HHS Public Access

Author manuscript

J Aging Health. Author manuscript; available in PMC 2015 July 29.

Published in final edited form as:

J Aging Health. 2009 March ; 21(2): 231–243. doi:10.1177/0898264308328949.

Three-Year Measured Weight Change in the African American Health Study

Fredric D. Wolinsky, PhD,
Iowa City Veterans Affairs Medical Center and University of Iowa

Elena M. Andresen, PhD,
University of Florida

Theodore K. Malmstrom, PhD,
Saint Louis University

Mario Schootman, PhD,
Washington University School of Medicine

J. Philip Miller, AB, and
Washington University School of Medicine

Douglas K. Miller, MD
Indiana University School of Medicine and Regenstrief Institute for Health Care

Abstract

Objective—This study examines 3-year weight change in African Americans.

Method—Nine hundred and ninety-eight participants 49 to 65 years old were assessed at baseline and 3 years later. Weight was measured, and weight change was defined as clinically meaningful increases or decreases (± 5 kg). Potential risk factors were investigated using multinomial logistic regression.

Results—In-home measured weights were available for 752 participants (75%): 504 (67%) had stable weights, 131 (17%) gained more than 5 kg, and 117 (16%) lost more than 5 kg. Among all participants, the risks for weight gains were cancer, chronic obstructive pulmonary disease, lower income, and Medicaid status; the risks for weight losses were angina, cancer, high measured systolic blood pressure, asthma, and physical inactivity. Sexstratified analyses reveal differences involving age, socioeconomic status, cancer, blood pressure, and lower body function.

Discussion—Three-year weight changes in middle-aged African Americans were frequent and significantly associated with several risk factors.

Keywords

weight change; African Americans; population-based studies

Please address all correspondence to Fredric D. Wolinsky, the John W. Colloton Chair in Health Management and Policy, College of Public Health, the University of Iowa, 200 Hawkins Drive, E-205 General Hospital, Iowa City, IA 52242; fredric-wolinsky@uiowa.edu.

It is widely known that the United States has been experiencing an epidemic of overweight, obesity, and severe obesity (Department of Health & Human Services [DHHS], 2001; Himes, 2004; National Heart, Lung, & Blood Institute [NHLBI], 1998; Zablotsky & Mack, 2004) and that the effects of such excessive weight on physical and mental health are quite detrimental, if not devastating (Bjerkeset, Romundstad, Evans, & Gunnell, 2008; DHHS, 2001; Kahng, Dunkle, & Jackson, 2004; Krueger, Rogers, Hummer, & Boardman, 2004; McLaren, Beck, Patten, Fick, & Adair, 2008; Mukamal, Kawachi, Miller, & Rimm, 2007; Strine et al., 2008; Thorpe & Ferraro, 2004; Wray, Blaum, Ofstedal, & Herzog, 2004). Furthermore, it is well established that weight gain at earlier stages of the life course is greatest among African Americans (Kahng et al., 2004; NHLBI, 1998; Zablotsky & Mack, 2004). Weight gain in later stages of the life course, however, has not been well documented, especially among minorities. The principal reason for this is the dearth of data on older adults in which weight is clinically measured (as opposed to self-reported) and repeated on the same study participants over time (Himes, 2004).

Accordingly, in this article, we describe an examination of 3-year changes in weight and their correlates among the African American Health (AAH) study participants. We conducted both pooled (i.e., men and women) and sex-stratified analyses. The AAH is a large, probability-based sample of late middle-aged adults in which weight was clinically measured in each participant's home at baseline and at the 3-year in-home follow-up. Both clinical measurements used the same highly reliable and valid electronic scales and adhered to a well defined protocol and manual of procedures. Three clinically meaningful categories of weight change status were defined, and multivariable multinomial logistic regression was used to identify statistically independent risk factors for the different types of weight change.

Method

Sample

The design features of the AAH have been reported elsewhere (Miller, Wolinsky, Andresen, Malmstrom, & Miller, 2008; Miller, Wolinsky, Malmstrom, Andresen, & Miller, 2005; Wolinsky, Miller, Andresen, Malmstrom, & Miller, 2005; Wolinsky et al., 2008). The AAH is a population-based panel study of African Americans who were born in 1936 through 1950 and were residing in metropolitan St. Louis, Missouri. Other than age, the inclusion criteria involved self-reported Black or African American race, Mini-Mental Status Examination (MMSE) scores of more than 16 (Molloy, Silberfeld, & Darzins, 1996), and willingness to sign informed consent. To maximize socioeconomic status contrasts, two geographic strata were chosen. One involved a poor, inner-city area of St. Louis, and the other involved nearby, lower middle-class suburbs. Sampling proportions were set to recruit approximately equal numbers of participants from both strata, but the city stratum was oversampled relative to population size because it had fewer eligible participants. In-home, baseline evaluations occurred between September 2000 and July 2001 and averaged 2.5 hours in length. The baseline response rate was 76%. Sampling weights were developed based on three factors: (a) the probability of selection based on the proportion of area street segments and housing units and (when appropriate) the number of eligible persons in the household, (b) sample nonresponse, and (c) a poststratification weight for population nonresponse or noncoverage based on the 2000 Census. When these weights are applied, the AAH cohort represents the noninstitutionalized African American population in the two areas as of the 2000 Census. In-home evaluations also occurred at the 3-year follow-up and averaged 1.7 hours.

