Perceived discrimination and health-related quality-of-life: Gender differences among older African Americans

Sheryl L. Coley, DrPH[1], **Carlos F. Mendes de Leon, PhD**[2], **Earlise C. Ward, PhD**[1], **Lisa L. Barnes, PhD**[3], **Kimberly A. Skarupski, PhD**[4], and **Elizabeth A. Jacobs, MD, MAPP**[1]

[1]University of Wisconsin Madison, Madison, WI

[2]University of Michigan, Ann Arbor, MI

[3]Rush University Medical Center, Chicago, IL

[4]Johns Hopkins University School of Medicine, Baltimore, MD

Abstract

Purpose—Emerging data suggest that African-American women may fare worse than African-American men in health-related quality-of-life (HRQOL). Perceived discrimination is an important contributor to poor health overall among African Americans, but few studies examined the intersecting effects of perceived discrimination and gender in explaining HRQOL disparities. We investigated gender differences in HRQOL and tested whether perceived discrimination accounted for these differences.

Methods—We examined data from the Chicago Health and Aging Project in which 5652 African-American adults age 65 and older completed structured questionnaires about demographic and socioeconomic characteristics, HRQOL, perceived discrimination, and health-related variables. Logistic regression models were used to identify associations between perceived discrimination and gender differences in poor HRQOL outcomes (defined as 14+ unhealthy days in overall, physical, or mental health over the past 30 days) when controlling for the other variables.

Results—More women reported poor overall HRQOL than men (24% vs. 16% respectively). Higher perceived discrimination was significantly associated with worse overall HRQOL (OR=1.11; 95% CI: 1.08, 1.15), with stronger effects for women in overall and mental HRQOL. These gender disparities remained significant until controlling for potentially confounding variables. Perceived discrimination did not account for gender differences in poor physical HRQOL.

Conclusions—Perceived discrimination is associated with poor HRQOL in older African Americans, with this association appearing stronger in women than men for mental HRQOL.

Corresponding Author: Sheryl L. Coley; slcoley28@gmail.com; phone: 919-698-0709.
Address Information: Sheryl L. Coley, DrPH, School of Medicine and Public Health, University of Wisconsin Madison, WARF Building, 610 Walnut St, 9th Floor, Suite 957, Madison, WI 53726

These findings warrant further investigation of effects of perceived discrimination in gender disparities in overall health, and such research can inform and guide efforts for reducing these disparities.

Introduction

Health-related quality-of-life (HRQOL) is an important population health measure of physical and mental functioning that correlates with morbidity and mortality [1–3]. Women generally report worse quality-of-life and self-reported health than men [2, 4, 5] and possible reasons include differences in social circumstances (e.g., caregiver roles for adults and children, less social support), socioeconomic factors (e.g., differences in occupation, income, and educational attainment) and physiologic factors (e.g., reproductive changes throughout the life course, heavier burden of chronic health complications) [5]. Psychological factors can also contribute to differences, particularly in self-reported mental health and quality-of-life given that women are more likely to disclose mental distress [5]. Moreover, women are twice as likely to be diagnosed with depression, a condition strongly correlated with poor quality-of-life [6]; the burden of depression is 50% higher for women than men [7, 8]. Disparities in HRQOL and self-reported health outcomes also exist among US racial and ethnic groups. African Americans report worse quality-of-life [5, 9, 10] than men and women of other racial and ethnic groups, and these disparities significantly increased in recent years [2]. Possible reasons for growing health disparities include higher risk of cardiovascular disease and other chronic conditions among African Americans [11, 12] and inequalities in socioeconomic resources [13]. Also, increased attention has been given to perceived discrimination and its effects on health outcomes. In recent research, African-American adults believe racial discrimination and issues of oppression increase their risk for depression [14, 15]. Notably, perceived discrimination has been associated with a wide range of poor mental and physical health outcomes [16, 17], although mixed findings are reported as well [18–20]. Despite the usefulness of these findings, it is important to recognize that research on perceived discrimination and its associations with health outcomes mostly focused on its role in accounting for poor health as a function of race or ethnicity, with limited attention to the role of gender.

