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Dimensions of Racial Identity and Perceived Discrimination in Health Care

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Objective: Perceived discrimination is an important risk factor for minority health. Drawing from the scholarship on multidimensionality of race, this study examines the relationships between perceived discrimination in health care and two dimensions of racial identity: self-identified race/ethnicity and perceived attributed race/ethnicity (respondents' perceptions of how they are racially classified by others).

Methods: We used Behavioral Risk Factor Surveillance System data collected in 2004-2013 and we specifically examined the data on perceived racial discrimination in health care during the past 12 months, perceived attributed race/ethnicity, and self-identified race/ethnicity.

Results: In models adjusting for sociodemographic and other factors, both dimensions of racial/ethnic identity contributed independently to perceived discrimination in health care. After controlling for self-identified race/ethnicity, respondents who reported being classified as Black, Asian, Hispanic, and Native American had higher likelihood of perceived discrimination than respondents who reported being classified as White. Similarly, after taking perceived attributed race/ethnicity into account, self-identified Blacks, Native Americans, and multiracial respondents were more likely to report perceived discrimination than counterparts who self-identified as White. The model using only perceived attributed race/ethnicity to predict perceived discrimination showed a superior fit with the data than the model using only self-identified race/ethnicity.

Conclusion: Perceived attributed race/ethnicity captures an aspect of racial/ethnic identity that is correlated, but not interchangeable, with self-identified race/ethnicity and contributes uniquely to perceived discrimination in health care. Applying the concept of multidimensionality of race/ethnicity to health disparities research may reveal understudied mechanisms linking race/ethnicity to health risks. *Ethn Dis*. 2016;26(4):501-512; doi:10.18865/ed.26.4.501.

Keywords: Racial Identity; Measures of Race; Perceived Discrimination; Health Care

Introduction

Studies of race have long struggled with questions about the essence of race/ethnicity, how well current measures capture that essence, and what aspects of race/ethnicity are most important for health risks. Social science has emphasized the multidimensionality of race/ethnicity, which is shaped in sociohistorical contexts and is subject to change.[1-4] An important advancement over earlier interpretations of race/ethnicity as a single, permanent property, this understanding has been echoed in health science.[5-8] Its proponents warn that the conventional use of race/ethnicity oversimplifies a complex concept[9,10] and inhibits our understanding of how race/ethnicity operates in relation to health risks and outcomes.[11]

Health research using measures of race/ethnicity beyond self-identification has reported interesting results. In one study, more than a third of self-identified Native Americans were classified by interviewers as another racial group, and the discrepancy was linked to negative mental health outcomes.[12] In another study, the discord between self-identified and interviewer-attributed race was associated with poorer health, especially among those who self-identified as White but reported that others perceived them as non-White.[13] Among self-identified Hispanics, socially assigned Whites had better health compared with socially assigned Hispanics; among self-identified Native Americans, socially assigned Whites had better health compared with socially assigned Native Americans; and among multi-

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racial individuals, socially assigned Whites had better health compared with socially assigned Blacks.[14] Individuals who believed they were classified by others in a category with lower status than their self-identified race were more likely to suffer from emotional and physical symptoms.[15]

These findings support the idea of using various measures of racial/ethnic identity when studying health risks. Different measures may imply different mechanisms linked to specific aspects of racial relations and may yield different patterning of risks.[11] Building on these arguments, our study examines two measures of racial/ethnic identity – self-identified race/ethnicity and perceived attributed race/ethnicity (respondents' perceptions of how they are racially classified by others) – and their implications for perceived discrimination in health care, a prominent risk for a number of health outcomes.[16-19]

Measures of Racial/Ethnic Identity

The conventional measure, self-identified race/ethnicity, asks individuals to place themselves into pre-defined racial/ethnic categories. Responses reflect subjective understanding of belonging to one or more racial/ethnic groups and is influenced by family background, community, cultural heritage, socialization, experience (eg, discrimination), values, and physical features.[20] Many Americans make strategic choices regarding their racial/ethnic self-identification,[21,22] which can vary across times and contexts.[22-24] The self-identification measure thus captures beliefs about internal, flexible properties of the self at a given time.[25,26]

