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Investigation of the Predictors of Self-rated Health of Economically Disadvantaged African American Men and Women: Evidence for Sponge Hypothesis

Sharon Cobb[1,#,*], **Shervin Assari**[2,#,*]

[1]School of Nursing, Charles R. Drew University of Medicine and Science, Los Angeles, USA

[2]Department of Family Medicine, Charles R. Drew University of Medicine and Science, Los Angeles, USA

Abstract

Background and aims: According to the sponge hypothesis, compared to men's self-rated health (SRH), women's SRH is more likely to reflect conditions other than chronic medical conditions (CMCs) such as psychiatric disorders (PDs). As a result, poor SRH is a weaker predictive factor for mortality risk for women than men. Most of this literature, however, is done in samples that are predominantly middleclass White. To test the sponge hypothesis among economically disadvantaged African Americans (AAs), this study compared low-income AA men and women for the effects of the number of PDs and CMCs on SRH.

Materials and Methods: This cross-sectional study recruited a non-random sample (n = 150) of economically disadvantaged AA adults with PD(s). Structured face-to-face interviews were used to collect data. SRH was measured using a single-item measure. PDs and CMCs were also self-reported. We applied linear regression models to test the interactions between SRH and the number of PDs and CMC as well as gender.

Results: The number of PDs and CMCs were associated with SRH in the pooled sample of low-income AA adults with PD(s). However, we found a significant interaction between the number of PDs and gender. This interaction suggested a stronger association between PDs and SRH for AA women than AA men. Gender did not alter the association between the number of CMCs and SRH.

[*]Corresponding Author: Shervin Assari MD MPH, Charles R. Drew University of Medicine and Science, Los Angeles, USA , assari@umich.edu.

[#]Authors had similar contributions to the current paper thus both should be considered as the first author.

Authors' Contributions

Conceptualization was done by SA and SC, methodology by SC, running software by SA, formal analysis by SA, investigation by SC, securing resources by SC and SA, data curation by SC, writing/original draft preparation by SA, writing/review and editing by SC, supervision by SA, project administration by SC, and funding acquisition by SC.

Ethical Approval

The study received ethical approval from the University Human Subjects Protection Committee at the University of California, Los Angeles (Institutional review board; IRB#16-000349). An IRB approved script for verbal consent and information sheet, which included the study's purpose, incentive, and time commitment, was utilized to present the study's details. Participants received a $15 gift card as compensation for their time.

Conflict of Interest Disclosures

The authors reported no potential conflict of interest.

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Conclusion: The number of PDs is a determinant of SRH for low-income AA women but not AA men, supporting the sponge hypothesis.

Keywords

Race; Gender; Blacks; African Americans; Ethnic groups; Psychiatric disorders; Self-rated health

Introduction

Self-rated health (SRH) is a widely accepted indicator of overall health. Studies such as National Health and Nutrition Examination Survey,1 Health and Retirement Study 2, and the Panel Study of Income Dynamics3 in the United States have used SRH to track the health and wellness of various populations. A growing literature has discovered that poor SRH is a reliable and valid health indicator,4–7 both in community1 and clinical8,9 settings. This pattern has also been witnessed in multiple prominent cohort and surveys in Europe,10 Latin America,11 and Asia.12

There are multiple reasons why researchers, clinicians, and policymakers frequently apply SRH. First, SRH is highly valid.4,6,7 Poor SRH strongly predicts short term and long-term risk of mortality across multiple populations.4,6,7 Another reason for SRH popularity is efficiency. Measuring SRH is very cost-effective and time-saving.13 High acceptability of SRH as a standard measurement has transformed it into a tool for cross-country comparisons.14,15 Besides, SRH is being utilized for health policy development16,17 and as an outcome measure in randomized clinical trials.18 Finally, it is used as a reflection of health disparities and inequality.19 This measure is also applied to assess the health of individuals with severe psychiatric disorders (PDs).20

Validity and comparability of SRH across race/ethnic21 and gender groups 22 is, however, still on debate. The meaning of SRH may vary across populations, which can lead to bias in the comparison of SRH across different groups22,23 although not shown in all studies.24 A large body of evidence suggests that poor SRH may not reflect the same health status for various populations by age, gender, ethnicity, and health status.24,25 Such information would introduce a significant challenge toward the application of SRH in diverse populations.23,26 For example, age and gender, social factors, health behaviors, and chronic medical conditions (CMCs) differently impact the SRH of people across countries.27

