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The Enhanced Self-Reported Health Outcome Observed in Hispanics/Latinos Who are Socially-Assigned as White is Dependent on Nativity

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Abstract A growing body of research seeks to conceptualize race as a multi-dimensional construct, attempting to move beyond a dummy variable approach to study social disparities. This research uses 'socially-assigned race', 'ascribed race', or 'what race others think you are' as opposed to self-identified race to assess self-rated health status among a representative study of the Latino population (n = 1,200). Our analysis shows how important the lived experience of Latinos and Hispanics (as measured by ascribed race and a host of control variables, including nativity and national origin) is on self-reported health. Using a series of logistic regressions, we find support for the 'white advantage' in Latino health status that is suggested in the literature, but this finding is sensitive to nativity, citizenship, and national origin. This research

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School of Graduate Studies and Research, Meharry Medical College, 1005 Dr. D.B. Todd Jr., Boulevard Nashville, TN 37208, USA informs the study of racial and ethnic disparities, providing a detailed explanation for the 'white health advantage' finding within the socially-assigned race and health disparities literature.

Keywords Health disparities · Socially assigned race · Ascribed race · Nativity · Citizenship

Introduction

Most scholars have come to the consensus that race is purely a socio-political construct that should not be interpreted as being scientific or anthropological in nature due to the lack of a biological etiology [1–4]. However, this arbitrary classification of humans has led to and does result in manifestations of differential bio-physiological malfunctions, resulting in severe health disparities. Though the idea of race lacks a scientific basis, race has become such a prominent aspect of our social, political, and economic lives that race and ethnicity-based studies have become a necessity in order to identify, measure, avert, and ameliorate problems originating from the social creation of race.

Race and ethnicity are important statistical predictors of individual level health outcomes and access to care [3, 5, 6]. The primary literature examining ongoing health disparities for specific population groups is vast and has been succinctly summarized elsewhere [6-8]. Our focus here is to take an in-depth look at the measurement strategies for the concepts of race and ethnicity. The social science literature has provided two general approaches to measure race and/or ethnicity when looking at the relationship between race and health outcomes: self-identification and social-assignment or socially ascribed race.

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Racial and ethnic health disparities studies typically rely on asking respondents to self-identify their race/ethnicity to create measures of race or ethnicity. While well-accepted in the social sciences (and the authors have relied on this approach in many published papers), this may not fit the reality of how race and ethnicity is associated with individuals in society. More specifically, in everyday life we often make determinations about an individual's race before asking them how they self-identify. Self-identified race data collection is extremely valuable, but it fails to capture the lived experience of a good portion of our population who may self-identify as one race/ethnicity but who are often perceived differently by others. What race others think you are (also known as 'socially-assigned race' or 'ascribed race') has proven to be a very important measure in predicting the level of discrimination an individual will encounter as well as their health status [9, 10]. Jones et al. [9] demonstrated that if respondents selfidentified as Hispanic, Native American, or being of mixed-race, but were socially assigned as White, they were more likely to report a better health status compared to others who self-identified as the same race but were not socially assigned as being White (i.e. white advantage).

Individuals classified as Latino or Hispanic are more likely to self-identify as multiracial, and continue to be one of the largest groups that are often socially assigned to a race with which they do not self-identify. This is compounded by the fact that the US Census has classified and continues to classify the term Latino as an ethnic category rather than a racial group. Consequently, Latinos can be of any race that they choose to identify with, with high variation in racial self-identification among Latinos. This trend of socially-assigning Latinos/Hispanics discordantly will likely continue to grow as the Latino/Hispanic population continues to appreciate faster than any other racial/ ethnic group in the United States.

Theory/Hypotheses: Nuances to the Relationship Between Ascribed Race and Health for Latinos

