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Examining the Association Between Body Mass Index and Weight Related Quality of Life in Black and White Women

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Abstract

Obesity not only increases risk for morbidity/mortality, but also impacts the quality of life of obese individuals. In the United States, black women have the highest prevalence of obesity of any other group with approximately 80% of black women over age 20 having a body mass index (BMI) ≥ 25 kg/m². We aimed to examine the association between BMI and quality of life in this high risk

population compared to this association in white women, using the Impact of Weight on Quality of Life (IWQOL)-Lite questionnaire. Data from 172 black women (mean BMI= 35.7; age=40.5) and 171 white women (mean BMI= 35.5; age=40.4) were collected between 2000 and 2010 analyzed in 2010. The mean IWQOL-Lite total score was 81.6 for black women compared to 66.9 for white women, a statistically significant difference. Hierarchical linear regression models revealed a significant BMI-by-race interaction indicating that the relationship between BMI and IWQOL-Lite score was moderated by race. Our findings suggest notable differences in weight-related quality of life in black and white women. At similar BMIs, black women consistently reported better quality of life than white women on all IWQOL-Lite subscales. The greatest difference in IWQOL-Lite scores between black and white women was seen in the self-esteem subscale. Additional research is needed to understand how to incorporate the weight perspectives of black women into weight management messages and interventions.

Keywords

Quality of life; Women; Black; Weight

With the well documented increase in the prevalence of obesity in the United States (Baskin et al. 2005; Flegal et al. 2010; Ogden et al. 2006), researchers are currently examining the widespread impact of the obesity epidemic (Finkelstein et al. 2004; Wang et al. 2008). The health ramifications of overweight and obesity include a variety of medical conditions including heart disease, diabetes, cancer, and hypertension (Colditz et al. 1990; Field et al. 2001). However, obesity has implications that reach beyond clinical outcomes. One such emerging area of interest is quality of life, which refers to the ‘physical, psychological, and social domains of health, seen as distinct areas that are influenced by a person’s experiences, beliefs, expectations and perceptions’ (Testa and Simonson 1996).

There is a body of research to suggest that obesity is associated with impaired quality of life in physical, psychological, sexual, and work-related domains (Cox et al. 2010; Fontaine and Barofsky 2001; Fontaine and Bartlett 1998; Kolotkin et al. 2002; Perez and Warren 2011). Early research showed that obesity impaired an obese individual’s ability to live a full and active life (Fontaine and Bartlett 1998). Subsequent reports further supported that obesity impaired quality of life (Fontaine and Barofsky 2001). Later studies demonstrated that the degree of obesity was associated with the degree of impairment of quality of life (Cox et al. 2010; Kolotkin et al. 2002). However, it also became apparent that the relationship between obesity and quality of life may vary under different conditions (Kolotkin et al. 2002).

Though higher BMI is associated with lower quality of life—especially in physical functioning domains—across all race/ethnic groups (Cox et al. 2010; Kolotkin et al. 2002), researchers have suggested that race/ethnicity may influence the relationship between weight and quality of life (Perez and Warren 2011). This is of note given that black women have a significantly higher prevalence of overweight and obesity than their white counterparts with approximately 80% of black women over age 20 having a BMI ≥ 25 kg/m² (Flegal et al. 2002; Pan et al. 2009). However, the full impact of weight on quality of life in black women remains unclear. Though sparse in the literature, when examining quality of life in diverse populations, research suggests that white women report lower quality of life than all other

ethnic minority groups (Kolotkin et al. 2002; White et al. 2004) even though white women typically have lower BMIs than all other groups. This variation in the association between weight and quality of life across race/ethnic groups leaves this relationship to be further explored. Particularly, if black women are more accepting of a larger body size because of '*experiences, beliefs, expectations and perceptions*' that are associated with being a black woman, that acceptance may subsequently affect the relationship between quality of life and weight in this group. From a health psychology perspective of understanding how relationships between mind and body affect the overall state of an individual's well being, one may hypothesize that black and white women have different mind-body relationships and quality of life related to weight due to the different weight-related attitudes, cultural acceptance of body sizes, dieting patterns and body images across diverse ethnic groups (Altabe 1998; Baturka et al. 2000; Fitzgibbon et al. 2000; Lynch et al. 2007; Perez and Warren 2011; Striegel-Moore et al. 1996).