Few studies examined the role of perceived discrimination in accounting for gender differences in health *within* racial and ethnic minority populations. We identified one recent study [21] with African-American and White men and women that assessed differences in HRQOL by discrimination, within race and gender groups. The study team found that higher levels of discrimination were associated with lower HRQOL for African Americans and Whites, men and women. However, the study participants' mean age was 54 years, and African-American men only made up 10% of the sample. Furthermore, analyses were conducted for groups stratified by race and gender, which does not allow one to examine the interactive effects of gender by race. Although these results suggest that perceived discrimination may be an important contributor to differences in quality-of-life for African-American men and women, the degree to which perceived discrimination *differentially* affects men and women, particularly at older ages, remains mostly unknown. Given the well-established gender differences in HRQOL and perceived discrimination among African

Americans, further investigation is needed on factors that may contribute to these gender differences in quality-of-life within this population.

To address these research gaps, we examined the associations between perceived discrimination, gender, and HRQOL outcomes in a cross-sectional study using data from a population-based sample of aging African Americans. Several lines of evidence suggest that African-American women may have worse quality-of-life than men due to a higher prevalence of chronic conditions (ex. diabetes, obesity) [22, 23], a greater tendency to experience interpersonal violence [23], and the physiological wear and tear effects associated with "weathering," a theoretical construct that describes the cumulative adverse impact of persistent socioeconomic and cultural disadvantages on health [24, 25]. As theorized in intersectional discourse [26–28] and health disparities research [29], African-American women potentially face dual marginalization or "double jeopardy" given their interconnected social identities shaped by their race and gender. This dual marginalization could subsequently lead to gender differences in health-related outcomes; thus, we specifically explored potential gender differences in the associations with HRQOL and other health-related outcomes. Findings from this study may contribute to an enhanced understanding of gender-related disparities in quality-of-life among African Americans and subsequently inform gender-tailored health interventions for improving their health.

Methods

Study sample

Data for this secondary analysis came from the Chicago Health and Aging Project (CHAP). This longitudinal study focused on risk factors associated with Alzheimer's disease and other chronic conditions among Chicago elderly residents 65+ years of age. This cohort of non-Hispanic African-American and White men and women lived in three residential areas of Chicago's South Side. This area had a reasonably equal balance between each racial group of residents with a substantial range of socioeconomic characteristics within both groups. The present analysis is restricted to data from the 5,652 participants who self-identified as African American, out of a total of 10,801 participants who were enrolled in CHAP.

Details of the CHAP study procedures are available from previous publications [30–33]. To summarize, baseline data collection took place between 1993 and 1997 in which participants completed a face-to-face interviewer-administered survey within their own places of residence. Five more cycles of interviews took place in 3-year intervals: 1998–2000, 2000–2002, 2003–2005, 2006–2008; 2009–2011. Newly aged community residents (those who had turned 65 years since the first CHAP interview cycle) were identified and invited to participate as of the third and each subsequent interview cycle. The interview included questions on demographic and socioeconomic characteristics, previous and current medical history, HRQOL and other health measures and lifestyle factors, and standardized assessments of cognitive and physical functioning. The Rush University Medical Center Institutional Review Board gave approval for the CHAP study. All participants gave informed consent prior to their participation.

Study measures

Outcome variables: Health-related quality-of-life (HRQOL)—HRQOL was assessed through asking two questions from the Behavioral Risk Factor Surveillance System (BRFSS) and the National Health and Nutrition Examination Survey (NHANES) maintained by the Centers for Disease Control and Prevention (CDC). These questions have been validated and recommended for assessing HRQOL in diverse populations [3]. In two separate questions, interviewers asked participants to report on the number of days during the past 30 days that their physical health and mental health was not good [1]. The CHAP research team combined these "unhealthy day" measures into one composite variable for assessing poor overall HRQOL; the sum was calculated for each participant's total numbers of physically and mentally unhealthy days within the past 30-day period and capped at a maximum of 30 days. Because of the skewed distribution of all three HRQOL variables, dichotomous variables were calculated for poor overall, physical, and mental HRQOL defined as 14 or more unhealthy days during the past 30 days [10]. We chose a threshold of 14 or more days based on the threshold's widespread use clinically and in previous HRQOL research [34, 35] and the recommendation for using binary variables to ease statistical assumptions [3].