In contrast, perceived attributed race/ethnicity, ie, perceptions of one's racial/ethnic classification by others, expresses individuals' understanding of the relational meaning of their racial/ethnic identity. When individuals report how others classify them in terms of race/ethnicity, they summarize their experiences of racially relevant interactions and larger behavioral patterns by groups and institutions. Importantly, internal beliefs about one's racial/ethnic self-identity do not necessarily align with one's perceptions of racial/ethnic classification by others. For example, among respondents of mixed Black-White ancestry who self-identify as Black, fewer than half (46%) report that others see them as Black.[4] Thus, for some individuals, internal racial/ethnic identity and perceptions of how others view them may represent two unique aspects of racial/ethnic identity.[25]

Perceived Discrimination in Health Care

Perceived discrimination in health care is a known health risk. Patients who report racial/ethnic discrimination are more likely to postpone medical tests and treatment,[27] underutilize health services,[28] and forego preventive health services.[29-31] They have lower satisfaction with care,[32,33] higher levels of medical mistrust,[32] and are less likely to adhere to physicians' recommendations.[34] Thus, perceived discrimination in health care predicts a host of adverse outcomes, from poor self-reported health to obesity, diabetes, hypertension, heart disease, birth outcomes, and mental health problems.[16-19,35-42]

Previous research suggests that racial discrimination may be a critical mechanism linking the aspects of racial/ethnic identity to health outcomes.[14] Yet, empirical evaluations of perceived discrimination in relation to racial/ethnic identity beyond the conventional measure of self-identified race/ethnicity are lacking. Our study contributes important knowledge by focusing on the relationships between perceived racial/ethnic discrimination in health care and perceived attributed race/ethnicity as an understudied aspect of racial/ethnic identity.

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Juxtaposing perceived attributed race/ethnicity with the conventional measure of self-identified race/ethnicity allows us to investigate

two research questions: 1) Does perceived attributed race/ethnicity relate to perceived racial/ethnic discrimination in health care independently of self-identified race/ethnicity? 2) Which aspect of racial/ethnic identity explains perceived discrimination in health care better?

We thus derive the following hypotheses regarding the independent roles of perceived attributed race/ethnicity and self-identified race/ethnicity in perceived discrimination:

Hypothesis 1a: Compared with perceived attributed Whites, perceived attributed Blacks, Hispanics, and Native Americans have higher odds of perceived discrimination in health care, after controlling for self-identified race/ethnicity.

Hypothesis 1b: Compared with self-identified Whites, self-identified Blacks, Hispanics, and Native Americans have higher odds of perceived discrimination in health care, after controlling for perceived attributed race/ethnicity.

We further argue that perceived attributed race/ethnicity is more important for perceptions of racially motivated unequal treatment in health care settings than self-identified race/ethnicity. For example, a dissatisfactory experience during a medical encounter (physician's inattentiveness, lack of eye contact, poor bedside manner) may be interpreted more negatively by a patient who believes that the physician sees her as Black compared with a counterpart who believes that the physician sees her as White, regardless of the patient's inner beliefs about her racial belonging. While the patient who believes the physician sees her as Black may interpret the problematic experience as racial discrimination, her counterpart would likely attribute the same experience to another cause.

We therefore expect that perceived attributed race/ethnicity will yield a better empirical model of perceived discrimination in health care settings in our second hypothesis:

Hypothesis 2: The model predicting perceived discrimination by perceived attributed race/ethnicity fits the data better than the model predicting perceived discrimination by self-identified race/ethnicity.

Methods

Data

We used data from the Behavioral Risk Factor Surveillance System (BRFSS) collected by the Centers for Disease Control and Prevention (CDC) during 2004-2013. The BRFSS is an annual cross-sectional survey administered over telephone to a representative sample of the US population ≥ 18 years of age to measure health perceptions and behaviors linked to diseases and injuries.[43] Random-digit-dial, disproportionate stratified sampling design was used to select household telephone numbers. Trained interviewers used computer-assisted telephone interview method to collect data from one randomly selected adult per household. The coverage ranged 87%–98% across states. A description of the survey methodology is available at http://www.cdc.gov/BRFSS.