Social expectations for body size have varied throughout history and have been driven by a range of factors including environmental conditions, male preference and the media (Derenne and Beresin 2006). Current social expectations for body size promote thinness in white women; however, this same expectation for thinness does not exist for black women (Kemper et al. 1994). This difference in body size expectation may have root in historical conditions where different body sizes were promoted for black and white women. In colonial times, physically strong and able women were preferred because they were viewed as fertile and able to contribute to the land and household chores (Derenne and Beresin 2006). However, with the introduction of slavery, white women who were thin and frail were more attractive candidates for marriage to an upper-class man who could then justify the use of slaves citing that his wife was too frail to work (Thesander 1997). However, black women never experienced this pressure to be thin and in fact, were viewed as more valuable to whites if they had a larger, stronger body size to endure the working conditions. Additionally, the size, strength, and productivity of black women were viewed as attractive assets to black men and also suggested health and fertility of the black woman. This historic scenario highlights how environmental conditions and male preferences interacted to differentially influence social expectations of body size in black and white women. One may hypothesize that this once strategy-driven pressure to attain certain body sizes, over generations, has become an inherent social norm. In the current era, television and media also contribute to the shaping of social expectations for body size (Derenne and Beresin 2006). There is research to support that white women are negatively influenced by seeing very thin white women in the media (Schooler et al. 2004). However, black women are not affected by the images of thin, white women in the media (Schooler et al. 2004). In contrast, black women who viewed black-oriented media actually had healthier body images in part because many black women shown on television have larger body sizes than white women in mainstream media (Schooler et al. 2004). This contrast further shapes why weight may differentially influence quality of life in black and white women.

While there is extensive research to support a relationship between weight and quality of life, early studies often focused only on individuals seeking treatment for obesity, who may differ from the general obese population, which limits the generalizability of the findings. Additionally, many of these studies assessed quality of life using generic quality of life

instruments rather than obesity-specific quality of life instruments. Finally, much of the literature regarding weight and quality of life does not examine unique subgroups (e.g., black women) whose quality of life may be differentially impacted by weight due to features unique to that subgroup. To expand on existing research, the purpose of this study was to examine the association between BMI and psychological, physical, and overall weight-related quality of life in group of black and white overweight and obese women using a validated, obesity-specific quality of life instrument. Further, we compared the BMI-QOL relationship across race groups. Specifically, the main study hypotheses were the following:

H1: Higher BMI would be significantly associated with lower weight-related quality of life among a sample of overweight and obese black and white women.

H2a: Black women would report higher overall weight-related quality of life compared to white women.

H2b: Black women would report higher weight-related quality of life on psychological subscales compared to white women.

H2c: Black women would report higher weight-related quality of life on physical functioning subscales compared to white women.

Given the high prevalence of overweight and obesity of women in the United States, particularly black women, it is important to understand how weight affects quality of life in diverse populations of women in order to better understand the breadth of the obesity epidemic beyond traditional clinical outcomes. We can then begin to examine how to improve quality of life for overweight and obese women either by encouraging them to seek healthier body sizes or by addressing other societal factors, e.g., public accommodations or removal of stigma that may be leading to reduced quality of life for obese individuals.

Methods

Participants

Data for this study were derived from 2 sources. One-half of the sample data ($n=176$) was collected between August and December 2009 from community volunteers in Birmingham, Alabama (150 black, 26 white). The study was announced via flyers, emails, and publication in the University of Alabama at Birmingham's research study listings. A total of 194 individuals contacted us and completed a telephone screening for the study. Of those screened, 190 were eligible to participate. These individuals self-identified as female, non-Hispanic black or white, at least 19 years old, and a self-reported BMI ≥ 25 kg/m². Of the eligible individuals, 176 women completed a one-time clinic visit for data collection. With the exception of one individual for whom age data was not available, the Birmingham participants were then matched based on BMI and age to data from 175 individuals of the opposite race group in a normative database of IWQOL-Lite respondents (26 black, 149 white) to construct the complete dataset used for this study. The database contains data on over 10,000 participants, collected between 2000 and 2010 from various settings including the general community, severely obese individuals, weight loss clinical trials, various weight loss programs, obese with type 2 diabetes, and obese with hyperlipidemia (Kolotkin and Crosby 2008). For this study, only participants from the general community sample ($n=711$)

were used for matching in order to make the sample as similar to the Birmingham sample as possible.

