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Original Article

Marital Status and Physical Health: Racial Differences

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Abstract

Background and aims: As suggested by the Minorities' Diminished Return Theory, the association between socioeconomic status and health is weaker for racial and ethnic minorities compared to Whites. The current study compared Blacks and Whites in terms of the association between marital status and physical health.

Methods: The State of the State Survey (SOSS) included 881 adults (92 Blacks and 782 Whites) generalizable to the state of Michigan, the United States. The marital status and self-rated physical health (SRPH), which was measured using a single item, were considered as independent and dependent variables, respectively. In addition, age, gender, education, and employment were covariates and race/ethnicity was regarded as the moderating factor. Finally, logistic regression was used for data analysis.

Results: Based on the results, being married was associated with better SRPH, which is the net considered by all confounders. A significant interaction was found between race and marital status on SRPH, suggesting a larger association for Blacks compared to Whites. In race stratified models, marital status was related to better SRPH for Whites and Blacks, but the magnitude of this link was larger for Blacks compared to Whites.

Conclusion: Overall, marital status was differently linked to SRPM for Whites and Blacks. Accordingly, policymakers should be cautious while not assuming that diverse racial and ethnic groups with similar economic resources have similar health status.

Keywords: Socioeconomic position, Self-rated physical health, Inequality, Disparities, Race, Ethnic groups, African American, Blacks and Whites

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Introduction

The link between socioeconomic status (SES) and health outcomes is very well-known [1,2] and several SES indicators such as education level, employment, income, and marital status are associated with the reduced risk of morbidity and mortality.[1-5] High SES is also related to self-rated physical health (SRPH).[6]

According to the Minorities' Diminished Return Theory, the members of race/ethnic minority groups and White Americans differ regarding the relationship between their SES and health.[7,8] The protective effects of SES on physical, mental, and oral health are also found to vary for Blacks[9-16] and Hispanics[10] compared to Whites.

The unequal gain of equal resources across the racial groups is attributed to a number of social processes such as differential access to the opportunity structure and different distributions of societal and everyday barriers in the very daily lives of racial/ethnic groups.[7,8] Structural factors such as residential segregation and discrimination in education, labor market, banking, and policing increase the costs that the minority populations pay for upward social mobility, thus the link between SES and health would vary for Whites and non-Whites.[7,8]

Although racial differences regarding the effects of education, employment, and income are confirmed,[7,8] less is known about the differential association between marital status and health across racial groups.[17]

Therefore, the current study was conducted to examine the link between marital status and SRPH and to test for racial heterogeneity in the above-mentioned relationship. In line with the empirical evidence that suggests SES differently correlates with health for Whites and non-Whites,[7,8] we expected a weaker association between marital status and SRPH for Blacks in comparison to Whites.

Methods

Design and Setting

Using a cross-sectional design, this study borrowed data from the 2017 State of the State Survey (SOSS), which

is a state-wide representative survey of economic and sociopolitical attitudes and beliefs in Michigan, the United States. The SOSS is conducted by the Michigan State University Institute for Public Policy and Social Research, Lansing, Michigan, the United States.

The SOSS collects data using the telephone survey mode and participants include a random sample of approximately 1000 Michigan residents. The survey takes 20 minutes to complete on average. The SOSS recruited samples utilizing a stratified random sampling method of adults (i.e., age ≥18 years) who live in the state of Michigan, the United States.

Eligibility

The eligibility for the SOSS included being within the age range of 18 or more, living in Michigan, and having the ability to complete the interview in English. Institutionalized individuals were excluded from the survey. Meanwhile, only adults in households with a phone (landline telephone or Michigan cell phone number) are included since SOSS is a telephone survey.

