Abstract

This study examines Hispanic health in Utah as a new destinations state; investigating three main areas; i.) do Hispanics in Utah posses an overall healthier status than Anglos in Utah, ii.) what, and to which extent do SES and demographic risk factors explain the advantages or disadvantages in Hispanic health contrasting Anglos, and iii.) to scrutinize the effect of religious affiliation on individuals health in Utah, primarily focusing on relative statuses of Hispanic health due to the clout of Catholicism and Mormonism, by utilizing the 2001 Utah Health Status Survey as data sources. These health outcome measures are employed: activity limitations due to emotional problems, activity limitations due to physical problems, and self rated health status. We find that there is an inferior health status among Hispanics in Utah compared to their counterpart Anglos showing that there isn't an epidemiological paradox in Utah; much of the inferior health statuses held by Hispanics can largely be accounted for their lower levels of SES and; we find no significant effects of religious affiliation on the health disparities between Hispanics and Anglos. However, we also find that Mormon Hispanics are at significantly greater risk of emotional problems than Catholic Hispanics in Utah.

INTRODUCTION

One of the most notable demographic changes in the United States over the past two decades has been the rapid growth of the Hispanic population. In this time period, Hispanics surpassed Blacks to become the nation's largest minority group. Previous to this rapid growth, Hispanics were concentrated in a few border states and in the nation's mega cities. In the 1990s, Hispanics began to move to several (many) other states in large numbers (see Schachter 2003). Previous research has focused on issues relevant to Hispanic adjustments in their earlier destinations. Hence, much is known about Hispanics living in their traditional destinations, but very little is known about whether findings from these studies apply to Hispanic in a variety of new destinations, some of which are quite socially and culturally different fro their traditional destinations.

Utah is one of the new destinations for Hispanic migrants, both directly from their native countries and from other U.S. sates (Schachter 2003). This state has long been described as one of the nations most culturally distinct states because of its predominantly Mormon population. Mormons, members of the Church of Jesus Christ of Latter-Day-Saints (LDS), makeup 70 percent of Utah's population but less than 2 percent of the country's population and no more than 25 percent of any other state's population. Between the period of two recent decennial census, the Hispanic population of Utah increased by 138 percent (from 84,597 to 201,559) to become more than 9 percent of total Utah population. Responding to this rapid growth, interest in the Hispanic population in Utah has increased, especially with respect to the social characteristics and the likely correlates of the growth of this population (e.g., Berry and Kirschner 2002; Iber 2000). However, few attempts have been made to examine the general health status of this

population yet, relative to other race/ethnic groups. Utah is known for its long-lived and relatively healthy population, factors which are usually attributed to the state's unique social climate. It is unknown, however, whether the factors that affect the predominantly white majority in Utah influence the health of Hispanics. That is, the uniqueness of Utah culture, mainly influenced by its predominant religion would result in the health trajectory of Hispanics different from what has been largely documented and discussed by previous studies based mainly on the traditional destination states for this population. Accordingly, this study aims to investigate the health of Hispanic Utahns, focusing on how the social position of this population in Utah with respect to their demographic and socioeconomic status (SES) profiles affects their general health. To better achieve this aim, we compare the health of Hispanic Utahns with that of non-Hispanic white (Anglo) Utahns. Further, we pay particular attention to the religious affiliation as a presumable risk factor of health problems for Hispanics in Utah. Although the main analysis of this study is entirely based on Hispanics and Anglos in Utah, we attempt to relate our findings from Utah with the existing body of literature regarding the health of Hispanic populations in the U.S., rather than to simply introduce what is taking place in this state.

BACKGROUND

As the dramatic increase in the size of the Hispanic population in the U.S. has occurred interest in the health of this population has also grown. This interest in the health of this population encompasses infant health and death (e.g., Frisbie, Echevarria, and Hummer 2001; Hummer et al. 1999; Zuniga de Nuncio et al. 2003), adult health and mortality (e.g., Stump et al. 1997; Ren and Amick 1996; Hajat et al. 2000; Liao et al. 1998), and mental health (e.g., Gamst et al. 2002; Vega et al. 1998). What has been commonly reported from these studies is that Hispanic populations, in general, enjoy favorable health status compared to other race/ethnic

groups including non-Hispanic whites, despite the fact that they have relatively low socioeconomic background in terms of education, family incomes, and/or access to medical care. These unique health findings in Hispanics has been termed the "epidemiologic paradox" of Hispanics (Markides and Coreil 1986). Recently, discussions on this enigmatic relationship between the health of Hispanics and their socioeconomic position relative to other race/ethnic groups in the U.S. has been expanded to the effect of nativity and duration of residence in the U.S. That is, in spite of the significant inferiority of social profiles (e.g., lower SES, lack of language proficiency, lack of access to care), foreign-born Hispanics have superior health to their US-born counterparts, and this health advantage deteriorates as the length of exposure to U.S. society increases (Hummer et al. 2000; Cho et al. 2004). Regarding the favorable health of Hispanics and their foreign-born immigrant populations, two complementary hypotheses have been introduced by previous studies. One proposes that immigration includes a selective process that only healthy or robust individuals are willing to migrate abroad (Marmot, Adelstein, and Bulusu 1984). The other proposes that, compared to the overall U.S. population, Hispanics are more likely to engage in healthy life styles and behaviors due to their culture that emphasizes strong family and social networks that help this population to overcome their disadvantageous social profiles. And this population's culture is mainly influenced by Catholicism, being the predominant religion (Hummer et al. 1999; Landale et al. 1999; Scribner 1996). Most previous research has used national or nationally representative data sets to address the phenomenon of epidemiologic paradox and the two explanations. These data sets are largely represented by the Hispanic population in the traditional states of immigration destination, such as California, Texas, Illinois, or New York, since the Hispanic population has been heavily concentrated in those

states. Accordingly, what has been reported about the health of Hispanics so far is based mainly on Hispanics residing in those traditional destinations.

