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Race and health-related quality of life in midlife women in Baltimore, Maryland

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ABSTRACT

Objective: Only a few studies have examined the association between race/ethnicity and health-related quality of life (HRQOL) during midlife. Thus, the purpose of this study was to examine this association in the context of a population-based study of Caucasian and African-American women aged 45–54 years.
Methods: Data from 626 pre- and peri-menopausal African-American and Caucasian women aged 45–54 years were analyzed. HRQOL was measured using Cantril's Self-Anchoring Ladder of Life, a validated measure of overall life satisfaction. Body mass index was determined using measured height and weight. Information on race and other variables such as education was based on self-report. Logistic regression models were constructed to examine the unadjusted and adjusted associations between race and low present HRQOL ($\leq$6 on Cantril's Ladder of Life).
Results: In both the unadjusted and adjusted analyses, race was not significantly associated with low present HRQOL (unadjusted OR 1.57; 95% CI 0.93, 2.65; adjusted OR 0.82; 95% CI 0.42, 1.61). In the fully adjusted model, only the number of menopausal symptoms and self-rated health were significantly associated with present HRQOL.
Conclusions: Findings from this population-based study suggest that race is not a statistically significant determinant of present HRQOL among midlife women.

1. Introduction

Health-related quality of life (HRQOL) has emerged as an important parameter of health among the aging population. HRQOL is thought to provide a general measure of an individual's well-being and has been shown to be influenced by a number of factors, including physical, psychological, social, and functional areas of life [1]. Several studies have reported decreases in HRQOL across the menopausal transition; this has been shown to be due primarily to the experiencing of menopausal symptoms such as hot flashes, mood changes and insomnia [2–4]. However, change in HRQOL may also be due to other medical, psychological, and social changes such as declining health and children leaving home [5].

The association between race/ethnicity and HRQOL during midlife has been the subject of only a small number of published reports [3–6] even though studies have shown significant differences between race/ethnicity and several HRQOL-related menopausal factors such as symptoms [7–10] and sexual functioning [11]. The largest study to examine ethnicity and HRQOL among a sample of midlife women is the Study of Women Across the Nation (SWAN), a community-based study consisting of women self-identifying primarily with one of more of the following five ethnic groups: white, African-American, Chinese, Hispanic, and Japanese [6]. Initial unadjusted analyses using data from SWAN showed significant ethnic group differences across the five domains of the Medical Outcomes Short-Form 36 (SF-36), a commonly used measure to assess HRQOL. However, some, but not all, of the group differences disappeared after adjustment for health, lifestyle, and social factors. The remaining statistically significant findings with regards to ethnicity and HRQOL suggest, as stated by the authors, that there may be true ethnic or racial differences in HRQOL, there may be other factors that explain the association between race/ethnicity and HRQOL, or there are race/ethnic differences in the way the questions are interpreted [6].

A better understanding of the association between race/ethnicity and HRQOL and the factors that mediate this association is needed, especially in terms of identifying women who are at risk for low HRQOL during the menopausal transition. Therefore, we examined the association between race and HRQOL in the context of a population-based study of Caucasian and African-American women aged 45–54 years. HRQOL was measured using Cantril's Self-Anchoring Ladder of Life [12], a validated measure of overall life satisfaction that has been used in published investigations of similar samples [2,3].

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2. Methods

2.1. Study sample

A cross-sectional population-based study of midlife women aged 45–54 years was conducted in the Baltimore metropolitan area to examine the correlates of hot flashes and other menopausal symptoms. The methods of this study have been described in detail elsewhere [13]. Briefly, women aged 45–54 years were recruited from the general population by mass mailing an invitation to participate to area households in the Baltimore metropolitan region. Women who were interested in participating were screened by telephone and an appointment was scheduled for a clinic visit if they were eligible. Women were eligible if they were 45–54 years old, had at least 3 menstrual periods in the past 12 months, were not on hormone therapy, were not pregnant, had an intact uterus and at least 1 ovary, and did not have a history of ovarian, endometrial, or breast cancer.

At the clinic visit, participants signed an informed consent form, provided a blood sample, were weighed, and had their height, waist and hip circumference measured. They were then asked to complete a 26-page survey that obtained information on demographics, reproductive history, menstrual cycle characteristics, hormonal contraceptive use, symptoms, hormone therapy (HT) use, medical history, and health behaviors (smoking, alcohol use, vitamin use, eating habits). A total of 639 women enrolled in the study, which was approved by the University of Illinois, University of Maryland School of Medicine, and Johns Hopkins University Institutional Review Boards.

