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Racial/ethnic differences in weight loss strategies among U.S. adults: NHANES 2007-2012

Becky Marquez, PhD MPH¹ and Rosenda Murillo, PhD MPH²

¹Department of Family Medicine & Public Health, University of California San Diego, La Jolla, CA, USA

²Department of Psychological, Health, & Learning Sciences, University of Houston, Houston, TX, USA

Abstract

Background—Dieting, exercising, and seeking professional help have been associated with intentional weight loss among adults.

Objective—This study examined the use of diet (e.g. ate less, ate less fat, switched to low calorie foods), exercise, diet and exercise, and professional help (e.g. weight loss program, prescribed diet pills) for weight loss among non-Hispanic Whites, Mexican-Americans, and non-Hispanic Blacks.

Design—Cross-sectional data from the 2007-2012 National Health and Nutrition Examination Survey (NHANES) were used.

Participants—Males and females (n=9,046) aged 20-65 years were included.

Main outcome measure—The weight history questionnaire assessed weight loss attempt and use of weight loss strategies in the past year.

Statistical analyses performed—Multivariate logistic regression models were used to estimate associations of race/ethnicity with strategies to lose weight. Models controlled for age, sex, education, and body mass index. In fully adjusted models, interactions of race/ethnicity by sex were tested.

Results—Lower proportions of Mexican-Americans (35%) and non-Hispanic Blacks (35%) than non-Hispanic Whites (39%) reported trying to lose weight. Among those who tried to lose weight, non-Hispanic Blacks were less likely than non-Hispanic Whites to use diet (OR: 0.78, 95% CI: 0.67-0.90) or exercise (OR: 0.83, 95% CI: 0.70-0.99) for weight loss. Mexican-Americans (OR: 0.71, 95% CI: 0.53-0.95) and non-Hispanic Blacks (OR: 0.71, 95% CI: 0.52-0.95) were also less

Corresponding author: Becky Marquez, Department of Family Medicine & Public Health, University of California San Diego, 9500, Gilman Drive, #0813 La Jolla, CA 92093, USA, bemark@ucsd.edu.

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Conflict of Interest Disclosure

The authors declare there are no conflicts of interests.

likely than non-Hispanic Whites to use professional help for weight loss. The relationships between race/ethnicity and weight loss strategy were stronger for females than males.

Conclusion—Targeted efforts are needed to address racial/ethnic disparities in weight loss attempts and use of recommended strategies especially among females.

Keywords

NHANES; racial/ethnic disparities; trying to lose weight; weight loss strategies

INTRODUCTION

The high prevalence of overweight and obesity among U.S. adults is a major public health concern.¹ Excess body weight is associated with chronic conditions such as hypertension and diabetes.² Obesity and related comorbidities are disproportionately higher in Mexican-Americans and non-Hispanic Blacks than in non-Hispanic Whites.^{3, 4} Despite this, Mexican-Americans and non-Hispanic Blacks are less likely than non-Hispanic Whites to perceive themselves to be overweight.⁵⁻⁷ Evidence suggests that non-Hispanic Blacks are less likely to attempt weight loss^{8, 9} and Mexican-Americans who experience weight loss are at greater risk for weight regain compared to non-Hispanic Whites.^{10, 11} Thus, there is a need to better understand the weight management strategies used by different racial/ethnic groups.

The AHA/ACA/TOS Obesity Guidelines and the Dietary Guidelines for Americans recommend diet and exercise for weight loss.^{12, 13} These strategies can reduce energy intake and increase energy expenditure which help create an energy deficit resulting in weight loss. The simultaneous use of diet and exercise is more effective at producing longer-term weight loss than diet or exercise alone.^{14, 15}

The AHA/ACA/TOS Obesity Guidelines also recommend use of professional help for weight loss.¹³ Clinicians can consider referring patients to commercial weight loss programs as they have been shown to be efficacious for weight loss.¹⁶ Pharmacotherapy can also be prescribed to patients who are overweight with comorbidity or obese in conjunction with diet and exercise for weight loss.¹³ Eligible patients can also be advised on bariatric surgical treatment for obesity.¹³