Then would the advantage of health among Hispanic populations hold true in Utah which is a new destination state for this population and has long been known as one of the most unusual states for its demographic patterns and culture? We presume that epidemiologic paradox may not exist in Utah, or if any, there may be no advantage of Hispanics over Anglos with respect to at least mental or emotional health because of the following two reasons. First, Utah is known to have one of the healthiest life styles of the states in the U.S., as mentioned above. For instance, Utah has had the lowest levels of alcohol consumption and cigarette sales among the fifty states. Moreover, male life expectancy of Utah is considerably higher than the U.S. average, while the homicide rate is substantially lower than that of other states (Office of the Executive Director 2001). Given the unique racial composition of this state, over 85% of total population is Anglos in 2000, it is not difficult to imagine that the favorable health status of this state is largely attributable to the compositional factor, relatively few residents who are members of disadvantaged minorities. Since the epidemiologic paradox is a relative concept that includes both Hispanics and Anglos in the U.S. as a whole, one may not find more favorable health for Hispanics in a setting where Anglos are strikingly healthy. Thus, Hispanics in Utah may not have more advantageous health profiles compared to their Anglo counterparts, not because their health is more disadvantaged in Utah than in other states, but because their comparison group (Anglos) maintains more robust health status.

Second, Utah is home to a large Mormon population with 70 percent of total population being a member of this religion (Toney, Keller, and Hunter 2004). Indeed, it has been reported that the overall favorable health of Utah is mainly attributable to the predominant aspects of

Mormonism that promote social networks and bonds, social capital, and/or socially integrated moral values, all of which have been known to work as a buffer against various risk factors of health problems and conditions (see Ellison, Burr, and McCall 1997; Hummer et al. 1999; Putnam 2000). Plus, Mormonism itself specifically prohibits the use of alcoholic drinks, smoking or chewing of tobacco, and hot drinks (tea and coffee) some of which are well-known to increase the risks of adverse health. Thus in this religiously homogeneous place, Hispanic Utahns are not only a minority in race/ethnicity, but if they do not prescribe to the Mormonism they may experience more social alienation and suffer from greater social isolation than they do in other U.S. destinations. That is, the protective effect of cultural buffers among Hispanics mainly rooted on Catholicism may not be effective in Utah; rather their religious affiliation with Catholicism may be associated with psychological distress in Utah. To the contrary, Hispanic Utahns who are Mormon may not encounter feelings of social isolation, but receive strong social or community support and the benefit of social capital and experience aforementioned healthy life style and behaviors.

To examine the health of Hispanic populations in Utah with respect to the effect of social risk factors, there are three specific research questions that we try to answer in this paper. First is to investigate if Hispanics are overall healthier than Anglos in Utah, and second is to examine which and to what extent various demographic and SES risk factors explain the advantage or disadvantage of Hispanic health relative to their Anglo counterparts. Third is to verify the effect of religious affiliation on the health of individuals in Utah, particularly focusing on the impact of Catholicism and Mormonism on Hispanic health. To accomplish these specific aims, we utilize multiple measures of health as to encompass not only physical but also emotional or psychological aspects of health.

DATA

We employ the 2001 Utah Health Status Survey (UHSS) in the current study. The following description of the 2001 UHSS is heavily drawn from information provided by the Utah Health Department (Office of Public Health Assessment 2002). This survey has been conducted every five years since 1986 by the Utah Department of Health. In the 2001 UHSS, the state representative sample of 24,088 individuals from 7,520 households stratified by twelve local health districts that cover the entire state was included. Respondents were contacted and telephone-interviewed by trained survey supervisors of PEGUS Research Inc., a survey research company contracted with the Utah Department of Health. A single stage, non-clustered, equal probability of selection telephone calling design was utilized to select respondent's telephone number (response rate: 40.8 percent). Respondents were limited to an adult household member aged 18 or over at the time of survey, but the survey gathered information about all household members. To more accurately generalize to Utah's population, the UHSS includes two types of post-survey weighting adjustments, one for random sampling variation and the other for disproportionate sampling, taking into account the following factors: phone lines, number of adults in the household, Hispanic origins, age and sex, and local health district. Accordingly, we use weights in our analyses to generate percentage and parameter estimates. Since many questions pertain to the purpose of this research, such as religious affiliation and nativity/duration in the US, were asked only to the respondent, our analysis is based only on information from the respondent of each household aged 18 and up. Further, only non-Hispanic whites (Anglos) and Hispanics are included in this study. Respondents with missing values are

excluded, except for family income, with an assumption that those respondents are randomly distributed. A total of 7,024 Anglos and Hispanics are available for this analysis.

VARIABLES and MEASUREMENT

Dependent Variables

Since the 2001 Utah Health Status Survey was specifically designed to provide contemporary information on various topics related to health status and health care access in the State of Utah, it includes rich information on respondent's health status. Although status of specific medical conditions is available (such as diabetes, asthma, heart disease, etc.), we employ more general measures of health status to be consistent with previous studies: activity limitations due to emotional conditions, activity limitations due to physical conditions, and self-rated health status. The actual question for disability due to emotional (or physical) conditions is "During the past 4 Weeks, how much of the time have you accomplished less than you would like with your work or regular daily activities as a result of your emotional problems (or physical health)?" Five answers are given to the respondents to choose from: all of the time, most of the time, some of the time, a little of the time, or none of the time. We combine 'all', 'most' and 'some' together as to measure considerable disability, because a notably fewer number of respondents reported to have these levels of disability for both questions, compared to other two levels of disability (a little or none). Thus we trichotomize two daily activity limitation outcome variables: considerable limitation, a little limitation, and no limitation. The actual question for self-rated health status is "In general, would you say your health is excellent, very good, good, fair, or poor?" We dichotomize respondent's answer to good health (excellent, very good, or good) and bad health (fair or poor), consistent with previous studies. In accordance with the nature of

dependent variables in this study, dichotomous or trichotomous, logistic or multinomial logistic regression techniques are utilized to generate parameter estimates in multivariate analyses.