Research has demonstrated that ascribed race has an impact on health outcomes, arguably to a greater extent than selfidentified race or ethnicity. Corroborating the Jones et al. findings, Macintosh et al. [10] recently demonstrated that individuals self-identifying as a racial/ethnic minority who are socially assigned as White are more likely to receive preventive vaccinations and less likely to report healthcare discrimination. However, contrary to both the Jones et al. and Macintosh et al. findings, a 2010 report by Ridings et al. [11] found that individuals who self-identified as being part of a minority group but were socially assigned as being White experienced no advantages pertaining to health status. Ridings et al. acknowledged that small sample size and the fact that their study was limited to one region were possible reasons for the discrepancies. The work of Ridings et al. brings to light the possible influence variations within the Latino population (such as geographic location) might have on the relationship between ascribed race/ethnicity and health outcomes. The apparent debate regarding the relationship between ascribed race and health outcomes for Latinos and the inability of this research to determine what impact variations within the Hispanic/Latino population have on 'white advantage' are limitations in the existing literature that our analysis intends to address. More specifically, our study, that includes a large sample of Latinos and measures sources of internal variation, intends to improve our understanding of how ascribed race or ethnicity influences the self-reported health of the largest ethnic group in the United States.

The US Latino/Hispanic population is immensely diverse, with members originating from 21 countries. Latino/Hispanic sub-groups tend to reside in different areas of the United States, have different cultural practices/norms, different immigration experiences, and varying levels of economic attainment. These sources of internal variation are important, as they have implications for many social outcomes. For example, it has been clearly demonstrated that sub-groups within the Hispanic population have a differential in health outcomes [12–17] depending on the health measure employed in the study. However, health disparities research often aggregates Latinos/Hispanics together into a unitary category, disregarding country of origin and citizenship status. Important within-group differences emerge when fertility patterns, leading causes of death, and morbidity are compared for Latinos/Hispanics of different national origins. Mexican-Americans make up 65 % of the total Latino/Hispanic population in the United States, and numerous reports have shown that they are more likely to have worse health outcomes compared to any other Latino/Hispanic sub-groups, depending on the health measure [15, 18, 19]. This motivates the need to account for Mexican origin in our study. Within the Mexican-American population and the broader Latino/ Hispanic population, not being a citizen of the United States of America has an impact on health outcomes, as does the use of health care services and the likelihood of reporting having a good experience while utilizing available health care services [20–24]. Fortunately, our research design allows for the inclusion of citizenship in our models to provide a direct account for the potential of this factor to influence the relationship between ascribed race and health status.

The Jones et al. and Mcintosh et al. studies both utilized the 2004 behavioral risk factor surveillance system (BRFSS). In their analysis, they make use of the optional Reactions to Race Module that was only administered in seven states (Arkansas, Colorado, Delaware, Mississippi, Rhode Island, South Carolina, and Wisconsin) and the District of Columbia. While up to this point this has been the best data available for this research question, it is important to note that when combined, the Hispanic population in these states and the District represented only 4.4 % of the total US Hispanic population in 2011. Moreover, these are not representative of traditional immigrant-receiving states and not representative of all Latinos, as the majority of these seven states have Hispanic populations that are of predominantly Mexican origin (with a few exceptions: Washington DC and Rhode Island have large concentrations of Salvadorians and Puerto Ricans). In short, the sample available in the BRFSS module is not representative of the national Latino population. Analysis of data capturing a more representative picture of the Latino population has been unavailable until the current study.

Our study builds on a growing body of research that documents how socially ascribed race or ethnicity impacts the health of Latinos. Based on the extant research we refer to here, we anticipate that we will find a lower quality of self-reported health among Latinos who identify as Latino as compared to those who are ascribed as White, after controlling for a range of covariates (such as education, nativity, citizenship, and national origin). However, we anticipate that this relationship will be somewhat moderated by the inclusion of control factors which better account for the variation within the Latino population and that previous studies have failed to account for. More specifically, we anticipate finding results suggesting that the relationship between ascribed race and self-rated health will vary based on the national origin and acculturation states of the Latinos in our sample. We test this with a series of logistic regressions using self-reported health as our main outcome of interest among a nationally representative sample of adult Latinos.

Methods

Data Collection

For our analysis, we took advantage of a 2011 Latino Decisions/ImpreMedia survey that was designed in collaboration with the Robert Wood Johnson Foundation Center for Health Policy at the University of New Mexico. Latino Decisions conducted the field work for the survey and worked in conjunction with the Robert Wood Johnson Foundation Center for Health Policy at the University of New Mexico to design a survey instrument focused on health and Latinos. The sample and design allowed us not only to test the relationship between socially assigned race and self-reported health, but also allowed us to explore the heterogeneous nature of the Latino experience. This is therefore an ideal dataset for our research question, as we have built-in indicators of how Latinos believe they are classified in the United States as well as questions regarding national origin, nativity, acculturation, and citizenship. Taken together, this is the only nationally representative dataset of Latinos that measures socially assigned race, features a health outcome variable, and contains key indicators used when studying Latinos.