Previous analyses of the National Health and Nutrition Examination Survey (NHANES) data have examined weight loss efforts but have not evaluated differences in use of recommended weight management strategies between racial/ethnic groups.^{17, 18} Understanding weight management strategies in high risk groups could help inform intervention efforts. The purpose of this study is to examine 1) the prevalence of attempting to lose weight 2) the use of diet, exercise, diet and exercise, and professional help for weight loss, and 3) sex differences in the relationship between race/ethnicity and weight loss strategy among non-Hispanic Whites, Mexican-Americans, and non-Hispanic Blacks.

METHODS

Data are from the 2007-2012 NHANES.¹⁹ NHANES is a cross-sectional study examining the health and nutrition of children and adults in the U.S. It collects data related to

demographics, health, and health behaviors. NHANES employs a complex and multi-stage stratified probability cluster sample design to obtain a nationally representative sample of the non-institutionalized U.S. civilian population.

The study sample included adult participants 20-65 years of age who were non-Hispanic White, Mexican-American, and non-Hispanic Black (n=10,826). A total of 1,780 participants were excluded due to incomplete data on the variables of interest (i.e., education, body mass index (BMI), and whether they had tried to lose weight in the past year). Compared with adults in the analytical sample, individuals in the excluded sample were younger, and less likely to be college graduates and to have a normal BMI. The final analytic sample included 9,046 adults.

Measures

Weight loss strategies—Participants were asked to self-report whether they had intentionally tried to lose weight in the past year, “During the past 12 months, have you tried to lose weight?” Participants who responded “yes” were categorized as trying to lose weight and further asked, “How did you try to lose weight?” Weight loss strategies were categorized into 4 categories: 1) Diet (i.e., ate less to lose weight; switched to foods with lower calories; ate less fat to lose weight; skipped meals; ate diet foods or products; used a liquid diet formula; drank a lot of water; followed a special diet; ate fewer carbohydrates; ate more fruits, vegetables, salads; changed eating habits; ate less sugar, candy, and sweets), 2) Exercise (i.e., exercised to lose weight), 3) Diet and exercise, and 4) Professional help. The professional help category was based on two separate questions: 1) “How did you try to lose weight?” Responses for joined a weight loss program and took diet pills prescribed by a doctor were included and 2) “Did you seek help from a personal trainer, dietitian, nutritionist, doctor or other health professional to lose weight?”

Race/ethnicity—Participants were asked to report their race/ethnicity. The survey categorized individuals as non-Hispanic White, Mexican-American, and non-Hispanic Black. Individuals from other racial/ethnic categories were excluded due to small sample sizes.

Covariates—Sex was defined as male or female. Age was modeled categorically into 20-35, 36-50, and 51-65 years of age. Educational attainment was categorized as being less than a high school graduate, a high school graduate, and more than a high school education (some college/ associates degree/college graduate). BMI was calculated from measured weight and height and categorized as normal weight ($18.5 < 25 \text{ kg/m}^2$), overweight ($25 < 30 \text{ kg/m}^2$), and obese (30 kg/m^2).²⁰ Underweight individuals were excluded ($< 18.5 \text{ kg/m}^2$).

Analysis

Unadjusted means or frequencies and standard errors for all covariates were computed by race/ethnicity. Logistic regression models were used to estimate the likelihood of using weight loss strategies by racial/ethnic group. Specifically, the likelihood of Mexican-Americans and non-Hispanic Blacks, compared with non-Hispanic Whites, of using diet,

exercise, diet and exercise, or professional help for weight loss, relative to not using that strategy for weight loss was estimated. Weight loss categories were not mutually exclusive. All models were adjusted for age, sex, education, and BMI. In fully adjusted models, interactions of race/ethnicity by sex were tested.