Predictor variables: Gender and Perceived discrimination—The predictor variables for this analysis were gender (using male gender as the referent group) and perceived discrimination broadly defined as the individual's subjective viewpoint on receiving unfair treatment by others [36, 37], and measured with a validated nine-item questionnaire of everyday mistreatment [36]. Participants responded to questions related to their experiences of unfair treatment broadly without explicit mention of any attribution such as age, gender, race, racism, or prejudice. Participants responded to the frequency that they experienced nine different occurrences of mistreatment (ex. being treated with less courtesy than other people; being threatened or harassed), and each experience was rated on a four-point scale (never = 0, rarely = 1, sometimes = 2, often = 3). To summarize the procedures established previously for this measure [37, 38], each response was recoded into dichotomous responses (never/rarely = 0, sometimes/often = 1) and a summary measure was created with a range of 0–9 with 0 meaning no discrimination and 9 indicating the most frequent experiences of discrimination.

Covariates: Socioeconomic status, demographics, health conditions—Similar to previous research on HRQOL using CHAP data [10], several covariates were assessed for associations with HRQOL. Socioeconomic status was operationalized as a composite measure of lifetime socioeconomic status (SES) and was comprised of four SES characteristics from different stages of the life course [32, 39]: 1) childhood SES (based on parents' years of education, father's occupational prestige score, and financial status during the participants' childhood), 2) participant's current income at the time of data collection, 3) participant's highest level of educational attainment, and 4) participant's occupational status at age 30. Z-scores were computed for each of the four indicators, and the average of non-missing values were calculated to produce the lifetime SES measure with higher scores indicating higher lifetime SES. Demographic variables included age (calculated by using participants' self-reported date of birth), and marital status at the time of data collection.

We also included several other health-related variables and characteristics. First, the number of chronic health conditions was computed as a summary variable of nine clinically-diagnosed health conditions (high blood pressure, myocardial infarction, diabetes, cancer, stroke, thyroid disorders, shingles, hip fractures, and Parkinson's disease) based on the Established Populations of the Epidemiologic Studies of the Elderly [40, 41]. Other health-related covariates included: body mass index (BMI); a composite measure of physical function made up of three separate performance tests (chair standing, tandem standing, and measure walking) [32]; and a measure of basic activities of daily living (ADL) for assessing performance of self-care duties (ex. Eating) without assistance [32, 42–44]. For the physical function measure, scores ranged from 0–6 with higher scores representing better function. In contrast, scores for the ADL measure ranged from 0–6 with higher scores representing poor performance of duties.

Analyses

Descriptive statistics and bivariate analyses (t-tests, chi-square tests) were computed for baseline comparisons between men and women on HRQOL, perceived discrimination, and all covariates. We subsequently examined gender differences for all three HRQOL outcomes using sequential logistic regression models. Model 1 consisted of gender as the predictor variable and perceived discrimination, age, and marital status as covariates. In accordance with previous intersectional research [45, 46], we added an interaction term between female gender and perceived discrimination in Model 2 to test if the association between perceived discrimination and poor HRQOL varied as a function of gender. For Model 3, we added lifetime SES to assess the extent to which this variable accounted for gender differences in HRQOL and to determine if associations between HRQOL and the prior variables changed with the consideration of lifetime SES. The final model (Model 4) included the additional health-related covariates to determine the degree to which health status accounted for the observed association between HRQOL and the other variables. All analyses were conducted with the use of SAS ® version 9.3 software.

Results

The total sample of 5,652 participants consisted of 2,108 (37%) men and 3,544 (63%) women (see Table 1). On average, women reported higher numbers of total overall, physical, and mental unhealthy days than men. Using the definition of poor HRQOL as having 14+ unhealthy days, more women reported poor overall HRQOL (24% v. 16%, p<0.001), poor physical HRQOL (15% v. 11%, p<0.001), and poor mental HRQOL (13% v. 8%, p<0.001) than men. Men and women reported similar levels of perceived discrimination (M=1.2).

