The length of residential duration in Utah may measure a dimension of acculturation that is the same as acculturation to U.S. culture. Future research should pay attention to configuring the acculturation process unique to culture and social environment in Utah and Hispanics. Further, research in new destinations states that are not as demographically and culturally unique is needed to more fully examine the epidemiological paradox of Hispanic health.

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Table 1. Descriptive Statistics for Duration of Residence in Utah among Hispanics, 2001.

	Duration in Utah			Total N
	0-4 years	5-9 years	10+ years	
Age (Mean, years)	33.8	33.3	44.2	898
Sex (%)				
Male	52.2	54.6	56.8	495
Female	47.8	45.5	43.3	403
Marital Status (%)				
Married	78.8	78.3	69.6	663
Div/Sep/Wid	8.0	10.6	18.8	128
Unmarried	13.3	11.1	11.6	107
Education (%)				
1-8 years	27.4	23.2	13.5	172
9-11 years	16.4	24.8	14.8	156
12 years or GED	25.2	22.7	34.4	265
Some college +	31.0	29.3	37.3	305
Employment Status (%)				
Employed	67.7	71.7	72.6	639
Unemployed	6.6	4.6	4.9	47
Not in labor force	25.7	23.7	22.6	212
Family Income (%)				
Less than 20k	22.6	14.1	15.2	151
20k - less than 35k	42.0	47.0	27.6	319
35k or more	19.5	27.3	45.2	312
Missing	15.9	11.6	12.0	116
Smoking (%)				
Current smoker	17.7	12.1	19.8	158
Non-smoker	82.3	87.9	80.2	740
Regular Exercise (%)				
Yes	65.9	71.2	75.5	648
No	34.1	28.8	24.5	250
Nativity/Duration of Residence in the US (%)				
Foreign-born, 0-4 years	43.4	N/A	N/A	98
Foreign-born, 5-9 years	15.0	45.0	N/A	123
Foreign-born, 10+ years	26.1	36.9	34.8	297
US-born	15.5	18.2	65.2	380
Self-rated Health Status (%)				
Excellent, Very Good, Good	72.6	75.8	76.6	677
Fair, Poor	27.4	24.2	23.4	221
Activity Limitations (%)				
None	94.3	91.4	85.2	798
Yes	5.8	8.6	14.8	100
Body Mass Index, BMI (%)				
Normal	50.0	45.0	36.7	376
Overweight	35.4	37.4	36.1	325
Obese	14.6	17.7	27.2	197
Total N	226	198	474	898

Source: Utah Special Hispanic Health Survey, 2001

Table 2. Odds Ratios, Effect of Duration in Utah among Hispanics on Selected Health Indicators, 2001.

	Self-rated Health	Disability:	BMI	
	Poor/Fair	Yes	Overweight	Obese
<i>Model 1</i>				
Duration in Utah [0-4 years]				
5-9 years	0.87 (0.56, 1.36)	1.61 (0.75, 3.42)	1.18 (0.76, 1.81)	1.37 (0.79, 2.38)
10+ years	0.58 (0.39, 0.86)	1.80 (0.94, 3.44)	1.03 (0.70, 1.51)	2.00 (1.25, 3.21)
-2LL	965.87	583.41	1837.20	
<i>Model 2</i>				
Duration in Utah [0-4 years]				
5-9 years	0.93 (0.57, 1.49)	1.80 (0.83, 3.89)	1.16 (0.74, 1.80)	1.36 (0.77, 2.38)
10+ years	0.90 (0.56, 1.40)	2.33 (1.18, 4.64)	0.97 (0.65, 1.46)	1.96 (1.19, 3.21)
-2LL	852.09	557.12	1817.56	
<i>Model 3</i>				
Duration in Utah [0-4 years]				
5-9 years	0.82 (0.47, 1.44)	1.82 (0.74, 4.45)	1.03 (0.61, 1.75)	0.93 (0.50, 1.75)
10+ years	0.83 (0.49, 1.43)	1.41 (0.64, 3.11)	0.88 (0.53, 1.46)	1.02 (0.57, 1.81)
Duration in the US [0-4 years]				
5-9 years	1.21 (0.56, 2.63)	0.83 (0.18, 3.78)	1.27 (0.62, 2.59)	3.03 (1.00, 9.16)
10+ years	1.66 (0.84, 3.29)	1.63 (0.45, 5.86)	1.19 (0.63, 2.27)	3.81 (1.40, 10.38)
US-born	1.00 (0.46, 2.14)	3.84 (1.03, 14.27)	1.23 (0.62, 2.44)	7.56 (2.68, 21.37)
-2LL	845.85	543.94	1795.27	

Source: Utah Special Hispanic Health Survey, 2001

Note: All analyses based on N=879.

[] = Reference category, () = 95% Confidence interval.

Reference categories for dependent variables are 'Excellent, Very Good or Good', 'No Disability' and 'Normal Weight', respectively.

Model 1, adjusted for age and sex.

Model 2, adjusted for Model1 plus marital status, educational attainment, employment status, family income, smoking status, and exercise status.

Model 3, adjusted for Model 2 plus nativity/duration of residence in the US.

Bold indicates p<0.05.

Table 3. Odds Ratios, Effect of Duration in Utah among Hispanics on Selected Health Indicators, 2001.

	Self-rated Health Poor/Fair	Disability: Yes	BMI Overweight Obese	
<i>US-born only</i>				
Duration in Utah [0-4 years]				
5-9 years	1.94 (0.42, 8.97)	1.77 (0.45, 6.95)	0.66 (0.20, 2.16)	0.34 (0.10, 1.17)
10+ years	1.42 (0.43, 4.68)	1.02 (0.34, 3.05)	0.81 (0.32, 2.09)	0.57 (0.22, 1.45)
-2LL	289.30	289.08	785.26	
<i>Foreign-born only</i>				
Duration in Utah [0-4 years]				
5-9 years	0.85 (0.51, 1.42)	1.39 (0.50, 3.83)	1.23 (0.75, 2.00)	1.96 (0.99, 3.86)
10+ years	0.97 (0.57, 1.67)	1.83 (0.68, 4.96)	0.86 (0.51, 1.46)	2.26 (1.14, 4.54)
-2LL	543.56	226.25	972.54	

Source: Utah Special Hispanic Health Survey, 2001

Note: Analyses for US-born only based on N=380.

Analyses for Foreign-born only based on N=518.

[] = Reference category, () = 95% Confidence interval.

Reference categories for dependent variables are 'Excellent, Very Good or Good', 'No Disability' and 'Normal Weight', respectively.

All models, adjusted for age, sex, marital status, educational attainment, employment status, family income, smoking status, and exercise status.

Bold indicates p<0.05.