A growing number of studies have documented a weaker predictive power of SRH for mortality risk in women compared to men.28,29 One potential cause for this phenomenon is the “sponge” hypothesis, as labeled by Wolinsky and Tierney.30 According to this hypothesis, due to greater awareness and knowledge of emotional and physical health in women than that in men, factors other than CMCs are more likely to influence SRH of women than that of men.30 For example, women are more likely to be aware of their symptoms. Thus, their SRH may soak up other information like a sponge.30 As a result, the extent CMCs, PDs, and related social determinants impact SRH may differ for men and women. This may lead to stronger predictability of SRH on mortality for men as they rate their SRH based on severe and fatal CMCs.28 Women’s SRH, however, may be more sensitive to information other than CMCs.

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A significant body of research has provided support for gender differences in the evaluation of SRH. In studies conducted in mainly White populations, poor SRH was a better predictive factor of mortality risk for men compared to women.22 In a study, the author argued that in men, poor baseline SRH has a stronger relationship with mortality, suggesting that the primary determinant of men's SRH is CMCs.22 In another study, there were some gender differences in the predictive effect of SRH on mortality risk. Gender differences in the predictive role of SRH in mortality, however, became weaker with controlling for co-morbid conditions. This suggests that CMCs may be a reason why SRH better predicts mortality of men than that of women.31

It has been suggested that CMCs and PDs may differently impact SRH of population sub-groups.27 The perception of SRH may also shift as a result of the developmental stage and age,24,25 leading to differences in reference groups of various subpopulations, which is well demonstrated in the literature.32 Similarly, non-health determinants of SRH vary across race and gender groups.33–35 For example, socioeconomic status23,27,33,35 and neighborhood36 differently impact SRH of racial and gender groups. Even within a patient population, SRH differently reflects the severity of the condition and outcomes across race and gender groups.4,37

Most of the literature on gender differences of SRH focuses predominantly on White sample.22 Very little information exists on gender differences in the effects of PDs on SRH in other populations. Nevertheless, it is necessary to understand how demographic factors alter what poor SRH reflects.38,39 As a result, some researchers have argued that although SRH is an excellent marker of health for White men, it may not be similarly valuable across all demographic groups.23,27,40 Similarly, researchers have warned that cross-gender, cross-ethnic, and cross-racial comparisons of SRH may not be valid, meaning that SRH is not an appropriate tool for cross-group comparisons (measurement of disparities). As a result, validity of SRH for predicting the risk of mortality is unequal across race and gender groups.22,39 Poor SRH also differently reflects physical and mental health problems for various social groups.23,27,40 The main contribution of this study is to extend this literature to African Americans (AAs).

Aims

To better understand how race and gender influence SRH,38,41 this study aimed to investigate whether the number of CMCs and PDs similarly correlates with SRH in low-income AA men and AA women who live in economically disadvantaged urban areas. In line with the sponge hypothesis,22,37 we expected a stronger effect of the number of PDs on SRH of low-income AA women than low-income AA men.

Materials and Methods

Design and Setting

This cross-sectional study was conducted at a non-profit health clinic located in urban Los Angeles. The study site is one of the first community health centers in the United States and offers clinical, preventative, specialty, and ancillary services that are culturally and

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linguistically sensitive. The center is recognized as a federally qualified health center and a patient-centered medical home. The clinic mainly serves individuals and families whose income falls below the federal poverty line and uninsured. The study site was purposefully selected because the surrounding community area has a moderate size of low-income AA residents. The clinic delivers primary health care services to low-income and uninsured people.