2.2. Study variables

HRQOL was assessed using Cantril's Self-Anchoring Ladder of Life [12]. On the questionnaire, a description was given about the Ladder of Life along with a picture: 'Here is a ladder representing the 'Ladder of Life.' The top of the ladder represents the best possible life for you. The bottom of the ladder represents the worst possible life for you.' This description was followed by three questions pertaining to present, past, and future HRQOL, for which participants were asked to select a number from 0 (worst possible life) to 10 (best possible life): "(1) On which step of the ladder do you feel you personally stand at the present time? (2) On which step would you have stood 5 years ago? (3) Thinking about your future, on which step do you think you will stand about 5 years from now?"

Race information was obtained by asking participants to self-define their race as Caucasian, African-American, Hispanic, Asian, or other. Data on headache, weakness, insomnia (difficulty sleeping), visual problems, vaginal discharge, vaginal dryness, irritability, and incontinence (problems with controlling urine flow) were collected using the question "Did/do you experience any of the following symptoms on a regular basis (once a week or more) anytime during a month?" Response choices for this question for each symptom were: yes, no, and don't know. The experiencing of hot flashes was queried using the question "Have you ever had hot flashes?" with possible responses of yes, no, and don't know. Past hormone therapy (HT) was assessed by asking patients whether they had "ever taken hormone replacement therapy?" Marital status and education level were self-reported by the participant. Marital status was categorized as 'single,' 'married/living with partner,' or 'other' (widowed or divorced/separated), and, based on the distribution of participant responses. Education was categorized as 'high school or less,' 'some college,' 'college graduate,' and 'graduate courses.' Body mass index (BMI) was calculated using the National Institutes of Health on-line BMI calculator and categorized as $\leq$24.9, 25.0–29.9, and $\geq$30.0 kg/m^2. Smoking was categorized as current, former, or never. Current alcohol use was categorized as 'yes' or 'no' based on the answer to the question "Have you had at least 12 alcoholic drinks in the past year?" Depressive symptoms were assessed using the Center for Epidemiologic Studies-Depression Scale (CES-D), a 20-item scale that asks subjects to rate how often they have had certain feelings in the past week [14]. Women were considered to have depressive symptoms if their CES-D score was 16 or more, the standard CES-D cut-point [15]. Self-reported health data were collected using the question "In general, how would you describe your health at present?" Response choices were: excellent, very good, good, fair, and poor. Because few participants reported their health has 'poor,' this category was combined with the fair 'category' for analyses.

2.3. Statistical analysis

Only a few women self-reported their race as something other than Caucasian or African-American, and thus, they were excluded from the analysis (n = 13). The main outcome variable was present HRQOL; past and future HRQOL were also examined. Because the responses to each of the HRQOL questions were skewed, the data for each HRQOL variable were grouped into three categories based on the distribution of the data. Responses of 1–6 were categorized as 'low' HRQOL, responses of 7 or 8 were categorized as 'moderate' HRQOL, and responses of 9 or 10 were categorized as 'high' HRQOL. Chi-square analyses were conducted to compare the distribution of demographic characteristics and lifestyle factors by race and by the HRQOL variables.

Odds ratios (ORs) and 95% confidence intervals (95% CI) were generated using multiple logistic regression models to examine the unadjusted and adjusted associations between race and present HRQOL. Because the proportional odds assumption was violated when modeling the three category present HRQOL variable, this variable was dichotomized for the regression analyses (low present HRQOL versus moderate/high present HRQOL). Three logistic models for the present HRQOL variable were built to determine the effect of menopausal symptoms, demographic characteristics and lifestyle factors on the association between race and HRQOL: model 1 examined the unadjusted association between race and present HRQOL; model 2 examined the association between race and present HRQOL adjusted for the number of menopausal symptoms; model 3 examined the association between race and present HRQOL adjusted for the number of menopausal symptoms and selected demographic characteristics and lifestyle factors. Only demographic characteristics and lifestyle factors that were found to be associated with race and the present HRQOL variable in the bivariate Chi-square analyses were included in each model. A two-sided p-value of less than or equal to 0.05 was considered statistically significant. Unless otherwise specified, all analyses were performed using SAS Version 9.1 (Cary, NC).

3. Results

In the study sample, Caucasian women were significantly more likely than African-American women to be married or living with a companion, to have at least some college education, and to report having at least 12 alcohol drinks in the past year (Table 1). In contrast, African-American women were significantly more likely than Caucasian women to be categorized as having a BMI of greater than 30 kg/m^2, to be current smokers, and to report experiencing hot flashes and other menopausal symptoms.

In the bivariate analyses, race was not significantly associated with present, past, or future HRQOL (Table 2). Higher present HRQOL was significantly associated with being married or living with a companion, having a lower BMI, not smoking, having a CES-D score of less than 16, having better self-rated health, and reporting fewer menopausal symptoms. Similarly, higher past HRQOL was