A key feature of this dataset was the availability of measures that capture two different dimensions of racial/ethnic identity. In addition to the standard question asking for self-identified race, the survey asked respondents how others classified their race/ethnicity, yielding a measure of perceived attributed race/ethnicity. The latter question was a part of an optional module on reactions to race. Modules are selected by individual states' health departments on a yearly basis. We used all available data between 2004, when the race module was first introduced, and 2013. The race module was fielded in 2004 by Arkansas, Colorado, Delaware, Mississippi, Rhode Island, South Carolina, Wisconsin, and Washington, D.C.; in 2005 by Delaware, Ohio, and Wisconsin; in 2006 by Michigan, Ohio, and Wisconsin; in 2007 by Rhode Island; in 2008 by Nebraska and Virginia; in 2009 by Indiana and Nebraska; in 2010 by Georgia, Kentucky, and Rhode Island; in 2012 by Arizona, Nebraska, and Wyoming; and in 2013 by Alabama and Arizona. Pooling cross-sectional data across these states and years yielded a large sample size, which was critical for the study as it allowed us to empirically disentangle aspects of racial/ethnic identity that are theoretically distinct but highly correlated.

Measures

Perceived racial/ethnic discrimination in health care settings was measured by the question, "Within the past 12 months when seeking health care, do you feel your experiences were worse than, the same as, or better than for people of other races?" A dichotomous in-

dicator for perceived discrimination was coded 1 for those who selected "worse" and 0 for others.

For perceived attributed race/ethnicity, respondents were asked, "How do other people usually classify you in this country? Would you say White, Black or African American, Hispanic or Latino, Asian, Native Hawaiian or Other Pacific Islander, American Indian or Alaska Native, or some other group?" Because only .1% of respondents chose "Native Hawaiian or Other Pacific Islander," they were collapsed with "Some other group" and are henceforth referred to as "Other."

Self-identified race/ethnicity indicator was constructed using two questions. First, respondents were asked, "Are you Hispanic or Latino?" Second, they were asked, "Which one or more of the following would you say is your race?" (White, Black or African American, Asian, Native Hawaiian or Other Pacific Islander, American Indian or Alaska Native, Some other group). For consistency with the perceived attributed race/ethnicity measure, we coded self-identified race/ethnicity as Hispanic of any race, non-Hispanic White, non-Hispanic Black, non-Hispanic Asian, non-Hispanic American Indian/Alaska Native (henceforth non-Hispanic Native American), and non-Hispanic other. The latter category collapsed Native Hawaiian or Other Pacific Islander and Some other group. Non-Hispanic respondents who reported belonging to two or more racial categories were coded as biracial/multiracial.

Covariates included sex, age in years, highest school grade completed (less than high school, high-school graduate, some college, college graduate or higher), and annual household income from all sources measured in eight categories and recoded into 2004 dollars using the midpoint of each category and the Bureau of Labor Statistics CPI rates to adjust for inflation. The study also controlled for health care coverage, assessed with the question, "Do you have any kind of health care coverage, including health insurance, prepaid plans such as HMOs, or government plans such as Medicare?," self-rated health (poor, fair, good, very good, excellent), the language of the interview (English vs other), the interview year, and US Census Bureau region (Midwest, Northeast, South, West).

Statistical Analysis

After calculating descriptive and bivariate statistics, we cross-tabulated perceived attributed race/ethnicity by self-identified race/ethnicity to obtain the numbers and percentages of respondents for each combination of the two racial/ethnic identity measures. Next, we estimated series of multivariate logistic regression models of the odds of perceived discrimination in health care. In Model 1, the odds of perceived discrimination were modeled as a function of self-identified race/ethnicity, and in Model 2, of perceived attributed race/ethnicity. Model 3 (full model) included both measures of racial/ethnic identity. All models corrected for design effects and controlled for sex, annual household income, education, health care coverage, self-rated health, age, region, language, and year. For age and income, squared effects were included. The full model provided tests for Hypotheses 1a and 1b, which argued independent effects of each racial/ethnic identity measure on perceived discrimination in health care. To evaluate Hypothesis 2, which argued a better fit of the model using perceived attributed race/ethnicity compared with the model using self-identified race/ethnicity, we applied Raftery's[44] method of fit evaluation to Models 1 and 2. The method relies on Bayesian Information Criterion (BIC) and is recommended for non-nested models and models with robust estimators and sample design adjustments, such as ours. Smaller values of BIC indicate a better fit, with BIC differences ≥6 interpreted as strong evidence and ≥10 as very strong evidence for a better fit of the model with lower BIC.[44] Using these criteria, we considered Hypothesis 2 supported if BIC for Model 2 was lower than BIC for Model 1, and if the difference between BIC statistics for Model 1 and Model 2 was ≥6.