All analyses were adjusted for sampling weights to account for the complex sampling design. SAS version 9.4²¹ was used to carry out the descriptive and regression analyses.

RESULTS

Table 1 presents the distribution of participant characteristics by race/ethnicity. Mexican-Americans and non-Hispanic Blacks had the highest prevalence of obesity. Mexican-Americans and non-Hispanic Blacks had the lowest proportions of individuals who reported trying to lose weight in the past year.

Table 2 shows the results from the multivariable adjusted analysis of weight loss strategies used by those who tried to lose weight in the past year. Compared with non-Hispanic Whites, non-Hispanic Black individuals were significantly less likely to use diet (Odds Ratio [OR]: 0.78, 95% Confidence Interval [CI]: 0.67-0.90) or exercise (OR: 0.83, 95% CI: 0.70-0.99) as a strategy for weight loss. Also, compared with non-Hispanic Whites, Mexican-Americans (OR: 0.71, 95% CI: 0.53-0.95) and non-Hispanic Blacks (OR: 0.71, 95% CI: 0.52-0.95) were less likely to use professional help as a strategy for weight loss.

Interactions were tested to examine if sex moderated the relationship of race/ethnicity and use of weight loss strategy. Interactions were significant ($p < 0.05$) and associations were stratified by sex in Table 3. Specifically, relationships between race/ethnicity and use of diet, exercise, or professional help for weight loss were statistically significant for females but not males.

DISCUSSION

The results of this study demonstrate differences in attempting to control weight and in use of weight loss strategies among three racial/ethnic groups. Weight loss efforts were less prevalent among Mexican-Americans and non-Hispanic Blacks compared to non-Hispanic Whites. Non-Hispanic Blacks were less likely to use diet or exercise for weight loss than non-Hispanic Whites. Mexican-Americans and non-Hispanic Blacks were less likely to use professional help for weight loss than non-Hispanic Whites. The relationships between race/ethnicity and weight loss strategy were stronger for females than males.

Sociocultural norms related to body image and weight may provide insight into why attempting to lose weight was less common in Mexican-Americans and non-Hispanic Blacks than non-Hispanic Whites. Efforts to lose weight have been linked to the recognition of overweight or obese status.²² Several studies have found that Hispanics and Blacks are more likely to misperceive their weight status and have lower body dissatisfaction than non-Hispanic Whites.^{5-7, 23, 24} Black women were reported to be more likely to perceive their ideal weight in the obese category and desire no weight change than non-Hispanic White women.²⁵ Among Hispanics, attitudes towards body size and weight loss depend on

acculturation. For example, higher acculturation measured by U.S. nativity or English language use has been associated with accurate weight perception, weight dissatisfaction, intention to lose weight, and achieving at least 5% weight loss.²⁶ Receptiveness to weight management may be improved through public health efforts to raise awareness of weight status and the health benefits of modest weight loss of 3-5%.¹³

Despite recommendations, non-Hispanic Black females were less likely to use diet or exercise for weight loss than non-Hispanic Whites females. According to the Behavioral Risk Factor Surveillance System (BRFSS), eating fewer calories to lose weight has increased overtime in non-Hispanic Whites but not in non-Hispanic Blacks.²⁷ Data from the BRFSS also shows greater use of nontraditional methods like fasting and dietary supplements in Blacks than non-Hispanic Whites trying to lose weight.²⁸ Because higher dietary knowledge has been associated with engaging in weight loss behaviors such as eating less food or switching to foods with fewer calories in a multi-ethnic sample that included African Americans,²⁹ improving education on healthy eating behaviors to create a caloric deficit may promote greater use of effective dietary strategies for weight loss. In clinical weight loss trials, Blacks tend to lose less weight than non-Hispanic Whites³⁰⁻³² and lower adherence to exercise may be a contributor.³⁰ Given that Blacks have disproportionately high rates of physical inactivity,³³ interventions that effectively promote physical activity are needed to facilitate weight loss in individuals making dietary changes.