Table 2 provides the results of the sequential logistic regression models for overall HRQOL. When adjusting for age and marital status, women had a higher risk of poor HRQOL compared with men (Model 1: OR = 1.62; 95% CI: 1.39–1.89; p<0.001), and this difference remained relatively consistent across all subsequent models. Higher levels of perceived discrimination were significantly associated with increased risk of poor HRQOL (Model 1: OR = 1.11; 95% CI: 1.08–1.15; p<0.001). A significant interaction was found between perceived discrimination and gender in increased risk of poor overall HRQOL (Model 2:

p<0.05), which indicates that the association of high perceived discrimination with poor HRQOL was stronger in women than in men. This relationship did not remain consistent in the subsequent models in which we added lifetime SES and health conditions (Models 3 & 4: p>0.05). However, in subsequent analyses excluding the interaction term, the association between perceived discrimination and HRQOL remained when controlling for the other variables (OR = 1.12; 95% CI: 1.07–1.16; p<0.001).

The results of the analyses for poor physical HRQOL (Table 3) were markedly different from the results for poor overall HRQOL. Women had higher risk of poor physical HRQOL compared to men when adjusting for age and marital status (Model 1: OR = 1.30, 95% CI: 1.08–1.56, p<0.001). However, these differences remained consistent until adding health conditions (Model 4: OR = 1.24, 95% CI: 0.99, 1.56, p>.05). African Americans who experienced increased levels of perceived discrimination had significantly higher risk of poor physical HRQOL when adjusting for age and marital status (Model 1: OR = 1.07; 95% CI: 1.02–1.11, p<0.01). However, the interaction term between gender and perceived discrimination was not significantly associated with poor physical HRQOL (Model 2: p>0.05), indicating that there were no gender differences in the association between perceived discrimination and poor physical HRQOL. Further, in contrast to poor overall HRQOL, the relationship between perceived discrimination and poor physical HRQOL was no longer significant after adjusting for lifetime SES and health conditions (Model 4: OR = 1.05; 95% CI: 0.99–1.10, p>0.05).

Table 4 demonstrates that, similar to the results for poor overall HRQOL, there was a significant relationship between poor mental HRQOL, gender, and perceived discrimination. When adjusting for age and marital status, women had a significantly higher risk of poor mental HRQOL compared with men (Model 1: OR = 1.67, 95% CI: 1.35–2.04, p<0.001). These differences remained significant in the three subsequent models. African Americans with increased levels of perceived discrimination had significantly higher odds of poor mental HRQOL (Model 1: OR = 1.18; 95% CI: 1.13–1.23, p<0.001). The interaction term for gender and perceived discrimination was significantly associated with poor mental HRQOL (Model 2: p<0.01). These findings did not change after adjusting for lifetime SES (Model 3: p<.0.05), but the relationship lacked statistical significance by a small margin after adjusting for health conditions (Model 4: p=0.062). Similar to overall HRQOL, the main association between perceived discrimination and HRQOL was significant when controlling for the other variables in subsequent analyses excluding the interaction term (OR = 1.18; 95% CI: 1.12–1.23; p<0.001).

Discussion

Previous studies found deleterious relationships between perceived discrimination, HRQOL, and health outcomes [21, 24, 47–51], with potentially stronger influences on mental health outcomes. Through the current intersectional examination, we found: 1) older African Americans with higher levels of perceived discrimination had increased odds of poor HRQOL, 2) the relationship was stronger for poor mental HRQOL, and 3) the impact of perceived discrimination on HRQOL, particularly mental HRQOL, appeared greater for women than men. Taking all results and our definition of poor HRQOL into account, older

African-American women who report more perceived discrimination may be at greater risk than men for having 14+ mentally unhealthy days in a given 30-day period, which is consistent with the results for poorer overall HRQOL. However, these associations appeared dependent on socioeconomic and health-related factors.