After calculating BMI from measured height and weight, we determined that 4 of the Birmingham participants did not meet inclusion criteria due to having a BMI < 25 kg/m². Subsequently, 4 individuals that were matched to in the normative database also did not meet the BMI inclusion criteria. Thus, these 8 participants were not included in this analysis. For this study, cross-sectional data for 343 women were analyzed (172 black, 171 white).

All participants provided informed consent and this study was reviewed and approved by the University of Alabama at Birmingham Institutional Review Board to ensure the protection of human subjects.

Measures

Anthropometrics—A standardized protocol was implemented to collect height and weight for the Birmingham participants. Height was measured using a SECA portable stadiometer model SECA 214 (Hanover, MD). Body weight was measured using a digital LifeSource MD Portable Precision scale model ProFIT UC-321 (A& D Medical, Milpitas, CA). BMI was calculated from these measures of height and weight using the following formula: $((\text{weight in pounds} * 703) / (\text{height in inches})^2)$. Height and weight data for participants in the normative database was self reported.

Impact of Weight on Quality of Life – Lite (IWQOL-Lite)—The IWQOL-Lite is a validated 31-item, self-report measure of weight-specific HRQOL that provides a total score plus scores on five domains (Physical Function, Self-Esteem, Sexual Life, Public Distress, and Work) (Kolotkin et al. 2001). Appendix 1 provides sample items for each domain of the IWQOL-Lite questionnaire. Based on participant responses to each item, raw scores are calculated and converted to the more familiar 0 (worst quality of life) to 100 (best quality of life) scoring using a standardized formula. Each item contains five response options: are “*never true*,” “*rarely true*,” “*sometimes true*,” “*usually true*,” and “*always true*.” The IWQOL-Lite has been shown to have good internal consistency (ranging from .90 to .96) good test-retest reliability (.83 to .94) and a scale structure supported by confirmatory factor analysis (Kolotkin and Crosby 2002).

Key Covariates—Age and race were assessed via a demographics questionnaire. Age was self-reported in years. Race was self-identified by participants.

Statistical Analysis—Descriptive statistics were calculated and summarized as means $\pm$ SD or medians. One-way analysis of variance (ANOVA) tests were used to examine the differences in IWQOL-Lite scores by BMI category. Post-hoc comparisons were performed using Tukey’s honestly significant difference procedure (HSD) (Winer 1971). Hierarchical linear regression models were used to predict IWQOL-Lite scores. Based on existing literature and the study hypothesis, BMI was entered as the independent variable in Step 1. Other potential predictors including age, race, and a BMI-by-race interaction term were added in step 2 to determine which variables were appropriate for creating the most

parsimonious model. For all analyses, a p value of <0.05 was considered statistically significant. Data were analyzed in 2010.

Results

Participant characteristics are described in Table 1. Participants had a mean age of 40.5 years and a mean BMI of 35.6 kg/m^2 . The mean IWQOL-Lite total score was 74.3 out of 100; when stratified by race, black and white women had IWQOL-Lite total scores of 81.6 and 66.9, respectively. Black women's IWQOL-Lite total score was significantly higher than white women.