Lower likelihood of using professional help for weight loss among Mexican-American and non-Hispanic Black females is consistent with previous reports. Although physician diagnosis of overweight and advice on weight control is associated with attempting weight loss,³⁴ non-Hispanic Blacks are less likely to receive this information compared to non-Hispanic Whites.³⁵ Similarly, African Americans with obesity are less likely to be recommended for weight loss treatments such as bariatric surgery.³⁶ Mexican-Americans with obesity, especially those who prefer to speak Spanish, are insufficiently counseled on diet and exercise by health care providers.³⁷ Moreover, formal assistance through a commercial weight loss program is underutilized among African Americans and Hispanics.^{38, 39} Both groups have also been found to rely more on over the counter pills and less on prescription medication for weight loss.^{38, 40} Health care providers would benefit patients by discussing weight status, inquiring about weight control practices, and providing options based on current recommendations.

There are several possible reasons why Mexican-Americans and non-Hispanic Blacks are less likely than non-Hispanic Whites to use professional help for weight loss. Higher income and having health insurance have been associated with receipt of weight loss advice and/or provider diagnosis of overweight.^{41, 42} However, even after controlling for confounding factors like health insurance status, Mexican-American and non-Hispanic Blacks remain less likely to be diagnosed with overweight than non-Hispanic whites. Among Hispanics, being English-proficient is associated with receiving advice from a health care provider on physical activity, diet, or both after controlling for health insurance status.⁴³ Quality of care may also play a role. Hispanics, irrespective of language proficiency, rate their clinicians' patient-centeredness lower than other racial/ethnic groups whereas Blacks rate less favorably clinicians with greater implicit bias against Blacks.⁴⁴ Despite these findings, evidence

suggest that Hispanics and non-Hispanic Blacks are receptive to discussions on weight management with their providers and have specific interests in learning more about lifestyle changes, weight loss classes or programs, and bariatric surgery.⁴⁵ Hence, providers who take into account cultural context in patient weight management may help promote greater responsiveness to counseling.

This study has limitations and strengths to consider. Self-reported data was used which is subject to recall bias and misreporting. Due to the small sample size of weight loss strategies, the study was underpowered to examine differences by other Hispanic ethnicities. Nonetheless, the study used a large representative sample of U.S. adults and examined racial/ethnic and sex differences in weight management strategies which has implications for targeted obesity prevention and treatment efforts.

Conclusion

This study found that racial/ethnic differences are present in attempting weight loss and use of recommended strategies for weight loss. Our results showed that racial/ethnic differences were relatively small in magnitude for some weight loss strategies, warranting further research to determine whether factors not measured in this study may be contributing to these small differences. Future research is also necessary to determine factors that contribute to Mexican-American and non-Hispanic Black females being less likely than their male counterparts to engage in strategies such as use of professional help for weight loss. Public health interventions to increase awareness of weight status and promotion of effective weight loss practices are needed especially among Mexican-Americans and non-Hispanic Blacks. Health care professionals are in a unique position to provide ongoing encouragement and guidance to patients for weight loss, while considering weight-related beliefs and practices relevant to their racial/ethnic groups.

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Table 1
Participant Characteristics by Race/Ethnicity: National Health and Nutrition Examination Survey, 2007-2012^a