Gender differences in the number of mentally and physically unhealthy days for men and women in this sample resemble gender differences found in the general US population [2, 5], with women reporting more mentally and physically unhealthy days than men. Moreover, this trend has increased in recent years for the African-American population and continues to be an important health disparity when compared with other racial and ethnic groups [2]. Previous research [10] revealed significant differences between African Americans and Whites in poor overall HRQOL with the risk being stronger for women. Building on this research, findings from the current study suggest that experiences of discrimination might partially explain differences in HRQOL between African-American men and women, particularly for mental HRQOL. This finding is noteworthy that women had a greater adverse effect from perceived discrimination despite reporting equal levels of perceived discrimination as men, although this differential effect was not statistically significant when accounting for health conditions.

Several reasons for these differences should be further examined. Adults of multiple disadvantage could experience greater levels of perceived discrimination and subsequently poorer mental health outcomes than singly disadvantaged adults [52]. Thus, the possibility exists that African-American women may internalize perceived discrimination more than men which could lead to differences in mental health outcomes. Data from observational and self-report studies demonstrate that women report greater experience and expression of internally focused negative moods [53]. We recognize that women generally have increased risk of adverse mental health conditions; women are two times more likely to be diagnosed with depression compared to men, and are more likely to disclose mental health problems [54]. Gender previously modified relationships between race-related stress, traumatic events, and mental outcomes among younger African Americans, with traumatic events adversely affecting mental health of women to a greater degree than men [55, 56]. Internalizing negative experiences and traumatic events, like experiences of discrimination, could have a more negative impact on women's mental health than men, which would be consistent with our results.

Perceived discrimination could also lead to psychophysiological changes by increasing systemic inflammation [55, 57–59], and these pathways could differ by gender [60]. Psychophysiological pathways that link perceived discrimination to health outcomes and associated gender differences need further exploration given the continued dearth in research. Finally, the "weathering" hypothesis [24] remains another plausible theory with the effects of cumulative perceived discrimination causing deleterious effects in mental and physical health over time for African-American women. Given various forms of oppression (disempowerment, racism and sexism), older women could have long histories of experiencing perceived discrimination, which potentially can increase their risk for poor mental health. For example, Ward, Mengesha & Issa [15] found that older women in their study believed oppression is a direct cause of depression. Although we were unable to

directly examine this issue in the current study, previous longitudinal research involving African-American women has shown that increased levels of discrimination were related to increased levels of depression and declines in self-reported health over time [56].

We recognize that this study has limitations. First, the cross-sectional retrospective design precludes examination on time effects of perceived discrimination on HRQOL. Another limitation stems from the restricted information on health behaviors and social factors. Despite the inclusion of lifetime socioeconomic status and marital status as potentially confounding factors, these variables cannot fully capture social inequities and coping behaviors based in gender [63]. Third, the possibility exists that men and women perceived and answered these self-reported questions differently as theorized in previous HRQOL research [21]. The fourth limitation stems from possible selection bias due to higher premature mortality among African-American men. This higher premature mortality may be caused by higher levels of perceived discrimination experienced earlier in life, leading to early onset and death from chronic conditions such as cardiovascular disease. Although the exact magnitude of such a differential selection effect is unknown, we cannot exclude the possibility that it could have contributed to the observed gender differences in associations between perceived discrimination and poor overall and mental HRQOL in this study population. Finally, the urban environment and age characteristics of this Chicago sample of older African Americans restricts generalizability of study findings to younger populations and those residing in less urban areas. Although older men and women of all racial groups generally report worse HRQOL than those in younger age groups, the mean number of mentally unhealthy days for people ages 25–64 has increased in recent years [2]. Therefore, these results could differ between younger and older populations.

Given that poorer quality of life is associated with greater morbidity and mortality within the general population, gender differences in HRQOL may be clinically important. The factors that contribute to gender disparities should be a focus of future research, particularly for African American women. As recommended in previous studies [50, 56], longitudinal studies comparing effects of discrimination over time between African-American men and women would provide further insight into the gender differences in mental and/or physical health found in the current study. Future studies on gender differences could increase understanding to determine if these findings remain consistent across African Americans across different geographic regions and age groups. Lastly, subsequent exploration of this topic can contribute to the development of health interventions for older African-American women to improve mental health. Given the barriers that African Americans face in obtaining mental health services, women of this racial group would potentially benefit from programs that are culturally-specific and gender-tailored, particularly interventions to address coping strategies for perceived discrimination, depression, and anxiety [61–63].