To better understand how perceptions of attributed race/ethnicity operate within each self-identified racial/ethnic group, we attempted to estimate a model including interactions between the two dimensions of racial/ethnic identity. The large number of interactions and high correlations between measures, however, resulted in high multicollinearity, raising concerns about potentially biased estimates. To overcome this problem, we estimated separate models for self-identified Hispanics and non-Hispanic Whites, non-Hispanic Blacks, and non-Hispanic Native Americans, using the same set of independent

Table 1. Characteristics of the sample by perceived discrimination in health care and for all respondents: means and standard deviations

Variable	Perceived racial discrimination in health care		
	No, n=113,212	Yes, n=4,024	All, N=117,236
Race/ethnicity perceived attributed, % (n)			
Hispanic	3.12 (3,536)	5.96 (240)[a]	3.22 (3,776)
White	87.25 (98,774)	58.90 (2,370)[a]	86.27 (101,144)
Black	7.61 (8,613)	30.17 (1,214)[a]	8.38 (9,827)
Asian	.64 (728)	.50 (20)	.64 (748)
Native American	.77 (832)	2.81 (113)[a]	.81 (945)
Other	.64 (729)	1.67 (67)[a]	8.21 (796)
Race/ethnicity self-identified, % (n)			
Hispanic	4.05 (4,580)	6.98 (281)[a]	4.15 (4,861)
Non-Hispanic White	85.36 (96,642)	55.98 (2,252)[a]	84.36 (98,895)
Non-Hispanic Black	7.37 (8,346)	29.45 (1,185)[a]	8.13 (9,531)
Non-Hispanic Asian	.63 (713)	.42 (17)	.62 (730)
Non-Hispanic Native American	.93 (1,058)	3.40 (137)[a]	10.04 (1,195)
Non-Hispanic other	.62 (700)	1.31 (53)[a]	.64 (753)
Non-Hispanic biracial/multiracial	1.04 (1,173)	2.43 (98)[a]	1.08 (1,271)
Female, % (n)	60.87 (68,909)	60.39 (2,430)	60.85 (71,339)
Age, mean (SD)	52.62 (16.54)	48.57 (15.01)[a]	52.48 (16.51)
Annual household income in $10,000s, mean (SD)	5.50 (3.27)	3.61 (2.85)[a]	5.44 (3.28)
Highest grade completed, % (n)			
<High school	7.50 (8,486)	14.21 (572)[a]	7.73 (9,058)
High school graduate	31.32 (35,462)	36.23 (1,458)[a]	31.49 (36,920)
Some college	27.57 (31,216)	29.52 (1,188)[a]	27.64 (32,404)
College graduate	33.61 (38,048)	20.03 (806)[a]	33.14 (38,854)
Health care coverage, % (n)	90.32 (102,253)	71.00 (2,857)[a]	89.66 (105,110)
Self-rated health, mean (SD)	3.50 (1.07)	2.91 (1.21)[a]	3.48 (1.08)
Region, % (n)			
Northeast	13.28 (15,031)	12.08 (486)[a]	13.24 (15,517)
Midwest	50.57 (57,255)	46.65 (1,877)[a]	50.44 (59,132)
West	13.30 (15,060)	12.97 (522)	13.29 (15,528)
South	22.85 (25,866)	28.31 (1,139)[a]	23.03 (27,005)
English interview, % (n)	98.83 (111,889)	97.76 (3,934)[a]	98.79 (115,823)
Year of interview, % (n)			
2004	21.93 (24,824)	25.40 (1,022)[a]	22.05 (25,846)
2005	9.36 (10,596)	12.87 (518)[a]	9.48 (11,114)
2006	6.41 (7,256)	10.11 (407)[a]	6.54 (7,663)
2007	2.74 (3,102)	2.66 (107)	2.74 (3,209)
2008	13.78 (15,604)	8.95 (360)[a]	13.62 (15,964)
2009	15.57 (17,632)	10.91 (439)[a]	15.41 (18,071)
2010	12.50 (14,148)	13.34 (537)	12.53 (14,685)
2012	15.31 (17,337)	13.64 (549)[a]	15.26 (17,886)
2013	2.40 (2,713)	2.11 (85)	2.39 (2,798)

SD, standard deviation; Ranges: age 18-99; annual household income in $10,000 5-10.5 (ie, $50,000-$105,000); self-rated health scale of 1-5. Pearson chi-square tests assess associations between perceived discrimination and categorical variables; t-tests assess associations between perceived discrimination and continuous variables.
a. P<.05.
Source: BRFSS 2004-2013 (CDC, 2014).