Independent Variables

Religious affiliation is one of the main focuses of this study. Since we are particularly interested in respondent's religious affiliation of Catholicism or Mormonism, we combine other religions together (e.g., Protestant or Jewish), making four religion categories: Mormonism, Catholic, Other religions, and no religion. We classify nativity and duration of residence in the US status into three categories: US born, foreign born with 0-9 years of duration, and foreign born with 10 or more years of duration. A number of previous related studies differentiate foreign born with 0-4 years of duration from foreign born with 5-9 years of duration, since it generally takes about 5 years for immigrants to achieve permanent resident status and about 10 years to be naturalized (see Kuo and Porter 1998; LeClere, Jensen, and Biddlecome 1994). Yet, we use a 0-9 years of duration category here since very few Anglos (0.1%) in our data reported to be foreign-born with 0-4 years of residence in the US. Our preliminary analysis based on the four categories of nativity/duration showed the same pattern of association presented in the current study. For race/ethnicity, as already mentioned, we compare the health of Hispanics and that of non-Hispanic whites (Anglo) in Utah. Although specific national-origin is identifiable for Hispanic populations, majority of them are from Mexico (over 75%) and others from another countries are almost evenly distributed. Therefore, we combine them all together in a category labeled Hispanics. Other control variables that we consider in this study are respondent's demographic (viz., age, sex, marital status, and household size) and socioeconomic status (viz., educational attainment, family income, and insurance status) characteristics. Since there are a

considerable number of missing cases on family income, we include a missing category for family income in our analysis. Categorization of these covariates is straightforward, except age and household size which are continuously measured.

FINDINGS

Descriptive Analysis

Table 1 features weighted percentage distributions of risk factors and health outcomes by race/ethnicity for adult Utahns. It is clear from the religious affiliation that the majority of Anglo is Mormon (70.5%), where the majority of Hispanics is Catholic (55.0%). Over 22% of Hispanic population in Utah is Mormon. Majority of Hispanics (about 60%) are foreign-born immigrants, and overall they are younger than Anglos in Utah. Compared to Anglos, Hispanics are higher for the proportion of never married, but lower for being married, and their average household size is bigger. Regarding SES, it is obvious that Anglos are more advantaged than Hispanics in that only about 4% of Anglos have less than high school education compared to 33% for Hispanics. Further, about 70% of Anglo Utahns received at least some college education, whereas only about 30% of Hispanic Utahns had the same level of education. Family income of Anglos is also notably higher than that of Hispanics in Utah. Hispanics are disadvantaged in access to medical care over Anglos. Overall, patterns of percentage distributions of demographic and SES risk factors for Hispanic and Anglo Utahns are quite similar to what has been observed by previous studies (e.g., Cho et al. 2004).

-- Table 1 about here --

Age standardized percentage distributions for health outcomes by Anglo and Hispanic Utahns are presented at the bottom panel of Table 1. In all three health measures, Hispanics show significantly higher proportion of being in adverse health status, compared to Anglos in

Utah. Particularly, the disadvantage of Hispanics is more pronounced in the cases of considerable level of limitations for both emotional and physical causes. Although this result is based only on the bivariate association, it seems that an "epidemiologic paradox" of Hispanic populations is not observable in Utah, which is clearly inconsistent with previous findings. We defer our discussion on such "non-paradox" of Hispanic health relative to that of Anglos until analyses with consideration of important demographic and social risk factors, including religious affiliation and nativity/duration status, are completed.

Multivariate Analysis

Table 2 displays multinomial logistic regression results from four separate models of activity limitations caused by emotional problems. Controlling for age and sex in Model 1, Hispanics are at a significantly greater risk of emotional problems in both levels of severity, as compared to Anglos. Note that the difference in the proportion of a little disability by emotional problems between Anglos and Hispanics in bivariate analysis was not statistically significant (Table 1). Male Utahns are considerably less likely to have emotionally caused activity limitations than females, and such advantage of males does not change much even after controls of more covariates in the subsequent models. Model 2 additionally considers respondent's religious affiliation status. Coefficients show that affiliation with specific religion has neither significant nor substantial influence on this health outcome. However, having no religion significantly elevates the risk of considerable level of emotional conditions among adult Utahns. Inclusion of religious affiliation in analysis does not alter the significance or magnitude of coefficients for other risk factors, including race/ethnicity.

-- Table 2 about here --

In Model 3, we add the effects of nativity/duration status, marital status, and family size in the analysis. With these additional controls, the coefficients of Hispanics for both levels of disability have slightly decreased compared to those in Model 2. In this model, religion does not have any significant influence on the health outcomes. No effect of nativity/duration status is observed on a little activity limitations by emotional problems. However, for the considerable level daily activity limitations, longer term immigrants (10 or more years in the US) are at a significantly and substantially greater risk than their US-born counterparts, while the coefficient of shorter term immigrants is not significant. Regarding marital status, currently non-married Utahns are at a greater risk of both levels of daily activity limitations caused by emotional problems. Model 4 additionally controls for respondent's educational attainment, family income, and health insurance status. Inclusion of these SES variables results in non-difference between Hispanics and Anglos in the probability of daily activity limitation by emotional conditions for both levels of severity. It suggests that Hispanics in Utah are significantly disadvantaged in their SES, compared to Anglo Utahns, which results in their notably inferior emotional health status. Another interesting finding of this model is the effect of nativity/duration status. The coefficient of shorter term immigrants for the considerable level of disability becomes significant and its magnitude has increased in the negative direction, while the coefficient of longer term immigrants remains about the same compared with those in the previous model. Although not significant, coefficients of both shorter and longer term immigrants for a little disability by emotional conditions have negative signs. It implies relative disadvantage of immigrants in SES, in particular shorter term immigrants, over US born counterparts in Utah. Note here that shorter term immigrants enjoy their lower risk of considerable activity limitations, while longer term immigrants suffer from higher risk of the same adverse conditions, both relative to Anglo

counterparts. Overall, findings from Table 2 indicate that Hispanics in Utah have emotional health status not significantly different from Anglo Utahns, but their substantially lower level of SES contributes to their seemingly inferior emotional health to Anglos. Further, religious affiliation does not exert any influence on the risk of daily activity limitations by emotional problems in Utah.