Participants and Sampling

The inclusion criteria were: 1) diagnosed with one of the following PDs for at least one year: panic disorder, paranoid disorder, posttraumatic stress disorder (PTSD), obsessive-compulsive disorder (OCD), major depressive disorder (MDD), bipolar disorders (BD), or schizoaffective disorder (SAD), 2) self-identification as Black or AA, 3) aged 45 years and older, and 4) English-speaking. Data collection lasted for six months. Several recruitment strategies were utilized, including posted flyers in the clinic and attendance at community events at the clinics. Besides, referrals to mental health social workers were also used to identify participants. Eligible participants who attended the clinic and met the eligibility criteria were invited to join the study. About 200 people were approached and given study information. Study procedures were explained to each participant. Because this population may have or be at risk for cognitive impairment, the principal investigator assessed the decision-making capacity of all participants using an approved decision-making capacity assessment tool provided by the IRB before consent. From 200 individuals who were invited, 150 people agreed to participate by providing verbal consent and completing a survey questionnaire. Individuals who did not volunteer to participate in the study, were not interested in providing personal information about their mental health status or expressed that they cannot commit time were excluded.

Process

Each study participant was invited to complete the survey in a private space in the clinic. Special consideration was given to those with lower literacy skills and vision and related impairment with the principal investigator assisting the participant in the completion of the survey, during which a face-to-face structured interview was utilized. All study materials, including the survey questionnaire, were created at a fifth-grade reading level, with an estimated twenty minutes for completion of the survey questionnaire. The survey completion time ranged from 15 minutes to 50 minutes.

Measures

The current study collected data on demographic factors (gender and age), socioeconomic status [SES] (educational attainment and household income), and health status (number of CMCs, number of PDs, and SRH). All participants were asked to complete the following areas of the study questionnaire.

Demographic factors: Gender and age were the demographic factors. Gender was a dichotomous measure (male 1, female 0). Age was an interval variable. It was a covariate, and gender was the effect modifier (moderating variable).

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Educational attainment: Educational attainment was measured as self-report, using a nine-level categorical variable. The categories included 1) Below 8th Grade, 2) 9th Grade, 3) 10th Grade, 4) 11th Grade, 5) 12th Grade, 6) Associate Degree, 7) Bachelor's Degree, 8) Master's Degree, and 9) Ph.D./M.D./J.D. Degree. We operationalized educational attainment as a continuous variable, with a higher score indicating higher education.

Household income: Participants reported their household monthly income in response to the following question: "Which of the following describes your combined monthly household income?" Participants were instructed to include all employment wages, income from Social Security Disability Insurance, and any other sources. Response categories were based on the following seven categories: 1) $0-500/month, 2) $600-900/month, 3) $1000-1400/ month, 4) $1500-1900/month, 5) $2000-2400/month, 6) $2500-2900/month, and 7) $3000+ / month.

The number of Psychiatric Disorders (PDs): Participants reported the presence or absence of the following PDs: 1) paranoid disorder, 2) PTSD, 3) OCD, 4) panic disorder, 5) MDD, 6) BD, and 7) SAD. The response options were yes/no. A total score was calculated that reflected the number of PDs, with a potential range between 0 and 7. A higher PDs score was indicative of a higher number of multimorbid PDs.

Self-rated health (SRH): Participants were asked to reflect and rate the quality of their overall health. SRH, an indicator of the overall health, was measured using a single-item question to determine each individual's perception of his/her own health: "How would you rate your overall health?" This question has been used multiple times as an independent predictor of mortality42 and has high construct validity.43–45 The responses were measured on a 5-point Likert scale: (1) excellent, (2) very good, (3) good, (4) fair, or (5) poor.6 We treated SRH as a continuous variable with a range from 1 to 5, where a higher score reflects worse health. Poor SRH predicts all-cause mortality in general population7,46 as well as patients with chronic diseases.47 Review articles and multiple original studies have established high predictive validity of poor SRH as a robust determinant of mortality risk, not of confounders such as SES and health.6

Statistical Analysis

We analyzed our data using SPSS version 23.0 for Windows (IBM Inc., Armonk, NY, USA). To describe our overall sample and AA men and AA women separately, we reported a mean (standard deviation) and frequency tables. To calculate bivariate correlations, we reported zero-order correlations based on Pearson tests, in the pooled sample, and for AA men and AA women, separately. We also used independent samples t-student test to compare AA men and AA women for our variables. Finally, we used linear regression analysis for multivariable analysis. We checked the assumptions that are required for linear regression models: near to normal distribution of the outcome, linear distribution of the errors/residuals, and lack of collinearity between the independent variables. There was no collinearity between our independent variables. For SRH, the variable had a near to normal distribution that allowed us to use a linear regression model. Distribution of the error terms (residuals) associated with our linear regression models was also acceptable.