Table 2. Perceived attributed by self-identified race/ethnicity: frequencies and column percentages, N=117,236

	Self-identified, race/ethnicity						
	Hispanic	**N-H White**	**N-H Black**	**N-H Asian**	**N-H NA**	**N-H Other**	**N-H Multi**
Perceived attributed race/ethnicity							
Hispanic	3,198	246	95	35	92	65	45
	65.79%	.25%	1.00%	4.79%	7.7%	8.63%	3.54%
White	1,293	98,141	82	32	358	374	864
	26.6%	99.24%	.86%	4.38%	29.96%	49.67%	67.98%
Black	145	82	9,219	7	45	104	225
	2.98%	.08%	96.73%	.96%	3.77%	13.81%	17.7%
Asian	18	28	3	622	13	30	34
	.37%	.03%	.03%	85.21%	1.09%	3.98%	2.68%
Native American	54	137	35	4	632	28	55
	1.11%	.14%	.37%	.55%	52.89%	3.72%	4.33%
Other	153	261	97	30	55	152	48
	3.15%	.26%	1.02%	4.11%	4.6%	20.19%	3.78%

N-H, Non-Hispanic; NA, Native American; Multi, Biracial/Multiracial.
Source: BRFSS 2004-2013 (CDC, 2014).

variables as the previous models. Separate models for self-identified Asians and others are not reported because the numbers of observations in most categories of perceived attributed race/ethnicity were too small for meaningful statistical analysis.

Results

Univariate and Bivariate Analyses

As evident from Table 1, most respondents self-identified as non-Hispanic White (84%). White was also the most common category of perceived attributed race/ethnicity (86%). Most respondents were female (61%), had health insurance (90%), and were interviewed in English (99%). Perceived discrimination was higher among self-identified and perceived attributed Blacks, Hispanics, Native Americans, and Others, as well as among biracial/multiracial respondents. Perceived discrimination in health care was reported by 3.4% of respondents (n=4,024). Those reporting discrimination had lower annual incomes than those reporting no discrimination ($36,100 vs $55,100 annually). They also had lower education, poorer health, were younger, and less likely to have health coverage or to interview in English.

Table 2 shows that for the majority of non-Hispanic Whites and Blacks, perceived attributed race/ethnicity matched their self-identification (99% and 97%, respectively). The discrepancy between the two measures was more common for Hispanics (34%), Native Americans (47%), and Asians (15%). Self-identified Native Americans and Hispanics who were discordant on the two racial/ethnic identity measures reported most commonly that others classified them as White (30% and 27%, respectively).

Multivariate Analyses

The results of the logistic regression model of perceived discrimination in health care that considered both measures of racial/ethnic identity (Model 3 in Table 3) were consistent with Hypothesis 1a. Self-identified Hispanics, Blacks, and Native Americans had, respectively, 34%, 117%, and 131% higher odds of perceived discrimination compared with self-identified Whites. Hypothesis 1b was supported as well. Respondents who reported Black, Hispanic, and Native American perceived attributed race/ethnicity had 89%, 36%, and 64% higher odds of perceived discrimination, respectively, than perceived attributed Whites. Thus, each dimension of racial/ethnic identity contributed independently to perceived discrimination.

Model 1 and Model 2 each included only one measure of racial/ethnic identity, and their comparison served to evaluate Hypothesis 2. Model 1, which included only self-identified race/ethnicity (BIC=31,152) showed a poorer fit than Model 2, which included only perceived attributed

Table 3. Odds ratios from logistic regression models of perceived discrimination in health care, N=117,236