Table 3 presents an analogous set of models focusing on predicting daily activity limitations caused by physical problems utilizing multinomial logistic regression analyses. Only with controls for age and sex (Model 1), Hispanics are at significantly high risk of considerable limitations by physical health problems, compared to their Anglo counterparts in Utah. But no difference between Hispanic and Anglos in the risk of a little limitation status is observed. Just as observed in Table 2, males are also healthier than females even in light of physical health, which remains almost unchanged in the subsequent models with additional covariates. In Model 2, the coefficient of Hispanics for a little activity limitation becomes significant and greater in its magnitude compared to that of previous model, which is the result of additional consideration of respondent's religious affiliation. It is interesting that Catholic Utahns are significantly less likely to suffer from a little daily activity limitations caused by physical conditions than their LDS counterparts are, which remains almost unchanged even after controls for demographic and SES risk factors in the subsequent models. However, except for this, none of the association between religious affiliation and both levels of activity limitations is significant.

-- Table 3 about here --

Additional consideration of nativity/duration status, marital status, and family size in Model 3 results in increased disadvantage of Hispanics relative to Anglos for a little physically caused activity limitations. It tells us that Hispanic Utahns are influenced by the protective effect

of their short term immigrant status regarding the physical aspect of health (see coefficient of immigrants with 0-9 years of duration in the US: -0.54). In Model 4, additional consideration of respondent's SES profiles has narrowed the gap between Hispanics and Anglos regarding the health outcome. In fact, for the considerable level of activity limitations, the coefficient of Hispanics is not statistically significant any more. As already mentioned, no significant changes are observed in the coefficients for religious affiliation compared to those of previous models. However, comparison of coefficient values for nativity/duration status tells us that immigrants in Utah have substantially low likelihood of daily activity limitations than their US born counterparts, and especially low SES profiles among the immigrants with 0-9 years of duration in the US diminishes their relative advantage in the physical aspects of health. Overall, significantly inferior physical health of Hispanics in Utah, compared to their Anglo counterparts, is mainly attributable to their disadvantageous SES profiles, while they enjoy the protective effect of immigrant status regarding less considerable (a little) activity limitations. Religion does not have any significant influence on the risk of adverse physical health among adult Utahns, except for being Catholic, which lowers the risk for a little activity limitations.

An analogous set of models for self-rated health status is presented in Table 4. After controlling for age and sex, Hispanics are substantially more likely to assess their health being fair or poor than Anglos in Utah. Unlike the cases of previous two health outcomes, no significant difference in this health outcome is found between males and females. Additional control of respondent's religion does not alleviate inferior self-rated health of Hispanics to Anglos in Model 2. In this model, Utahns with no religious affiliation are more likely to assess their own health status negatively than the members of LDS. However, no significant difference is observed in self-rated health between Utahns of Catholic, other religion, and LDS. In Model 3

where respondent's nativity/duration status, marital status, and family size are additionally considered, the coefficient of Hispanics became smaller than that of previous models. However, inferior health of Hispanics to Anglos still remains significantly. The effect of religion becomes non-significant in this model. Immigrants with 10 or more years of residence in the US are significantly more likely to assess their health being fair or poor than their US born counterparts. Being currently non-married and larger family size are also related with the elevated risk of poor self-rated health status in Utah. With additional controls of respondent's SES characteristics, the difference of health between Hispanic and Anglo Utahns, health measured by self-rated health status, no longer exist in Model 4. Disadvantage of longer term duration immigrants relative to US born respondents also disappears in this model. However, it is interesting that the coefficients of immigrants with shorter duration and longer duration are about the same in their magnitude but in opposite direction, albeit both are not significant. Education and family income are associated with self-rated health status in a generally expected direction.

-- Table 4 about here --

Table 5 presents results of logistic regression models for emotionally caused activity limitations, physically caused activity limitations, and fair or poor self-rated health status, separately carried out for Hispanics and Anglos. This table is useful to examine how risk factors are associated with the health of each population. Regarding the effect of religion on the health of Utahns, the affiliation with Catholicism is significantly lowers the risk of considerable level of emotionally driven disability than being a member of LDS among Hispanic Utahns. Coefficients of Catholic for other health outcome measures are not significant among Hispanics, but they all have a negative sign. This result seems to contradict our hypothesis that Hispanics in Utah would receive protective influence on their health when they are affiliated with Mormonism, the

most prevalent religion in Utah. For Anglo Utahns, it appears that religion has mixed patterns of association with health outcomes, but associations are neither significant nor substantial. Most coefficients for nativity/duration status are not significant for both Hispanics and Anglos, indicating little effect of nativity or immigrant status on individual health in Utah, which is strikingly different from most previous findings. However, for Hispanics, at least the coefficients of immigrants with 0-9 years of duration have negative signs across all health outcome measures. SES factors, including marital status and family size and family income characteristics have significant effects on the health of Anglos in Utah. In addition, these same features carry great importance on Hispanic health, particularly family income characteristics.

-- Table 5 about here --

DISCUSSION

In this study, we have compared the health of Hispanics with that of Anglos in Utah, examining the effect of various demographic and social risk factors. Three specific research questions have been addressed. One was to investigate if Hispanic advantage of health relative to Anglos, commonly observed in previous studies largely based on traditional destination states of Hispanics, also exists in Utah. Two was to examine demographic and social risk factors in relation to the health of Hispanic and Anglo Utahns. Three was to discover if Hispanic populations receive a protective effect on their health from their religious affiliation. Our descriptive analysis indicated that Hispanics in Utah have significantly and substantially inferior health compared to their Anglo counterparts on the three health outcome measures employed in this study. That is, controlling for age structure, individuals with activity limitations, caused by either physical conditions or emotional conditions, and who assess their own health to be fair or poor are more prevalent among Hispanics than Anglos in Utah. This is largely inconsistent with

previous studies and suggests non-existence of epidemiologic paradox of Hispanic health in Utah. There have been a few studies that find higher probability of poor/fair self-rated health status for Hispanics than for Anglos (e.g., Ren and Amik 1996; Hajat et al. 2000; Cho et al. 2004). These researchers tend to claim that Hispanics have more tendency to negatively assess their health than Anglos with similar objective health status (Shetterly et al. 1996). However, with respect to two other health measures, physically caused daily activity limitations and emotionally caused daily activity limitations, our findings from Utah are clearly inconsistent with findings of previous studies (see Cho et al. 2004 for physical disability, Vega et al. 1998 and Karno et al. 1987 and Shrout et al. 1992 for emotional health).