Characteristic	Total ^b (n=9046)	Non-Hispanic White (n=4559)	Mexican-American (n=1996)	Non-Hispanic Black (n=2491)	p-value ^c
	% (SE) ^d	% (SE)	% (SE)	% (SE)	
Age (years)					<0.01
20-35	33.9 (0.9)	31.2 (1.1)	46.2 (1.4)	38.5 (1.6)	
36-50	35.1 (0.8)	35.2 (1.1)	36.8 (1.2)	34.9 (1.5)	
51-65	31.0 (0.9)	33.7 (1.1)	16.9 (1.2)	26.6 (1.3)	
Sex					<0.01
Male	49.6 (0.6)	49.9 (0.6)	53.3 (1.0)	45.1 (1.2)	
Female	50.4 (0.6)	50.1 (0.6)	46.7 (1.0)	54.9 (1.2)	
Education					<0.01
Less than high school graduate	16.6 (0.9)	11.0 (1.2)	50.5 (1.6)	23.3 (1.7)	
High school graduate	23.4 (0.8)	22.9 (1.1)	21.6 (1.4)	27.5 (1.4)	
More than a high school education	60.0 (1.4)	66.1 (2.0)	27.9 (1.9)	49.2 (1.9)	
BMI ^e status					<0.01
Normal weight (18.5-<25 kg/m ²)	31.4 (0.9)	33.6 (1.1)	22.1 (1.3)	23.9 (1.1)	
Overweight (25-<30 kg/m ²)	33.6 (0.7)	33.8 (0.9)	38.0 (1.3)	28.2 (1.2)	
Obese (≥30 kg/m ²)	35.1 (0.8)	32.6 (1.1)	39.9 (1.7)	47.9 (1.7)	
Tried to lose weight in past year	38.8 (0.6)	39.8 (0.8)	35.3 (1.4)	35.3 (1.3)	<0.01
Weight loss strategy ^f					
Diet	29.7 (0.6)	30.3 (0.8)	27.5 (1.3)	28.3 (1.0)	0.09
Exercise	28.7 (0.7)	29.3 (1.0)	24.7 (0.1)	28.7 (1.1)	0.04
Diet and exercise	18.9 (0.7)	19.0 (1.0)	16.5 (1.3)	20.2 (0.9)	0.18
Professional help	10.0 (0.6)	10.6 (0.8)	6.1 (0.6)	9.7 (0.6)	<0.01

^aData are unadjusted estimates and account for complex sampling design

^bIncludes Non-Hispanic Whites, Mexican-Americans, and Non-Hispanic Blacks

^cRao-Scott Chi-square test

f Among those who tried to lose weight in the past year

e Body mass index

d Standard error

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Associations between race/ethnicity and weight loss strategies among those who tried to lose weight: National Health and Nutrition Examination Survey, 2007-2012^a

Table 2

Race/Ethnicity	Diet		Exercise		Diet and Exercise		Professional Help ^c	
	OR (95% CI) ^b		OR (95% CI)		OR (95% CI)		OR (95% CI)	
Non-Hispanic White	1.00		1.00		1.00		1.00	
Mexican-American	0.99 (0.84-1.17)		0.95 (0.77-1.16)		1.06 (0.83-1.36)		0.71 (0.53-0.95)	
Non-Hispanic Black	0.78 (0.67-0.90)		0.83 (0.70-0.99)		0.96 (0.78-1.18)		0.71 (0.52-0.95)	

^aModels controlled for age, sex, education, and BMI. Non-Hispanic White was used as the reference group.

^bOdds ratio (Confidence interval)

^cJoined a weight loss program; took diet pills prescribed by a doctor; sought help from a health professional

Associations between race/ethnicity and weight loss strategies by sex: National Health and Nutrition Examination Survey, 2007-2012^a

Table 3

Race/Ethnicity	Male			Female		
	Diet	Exercise	Diet and Exercise	Diet	Exercise	Diet and Exercise
	OR ^b (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)
Non-Hispanic White	1.00	1.00	1.00	1.00	1.00	1.00
Mexican-American	0.97 (0.74-1.27)	1.03 (0.78-1.37)	1.04 (0.70-1.54)	1.11 (0.61-2.01)	0.89 (0.68-1.17)	1.10 (0.79-1.53)
Non-Hispanic Black	1.00 (0.75-1.33)	1.06 (0.79-1.41)	1.26 (0.87-1.82)	1.32 (0.84-2.07)	0.76 (0.63-0.93)	0.89 (0.72-1.10)

Confidence interval

^aModels controlled for age, education, and BMI. Non-Hispanic White was used as the reference group.

^bOdds ratio

^cJoined a weight loss program; took diet pills prescribed by a doctor; sought help from a health professional