A total of 1,200 Latinos were interviewed over the phone through two samples: 600 Latino registered voters and 600 non-registered Latinos. The non-voter sample was added for the purpose of ensuring that our ability to explore the relationship between multiple measures of race and health included non-citizens, who are obviously not included in registered voter samples.

All phone calls were administered by Pacific Market Research in Renton, Washington. The survey has an overall margin of error of ± 4 %, with an AAPOR response rate of 29 %. Latino Decisions selected the 21 states with the highest number of Latino registered voters, states that collectively account for over 95 % of the Latino electorate. Although this sample was designed to capture a large margin of Latino voters, these states also comprise 91 % of the overall Latino adult population. The voter sample was drawn from registered voters by using the official statewide databases of registered voters, maintained by elections officials in each of the 21 states.

A separate list of Hispanic households was used to identify respondents for the non-voter sample, which was designed to be proportionate to the overall population in those states. Probability sampling methods were employed in both samples based on the respective lists used to identify the universe of potential participants. Respondents were interviewed by telephone, and they could choose to be interviewed in either English or Spanish. A mix of cell phone only and landline households were included in the sample, and both samples are weighted to match the 2010 Current Population Survey universe estimate of Latinos and Latino voters respectively for these 21 states with respect to age, place of birth, gender, and state. The survey was approximately 22 min long and was fielded from September 27, 2011 to October 9, 2011.

Measures

The primary outcome variable of interest is self-reported health status using a single health status question within the Latino Decisions dataset. As a part of their BRFSS, the National Centers for Disease Control and Prevention (CDC) conducts ongoing, state-based surveys of adult health nationwide.¹ The self-reported health status question included in the Latino Decisions survey is very close in wording to the item included in the CDC core BRFSS. Both questions utilize a 1–5 Likert scale, with respondents rating their health status from excellent to poor. The specific survey question we utilized was "How would you rate vour overall physical health-excellent, very good, good, fair, or poor?" which is nearly identical to the CDC BRFSS question of "Would you say that in general your health is-excellent, very good, good, fair, or poor?" The categories of the dependent variable for this study are collapsed into a binary variable for parsimony. From the original five-point Likert scale, we dichotomized 1 (poor health), 2 (fair health), and 3 (good health) = 0, and 4 (very good) and 5 (excellent) = 1. Similar to other work in this area, we are interested in estimating the probability of optimal health [9, 11].

Numerous studies have found that the overall BRFSS questionnaire produces reliable and valid results [25]. Self-reported health status, as measured by the CDC BRFSS, has been especially well-studied in relation to mortality [26]. Self-reported health status has also been found to be associated with a variety of health behaviors and health status indicators, including physician-rated health status, smoking behavior, alcohol use, healthy eating, physical activity, healthy days, diabetes-related complications, and cardiovascular disease [27–31]. Therefore, while having multiple indicators of health status would be ideal, the measure we employ here is a valid indicator of overall health across populations.

Our main explanatory variables are two mutually exclusive measures of ascribed race. Our specific question was "How do other people usually classify you in the United States? Would you say you are primarily viewed by others as...?" The possible responses we used to measure ascribe race is provided in Table 1. Our analysis compares respondents who ascribe as Hispanic/Latino to our reference group 'ascribed White.' Due to sample size and theoretical justifications, respondents who are socially assigned as Black/ African American (n = 8), American Indian/Native American (n = 15), some other group (n = 59), don't know (n = 33), or ascribed Mexican² (n = 421) were dropped from our analysis. We also include multiple covariates such as education, language of interview, and age as modeled in prior literature. Summary statistics for all variables used in this analysis are listed in Table 2.

Statistical Analysis

All statistical analysis was conducted using Stata 12 software (StataCorp. 2011. *Stata Statistical Software: Release 12*. College Station, TX: StataCorp LP.). Our analytical approach is intended to determine the relationship between socially assigned race and health outcomes within a nationally representative sample of Latino adults. Our primary focus is to determine the effect being socially assigned White has on self-rated health compared to being socially assigned Latino or Hispanic. We therefore conduct logistic regression to examine the differences across socially assigned racial categories on the probability of having very good health and excellent health.