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Overall, we ran a total number of four linear regression models for our multivariable analysis. In all models, the number of CMCs and PDs were the independent variable, SRH was the dependent variable, age and SES were the covariates, and gender was an effect modifier (moderating variable). The first two models (Model 1 and Model 2) were conducted in the pooled sample that included both AA men and AA women. Model 3 and Model 4 were conducted for AA men and AA women, respectively. The only difference between our Model 1 and Model 2 was that the second model also included two interaction terms: gender (female) × number of CMCs and gender × number of PDs. From our linear regression models, we reported B, SE, 95% confidence intervals (CI), and P values.

Results

Descriptive Statistics

Table 1 describes the overall sample and AA men and women separately. This table also compares AA men and AA women in terms of age, educational attainment, income, number of CMCs, number of PDs, and SRH. This study recruited 150 AAs with PDs. This included 49 AA men and 101 AA women. On average, participants reported their monthly household income between $600900 and $1000-1400, which is indicative of low income. The number of CMCs was also significantly higher in AA women than AA men. Our participating AA women were significantly younger than the AA men in this study. AA men and AA women did not, however, differ in educational attainment, income, number of PDs, and SRH. Concerning SRH, almost 50% of our participants reported fair SRH. The distribution of SRH among the sample was as follows: excellent health = 5.3%, very good health = 7.3%, good health = 23.3%, fair health = 48.7%, and poor health =15.3%.

Bivariate Correlations

Table 2 shows the correlation matrix between all the study variables in the overall sample, followed by the correlation matrices in AA men and AA women, respectively. As this table shows, in the pooled sample, SRH is correlated with the number of PDs and CMCs. In AA men, none of the study variables were correlated with SRH. In AA women, income and number of PDs were correlated with SRH.

Linear Regressions in the Pooled Sample

Table 3 shows the results of two linear regression models with the number of CMCs and PDs as the independent variables and SRH as the dependent variable. Model 1 showed a significant association between income and SRH in the pooled sample; however, the number of CMCs and PDs showed marginal association with SRH. Model 2, however, revealed a statistically significant interaction between the number of PDs and gender, suggesting a stronger association for AA women than AA men.

Linear Regressions in Genders

Table 4 summarizes two gender-stratified models that were explicitly estimated for AA men (Model 3) and AA women (Model 4). These models suggested an association between the number of PDs and SRH in AA women but not AA men. In AA women but not men, household income was also associated with SRH.

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Discussion

The current study found support for the sponge hypothesis in low-income AA adults with severe PD(s), by revealing gender differences in the effect of the number of PDs on SRH. The number of PDs showed an association with poor SRH in AA women but not AA men, suggesting that AA women's SRH operates like a sponge.

Some literature suggests that women's SRH may be more likely to absorb information other than CMC as their SRH may be more inclusive of their health problems compared to men.48 A study found that social support may have a more remarkable effect on SRH of women than men.49 For AA women, health disparities stem from poor social determinants of health, such as socioeconomic conditions or inadequate access to care, which reduce both physical and mental health. Instead, they are affected by the accumulation of these factors, like a sponge, which in turn impacts their SRH. Economic insecurity leads to limited purchasing power and the ability to access prescribed medications, and reduces access to high-quality health care.50 These economic processes, however, may have different implications for the SRH of AA men and AA women. As people age, men report worsening SRH, whereas women's poor SRH is heavily attributed to SES differences.24 Instead, for men, poor physical functioning and negative health behaviors are primary determinants of SRH.51 This furthers the support for the sponge hypothesis as women may factor the effect of psychosocial status on their SRH, which reduces the predictive power of SRH for mortality in women.

We found an association between multimorbid PDs and poor SRH for low-income AA women but not AA men. Poor SRH has been linked to increased wait times for emergency medical attention for urban women, including AA women.52 AA population, including women, report high levels of discrimination,53,54 which leads to PDs, such as depression. Due to the psychological distress experienced by women with PDs, AA women are affected by the cumulative effects of personal, racial, cultural, and economic influences, simultaneously leading to PDs and poor SRH, which is in line with the sponge hypothesis.