Conclusion

Overall, this study provides further justification for examining psychological pathways between perceived discrimination and health outcomes for people of color. These findings indicate the need to further investigate the effects of perceived discrimination on mental HRQOL for African-American women for developing culturally appropriate interventions

with the goal of improving health outcomes and reducing gender disparities in overall health within this population. To our knowledge, this study is among the first to explore these disparities in an elderly sample and provides evidence for gender differences among African Americans in the relationship of perceived discrimination on HRQOL outcomes, with the relationship being stronger affecting women's mental health. Further exploration can generate information for health care providers and mental health clinicians to enhance culturally appropriate care for older African-American women.

Acknowledgments

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Table 1

Descriptive characteristics of the Chicago Health and Aging Project study sample of African Americans

	Overall Sample (n=5652)	African-American Men (n=2108)	African-American Women (n=3544)	P-Value
Demographic variables				
Age, mean (SD)	72.8 (6.4)	72.4 (5.8)	73.0 (6.7)	<.001
Married, %	48%	72%	34%	<.001
Perceived discrimination, mean(SD)[a]	1.2 (1.8)	1.2 (1.8)	1.2 (1.7)	.34
Lifetime socioeconomic status, mean (SD)[b]	–0.03 (0.7)	0.00 (0.7)	–0.05 (0.7)	<.01
Health related variables				
Total unhealthy days, mean (SD)	6.1 (10.9)	4.6 (9.8)	7.0 (11.5)	<.001
Physically unhealthy days, mean (SD)	4.1 (9.2)	3.4 (8.4)	4.6 (9.5)	<.001
Mentally unhealthy days, mean (SD)	3.6 (8.6)	2.6 (7.4)	4.2 (9.1)	<.001
Poor overall health-related quality of life (HRQOL) [c], %	21%	16%	24%	<.001
Poor physical HRQOL [d], %	13%	11%	15%	<.001
Poor mental HRQOL [e], %	11%	8%	13%	<.001
Number of medical conditions (SD)	1.2 (1.0)	1.1 (1.0)	1.2 (1.0)	<.01
BMI (SD)	28.8 (6.4)	27.6 (5.3)	29.6 (6.8)	<.001
Physical function [f] (SD)	9.6 (4.1)	10.2 (3.8)	9.2 (4.3)	<.001
ADL (SD)	0.4 (1.2)	0.3 (1.0)	0.5 (1.3)	<.001

[a] Perceived discrimination was broadly defined as the individual's subjective viewpoint on receiving unfair treatment by others. Averages are shown for each group of men and women and the overall sample.

[b] Socioeconomic status was operationalized as a composite lifetime SES variable comprised of childhood SES (measure based on of parental education, occupation, and financial status during the participants' childhood), current income, highest educational attainment, and occupational status.

[c] Poor overall HRQOL was dichotomized as 14 or more unhealthy days (sum of physical & mental) during the past 30 days.

[d] Poor physical HRQOL was dichotomized as 14 or more physically unhealthy days during the past 30 days.

[e] Poor mental HRQOL was dichotomized as 14 or more mentally unhealthy days during the past 30 days.

[f] Higher scores for physical function represent better function.