Sampling

The SOSS sample is composed of both new and old participants. Up to 80% of the SOSS sample includes new participants, meaning that they are interviewed by the SOSS for the first time. The SOSS sample is drawn from a list of random-digit-dial (RDD) phone numbers for the state of Michigan. A small proportion of the SOSS sample comes from the previous SOSS surveys (i.e., participants who are a part of SOSS surveys during the past two years) and up to 90% of SOSS participants agree to be re-contacted for a re-interview. Both of the above-mentioned SOSS sub-samples are a representative of the random sample. Although many Michigan residents have no landline, the SOSS sampling frame also includes cellphone users. The SOSS sampling frame is provided by Survey Sampling Inc.

A total of 12 007 phone numbers were used for the 2017 SOSS sample. From this number, 584, 5897, and 6500 cases were in the re-contact, new RDD segment, and the new cell phone segments, respectively. Overall, 48.2% of the phone numbers were work telephone numbers (79.8%, 50.2%, and 43.6% for the re-contact, the new RDD, and the new cellphone segments, respectively).

Data Collection

Data were collected by the Institute for Public Policy and Social Research Office for Survey Research. All interviews were conducted between April 19 and July 30, 2017, applying a computer assisted telephone interviewing system. According to this system, interviews were scripted and executed from a computer workstation. During the interview, the questions and the instructions were provided for the interviewers on their computer screens and the computer indicated what numeric codes or text could be potentially entered as the responses to each item. In addition, Computer Assisted Survey Execution System software (version 5.5) was used for interviews. This system is collectively developed by the U.S. Department of Agriculture, the U.S. Census Bureau, and the University of California, Berkeley.

Interviewer Training

A total of 38 trained interviewers collected the SOSS data in 2017. Interviewer training covered the study protocol, the interview questionnaire, as well as the meaning and aim of various questions. The interviewers with previous experience only received two hours of training which was specific to the SOSS 2017 while new interviewers received 13 hours of training including the interview practice.

Measures

Dependent Variable

Self-Rated Physical Health (SRPH)

SRPH was regarded as our outcome variable of interest, which was measured by asking the participants "*How would you rate your overall physical health*?" The response items were in five levels ranging from 1 (excellent) to 5 (poor). The single-item SRPH measure correlates with multiple-item measures of health, physical activity, health behaviors, and well-being. SRPH was dichotomized as poor/fair (1) and good/very good/excellent (0) and high SES was shown to predict better SRPH.[6]

Independent Variable

Marital status, as the main independent variable, was operationalized as a dichotomous variable married (1) versus unmarried (0).

Covariates

Demographic Factors

Age and gender (male =1 vs. female =0) were regarded as interval and dichotomous measures.

Education and Income

Similarly, sociodemographic factors included education and employment status (labor market participation) and education was a dichotomous variable (college not completed =0 and college completed =1). Further, employment status was another dichotomous measure (0= non-participation in the labor market and 1= labor market participation).

Moderator

Race/ethnicity

Self-identified race/ethnicity was considered as a dichotomous measure as well (Blacks =1 and Whites =0).

Statistical Analysis

Stata software (Stata Corp., College Station, Texas), version 13.0 was applied to analyze the data and mean (standard errors) and relative frequencies in the overall sample, along with race were utilized to describe our sample. To understand the pattern of bivariate associations, the Pearson correlation test was applied to estimate the correlation matrix between the study variables. It should be noted that the Pearson correlation test was used due to the large sample size. Then, Blacks and Whites were compared in terms of the study constructs employing the Pearson Chi-square test and independent-sample *t* test. Four logistic regression models were also utilized to perform multivariable analysis. The odds ratio, 95% confidence interval, and *P* value were reported as well. In all logistic regression models, marital status and poor/fair SRPH were regarded as the independent and dependent variable while gender, age, education, employment status, and household income were regarded as the control variables. *Models* and *2* were fitted in the overall sample. Moreover, *Model 1* included no interaction term whereas *Model 2* encompassed the race by marital status interaction term. Finally, *Models 3* and *4* were estimated for Whites and Blacks, respectively.

Results

Descriptive Statistics

Table 1 demonstrates a summary of descriptive information in the overall sample and by race/ethnicity. As shown, Blacks had lower SES indicated by a lower frequency of being married, having lower educational attainment, being employed, and earning lower household income in comparison to Whites. In other words, Blacks had worse SRPH compared to Whites.