	Model 1			Model 2			Model 3		
	OR	95% CI		OR	95% CI		OR	95% CI	
Perceived attributed race/ethnicity [a]									
Hispanic				1.84 [e]	1.54	2.19	1.36 [e]	1.07	1.75
Black				3.90 [e]	3.58	4.25	1.89 [e]	1.41	2.53
Asian				1.23	.79	1.91	1.14	.56	2.31
Native American				3.17 [e]	2.54	3.95	1.64 [e]	1.21	2.23
Other				2.75 [e]	2.12	3.58	1.86 [e]	1.40	2.47
Self-identified race/ethnicity [a]									
Hispanic	1.70 [e]	1.44	2.01				1.34 [e]	1.06	1.70
Black	4.01 [e]	3.68	4.38				2.17 [e]	1.61	2.93
Asian	1.15	.72	1.83				.97	.45	2.07
Native American	3.23 [e]	2.66	3.91				2.31 [e]	1.77	3.02
Other	2.48 [e]	1.88	3.28				1.88 [e]	1.38	2.57
Biracial/multiracial	2.36 [e]	1.91	2.92				1.93 [e]	1.52	2.43
Female	.85 [e]	.79	.91	.84 [e]	.79	.90	.85 [e]	.79	.91
Annual household income ($10,000s)	.79 [e]	.75	.82	.79 [e]	.75	.82	.79 [e]	.75	.83
Annual household income squared	1.01 [e]	1.01	1.02	1.01 [e]	1.01	1.02	1.01 [e]	1.01	1.01
Highest grade completed [b]						1.17			
<High school	1.02	.90	1.16	1.03	.90	1.13	1.02	.89	1.16
High school graduate	1.03	.94	1.13	1.03	.93	1.23	1.03	.93	1.13
Some college	1.11	1.01	1.22	1.12 [e]	1.02	.51	1.11 [e]	1.01	1.22
Health care coverage	.47 [e]	.43	.51	.46 [e]	.43	.72	.46 [e]	.43	.51
Self-rated health	.70 [e]	.68	.73	.70 [e]	.68	1.07	.70 [e]	.68	.73
Age in years	1.06 [e]	1.04	1.07	1.06 [e]	1.04	1.00	1.05 [e]	1.04	1.07
Age in years squared	1.00 [e]	1.00	1.00	1.00 [e]	1.00	1.00	1.00 [e]	1.00	1.00
Region [c]									
Northeast	1.05	.92	1.21	1.03	.89	1.18	1.03	.90	1.19
South	.99	.88	1.13	1.00	.88	1.14	.99	.87	1.13
West	1.22 [e]	1.06	1.41	1.23 [e]	1.07	1.41	1.22 [e]	1.06	1.41
English interview	1.59 [e]	1.23	2.07	1.73 [e]	1.32	2.25	1.67 [e]	1.27	2.19
Year of Interview [d]									
2005	1.41 [e]	1.24	1.60	1.43 [e]	1.26	1.63	1.42 [e]	1.25	1.61
2006	1.97 [e]	1.69	2.30	1.98 [e]	1.69	2.31	1.98 [e]	1.70	2.31
2007	1.52 [e]	1.22	1.90	1.51 [e]	1.21	1.88	1.52 [e]	1.22	1.89
2008	.96	.83	1.11	.97	.84	1.11	.97	.84	1.12
2009	.96	.83	1.12	.97	.83	1.13	.97	.83	1.12
2010	1.19 [e]	1.06	1.33	1.19 [e]	1.06	1.34	1.20 [e]	1.07	1.34
2012	1.18 [e]	1.03	1.36	1.18 [e]	1.03	1.35	1.17 [e]	1.02	1.34
2013	.84	.65	1.08	.83	.64	1.07	.82	.63	1.06
Bayesian Information Criterion (BIC)	31,151.68			30,839.71			30,822.87		

All estimates are adjusted for survey design.

a. Reference category: White.

b. Reference category: College graduate.

c. Reference category: Midwest.

d. Reference category: 2004.

e. P<.05

OR, odds ratio; CI, confidence interval.

Source: BRFSS 2004-2013 (CDC, 2014).

Table 4. Effects of perceived attributed race on perceived discrimination in health care: odd ratios based on logistic regression models

	Self-identified race/ethnicity											
	Non-Hispanic White, n= 98,895			Non-Hispanic Black, n= 9,531			Non-Hispanic Native American, n=1,195			Hispanic, n=4,861		
	OR	95% CI		OR	95% CI		OR	95% CI		OR	95% CI	
Perceived attributed race/ethnicity												
Hispanic	2.11[a]	1.28	3.50	1.16	.61	2.19	.64	.30	1.38	RC		
White	RC			1.00	.47	2.13	.55[a]	.33	.94	.78	.55	1.09
Black	3.33[a]	1.48	6.62	RC			1.05[a]	.42	2.62	1.25	.65	2.43
Asian	1.64	.20	13.68	4.71	.38	57.72	1.31	.31	5.55	.89	.11	7.29
Native American	2.04[a]	1.06	3.94	.91	.35	2.41	RC			1.21	.42	3.50
Other	1.47	.81	2.67	1.03	.56	1.90	1.51	.67	3.36	1.32	.70	2.47