Measuring Weight

At both baseline and the 3-year follow-up, weight was clinically measured using the portable, electronic Tanita Ultimate Scale Model 2001 (Tanita Corporation of America, Arlington Heights, IL). All study participants were weighed in bare feet and wearing their usual house clothing. The test-retest reliability and criterion validity (i.e., correspondence to certified clinical beam balance scales and dual energy x-ray absorptiometry [DEXA; Hologic QDR 4500W, Bedford, MA]) of this protocol have been established in random subsets of the AAH (Wolinsky et al., 2005). Based on prevailing clinical practice standards and guidelines (DHHS, 2001; NHLBI, 1998), weight change status was classified as clinically meaningful increases or decreases (i.e., >5 kg]) versus stable.

Selection and Attrition Bias

To be included in these analyses, participants had to have measured weights at both baseline and the 3-year follow-up. Of the 998 original AAH participants, 752 (75%) met this criterion and were included in the analytic sample. This created the potential for selection and attrition bias. Therefore, we conducted sensitivity analyses to evaluate whether our results suffered from selection bias. This was done by using a propensity score model to adjust for potential selection and attrition bias (D'Agostino, 1998; Robins, Rotnitzky, & Zhao, 1994; Rosenbaum & Rubin, 1983; Rubin, 1979). We estimated a multivariable logistic regression model of whether participants were included in the analytic sample and computed their predicted probability of inclusion (Hosmer & Lemeshow, 1989). This model included the sociodemographic characteristics, socioeconomic status, health habits, chronic conditions, and functional limitations at baseline (see below). The propensity score model fit the data very well (C statistic = 0.713; Hosmer-Lemeshow statistic p value = .980; Hanley & McNeil, 1982; Hosmer & Lemeshow, 1989). Within each propensity score (predicted probability) quintile, we determined the average participation rate (i.e., inclusion in the analytic sample, or P) and used the inverse ($1/P$) to reweight the already weighted data. This gave greater influence to participants in the analytic sample most like those not included. We then adjusted the propensity score weights so that the final reweighted N was equal to the actual number of participants in the analytic sample (i.e., $N = 752$).

Correlates of Weight Change Status

Previous studies have shown that obesity and presumably weight change in older adults are associated with a variety of factors, including sociodemographic characteristics, socioeconomic status, health habits, chronic conditions, and functional limitations, although few studies have considered all of these factors simultaneously (Himes, 2004; Kahng et al., 2004; Thorpe & Ferraro, 2004; Wray et al., 2004; Zablotsky & Mack, 2004). We evaluated the independent associations between multiple measures of each of these risk factor categories and weight change status simultaneously. Greater detail about the coding of each of these measures may be found elsewhere (Miller et al., 2008; Miller et al., 2005; Wolinsky et al., 2005; Wolinsky et al., 2008). Among the sociodemographic characteristics, we considered age (in years), sex (men vs. women), marital status (dummy variables contrasting being single, widowed, separated or divorced, vs. currently married), living in the inner-city (vs. suburban stratum), a binary subjective marker of race consciousness, a 5-item social support scale, and a measure of how important religion was to each participant. Socioeconomic status was measured using education (in years), objective annual household income (less than $20,000 vs. more than $20,000), perceived household income (dummy variables contrasting being comfortable or having enough to get by vs. not having enough to get by), having used Medicaid in the past year, a binary marker for not having enough money to obtain needed health care, and two binary measures reflecting objectively assessed adverse neighborhood conditions and low home (interior and exterior) quality.

Health habits were measured by self-reports of body mass index (BMI), falls efficacy (Tinetti, Richman, & Powell, 1990), two binary markers reflecting current or past cigarette smoking, alcohol intake (Ewing, 1984), the weekly frequency of walking one-quarter mile or more, and physical activity in general (the seasonally adjusted Yale Physical Activity Scale; YPAS; Dipietro, Caspersen, Ostfeld, & Nadel, 1993). Chronic disease was measured by a set of 11 binary indicators reflecting whether the participant had ever been told by a physician that he or she had a particular disease, including angina, arthritis, asthma, cancer, congestive heart failure, chronic obstructive pulmonary disease (COPD, including pulmonary edema), diabetes, heart attack, hypertension, kidney disease, or stroke. Because of the extent of unknown hypertension in African Americans, we also included binary markers for having more than 140 mm Hg systolic or more than 90 mm Hg diastolic blood pressure based on the average of two readings from reliable and valid electronic sphygmomanometers.