Models of multivariate analyses in this study were progressively designed to reveal social risk factors responsible for discrepancy of health between Hispanics and Anglos in Utah. Although some exceptions were observed, our findings from multivariate analyses suggested that the disadvantageous health of Hispanic Utahns compared to their Anglo counterparts was largely attributable to their significantly lower levels of educational attainments and family income. Even when separate models were considered only for Hispanic Utahns, the effect of family income and educational attainment was more pronounced than other risk factors in determining activity limitation and self-rated health status. The roles of other risk factors in creating differences between Hispanics and Anglos in Utah were relatively smaller or less pronounced. Although not notably effective on the health gap between race/ethnic groups in Utah, the effect of nativity/duration of residence in the U.S. is worthy of particular attention. Results from this study suggest that immigrants with shorter term duration seem to be healthier than their US born counterparts, and as their duration in the U.S. becomes longer, the risk of adverse health outcome also increases. This finding is consistent with recent research by Cho et al. (2004) and Hummer

et al. (2000) in that foreign born immigrants have more advantaged health than their US born counterparts, and this advantage becomes attenuated as the duration of residence in the US becomes longer. However, of interest is the comparison of health between US born individuals and immigrants with 10 or more years of duration in the US. Although in some instances the association is not significant, immigrants with long duration are at substantially higher risk of health problems than their US born counterparts. Unfortunately, we do not have enough information to verify if the disadvantage in health of longer term immigrants is related with their duration of residence in Utah or with culture of Utah society. Thus, we conclude that epidemiologic paradox of Hispanic population does not exist in Utah. Rather, Hispanics in Utah are considerably disadvantaged regarding SES, which simply results in seriously high risk of physical and emotional problems as well as negative self-perception of health, compared to Anglos.

Regarding the effect of religious affiliation, our study found interesting results. Earlier we speculated that Catholicism might not play a protective role on Hispanic health in Utah, primarily because of the state's dominance by Mormons. Further, we presumed that if a Hispanic were a member of Mormon Church, he/she would not experience feeling of social detachment, but rather receive social support protective to his/her health. Basically, findings from this study do not support these speculations. That is, we did not find any significant differences in the risk of three health problems between two different religious affiliations among Hispanics in Utah. The one exception was a significantly lower level of activity limitation from emotional problems among Catholic Hispanics. Even among Anglos, religion did not play significant role as a risk factor of adverse health. This result may be attributable to the fact that Mormonism in Utah is a social infrastructure or context that non-discriminately affects not only its social institutions and

culture but also values and life patterns (including health behaviors) of residents in Utah, regardless of their religious affiliation (Toney, Keller, and Hunter 2004). For instance, the production, selling, and distribution of alcohol beverages are generally portrayed as being strictly regulated by the state government in Utah, more than in other states. Further Utah was the first state to enact strict laws prohibitting indoor smoking. This is, indeed, consistent with previous studies that address the role of dominant and homogeneous religion in leading local culture of a community, including private and public sectors as well as churches (see Pescosolido 1990; Demerath and Williams 1992).

Although religious affiliation does not alter the risk of adverse health for both Hispanics and Anglos in Utah as describe so far, it is worth noting that being Catholic among Hispanics is significantly and substantially associated with a decreased probability of considerable level of emotional problems, compared to Mormon Hispanics. This is indeed opposite from what we speculated. That is, Mormon Hispanics tend to develop more emotional or psychological problems than Catholic Hispanics in Utah. It may be that, even though Mormon Hispanics could receive support from community or church of dominant religion and build networks and relationship with mainstream Utah society more effectively and easily than Catholic Hispanics, they become considerably isolated or detached from larger Hispanic population and its traditional customs. Thus, at least for emotional health, religious affiliation with Catholic provides cultural buffer to Hispanics in Utah, but this cultural buffer is more related with a psychological aspect (such as feeling of comfort) rather than behavioral aspects (such as diet habits, smoking, or drinking).

Our study is subject of several limitations. First, although we have clearly showed empirical evidences that an epidmiologic paradox of Hispanics does not exist in Utah, we have

not been able to provide extensive explanations on the cause of non-paradox. As we speculatively suggested, it may be attributable to the robust health of Anglos in Utah. If this is the case, the same findings should be observed in other relative healthy states of new destinations of Hispanic populations, such as Minnesota, which is known to have one of the highest level of life expectancy among the fifty states (McMurry, 2002). Second, the relatively low response rate for the 2001 UHSS may have yielded biased results. Moreover, small sample size of Hispanics, relative to that of Anglos, in this data set may have resulted in less-efficient population parameter estimates. Third, the cross-sectional nature of the 2001 UHSS does not allow us to identify if adverse health status of respondents has developed while they have been residing in Utah. Particularly for immigrant population, we do not have any clue if they came to Utah with health problems developed while they were in other states, maybe traditional destination states, or in their origin countries. Despite these and other limitations, our study has showed clear evidences that Hispanics in Utah experience health trajectory considerably different from what has been reported mostly based on Hispanics in traditional destination states. Therefore, systematic research is needed that compares the health of Hispanics and Anglos in a variety of new and traditional destinations, which will enrich our understanding of health-related issues for Hispanics in the U.S.

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Table 1. Weighted Percentage Distributions of Risk Factors and Health Status by Race/Ethnicity, 2001 Adult (18+ year-old) Utahns.