Models are estimated separately for non-Hispanic Whites, non-Hispanic Blacks, non-Hispanic Native Americans, and Hispanics. All models control for sex, annual household income, the highest school grade completed, health care coverage, age, region, language, and year. Estimates are corrected for survey design.
OR, odds ratio; CI, confidence interval; RC, reference category
a. P<.05.
Source: BRFSS 2004-2013 (CDC, 2014).

race/ethnicity (BIC=30,840). The difference in BIC statistics (312) provided a very strong evidence for a better fit of Model 2, supporting Hypothesis 2. Moreover, the difference in BIC statistics between Model 2 and Model 3 (BIC=30,823) was 17, providing a very strong evidence for a better fit of Model 2. Of the three models of perceived discrimination, the one using only perceived attributed race/ethnicity (Model 2) showed the best data fit.

Results for covariates generally corroborated prior research. Females, individuals with health care coverage, and those in better health were less likely to report perceived discrimination in health care. The relationship between age and perceived discrimination had an inverse U-shape peaking at around age 40 and declining thereafter. A curvilinear effect was also evident for income; the odds of perceived discrimination declined with higher income for respondents earning less than $12,000 annually and increased for those earning more. Westerners had a higher likelihood of perceived discrimination than Mid-Westerners. In Models 2 and 3, the odds of reporting discrimination were higher for respondents with some college education compared with college graduates. Respondents interviewed in English were more likely to report discrimination than those interviewed in other languages, as were those interviewed in 2005-2007, 2010, and 2012 compared with 2004.

Table 4 displays the relationships between perceived discrimination in health care and perceived attributed race/ethnicity for self-identified Hispanics, Whites, Blacks, and Native Americans. In each model, we selected as the reference group for perceived attributed race/ethnicity the category that matched the self-identified race/ethnicity. In models for self-identified Blacks, for instance, "Black" was used as a reference group for perceived attributed race/ethnicity. Thus, the estimates could be interpreted as differences between individuals who are congruent on self-identification and perceived attributed classification vs. those who are incongruent on these two measures. Our results showed that, compared with racially congruent Whites, self-identified Whites who reported that others classified them as Black, Native American, or Hispanic had considerably higher odds of perceived discrimination (Black: OR=3.33, Native American: OR=2.04, Hispanic: OR=2.11). In contrast, self-identified Native Americans who reported that others classified them as White had a 45 percentage points lower odds of reporting discrimination than their racially congruent counterparts. Perceived attributed race/ethnicity did not relate to perceived discrimination among self-identified Blacks and Hispanics.

Discussion

Informed by sociological theory of race/ethnicity as a multidimensional and flexible property of the

individual,[2] our study examined two aspects of racial/ethnic identity – self-identified race/ethnicity and perceived attributed race/ethnicity – and assessed their associations with perceived discrimination in health care, a major risk factor for minority health. This work challenges the assumption that self-identified race/ethnicity captures adequately the multifaceted concept of race/ethnicity, and presents evidence for the inclusion of multiple measures of race/ethnicity when studying racial discrimination in health care and racial/ethnic health disparities in general.

Our findings show that each measure of racial/ethnic identity – self-identified and perceived attributed – is independently associated with perceived discrimination in health care, and perceived attributed race/ethnicity predicts discrimination better than self-identified race/ethnicity. While not reported previously, the latter conclusion is unsurprising. Racial discrimination occurs because of how others view an individual.[45] By the same token, an individual's perceptions of racial discrimination appear to be correlated with her perceptions of how others see her in terms of race/ethnicity. Research assessing the comparability of self-identified race/ethnicity, attributed race/ethnicity, and perceived attributed race/ethnicity is needed, and is particularly important for understanding racial discrimination in health care. Unfortunately, the BRFSS dataset does not provide a third measure – attributed race/ethnicity – that could be compared with perceived attributed and self-identified race/ethnicity and to perceived discrimination in health care.