Household income was a determinant of poor SRH among AA women but not men. It is important to note that there have been economic changes for the past few decades as more women enter the labor market and find jobs, which may enhance their SRH.55 Still, AA women with low income may experience more significant changes in their physical functioning as compared to AA men.56 This can be especially detrimental to AA women with PDs who do not have a constant source of income and should rely on monthly government assistance. Furthermore, AAs with PDs who live in low-income urban neighborhoods have low access to resources that affect their SRH57 as well as their mental health. Many low-income AA people with PDs live in affordable and budget restrained urban areas. Many AA women who have sustained exposure to life course poverty experience more substantial health decline as they age.58 Future research studies should focus on the impact of socioeconomic status and other determinants of SRH among AAs with PDs, with particular attention to the potential income inequality among the genders. There is also a need for interventions to enhance the quality of life and SRH of AAs with PDs.

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While much research has been done on gender differences in SRH, we still need additional studies that test the “sponge hypothesis.” One study that spanned 12 years from a national cohort study compared men and women based on their trajectories and determinants of SRH. Mainly composed of White participants, there were no gender differences in the SRH levels at baseline; however, SRH showed a more rapid decline for men compared to women over time. The onset of the development of CMCs, health behaviors such as smoking, and the rate of retirement explained this gender difference in the trajectory of SRH over time.59 Another study that centered on war veterans did not find significant gender differences. However, exposure to warfare casualties was more predictive of SRH for men than women.60 Furthermore, Assari et al found that SRH reflected glucose control for AA men but not AA women among AA individuals with diabetes.37 In another study among adults with diabetes, poor disease management (glycemic control) was associated with SRH in men and women only when all age groups were analyzed together. However, in younger people, this association was stronger for women compared to men.61 Even though various studies have shown various gender differences in whether SRH reflects illness severity or disease management, our study is among the first to examine SRH and gender differences among AAs with both PDs and CMCs. Even though various studies have shown various gender differences in whether SRH reflects illness severity or disease management, our study is among the first to examine SRH and gender differences among AAs with both PDs and CMCs.

It is, however, not only gender, but also race/ethnicity and SES that impact how poor SRH reflects health problems such as CMCs, PDs, and mortality. In other terms, race/ethnicity, gender, and SES have complex effects in depicting what poorer SRH means.40,62,63 For example, education and income impact SRH of White but not AA individuals.33–35 At the same time, SRH predicts mortality risk for Whites but not AAs.4,39 This means SRH does not reflect the very same aspect of health across racial and ethnic groups23,26 as well as across countries.27,64 A longitudinal study followed SRH of 2407 AA, 1354 Hispanic Whites, and 894 non-Hispanic Whites for five years. In all ethnic groups, anxiety and drinking problems predicted poor SRH both at the baseline and also over time. The study, however, documented cross-ethnic differences in the additive effects of anxiety and MDD on SRH. For AA individuals, MDD and anxiety both predicted a worse trajectory of SRH over time. For non-Hispanic White participants, MDD predicted worse baseline SRH, while anxiety was predictive of better SRH both at the baseline and also over time. For Hispanic White participants, anxiety predicted a worse trajectory of SRH; however, MDD was not linked to SRH.62 In another cross-sectional study borrowing data from the National Survey of American Life (NSAL) 2003, 3570 AA and 1621 Caribbean Black people were entered. For AA people, anxiety and MDD had separate effects on mental SRH. For Caribbean Black individuals, however, MDD but not anxiety independently affected mental SRH. When the additive effects of anxiety disorder and MDD were explored, anxiety but not MDD impacted poorer mental SRH.40 The NSAL has been documented as one of the very few national surveys on the mental health of AAs, which places this study as both unique and critically important in investigation of aging AAs with PDs and CMCs.