Table 2 presents IWQOL-Lite scores—subscales and total—by race and BMI classification. Based on results of one-way ANOVA, there was a significant main effect of BMI on IWQOL-Lite total and subscale scores except for the sexual life subscale (physical function: $F(3, 336) = 46.6$ $p < 0.001$; self-esteem: $F(3, 337) = 10.1$ $p < 0.001$; sexual life: $F(3, 318) = 2.3$ $p = 0.08$; public distress: $F(3, 337) = 55.8$ $p < 0.001$; work: $F(3, 333) = 12.6$ $p < 0.001$) and total score ($F(3, 337) = 34.8$ $p < 0.001$). Tukey's HSD post-hoc comparisons of differences across BMI groups indicated that the physical function subscale score significantly declined with each increase in BMI group. In all other IWQOL-Lite subscales and total score, the 25–29.9 BMI group was not significantly different from the 30 to 34.9 BMI group. Table 2 also highlights that the IWQOL-Lite total score for blacks was significantly higher than whites in all BMI groups. For subscales other than self-esteem, there were not significant differences in IWQOL-Lite scores for overweight black and white women. However, black women in higher BMI groups (35–39.9 and 40+ kg/m^2) scored higher than their white counterparts in the same BMI group.

Hierarchical linear regression modeling also displayed a significant inverse association between BMI and IWQOL-Lite total score and all five subscales (Table 3). All models were statistically significant (physical function: $F(4, 336) = 64.2$ $p < 0.001$; self-esteem: $F(4, 337) = 43.5$ $p < 0.001$; sexual life: $F(4, 318) = 10.6$ $p < 0.001$; public distress: $F(4, 337) = 80.4$ $p < 0.001$; work: $F(4, 333) = 23.8$ $p < 0.001$) and total score $F(4, 337) = 61.4$ $p < 0.001$). A comparison of the regression coefficients by race group shown in Table 3 indicated that BMI was a stronger predictor of IWQOL-Lite total ($t = 3.86$, $p < 0.001$) and subscale scores (physical function: $t = 2.51$, $p = 0.01$; self-esteem: $t = 3.24$, $p = 0.001$; sexual life: $t = 2.39$, $p = 0.02$; public distress: $t = 4.40$, $p < 0.001$; work: $t = 2.75$, $p = 0.01$) in white women compared to black women. Figure 1 presents graphs illustrating the relationship between BMI and IWQOL-Lite scores stratified by race. When controlling for age and race, a significant BMI-by-race interaction persisted for models predicting physical function ($p = 0.01$), self-esteem ($p < 0.001$), sexual life ($p < 0.001$), public distress ($p < 0.001$), work ($p < 0.001$) and total ($p < 0.001$) IWQOL-Lite scores. These results indicate that the relationship between BMI and quality of life score is modified by race. Age was also a significant predictor of physical function and self-esteem scores.

Discussion

Our study sought to examine the association between BMI and quality of life in a community sample of women and determine whether this association was modified by race. There was a strong inverse correlation between BMI and the 5 IWQOL-Lite subscale and total scores. Further analysis revealed that race moderated the relationship between BMI and IWQOL-Lite scores. At similar BMIs, black women consistently reported higher scores for all IWQOL-Lite subscales than their white counterparts. The greatest difference in IWQOL-Lite scores between black and white women was seen in the self-esteem subscale. This is consistent with previous literature showing that obesity is associated with low self-esteem in whites, but not blacks (Averett and Korenman 1999). Black women scored lowest on the physical function subscale. This finding is similar to that of a previous study which suggested that despite different cultural acceptance for body sizes in blacks that may attenuate the effect of weight on psychosocial aspects of weight-related quality of life, physical function is a more palpable aspect of weight-related quality of life that is experienced more similarly across racial groups (Coakley et al. 1998). Even still, despite the more palpable and subjective nature of the physical function subscale, black women in this sample reported significantly higher physical functioning quality of life than white women in this sample.

The relationship between weight and quality of life in black women may be partially explained by body image and social norms. Research suggests that black women report less body image impairment and social stigmatization associated with obesity (Hebl and Heatherton 1998; Kumanyika et al. 1993; Paeratakul et al. 2002). Weight-related quality of life instruments, including the IWQOL-Lite used in this study, often include items that may be affected by one's body image and/or social experience. Thus, one's weight-related body image or social stigma may play a role in her weight-related quality of life. For example, Cox et al. reported that an established association between BMI and quality of life in a sample of black women was mediated by body dissatisfaction suggesting that body image may be a key factor in the relationship between weight and quality of life in black women (Cox et al. 2011). This suggests that the further away a black woman is from her desired body size, the more likely she is to report impaired weight-related quality of life. However, because black women are typically more accepting of larger body sizes, there may be less reporting of impaired quality of life due to the mediating effect of body image.