Table 2

Logistic regression models evaluating the relationship between poor overall HRQOL, gender, perceived discrimination, and other covariates [OR (95% confidence intervals)]

	Model 1	Model 2	Model 3	Model 4
Age	1.03 (1.02,1.04) ***	1.03 (1.02,1.04) ***	1.03 (1.01,1.04) ***	0.97 (0.96,0.98) ***
Female gender	1.62 (1.39,1.89) ***	1.45 (1.20,1.75) ***	1.54 (1.27,1.87) ***	1.53 (1.23,1.89) ***
Married	1.00 (0.87,1.16)	1.00 (0.86,1.16)	1.12 (0.96,1.30)	1.19 (1.01,1.41) *
Perceived discrimination	1.11 (1.08,1.15) ***	0.98 (0.86,1.12)	1.00 (0.87,1.14)	1.01 (0.87,1.18)
Female gender x Perceived discrimination		1.08 (1.00,1.17) *	1.06 (0.99,1.15)	1.06 (0.97,1.16)
Lifetime SES			0.74 (0.67,0.83) ***	0.88 (0.77,0.99) *
Number of medical conditions				1.37 (1.26,1.48) ***
BMI				0.98 (0.97,0.99) ***
Physical function [a]				0.86 (0.84,0.88) ***
ADL				1.22 (1.12,1.33) ***

Note: Poor overall HRQOL was dichotomized as 14 or more unhealthy days (sum of physical & mental) during the past 30 days.

[a] Higher scores for physical function represent better function.

*
p < 0.05,

**
p < 0.01,

***
p < 0.001.

Table 3

Logistic regression models evaluating the relationship between poor physical HRQOL, gender, perceived discrimination, and other covariates [OR (95% confidence intervals)]

	Model 1	Model 2	Model 3	Model 4
Age	1.05 (1.03,1.06) ***	1.05 (1.03,1.06) ***	1.03 (1.02,1.05) ***	0.96 (0.95,0.98) ***
Female gender	1.30 (1.08,1.56) **	1.28 (1.03,1.60) *	1.34 (1.11,1.62) **	1.24 (0.99,1.56)
Married	0.90 (0.75,1.08)	0.90 (0.75,1.08)	0.98 (0.82,1.19)	1.05 (0.85,1.30)
Perceived discrimination	1.07 (1.02,1.11) **	1.06 (0.91,1.23)	1.06 (1.01,1.10) *	1.05 (0.99,1.10)
Female gender x Perceived discrimination		1.01 (0.92,1.10)		
Lifetime SES			0.67 (0.58,0.77) ***	0.83 (0.70,0.96) *
Number of medical conditions				1.41 (1.29,1.55) ***
BMI				0.97 (0.96,0.99) ***
Physical function [a]				0.81 (0.79,0.84) ***
ADL				1.16 (1.06,1.27) **

Note: Poor physical HRQOL was dichotomized as 14 or more physically unhealthy days during the past 30 days.

[a] Higher scores for physical function represent better function.

*
p < 0.05,

**
p < 0.01,

***
p < 0.001.

Table 4

Logistic regression models evaluating the relationship between poor mental HRQOL, gender, perceived discrimination, and other covariates [OR (95% confidence intervals)]

	Model 1	Model 2	Model 3	Model 4
Age	1.04 (1.03,1.05) ***	1.04 (1.03,1.05) ***	1.03 (1.02,1.05) ***	0.98 (0.97,1.00) *
Female gender	1.66 (1.35,2.03) ***	1.34 (1.05,1.71) *	1.43 (1.11,1.85) **	1.57 (1.18,2.08) **
Married	1.05 (0.86,1.27)	1.04 (0.86,1.26)	1.16 (0.95,1.41)	1.28 (1.03,1.58) *
Perceived discrimination	1.18 (1.13,1.23) ***	0.94 (0.79,1.11)	0.96 (0.81,1.14)	0.99 (0.83,1.20)
Female gender x Perceived discrimination		1.14 (1.04,1.26) **	1.13 (1.03,1.24) *	1.11 (1.00,1.23)
Lifetime SES			0.79 (0.68,0.91) **	0.90 (0.77,1.06)
Number of medical conditions				1.28 (1.16,1.41) ***
BMI				0.97 (0.96,0.99) ***
Physical function [a]				0.88 (0.86,0.91) ***
ADL				1.12 (1.02,1.24) *

Note: Poor mental HRQOL was dichotomized as 14 or more mentally unhealthy days during the past 30 days.

[a] Higher scores for physical function represent better function.

* $p < 0.05$,

** $p < 0.01$,

*** $p < 0.001$.