	Non-Hispanic whites	Hispanics
Religious Affiliation		
Latter Day Staints	70.5	22.6*
Catholic	4.5	55.0*
Other Religion	13.0	11.8
No Religion	12.0	10.6
Nativity/Duration		
US-born	97.9	41.2*
0-9 Years	0.6	30.7*
10 or + years	1.6	28.1*
Age (means)	42.1	35.5*
Sex		
Male	48.9	54.9*
Female	51.2	45.2*
Marital Status		
Married	72.6	64.8*
Divorced	7.3	8.1
Widowed/Separated	4.4	4.7
Never Married	15.7	22.4*
Household Size (means)	3.5	4.5*
Educational Attainment		
Less than Highsch Grad	3.7	33.4*
Highsch Grad	25.8	35.3*
Some College	39.6	20.6*
Collge Grad or more	31.0	10.8*
Family Income		
20K or less	7.3	16.2*
20K-34.9K	15.6	25.5*
35K or more	62.8	37.2*
missing	14.3	21.0*
Insurance Status		
With Insurance	94.7	72.5*
No Insurance	5.3	27.6*
Health Outcomes[1]		
Activity Limitation Due to Emotional Problems		
Considerable Limitations	13.8	21.6*
A Little Limitations	16.3	18.6
No Limitation	69.9	59.8*
Activity Limitation Due to Physical Problems		
Considerable Limitations	22.7	28.0*
A Little Limitations	19.5	20.6
No Limitation	57.8	51.4*
Self-rated Health		
Fair or Poor	11.8	22.1*
Good, Very Good or Exellent	88.2	77.9*
Unweighted Total N	6564	460

Source: 2001 Utah Health Status Survey

Exept for ounding error, percentages sum to 100.0%.

[1] Age adjustments for the health outcome variables are based upon an Non-Hispanic whites age standard.

* Difference compared to Anglo is significant at alpha=0.05.

Table 2. Multinomial Logistic Coefficients for the Effects of Race/Ethnicity, Nativity/Duration, Religion, Demographic and SES Risk Factors on Activity Limitations Due to Emotional Problems among Adult Utahns, 2001.

	Model 1				Model 2				Model 3				Model 4			
	Considerable		A Little		Considerable		A Little		Considerable		A Little		Considerable		A Little	
	Coeffi.	SE	Coeffi.	SE	Coeffi.	SE	Coeffi.	SE	Coeffi.	SE	Coeffi.	SE	Coeffi.	SE	Coeffi.	SE
Race/Ethnicity [NH-whites]																
Hispanics	0.59**	(0.12)	0.44**	(0.11)	0.61**	(0.14)	0.46**	(0.13)	0.41*	(0.16)	0.37*	(0.15)	0.14	(0.17)	0.25	(0.16)
Age (continuous)	0.01**	(0.00)	-0.01**	(0.00)	0.01**	(0.00)	-0.01**	(0.00)	0.01**	(0.00)	-0.00	(0.00)	0.01**	(0.00)	-0.00	(0.00)
Sex [Female]																
Male	-0.64**	(0.07)	-0.46**	(0.07)	-0.65**	(0.07)	-0.47**	(0.07)	-0.63**	(0.07)	-0.46**	(0.07)	-0.57**	(0.08)	-0.44**	(0.07)
Religious Affiliation [LDS]																
Catholic					-0.01	(0.14)	-0.01	(0.13)	-0.08	(0.15)	-0.04	(0.14)	-0.19	(0.15)	-0.08	(0.14)
Other Religion					0.04	(0.11)	0.17	(0.10)	-0.02	(0.11)	0.17	(0.10)	0.02	(0.11)	0.18	(0.10)
No Religion					0.31**	(0.11)	0.20	(0.10)	0.16	(0.11)	0.15	(0.10)	0.16	(0.11)	0.15	(0.11)
Nativity/Duration [US-Born]																
Immigrants 0-9 years									-0.26	(0.25)	0.03	(0.21)	-0.55*	(0.27)	-0.13	(0.22)
Immigrants 10 or + years									0.67**	(0.18)	0.06	(0.20)	0.60**	(0.18)	-0.02	(0.20)
Marital Status [Married]																
Divorced									1.08**	(0.12)	0.39**	(0.13)	0.93**	(0.12)	0.31*	(0.13)
Widowed/Separated									0.93**	(0.16)	0.87**	(0.16)	0.63**	(0.16)	0.75**	(0.16)
Never Married									0.68**	(0.11)	0.43**	(0.10)	0.53**	(0.11)	0.43**	(0.10)
Family Size (continous)									0.06**	(0.02)	0.06**	(0.02)	0.07**	(0.02)	0.08**	(0.02)
Education [College Grad or more]																
Less than Highschool													1.00**	(0.16)	0.44**	(0.15)
Highschool Grad													0.70**	(0.10)	0.09	(0.09)
Some College													0.37**	(0.10)	0.03	(0.08)
Family Income [35K or more]																
Less than 20 K													0.84**	(0.12)	0.51**	(0.13)
20K to 34.9K													0.13	(0.10)	0.35**	(0.09)
Missing													0.21*	(0.10)	-0.11	(0.10)
Health Insurance [Yes]																
None													0.20	(0.14)	0.04	(0.13)
Intercept	-1.61**	(0.10)	-0.97**	(0.09)	-1.68**	(0.11)	-1.02**	(0.10)	-2.19**	(0.17)	-1.46**	(0.15)	-2.74**	(0.19)	-1.69**	(0.17)
-2LL	11500.78				11488.65				11315.89				11155.89			
Δ -2LL (df)					12.13**(3)				172.76**(6)				160.00**(7)			

Source: 2001 Utah Health Status Survey

**: p<.01, *: p<.05

NH: Non-Hispanic, LDS: Latter-Day-Staints, SE: Standard Error

Note: Reference category for activity limitations due to emotional problem is None.

Table 3. Multinomial Logistic Coefficients for the Effects of Race/Ethnicity, Nativity/Duration, Religion, Demographic and SES Risk Factors on Activity Limitations Due to Physical Problems among Adult Utahns, 2001.