To date, a large majority of the current weight-related quality of life literature has been focused specifically on clinical populations or treatment-seeking individuals. Our findings in the general population are similar to that of clinical populations or those seeking treatment, although the strength of association may differ according to subgroup or quality of life domain. In general, as BMI increases, quality of life decreases for both black and white women. This generalizability is of note because there is evidence to support that obese persons seeking treatment may have more psychological disturbances than those not seeking treatment (Fitzgibbon and Stolley 1993), which could potentially play a role in one's perceived quality of life. However, our findings suggest that weight-related quality of life reported in the general population is similar to previous findings regarding individuals seeking weight loss treatment. Additionally, our findings provide evidence that the

association between weight and quality of life is modified by race such that quality of life is less impaired with increased BMI in black women than in white women. One may purport that this is because of the well-documented cultural acceptance and/or preference for larger body sizes (Bhuiyan et al. 2003; Gluck and Geliebter 2002; Kleges et al.). Therefore, quality of life as measured by the IWQOL-Lite, which is largely composed of questions that may be socially influenced or based on self-perception, would not be as impaired in black women since they do not face the same social or cultural expectations of body size as white women. The implications of the relationship between weight and quality of life in black women remain unclear. While the highest quality of life is desirable as an indicator of overall well-being, black women's perception of experiencing a high quality of life despite having a high BMI may also dampen motivation for attempting weight reduction.

Several mechanisms could explain why an increase in BMI has a stronger effect on QOL of white women compared to black women. First, the quality of life instrument has subscales that are dependent on the psychology of the respondent. Thus, the different psychology and weight-related perspectives of black and white women may lead to this differential association between BMI and QOL in black and white women. Also, social norms may influence the strength of association between BMI and QOL in black and white women. Specifically, since there is a higher prevalence of overweight and obese black women than white (Ogden et al. 2006), black women may not experience the same public distress or self-consciousness with increased BMI as white women who may feel more distressed with increased BMI because overweight and/or obese white women have not been socially normalized. Finally, there is evidence to suggest that black women hold a cultural belief of valuing character above appearance (Baturka et al. 2000). This cultural belief may lessen the strength of association between weight and QOL in black women.

There are strengths and limitations associated with this study. The major strength of this study is the community-based, racially diverse, non-treatment seeking sample. Participants are from the community and intended to represent the general population extending generalizability beyond clinical populations or those seeking weight loss treatment. Additionally, this study sample is comprised of 50% blacks, which adds to the literature that currently contains numerous studies of majority white populations. This study also has limitations. One limitation is the source of data for half of the study sample. Data were collected for 172 and matched to 171 additional participants from the normative database, which contained data collected at a different time and location than participants who provided original data for this study. This could potentially introduce sampling bias related to the source of data. However, statistical testing for potential effects of the data source were not significant suggesting that data source did significantly impact our findings. Another potential limitation is the self-reported height and weight data of participants in the normative database. However, Kolotkin et al. report that the prevalence of overweight and obesity in a sample from the normative database is similar to data from the National Center for Chronic Disease Prevention and Health Promotion (Kolotkin and Crosby 2002). Also, previous studies using this data are comparable to other studies where height and weight are measured suggesting that the potential bias of self-report is minimal and does not substantially affect the association between weight and IWQOL-Lite scores (Kolotkin and Crosby 2002). Another limitation of this study was the unavailability of data for other

potential confounders (e.g., income, comorbidities, depression) for participants in the extant database which could not be included in the statistical analysis. Additional studies where this data is collected are warranted in order to conduct a more detailed evaluation of the impact of these potential confounders on the relationship between race, BMI and weight-related quality of life in women. Finally, the findings of this study are limited to black and white women and are not necessarily generalizable to men. However, there is preliminary evidence to suggest that a comparison of black and white men would reveal similar results. For example, White et al. reported that despite having the highest BMI, black men had the least impairment in quality of life compared to all other groups (White et al. 2004). Additional research is needed to compare similarities and differences in weight-related quality of life across race and gender groups.