Bivariate Correlations

Likewise, the bivariate correlation matrix in the overall sample is presented in Table 2. Based on the obtained data, race/ethnicity, education employment, and marital status were associated with SRPH. Additionally, Blacks were younger and more employed than Whites. Eventually, Blacks were less likely to be married and had worse SRPH compared to Whites.

Multivariable Logistic Regression Models in the Overall Sample

Table 3 provides a summary of the results of two logistic regressions in the pooled sample. *Model 1* showed a protective effect of being married against the odds of poor SRPH above and beyond all covariates. In addition, *Model 2* documented a significant interaction between marital status and race/ethnicity on poor SRPH.

Logistic Regression Specific to Race/Ethnicity

Data related to both logistic regressions specific for Whites and Blacks are reported in Table 4. Based on *Models 3* and *4* in Whites and Blacks, respectively, being married was associated with better SRPH for both groups.

Discussion

The current study was performed to test whether marital status is linked to SRPH and if this link is different for Whites and Blacks. Based on the findings, being married

Table 1. Descriptive Data of the Overall Sample and by Race/Ethnicity

Characteristics	All		Whites		Blacks	
	Mean	95% CI	Mean	95% CI	Mean	95% CI
Age (y)*[b]	48.24	46.63-49.86	50.25	48.57-51.94	43.48	38.17-48.79
	%	95% CI	%	95% CI	%	95% CI
Race						
Whites	84.76	80.94-87.93				
Blacks	15.24	12.07-19.06				
Gender						
Women	52.80	48.72-56.84	51.98	47.75-56.18	57.34	44.42-69.33
Men	47.20	43.16-51.28	48.02	43.82-52.25	42.66	30.67-55.58
Education (≥12 years)*[a]						
Less than college	55.46	51.36-59.49	52.47	48.22-56.69	72.08	59.22-82.10
Completed college	44.54	40.51-48.64	47.53	43.31-51.78	27.92	17.90-40.78
Employment*[a]						
Not in Labor Force	36.59	32.89-40.45	38.62	34.68-42.72	25.28	16.71-36.31
In Labor Force	63.41	59.55-67.11	61.38	57.28-65.32	74.72	63.69-83.29

Source: The State of the State Survey (2017).
Note. *$P<0.05$ for Whites versus Blacks; [a] Pearson chi-square test; [b] Independent samples *t* test; CI: Confidence interval.

Table 2. Spearman Correlations in the Pooled Sample and by Race/Ethnicity

Characteristics	1	2	3	4	5	6	7
All							
1 Race (Black)	1						
2 Gender (men)	-0.05	1					
3 Age	-0.17***	-0.07*	1				
4 Education (1-4)	-0.05	-0.01	-0.05	1			
5 Employment (In labor force)	0.08*	0.12***	-0.45***	0.12**	1		
6 Marital status (married)	-0.18***	0.10**	-0.05	0.12**	0.06#	1	
7 Poor SRPH	0.10**	-0.04	0.03	-0.21***	-0.20***	-0.14***	1

Source: The State of the State Survey (2017).
Note. SRPH: Self-rated physical health; Logistic regressions #*P*<0.1,**P*<0.05, ***P*<0.01, and ****P*<0.001.

Table 3. Association Between Marital Status and Poor SRPH in the Pooled Sample

Characteristics	Model 1		Model 2	
	Main Effects		Model 1 + Interactions	
	B	95% CI	B	95% CI
Race (Black)	1.74*	1.02-2.97	2.44**	1.31-4.54
Age	0.99#	0.98-1.00	0.99#	0.98-1.00
Gender (men)	0.81	0.56-1.16	0.81	0.57-1.16
Education (1-4)	0.59***	0.48-0.73	0.58***	0.47-0.72
Employment (in labor force)	0.35***	0.23-0.53	0.35***	0.23-0.53
Marital status (married)	0.57**	0.40-0.82	0.65*	0.45-0.95
Marital status × race			0.25*	0.06-1.00

Source: The State of the State Survey (2017).
Note. SRPH: Self-rated physical health; Logistic regressions #*P*< 0.1,**P*<0.05, ***P*<0.01, and ****P*<0.001.