	Model 1				Model 2				Model 3				Model 4			
	Considerable		A Little		Considerable		A Little		Considerable		A Little		Considerable		A Little	
	Coeffi.	SE	Coeffi.	SE	Coeffi.	SE	Coeffi.	SE	Coeffi.	SE	Coeffi.	SE	Coeffi.	SE	Coeffi.	SE
Race/Ethnicity [NH-whites]																
Hispanics	0.49**	(0.11)	0.12	(0.12)	0.50**	(0.12)	0.27*	(0.13)	0.55**	(0.15)	0.46**	(0.16)	0.24	(0.15)	0.34*	(0.16)
Age (continuous)	0.04**	(0.00)	0.01**	(0.00)	0.04**	(0.00)	0.01**	(0.00)	0.04**	(0.00)	0.01	(0.00)	0.04**	(0.00)	0.01**	(0.00)
Sex [Female]																
Male	-0.60**	(0.06)	-0.55**	(0.06)	-0.60**	(0.06)	-0.55**	(0.06)	-0.58**	(0.06)	-0.55**	(0.06)	-0.53**	(0.06)	-0.54**	(0.07)
Religious Affiliation [LDS]																
Catholic					-0.02	(0.12)	-0.30*	(0.14)	-0.03	(0.13)	-0.28*	(0.14)	-0.14	(0.13)	-0.33*	(0.14)
Other Religion					-0.12	(0.09)	0.09	(0.09)	-0.15	(0.10)	0.09	(0.10)	-0.13	(0.10)	0.09	(0.10)
No Religion					0.03	(0.10)	0.07	(0.10)	-0.06	(0.11)	0.05	(0.10)	-0.06	(0.11)	0.05	(0.10)
Nativity/Duration [US-Born]																
Immigrants 0-9 years									-0.27	(0.22)	-0.54*	(0.23)	-0.62**	(0.23)	-0.66**	(0.24)
Immigrants 10 or + years									-0.08	(0.17)	-0.32	(0.20)	-0.24	(0.18)	-0.39	(0.20)
Marital Status [Married]																
Divorced									0.71**	(0.11)	0.10	(0.13)	0.55**	(0.12)	0.03	(0.13)
Widowed/Separated									0.31*	(0.15)	0.20	(0.17)	0.02	(0.15)	0.08	(0.17)
Never Married									0.30**	(0.10)	0.04	(0.10)	0.22*	(0.10)	0.01	(0.10)
Family Size (continous)									0.03	(0.02)	-0.00	(0.02)	0.05**	(0.02)	0.01	(0.02)
Education [College Grad or more]																
Less than Highschool													1.21**	(0.15)	0.55**	(0.16)
Highschool Grad													0.49**	(0.09)	0.20**	(0.09)
Some College													0.29**	(0.08)	0.07	(0.08)
Family Income [35K or more]																
Less than 20 K													0.96**	(0.12)	0.49**	(0.13)
20K to 34.9K													0.50**	(0.09)	0.31**	(0.09)
Missing													0.05	(0.09)	-0.02	(0.10)
Health Insurance [Yes]																
None													-0.02	(0.13)	-0.15	(0.14)
Intercept	-2.27**	(0.09)	-1.31**	(0.09)	-2.27**	(0.10)	-1.31**	(0.09)	-2.55**	(0.15)	-1.31**	(0.15)	-3.12**	(0.17)	-1.56**	(0.16)
-2LL	13072.04				13061.71				12996.62				12791.79			
Δ -2LL (df)					10.33*(3)				65.09**(6)				204.83**(7)			

Source: 2001 Utah Health Status Survey

**: p<.01, *: p<.05

NH: Non-Hispanic, LDS: Latter-Day-Staints, SE: Standard Error

Note: Reference category for activity limitations due to physical problem is None.

Table 4. Logistic Coefficients for the Effects of Race/Ethnicity, Nativity/Duration, Religion, Demographic and SES Risk Factors on Self-rated Health Status among Adult Utahns, 2001.

	Model 1		Model 2		Model 3		Model 4	
	Coeffi.	SE	Coeffi.	SE	Coeffi.	SE	Coeffi.	SE
Race/Ethnicity [NH-whites]								
Hispanics	0.87**	(0.12)	0.80**	(0.14)	0.63**	(0.16)	0.21	(0.18)
Age (continuous)	0.04**	(0.00)	0.04**	(0.00)	0.04**	(0.00)	0.04**	(0.00)
Sex [Female]								
Male	-0.13	(0.07)	-0.14	(0.08)	-0.12	(0.08)	-0.01	(0.08)
Religious Affiliation [LDS]								
Catholic			0.16	(0.15)	0.12	(0.15)	-0.01	(0.16)
Other Religion			0.17	(0.11)	0.13	(0.11)	0.17	(0.11)
No Religion			0.35**	(0.12)	0.23	(0.12)	0.24	(0.13)
Nativity/Duration [US-Born]								
Immigrants 0-9 years					-0.02	(0.25)	-0.33	(0.27)
Immigrants 10 or + years					0.43*	(0.18)	0.31	(0.20)
Marital Status [Married]								
Divorced					0.82**	(0.12)	0.63**	(0.13)
Widowed/Separated					0.15	(0.15)	-0.24	(0.16)
Never Married					0.66**	(0.13)	0.51**	(0.13)
Family Size (continous)					0.05*	(0.02)	0.07**	(0.02)
Education [College Grad or more]								
Less than Highschool							1.52**	(0.16)
Highschool Grad							0.96**	(0.12)
Some College							0.63**	(0.11)
Family Income [35K or more]								
Less than 20 K							1.04**	(0.13)
20K to 34.9K							0.66**	(0.10)
Missing							0.28*	(0.11)
Health Insurance [Yes]								
None							-0.11	(0.15)
Intercept	-3.62**	(0.12)	-3.72**	(0.13)	-4.30**	(0.20)	-5.22**	(0.23)
-2LL	4923.32		4913.91		4849.97		4610.09	
Δ -2LL (df)			9.41*(3)		63.94**(6)		239.88**(7)	

Source: 2001 Utah Health Status Survey

**: p<.01, *: p<.05

NH: Non-Hispanic, LDS: Latter-Day-Staints, SE: Standard Error

Note: Reference category for self-rate health status is Good, Very Good, or Excellent Health.

Table 5. Logistic Coefficients for the Effects of Nativity/Duration, Religion, Demographic and SES Risk Factors on Health Indicators among Adult Utahns, 2001, by Race/Ethnicity.