In conclusion, higher BMI is associated with reduced weight-related quality of life in women from the general population. The relationship between BMI and weight-related quality of life is modified by race such that black women report higher quality of life than white women at the same BMI. Additionally, for black women, the psychosocial aspects of obesity seem to be less affected by BMI compared to the mechanical/physical functioning aspects of obesity. Further research is needed to further understand how quality of life may affect weight-related behaviors in black and white women.

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Appendix 1: IWQOL-Lite

SAMPLE ITEMS

Impact of Weight on Quality of Life Questionnaire—Lite Version (IWQOL-Lite)

Please answer the following statements by circling the number that best applies to you in the past week. Be as open as possible. There are no right or wrong answers.

Physical Function		ALWAYS TRUE	USUALLY TRUE	SOMETIMES TRUE	RARELY TRUE	NEVER TRUE
1.	Because of my weight I have trouble picking up objects.	5	4	3	2	1
Self-esteem		ALWAYS TRUE	USUALLY TRUE	SOMETIMES TRUE	RARELY TRUE	NEVER TRUE
1.	Because of my weight I am self-conscious.	5	4	3	2	1

Sexual Life		ALWAYS TRUE	USUALLY TRUE	SOMETIMES TRUE	RARELY TRUE	NEVER TRUE
1.	Because of my weight I do not enjoy sexual activity.	5	4	3	2	1

Public Distress		ALWAYS TRUE	USUALLY TRUE	SOMETIMES TRUE	RARELY TRUE	NEVER TRUE
1.	Because of my weight I experience ridicule, teasing, or unwanted attention.	5	4	3	2	1
Work (Note: For homemakers and retirees, answer with respect to your daily activities.)		ALWAYS TRUE	USUALLY TRUE	SOMETIMES TRUE	RARELY TRUE	NEVER TRUE
1.	Because of my weight I have trouble getting things accomplished or meeting my responsibilities.	5	4	3	2	1

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Fig. 1.
The association between BMI and IWQOL-Lite scores by race

Table 1

Characteristics of study participants and mean IWQOL-Lite scores Mean±SD

	Total (n=343)	Black (n=172)	White (n=171)
Age (years) ^a	40.5±11.2	40.5±11.2	40.4±11.3
BMI (kg/m ²)	35.6±7.7	35.7±7.8	35.5±7.7
Education (years) ^b	15.7±2.5	15.7±2.5	15.9±2.7
IWQOL-Lite Scores			
Physical Function ^a	71.2±22.9	75.7±20.9	66.6±24.0 *
Self-esteem	62.3±29.6	76.1±24.2	48.5±28.1 *
Sexual life ^c	81.7±24.2	88.1±19.6	74.7±26.7 *
Public distress	84.0±22.9	89.3±19.2	78.6±25.0 *
Work ^d	84.9±19.1	92.0±12.7	79.7±22.2 *
Total	74.3±20.1	81.6±15.9	66.9±21.3 *

^a missing data for 1,^b data provided for Birmingham sample only,^c missing data for 19,^d missing for 4.