Table 4. Association Between Marital Status and Poor SRPH in Whites and Blacks

Characteristics	Model 3		Model 4	
	Whites		Blacks	
	B	95% CI	B	95% CI
Age	0.99	0.98-1.00	0.98	0.94-1.02
Gender (men)	0.76	0.52-1.12	1.21	0.38-3.86
Education (completed college)	0.58***	0.46-0.72	0.61	0.31-1.20
Employment (in labor force)	0.40***	0.26-0.61	0.18**	0.06-0.59
Marital Status (married)	0.66*	0.45-0.96	0.15**	0.04-0.61

Source: The State of the State Survey (SOSS), 2017.
SRPH: Self-rated physical health; Outcome: Poor SRPH.
Note. #*P*<0.1, **P*<0.05, ***P*<0.01, ****P*<0.001.

was related to better SRPH, overall, and the marital status-SRPH link differed between Blacks and Whites.

The result regarding the link between marital status and SRPH is consistent with the Social Determinants of Health[18,19] and Fundamental Cause[3] theories that consider social resources as the root causes of health. The race is also known to moderate the link between SES and health.[7,8] However, most of these studies are related to education rather than the other SES indicators including marital status. According to some studies, the effects of education on a wide range of health outcomes such as smoking, drinking, obesity, depression, chronic disease, and mortality are stronger for Whites than those for Blacks,[7,8] which is partially because education generates

more economic prosperity for White as compared to Black families.[20]

The current study is not the first one to document that race alters the SES-health link. However, most of the existing literature has focused on the other SES indicators such as education, employment, and income,[7,8] while little is known about marital status.[17] The unique contribution of this study is to extend what we know about racial differences in SES-health relationship to the link between marital status and SRPH.

Differential links by race are not limited to health but extend to psychological assets like coping.[21] The differential effects of race on psychological assets are possibly one of the mechanisms that explain racial and ethnic variation concerning the effects of SES on health since such assets, at least in part, mediate the SES-health link. Accordingly, more research should be done on whether race/ethnic variation in SES-psychological assets and psychological assets – health explain the Black-White differences in the SES-health link.

Limitations

Our study has some limitations. Although this study used a random sample, participants were limited to individuals who had either a landline or a local cellphone. The study was also limited to individuals who were English speakers. Due to a cross-sectional design, the current study fails to establish causation. In addition, SES and health have bidirectional associations, and reverse causation from poor health to downward social mobility is possible as well. Therefore, future research should investigate the effects of change in social status and marital status over the life course on the health of Blacks and Whites. Moreover, future studies may use multiple and repeated observations that are needed to test the bidirectional link between SES and health. Our outcome (SRPH) was also a single-item measure. Thus, these results should be replicated utilizing other types of data and other physical health outcomes. The omitted confounders were another limitation of the study. This study failed to include important confounders such as health insurance, access to the health care system, and chronic medical disease. Therefore, other studies should seek to find whether health care access and differential treatment in the health care system explain the differential effects of SES on health. Similar to any other cross-racial study, the differential validity of SRPH is a threat to the validity of the current findings. Research has shown that SRPH may reflect different health problems across racial groups. Studying the quality of the relationship between partners and spouses by SES is required to test if social relationships explain the differential effects of marital status for Whites and Blacks. Finally, these findings need to be replicated in other settings, particularly for other racial and ethnic groups.

Conclusions

In general, the link between marital status and SRPH may depend on race and ethnicity. Research is still required to better understand group differences respecting the health of various racial groups with similar SES resources.

Ethical Approval

The SOSS study protocol was approved by the Michigan State University Institutional Review Board. All participants provided informed consent and were financially compensated for their time.

Conflict of Interest Disclosures

None.