Most importantly, almost half of our study population reported their health as fair and 15% stated it was poor. Previous studies have commonly combined the ratings of “fair” and

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"poor" health in their data analysis.65 If "fair" and "poor" were combined, almost 65% of this study's population would be represented. Instead, the authors demonstrated that the range of responses should be highlighted and analyzed for the results of the study. Furthermore, one study that utilized the 2002 wave of the Health and Retirement Study found that AAs were willing to live longer with imperfect health compared to Whites.66 This is important as this study centers on hard to-reach and vulnerable population (aging AAs with PDs), which may be a population managing imperfect health. Due to the lack of literature on this population, it is essential to highlight the full distribution ratings of SRH among this group. Healthcare providers and researchers should start to assess both physical and mental SRH, specifically with various CMCs and PDs among AAs to observe if there are any SRH differences with specific conditions, such as SRH affecting PDs higher than other CMCs.

Limitations

There are several limitations to this study. This was a cross sectional study, which limits our ability to detect any causal directions. We do not know if other sociodemographic or health behaviors may have contributed to SRH, as they were not measured in this study. Furthermore, the self-reported bias exists because there was no access to clinical validations of PDs or formal diagnosis by mental health providers. Capturing data on CMCs and PDs from medical chart review or administrative data is also limited due to the low quality of documentation or poor quality of administrative data. Individuals may visit multiple medical facilities, which complicate access to their health history. Besides, the small sample size limits the statistical power in this study. Furthermore, given the non-random sampling, the results are not representative of aging AA with PD(s). Our results are mostly relevant to low-income urban AA individuals with PD(s). Finally, our ability to detect significant predictors of SRH may have been restricted by limited variability of various social factors, such as substance use disorders and type of CMCs.

Implications

The present study presents some implications for research and practice in the field of healthcare for AAs with PDs. Our study findings extend a growing knowledge of gender differences in determinants of SRH to another segment of the society, AAs with PDs. Our findings suggest that the sponge hypothesis is relevant to the evaluation of SRH by AA women with PDs. Diagnosed diseases by healthcare providers are known to hurt SRH,48 yet these effects are less commonly studied among AAs. Healthcare providers should include routine assessment of mental health wellness of AAs with PDs during visits, especially women, since it could affect their SRH. Additionally, it is essential to note that this sample was a specialized age group, only focusing on those who are 45 years of age and older. This is particularly important as population ages. This reinforces the need that health care providers and staff should routinely assess health conditions and PDs of older adults, as these conditions pose a negative effect on individuals' quality of life and SRH.67 AA women who are considered middle-aged or older may report lower SRH attributed to their PDs, influenced by their age. There are multiple factors in the lives of aging AAs with PDs that can affect their SRH, such as discrimination and trauma. These factors could have a

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significant impact on their health and well-being. However, such effects may differ for AA men and women. Similarly, future attempts may explore how CMCs and PDs impact SRH and how these effects can be mitigated for AA men and women. There is the need to understand how AAs' SRH is relevant both in clinical and public health terms. A key challenge for future research is to better understand how to improve SRH of low-income AA men and women with PDs.

Conclusion

In summary, our findings point to the importance of PDs as a predictor of SRH for low-income urban AA women with PDs. To our knowledge, this study is among the very few studies that provide support for the "sponge hypothesis" in this unique population and consider the importance of a gender-specific approach to enhancement of SRH in low-income AAs with PDs. Health disparities across subpopulations with PDs may be attributed to the differences in gender, which may be overlooked by researchers and healthcare providers.68 This study contributes to a literature that suggests how SRH is contextualized among vulnerable populations, such as aging AAs with PDs. A unique advantage of the current study was to analyze the health profile of low-income community-dwelling AA adults with PDs, which have not been studied extensively in the literature. Further investigations, especially with a national sample, can contribute to a knowledge that can ultimately reduce health disparities impacting this population.

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Table 1.

Correlation between all the study variables in the pooled sample as well as African American men and women.

	All N = 150		African American Women n = 101		African American Men n = 49	
	Mean	**SD**	**Mean**	**SD**	**Mean**	**SD**
Age (Year) *	55.78	7.40	54.87	7.40	57.65	7.10
Educational Attainment	3.61	1.40	3.53	1.51	3.76	1.13
Household Income	1.37	1.50	1.39	1.41	1.35	1.67
Number of Psychiatric Disorders (PDs)	2.07	0.89	2.09	0.88	2.02	0.90
Chronic Medical Conditions (CMCs) *	3.10	2.20	3.32	2.30	2.65	1.91
Self-Rated Health (Poor)	3.61	1.01	3.59	1.03	3.65	0.97

SD; Standard Deviation

* $p < 0.05$ (Independent sample t test)

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Table 2.