* T-test indicates statistical difference at p<0.05

Table 2

IWQOL-Lite scores by BMI and race

	(BMI kg/m ²)			
	25–29.9	30–34.9	35–39.9	40+
Physical Function				
Black	86.9±13.5 ^a (48)	79.2±18.9 ^{ab} (47)	74.5±16.6 ^{b*} (28)	62.2±23.8 ^{c*} (47)
White	84.1±16.0 ^a (50)	73.9±16.4 ^b (38)	62.4±20.6 ^b (32)	46.1±21.5 ^c (50)
Total	85.5±14.8 ^a (98)	76.8±17.9 ^b (85)	68.1±19.7 ^c (60)	53.9±23.9 ^d (97)
Self-esteem				
Black	83.1 ±20.0 ^{a**} (48)	75.9±23.9 ^{a**} (47)	74.9±25.6 ^{a**} (28)	70.7±26.4 ^{a**} (47)
White	62.6±26.4 ^a (50)	53.9±26.1 ^{ab} (39)	45.0±27.3 ^b (32)	32.4±23.5 ^b (50)
Total	72.6±25.6 ^a (98)	65.9±27.1 ^{ab} (86)	58.9±30.3 ^b (60)	51.0±31.4 ^c (97)
Sexual life				
Black	89.6±18.7 ^a (48)	86.0±23.5 ^a (46)	90.6±13.8 ^{a*} (28)	87.0±20.1 ^{a**} (46)
White	81.4±25.0 ^a (48)	78.5±23.2 ^a (36)	73.1±27.4 ^a (27)	65.0±28.8 ^b (43)
Total	85.5±22.3 ^a (96)	82.7±23.5 ^a (82)	82.0±23.1 ^a (55)	76.3±26.9 ^a (89)
Public distress				
Black	98.0±5.0 ^a (48)	93.7±14.1 ^a (47)	90.9±14.9 ^{a**} (28)	75.6±26.8 ^{b**} (47)
White	96.4±8.1 ^a (50)	91.3±11.3 ^a (39)	72.7±23.8 ^b (32)	54.8±24.2 ^c (50)
Total	97.2±6.8 ^a (98)	92.6±12.9 ^a (86)	81.2±22.0 ^b (60)	64.9±27.4 ^c (97)
Work				
Black	95.3±7.9 ^a (48)	92.6±13.2 ^{a*} (47)	94.2±9.3 ^{a**} (27)	88.1±15.4 ^{b**} (45)
White	90.4±15.8 ^a (49)	86.1±16.8 ^a (39)	72.3±24.1 ^b (32)	69.1±24.0 ^b (50)
Total	93.0±12.7 ^a (97)	89.6±15.2 ^{ab} (86)	82.3±21.7 ^{bc} (59)	78.1±22.4 ^c (95)
Total				
Black	89.3±11.1 ^{a*} (49)	83.4±15.0 ^{a*} (47)	81.9±14.3 ^{a**} (28)	72.6±17.6 ^{b**} (47)
White	81.7±14.3 ^a (50)	74.2±14.5 ^a (39)	62.4±20.2 ^b (32)	49.4±18.8 ^c (50)
Total	85.4±13.3 ^a (98)	79.2±15.4 ^a (86)	71.5±20.1 ^b (60)	60.7±21.5 ^c (97)

Mean±SD (*n*). Means with common subscripts across columns are not significantly different based on Tukey's hsd (*p* 0.05). Asterisks indicate blacks' scores as significantly higher than whites;

*
p<0.05

**
p 0.001

Table 3

Regression coefficients of the total sample and comparisons by race group

	β (SE)	Standardized Beta	<i>p</i> value
IWQOL-Lite Total			
All	-1.35 (0.12)	-0.52	<0.001
Black	-0.93 (0.14)	-0.45	<0.001
White	-1.75 (0.16)	-0.65	<0.001
IWQOL-Lite Physical Function			
All	-1.70 (0.12)	-0.58	<0.001
Black	-1.40 (0.17)	-0.52	<0.001
White	-1.98 (0.16)	-0.65	<0.001
IWQOL-Lite Self Esteem			
All	-1.05 (0.20)	-0.29	<0.001
Black	-0.53 (0.23)	-0.17	0.03
White	-1.68 (0.24)	-0.47	<0.001
IWQOL-Lite Sexual Life			
All	-0.54 (0.17)	-0.17	0.002
Black	-0.18 (0.19)	-0.07	0.35
White	-0.97 (0.26)	-0.28	<0.001
IWQOL-Lite Public Distress			
All	-1.86 (0.12)	-0.64	<0.001
Black	-1.35 (0.16)	-0.55	<0.001
White	-2.35 (0.16)	-0.74	<0.001
IWQOL-Lite Work			
All	-0.80 (0.13)	-0.33	<0.001
Black	-0.46 (0.12)	-0.28	<0.001
White	-1.10 (0.20)	-0.39	<0.001

All models controlled for age