Finally, we control for a handful of measures that have been found to be correlated with Latino health status. Our main contribution is to estimate a series of logistic regressions that control for the multitude of experiences of Latinos, such as US citizenship and nativity, which up to this point have not been addressed in the ascribed race literature. We therefore estimate a full model (which is a replication of the work done by Jones et al.) to establish a baseline model within our sample. We then estimate a similar model in terms of covariates, but restrict the sample to Mexican origin populations, US Citizens, US born, and US citizens of Mexican origin, to better understand how a consideration of the lived experience of Latinos contributes to the literature on ascribed race and health. For example, we isolate the effects of Mexican origin, as this population has been found to have unique health outcomes relative to Latinos of different national origins. Moreover, Mexicans in the US have a long tradition of being racialized and of experiencing discrimination in schools and the workplace, and in obtaining housing and access to healthcare, which should theoretically influence the ways in which ascribed race impacts their health status. We also include variables for US citizenship and the nativity of respondents, as we expect citizens and US born Latinos to have greater access to medical insurance and access to quality care.

Results

We begin with a discussion of the distributions from our sample (which are provided in Tables 1, 2). After dropping missing data (61 observations) and the respondents who do not fit the interests of our study (528 observations for respondents who selected the ascribed race categories of Black/African American, American Indian/Native American, some other group, don't know, or ascribed Mexican), we have a total sample of 611 respondents. A large segment of our total sample indicated that they are socially ascribed as Hispanic (44.5 %). In fact, only about 11 % of

¹ Per CDC BRFSS Operational and User's Guide version 3.0, BRFSS surveys are conducted via computer—assisted telephone interviewing at the state level, with data submitted to CDC where they are compiled and analyzed.

² We ran multiple iterations with this category and decided not to include ascribed Mexican in our analysis as there is no literature or theoretical precedent to justify this comparison.

Table 1 Percent distribution of socially assigned race

How do other people usually classify you in the United States? Would you say you are primarily viewed by others as...? The response categories for this variable are: Hispanic or Latino, Black/African American, White, American Indian/Native American, and Some Other Group

Socially assigned categories	Frequency	%		
Hispanic or Latino	534	44.50		
White	127	10.58		

Table 2 Summary statistics using a 2011 Latino decisions/impremedia survey (n = 611)

Variables	Mean	SD	Min	Max	
Health status ^a	0.365	_	0	1	
Ascribed Hispanic	0.808	-	0	1	
Ascribed White	0.192	-	0	1	
Age	51.62	17.182	18	98	
Education ^b	3.471	1.547	1	6	
Spanish language ^c	0.503	-	0	1	
Mexican ancestry ^d	0.568	-	0	1	
US Born ^e	0.431	_	0	1	
US Citizen ^f 0.81		_	0	1	

^a Health status is coded 0 = poor health, fair health, good health, and 1 = very good health, excellent health

^b Highest education levels completed, (1 = grade 1-8, 2 = some HS, 3 = HS, 4 = some college, 5 = college grad, 6 = post-grad)

^c Spanish language: survey administered in 0 = English, 1 = Spanish

^d Mexican ancestry: 0 = non Mexican, 1 = Mexican

^e US Born: 0 = Foreign Born, 1 = US Born

 $^{\rm f}$ US Citizen: 0 = non US citizen, 1= US citizen by birthright, naturalization, born in Puerto Rico

our total sample indicated that they are ascribed as White. The mean age in our sample is 52, and the majority of our sample has at least a High School education. Moreover, at least half of our respondents completed the survey in Spanish, and over half of the sample indicated that they are of Mexican ancestry, both consistent with national data on Latinos from the US Census. In regards to citizenship and nativity, just under half of our sample is US born, with a large majority reporting US citizenship. In sum, our sample is representative of US Latinos, as the US Census estimates that about 65 % of the Latino population is of Mexican origin, 63 % of Latinos over the age 25 have a High School education, and about 74 % of Latinos over 5 years of age speak Spanish at home.

Our logistic regression models test the differences across socially assigned race/ethnicity categories on selfrated health among Latinos, (using socially assigned Whites as the reference category) controlling for age, education, and language of interview. We then estimate models that isolate the effects of nativity, such as Mexican origin populations, citizenship, and nativity in terms of foreign born versus US born.