	Hispanics										Non-Hispanic whites									
	Limitation - Emotional				Limitation - Physical				Self-rated		Limitation - Emotional				Limitation - Physical				Self-rated	
	Considerable		A little		Considerable		A little		Health Status		Considerable		A little		Considerable		A little		Health Status	
	Coeffi.	SE	Coeffi.	SE	Coeffi.	SE	Coeffi.	SE	Coeffi.	SE	Coeffi.	SE	Coeffi.	SE	Coeffi.	SE	Coeffi.	SE	Coeffi.	SE
Age (continuous)	0.01	(0.01)	-0.01	(0.01)	0.03*	(0.01)	0.03**	(0.01)	0.05**	(0.01)	0.01**	(0.00)	-0.00	(0.00)	0.04**	(0.00)	0.01**	(0.00)	0.04**	(0.00)
Sex [Female]																				
Male	-0.33	(0.25)	0.06	(0.23)	-0.33	(0.22)	-0.33	(0.25)	0.09	(0.25)	-0.59**	(0.08)	-0.50**	(0.07)	-0.54**	(0.07)	-0.57**	(0.07)	-0.01	(0.08)
Religious Affiliation [LDS]																				
Catholic	-0.71*	(0.32)	-0.07	(0.31)	-0.13	(0.29)	-0.26	(0.32)	-0.33	(0.36)	0.03	(0.18)	-0.03	(0.17)	0.07	(0.15)	-0.27	(0.17)	0.23	(0.19)
Other Religion	-0.77	(0.44)	-0.36	(0.42)	0.42	(0.39)	0.58	(0.41)	0.67	(0.43)	0.06	(0.12)	0.23*	(0.10)	-0.18	(0.10)	0.01	(0.10)	0.10	(0.12)
No Religion	0.13	(0.45)	0.80*	(0.40)	0.48	(0.39)	0.54	(0.45)	0.58	(0.49)	0.16	(0.12)	0.11	(0.11)	-0.12	(0.11)	0.01	(0.11)	0.23	(0.13)
Nativity/Duration [US-Born]																				
Immigrants 0-9 years	-0.51	(0.37)	-0.07	(0.32)	-0.46	(0.31)	-0.22	(0.36)	-0.52	(0.37)	0.60	(0.47)	-0.29	(0.53)	-0.15	(0.50)	-0.74	(0.55)	0.33	(0.65)
Immigrants 10 or + years	1.00**	(0.30)	0.08	(0.32)	0.14	(0.28)	-0.10	(0.32)	0.30	(0.32)	0.32	(0.28)	-0.04	(0.29)	-0.34	(0.26)	-0.61*	(0.31)	0.14	(0.30)
Marital Status [Married]																				
Divorced	1.66**	(0.44)	1.09*	(0.46)	1.06**	(0.39)	-0.04	(0.50)	0.60	(0.41)	0.90**	(0.13)	0.26	(0.14)	0.50**	(0.12)	-0.01	(0.14)	0.65**	(0.14)
Widowed/Separated	0.12	(0.58)	0.70	(0.55)	-0.15	(0.55)	0.33	(0.52)	-0.82	(0.62)	0.70**	(0.17)	0.80**	(0.17)	0.00	(0.16)	0.01	(0.18)	-0.19	(0.17)
Never Married	0.57	(0.34)	0.64*	(0.30)	0.53	(0.29)	-0.11	(0.36)	0.50	(0.35)	0.53**	(0.12)	0.40**	(0.10)	0.14	(0.11)	0.03	(0.10)	0.54**	(0.14)
Family Size (continous)	0.02	(0.06)	0.10	(0.05)	0.11	(0.06)	0.26**	(0.06)	0.06	(0.06)	0.08**	(0.02)	0.08**	(0.02)	0.05*	(0.02)	-0.03	(0.02)	0.07**	(0.03)
Education [College Grad or more]																				
Less than Highschool	0.40	(0.49)	0.21	(0.45)	0.43	(0.40)	1.03	(0.52)	3.26**	(0.93)	1.24**	(0.18)	0.49**	(0.19)	1.46**	(0.18)	0.64**	(0.20)	1.33**	(0.19)
Highschool Grad	0.68	(0.46)	-0.03	(0.41)	0.03	(0.38)	0.89	(0.49)	2.41**	(0.92)	0.69**	(0.11)	0.10	(0.10)	0.50**	(0.09)	0.16	(0.09)	0.92**	(0.12)
Some College	-0.09	(0.49)	-0.12	(0.44)	-0.01	(0.40)	0.82	(0.51)	1.54	(0.96)	0.39**	(0.10)	0.04	(0.09)	0.30**	(0.08)	0.05	(0.08)	0.63**	(0.11)
Family Income [35K or more]																				
Less than 20 K	1.39**	(0.37)	0.83*	(0.37)	0.75*	(0.33)	0.16	(0.41)	0.97*	(0.38)	0.74**	(0.13)	0.49**	(0.14)	0.99**	(0.13)	0.51**	(0.14)	1.05**	(0.14)
20K to 34.9K	0.02	(0.35)	1.00**	(0.29)	0.22	(0.29)	0.25	(0.32)	0.82*	(0.33)	0.15	(0.11)	0.25*	(0.10)	0.52**	(0.09)	0.27**	(0.10)	0.63**	(0.11)
Missing	0.47	(0.35)	-0.34	(0.36)	-0.12	(0.32)	-0.44	(0.37)	-0.02	(0.38)	0.23*	(0.11)	-0.05	(0.11)	0.05	(0.10)	-0.04	(0.10)	0.32**	(0.12)
Health Insurance [Yes]																				
None	-0.19	(0.30)	-0.25	(0.28)	-0.03	(0.26)	-0.59	(0.33)	0.10	(0.29)	0.34*	(0.15)	0.16	(0.15)	0.02	(0.15)	-0.07	(0.15)	-0.12	(0.19)
Intercept	-2.14**	(0.71)	-1.83**	(0.65)	-2.41**	(0.62)	-3.96**	(0.73)	-6.56**	(1.16)	-2.83**	(0.20)	-1.67**	(0.18)	-3.14**	(0.18)	-1.31**	(0.17)	-5.20**	(0.24)
Δ -2LL (null-full)(df)	119.77**(18)				96.93**(18)				105.93**(18)		423.59**(18)				816.96**(18)				527.28**(18)	

Source: 2001 Utah Health Status Survey

**: p<.01, *: p<.05

-: No frequency in the cell.

Note: Reference category for Self-rated Health is Good, Very Good, or Excellent,
for Activity Limitations Due to Emotional Problems is None, and
for Activity Limitations Due to Physical Problems is None.