Bivariate correlation matrix in the pooled sample and by gender

	1	2	3	4	5	6	7
All (N =105)							
1 Gender (Male)	1.00	.177*	.07	−.01	−.14	−.04	.03
2 Age (Year)		1.00	.08	.05	.28**	−.11	.11
3 Educational Attainment			1.00	.17*	−.21*	−.11	−.07
4 Household Income				1.00	.04	−.24**	−.23**
5 Number of Chronic Medical Conditions (CMCs)					1.00	.16*	.19*
6 Number of Psychiatric Disorders (PDs)						1.00	.20*
7 Self-Rated Health (Poor)							1.00
African American Men (n = 49)							
2 Age (Year)		1.00	.21	.25	.21	.10	.18
3 Educational Attainment			1.00	.28	−.22	−.22	−.12
4 Household Income				1.00	.05	−.12	−.10
5 Number of Chronic Medical Conditions (CMCs)					1.00	.22	.24
6 Number of Psychiatric Disorders (PDs)						1.00	−.13
7 Self-Rated Health (Poor)							1.00
African American Women (n = 101)							
2 Age (Year)		1.00	.02	−.05	.35**	−.20*	.07
3 Educational Attainment			1.00	.13	−.19	−.07	−.06
4 Household Income				1.00	.03	−.31**	−.30**
5 Number of Chronic Medical Conditions (CMCs)					1.00	.13	.18
6 Number of Psychiatric Disorders (PDs)						1.00	.36**
7 Self-Rated Health (Poor)							1.00

* $p < 0.05$

** $p < 0.01$

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Table 3.

Summary of linear regressions in the pooled sample

	b	SE	t	p
Model 1 (All; N = 150)				
Gender (Women)	0.01	0.01	0.99	0.322
Age (Year)	0.08	0.17	0.45	0.655
Educational Attainment	0.00	0.06	0.03	0.978
Monthly Household Income	−0.14	0.06	−2.56	0.012
Number of Chronic Medical Conditions (CMC)	0.07	0.04	1.75	0.082
Number of Psychiatric Disorders	0.16	0.09	1.66	0.100
Constant	2.58	0.69	3.73	<0.001
Model 2 (All; N = 150)				
Gender (Women)	0.02	0.01	1.57	0.119
Age (Year)	1.07	0.44	2.40	0.018
Educational Attainment	−0.01	0.06	−0.24	0.813
Monthly Household Income	−0.13	0.05	−2.35	0.020
Number of Chronic Medical Conditions (CMC)	0.04	0.04	0.91	0.367
Number of Psychiatric Disorders	0.37	0.11	3.27	0.001
Number of CMC × Gender (Women)	0.10	0.08	1.15	0.254
Number of Psychiatric Disorders × Gender (Women)	−0.63	0.19	−3.27	0.001
Constant	1.92	0.71	2.71	0.008

Outcome: Self-Rated Health; SE: Standard Error; b: unstandardized regression coefficient

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Table 4.

Summary of linear regressions by gender

	b	SE	t	p
Model 3 (African American Men; n = 49)				
Age	0.03	0.02	1.51	0.138
Educational Attainment	−0.11	0.13	−0.80	0.428
Monthly Household Income	−0.10	0.09	−1.12	0.269
Number of Chronic Medical Conditions (CMC)	0.11	0.08	1.50	0.142
Number of Psychiatric Disorders	−0.27	0.16	−1.73	0.090
Constant	2.63	1.18	2.23	0.031
Model 4 (African American Women; n = 101)				
Age	0.01	0.01	0.77	0.446
Educational Attainment	0.01	0.06	0.10	0.919
Monthly Household Income	−0.16	0.07	−2.14	0.035
Number of Chronic Medical Conditions (CMC)	0.05	0.05	1.13	0.261
Number of Psychiatric Disorders	0.34	0.12	2.85	0.005
Constant	2.29	0.90	2.55	0.012

Outcome: Self-Rated Health; SE: Standard Error; b: unstandardized regression coefficient