The results of this model are depicted in Table 3. Our first set of results in model 1 estimates a logistic regression that includes socially assigned race categories, controlling for age, education, and language of interview. We do not find strong support for our primary hypothesis, as we find that there are no differences between being socially assigned Latino or Hispanic compared to being socially assigned White on the probability of having very good or excellent health.³

If however, we estimate models that isolate respondents who are of Mexican origin, US citizens, US born, and US citizens of Mexican origin we reveal some more nuanced findings. As shown in models 2–5 in Table 3, we can conclude that among Mexican-origin respondents, being ascribed as Hispanic/Latino, as compared to being ascribed as White, decreases the odds of reporting very good and excellent health by 48 % (while holding all other variables constant) which is marginally significant at the 0.10 level. In other words, we do find that among Mexican origin Latinos there is a 'white advantage' in health, as there is evidence that those who are classified as being White (compared to those being viewed by others as Latino or Hispanic) self-report better health.

In respondents who are US born we find similar results. Latinos who are socially assigned as Hispanic are 38 % less likely to report very good or excellent health compared to respondents who are socially assigned as White (and holding all else constant), which is also marginally statistically significant at the 0.10 level. Similarly, respondents who are US citizens and who are socially assigned as Latino or Hispanic are 34 % less likely to report very good and excellent health compared to respondents who are socially assigned as White and who are also US born (and holding all else constant), which is also marginally significant at the 0.10 level. We therefore find support for our hypothesis that accounting for internal variation among Latino populations' matters, as it provides important context to the relationship between ascribed race and health status among Latino individuals.

We find similar results when we account for citizenship status. Respondents who are US citizens and of Mexican origin and who self-identify as Latino or Hispanic are 54 % less likely to report very good and excellent health compared to respondents who are socially assigned as White but have the same national origin and citizenship status

³ We also estimated this base model controlling for income and found no differences.

$Y = Health status^a$	Model 1		Model 2		Model 3		Model 4		Model 5	
	Full model		Mexican origin		US born		US citizen		US citizens of Mexican origin	
	β	Odds ratios	β	Odds ratios	β	Odds ratios	β	Odds ratios	β	Odds ratios
Reference: ascribed White	_	_	-	-	-	_	-	_	-	_
Ascribed Hispanic/Latino	-0.365	0.694	-0.655*	0.519*	-0.473*	0.623*	-0.422*	0.656*	-0.769*	0.464*
Age	-0.019***	0.981***	-0.019**	0.981**	-0.019***	0.981***	-0.019***	0.981***	-0.023**	0.978**
Education ^b	0.330***	1.391***	0.376***	1.457***	0.347***	1.415***	0.333***	1.395***	0.473***	1.604***
Spanish	-0.434**	0.648**	-0.578*	0.561*	0.813*	2.255*	-0.248	0.78	-0.057	0.945
Constant	-0.194	0.824	-0.434	0.648	-0.255	0.775	-0.202	0.817	-0.592	0.553
Number of observations	611	-	237	_	260	_	528	_	194	_
Pseudo R ²	0.0877	-	0.112	_	0.0597	_	0.0777	_	0.116	_

Table 3 Logistic coefficients for regression of socially assigned race on general health status using a 2011 Latino decisions/impremedia survey (n = 611)

^a Health status is coded 0 = poor health, fair health, good health, and 1 = very good health, excellent health

^b Highest education levels completed, (1 = grade 1-8, 2 = some HS, 3 = HS, 4 = some college, 5 = college grad, 6 = post-grad)

 β = Logistic regression coefficients

*** p < 0.01; ** p < 0.05; * p < 0.1

(and holding all else constant), which is also marginally significant at the 0.10 level. In models 2–4, we find statistically significant results as well, however these findings are only significant at the 0.10 level. We estimated these models to replicate prior published work in this area. Therefore, we relied on parsimony in an attempt to investigate the value-added of including measures that model the Latino experience in terms of national origin, nativity, and citizenship. Such a task is not been possible prior to our survey, as BRFSS does not include questions on nativity and national origin.