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References

1. Ross CE, Mirowsky J. Refining the association between education and health: the effects of quantity, credential, and selectivity. Demography. 1999;36(4):445-60.
2. Ross CE, Mirowsky J. Does employment affect health? J Health Soc Behav. 1995;36(3):230-43.
3. Phelan JC, Link BG, Diez-Roux A, Kawachi I, Levin B. "Fundamental causes" of social inequalities in mortality: a test of the theory. J Health Soc Behav. 2004;45(3):265-85. doi: 10.1177/002214650404500303.
4. Link BG, Phelan J. Social conditions as fundamental causes of disease. J Health Soc Behav. 1995;Spec No:80-94.
5. Mirowsky J, Ross CE. Education, health, and the default American lifestyle. J Health Soc Behav. 2015;56(3):297-306. doi: 10.1177/0022146515594814.
6. Assari S, Lankarani MM. Demographic and Socioeconomic Determinants of Physical and Mental Self-rated Health Across 10 Ethnic Groups in the United States. Int J Epidemiol Res. 2017;3(12):185-93. doi: 10.15171/ijer.2017.02.
7. Assari S. Health disparities due to diminished return among black Americans: Public policy solutions. Soc Issues Policy Rev. 2018;12(1):112-45. doi: 10.1111/sipr.12042.
8. Assari S. Unequal gain of equal resources across racial groups. Int J Health Policy Manag. 2017;7(1):1-9. doi: 10.15171/ijhpm.2017.90.
9. Assari S, Caldwell CH. Family Income at Birth and Risk of Attention Deficit Hyperactivity Disorder at Age 15: Racial Differences. Children (Basel). 2019;6(1). doi: 10.3390/children6010010.
10. Assari S, Farokhnia M, Mistry R. Education attainment and alcohol binge drinking: diminished returns of Hispanics in Los Angeles. Behav Sci (Basel). 2019;9(1). doi: 10.3390/bs9010009.
11. Assari S. Family Socioeconomic Position at Birth and School Bonding at Age 15; Blacks' Diminished Returns. Behav Sci (Basel). 2019;9(3). doi: 10.3390/bs9030026.
12. Assari S. The benefits of higher income in protecting against chronic medical conditions are smaller for African Americans than whites. Healthcare (Basel). 2018;6(1). doi: 10.3390/healthcare6010002.
13. Assari S, Caldwell CH, Mincy R. Family socioeconomic status at birth and youth impulsivity at age 15; Blacks' diminished return. Children (Basel). 2018;5(5). doi: 10.3390/

children5050058.
14. Assari S, Hani N. Household income and children's unmet dental care need; Blacks' diminished return. Dent J (Basel). 2018;6(2). doi: 10.3390/dj6020017.
15. Assari S, Mistry R. Educational Attainment and smoking status in a national sample of american adults; evidence for the blacks' diminished return. Int J Environ Res Public Health. 2018;15(4). doi: 10.3390/ijerph15040763.
16. Assari S, Thomas A, Caldwell CH, Mincy RB. Blacks' diminished health return of family structure and socioeconomic status; 15 years of follow-up of a national urban sample of youth. J Urban Health. 2018;95(1):21-35. doi: 10.1007/s11524-017-0217-3.
17. Assari S, Caldwell CH, Zimmerman MA. Family structure and subsequent anxiety symptoms; Minorities' Diminished Return. Brain Sci. 2018;8(6). doi: 10.3390/brainsci8060097.
18. Marmot M. Social determinants of health inequalities. Lancet. 2005;365(9464):1099-104. doi: 10.1016/s0140-6736(05)71146-6.
19. Marmot M. Economic and social determinants of disease. Bull World Health Organ. 2001;79(10):988-9.
20. Assari S. Parental education better helps white than black families escape poverty: National survey of children's health. Economies. 2018;6(2):30. doi: 10.3390/economies6020030.
21. Assari S. General self-efficacy and mortality in the USA; racial differences. J Racial Ethn Health Disparities. 2017;4(4):746-57. doi: 10.1007/s40615-016-0278-0.

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