It must be noted that there were large differences in the discord between racial/ethnic identity measures among different racial/ethnic groups. Consistent with previous reports of racial misclassification prevalence,[12] such a discord was relatively common among Native Americans (47%), Hispanics (34%), and Asians (15%) and relatively uncommon among Whites (1%) and Blacks (3%). Given the large size of our sample, we were able to document the effects of racial/ethnic incongruence even for groups in which the incongruence was rare. This evidence is important because it suggests that even among Whites, different dimensions of racial/ethnic identity are relevant for health-relevant outcomes. Nevertheless, it is possible that the results of the models that pooled all self-identified racial/ethnic groups were primarily driven by groups in which the racial/ethnic incongruence was more common.

This work … presents evidence for the inclusion of multiple measures of race/ethnicity when studying racial discrimination in health care and racial/ethnic health disparities in general.

Is the discord between self-identified and perceived attributed race/ethnicity harmful for health? Jones et al showed that it was related to worse self-rated health among Hispanics, American Indians, and multiracial individuals.[14] Other studies suggest that its effects depend on the reference group. Being misclassified into a lower-status group (eg, Black) may be more stressful that being misclassified into a higher-status group (eg, White), potentially leading to poorer health.[46,47] Yet, the implications of racial misclassification, specifically in health care settings, remain underinvestigated. Our study is the first, to our knowledge, to report that perceived attributed race/ethnicity is independently related to perceived discrimination in health care, uniquely contributing to a risk for minority health. Further evidence for this conclusion was obtained from supplementary analyses, in which we modeled self-rated health as a function of the two dimensions of racial/ethnic identity, perceived discrimination, and demographic covariates (full results available upon request). Both perceived attributed race/ethnicity and perceived discrimination independently contributed to self-rated health, suggesting that perceived discrimination does not mediate the effects of racial/ethnic identity on self-rated health. Taken together, our results indicate that investigating health disparities through the lens of multidimensionality of race/ethnicity can lead to new understanding of patterns in health risks.

Our study has limitations. First, each respondent was surveyed at a single point in time, which prevents longitudinal investigation of the fluidity of race/ethnicity. Second, the study represents the states that fielded the BRFSS race module between 2004 and 2013. We cannot know with certainty to what degree the results apply to other states. Racial/ethnic composition of the population of each state varied, potentially influencing results. Controlling for individual states was not possible because state was multicollinear with year. Adjusting for region only partially ameliorated this problem. There are also limitations in the measure of perceived attributed race/ethnicity. Respondents indicated how others perceived them in this country, but we do not know how they conceived of "others" in terms of race/ethnicity. For instance, the impact of misperceived race for a self-identified Black could vary based on whether perceivers are Black or White. Misperceptions by other Blacks could be more problematic, especially among those who strongly identify with their race. Future research is needed to clarify the role of perceiver's race/ethnicity. Another limitation concerns the fact that the measures of self-identified and perceived attributed race/ethnicity did not have identical response options. Respondents could choose multiple racial/ethnic identities for self-identification, but such an option was not given for perceived attributed race/ethnicity. Perceived attributed race/ethnicity included a Hispanic category, while for self-identification Hispanic identity was measured in a separate question. Since many Hispanics treat their ethnicity as race and do not find the racial categories mandated by the US government meaningful,[48,49] we coded Hispanics of any race into a single category. This decision was supported by supplementary analysis, in which 41% of Hispanics in the sample racially identified as "other," suggesting that they did not find a fit among the provided categories. Nevertheless, the limitation of measures prevents fuller exploration for Hispanics and biracial/multiracial individuals. Such investigation is increasingly important, as these populations are growing.

Conclusion

These limitations notwithstanding, the study presents new evidence of relationship between various dimensions of racial/ethnic identity and perceived discrimination. Since we focused on perceived discrimination in health care settings (as opposed to other areas, such as the job market or criminal justice), our findings are especially relevant for health care providers and policy makers interested in improving the health status of minorities. Efforts to increase the quality of care for minority patients have been ongoing for decades. Training programs incorporate culturally sensitive approaches and discuss provider racial bias. Yet, much remains to be done, including further investigation into the complex origins of perceptions of unfair treatment. Considering the demographic trend toward a complex racial/ethnic landscape in America,[25] approaching race/ethnicity as a health risk is important for serving an increasingly diverse patient population.

Author Contributions

Research concept and design: Stepanikova; Acquisition of data: Stepanikova; Data analysis and interpretation: Stepanikova, Oates; Manuscript draft: Stepanikova, Oates; Statistical expertise: Stepanikova; Supervision: Stepanikova; Administrative: Oates

Conflict of Interest

No conflicts of interest.

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