In addition to our measures of socially assigned race, we briefly discuss the performance of the control variables as well. The socio-demographic factors are very meaningful, as essentially all of these controls having an impact on Latino health status. For example, in line with the extant literature on the relationship between education and health broadly, education is positively correlated with self-rated health among Latinos [31-33]. Furthermore, and also consistent with previous research, age is negatively correlated with self-rated health. Therefore, in line with the extant literature, older and more poorly educated Latinos are less likely to report excellent health than respondents who are younger and better educated. Finally, language of interview is an important factor in self-reported health. In the full model (and when isolating Mexican origin respondents), Latinos who were interviewed in Spanish reported poorer health than Latinos who responded in English after controlling for other factors. However, the role of language in health status differs based on citizenship status. Among US citizens we find that respondents who interviewed in Spanish reported better health than English respondents, which is consistent with the literature focused on the immigrant paradox [34–38]. We do not find differences when isolating US born respondents and US citizen respondents of Mexican origin. In general, the fact that our control variables are in line with the extant literature lends some confidence in the results for our socially assigned race measures.

Conclusions and Discussion

The focus of the current work was to take an in-depth look at measurement strategies for the concepts of race and ethnicity and to provide a complete understanding on the effects of socially assigned race on self-reported health for the Latino population in the United States. Research in the area of racial disparities and health when using socially assigned race as opposed to self-identification is limited and controversial. In line with the work of Mcintosh et al., our initial analysis with limited controls found that there were no differences in the probability of having very good or excellent health between self-identified Hispanics who are socially assigned as being White compared to selfidentified Hispanics who were not socially assigned as White. This finding is surprising, and taken in isolation from the rest of our findings, is contradictory to a portion of Jones et al. work which found a 'white advantage' in health for individuals who are Hispanic but are socially assigned White. In fact, Jones et al. found that Hispanics' health was 8.7 % points higher for those socially assigned as White than for those who socially assigned as Hispanic. As shown in our more thorough analysis (and when given a nationally representative sample of Latinos), we are able to conclude that such an association does in fact exist for Latinos, but only after taking into consideration factors such as national origin, nativity, and citizenship.

In our full model that does not disaggregate Latinos by national origin, nativity, and citizenship; we do not find a relationship between being ascribed as White and health status, which leads us conclude that the findings in the literature prior to this point are likely highly sensitive to sample selection. Ridings et al. also found that there were no advantages pertaining to health status for individuals who self-identified as being part of a minority group but were socially assigned as being White; however, we argue that both Jones et al. and Ridings et al. are correct in their primary findings. The discrepancies exist because 'White advantage' is only true for Mexican origin populations, and particularly more highly assimilated Latinos, which undeniably speaks to the racialization of Latinos, and in particular Mexican origin populations in the United States. These findings speak to the systematic racialization that exists for Latinos once assimilated into US society and the importance of modeling the true heterogeneity of the Latino experience.

As the US continues to be more racially and ethnically diverse, understanding how the lives of individuals in society vary by race and ethnicity becomes more critical. This coming at a time when the US Census Bureau is developing numerous experiments on how to eliminate missing data among Latino respondents when asked the question regarding self-reported race. Our paper advocates for approaching the task of measuring race and ethnicity from the standpoint of ascribed race. This requires moving beyond single measures of race and/or ethnicity which are usually constructed through self-identification. By exploring the relationships between ascribed race and selfreported health status and controlling for nativity, citizenship, and national origin, we are able to determine any significant results beyond those we know of from the extant body of research on ascribed race.

While promising at this early stage of development, we acknowledge that there are a number of unsettled issues with our analysis. Most prominently, we do not have a measure of self-reported race. Our sample is only representative of Latinos, so in the future our plan is to conduct a survey which features a measure of race and that also includes non-Latino populations. An additional limitation of this study is the cross-sectional design and the inability to examine how ascribed race impacts health across time. Lastly, our results from models 2–5, that confirm a 'white advantage' in health indicate a significance level of 0.1, although valid, these findings should be interpreted with

caution. Future work should also include different health outcomes such as mental health and biomedical markers such as stress levels, as well as experiences with diabetes and high cholesterol. Finally, although our primary focus in this study has been to determine if ascribed race impacts the self-reported health status of Latinos, there are many other possible applications for this approach to the measurement of outcomes in communities of color. Scholars may gain new insights into a range of health, education, criminal justice, and political outcomes in communities of color by applying this perspective on ascribed race.

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