Functional status was measured by physical performance (the Short Physical Performance Battery; 0 to 12 score; Miller et al., 2008), peak expiratory flow based on the average of three readings from standard minimeters, self-reported difficulties with seven activities of daily living (ADLs), seven instrumental ADLs (IADLs), five lower body functional limitations, as well as five upper body limitations, poor self-rated hearing, poor self-rated vision, a binary marker reflecting clinically relevant levels of depressive symptoms (more than 9 or more on the 11-item Center for Epidemiologic Studies Depression scale; CESD-11; Kohout, Berkman, Evans, & Cornoni-Huntley, 1993), the MMSE (Molloy et al., 1996), animal naming (unique count [Goodglass & Kaplan, 1983], and the transformed (0 to 100) SF-36 general health perceptions and vitality scales (Ware, 2007; Ware, Kosinski, & Dewey, 2000).

Analytic Method

After weighting the data to adjust for potential selection and attrition bias, we used multivariable multinomial logistic regression to evaluate the correlates of 3-year weight change status (Hosmer & Lemeshow, 1989). Model development and evaluation followed standard procedures (Concato, Feinstein, & Holford, 1993; Harrell, Lee, & Mark, 1996), with all potential risk factors that demonstrated significant crude associations with weight change status taken into a series of stepwise multivariable procedures. The final model (discussed below) was restricted to risk factors with overall independent associations with weight change status of p <.10. The final model was then re-estimated using only the original survey weights, and those results were compared to the results when the propensity model adjusted weights were used to determine the extent, if any, of selection bias. Because we found no evidence of selection bias (i.e., the original survey weighted and propensity score weighted results were not meaningfully different), we report here only the results using the original survey weights.

Finally, the obesity literature (used here as a proxy for the lack of an extant literature on weight gain and loss in older adults) suggests that there may be sex differences in the risk factors for weight gains or losses (Bjerkeset et al., 2008; DHHS, 2001; Himes, 2004; Kahng et al., 2004; Krueger et al., 2004; McLaren et al., 2008; Mukamal et al., 2007; NHLBI, 1998; Strine et al., 2008; Thorpe & Ferraro, 2004; Wray et al., 2004; Zablotsky & Mack, 2004). Therefore, we also re-estimated the final model separately for men and women. Because this created smaller sample sizes, especially among men, we focused on differences in effect sizes (i.e., the point estimates) in the sex-stratified analyses rather than differences in significance levels.

Results

Descriptive Data

The baseline characteristics of the analytic sample (weighted N = 752) were as follows. Among demographic factors, the mean age at baseline was 57, 42% were men, 16% were widowed, 29% were divorced, and 10% were single. Socioeconomic status was low, with an average educational attainment of 12.4 years, 26% living in the inner-city strata, 14% reporting having used Medicaid in the past year, 31% reporting annual family incomes of less than $20,000, and 15% reporting not having enough income to make ends meet. Self-reported morbidity was considerable, with 8% reporting angina, 49% reporting arthritis, 10% reporting asthma, 9% reporting cancer, 3% reporting COPD, 26% reporting diabetes, 35% reporting heart disease, 67% reporting hypertension, and 10% reporting stroke. In terms of functional status and health behaviors, the mean MMSE score was 27.7, the average number of ADLs with difficulty was 0.7 (out of 7 tasks), the average number of IADLs was 0.7 (out of 6 tasks), the mean number of lower body limitations was 2.0 (out of 5 tasks), 21% had fallen in the last year, the mean score on the seasonally adjusted YPAS was 32.7 (range 1 to 129), 35% were current smokers, and the mean BMI was 29.9. SF-36 scale scores (i.e., 0 to 100 but not standardized) were 61.6 on the Vitality scale and 84.6 on the General Health Perceptions scale. The mean CESD-11 score was 5.1 (range = 0 to 22), with 23% having clinically relevant levels of depressive symptoms (a CESD-11 score of more than 9). Health services use was frequent, with a mean number of physician visits in the year prior to baseline of 5.1 and 17% having been hospitalized during that period.

Multivariable Multinomial Logistic Regression

By the 3-year follow-up, 504 participants in the analytic sample (67%) had stable weights, 131 (17%) gained more than 5 kg, and 117 (16%) lost more than 5 kg. As noted earlier, we did not find any evidence of selection bias (i.e., the original survey weighted and propensity score weighted results were not meaningfully different). Therefore, we report here only the results using the original survey weights. Table 1 contains the adjusted odds ratios (AORs) and individual and overall p values obtained from the final multivariable multinomial logistic regression model predicting weight changes status. The largest independent risks for clinically meaningful weight gains were cancer (AOR = 4.074, p = .001), chronic obstructive lung disease (COPD, including edema) (AOR = 3.768, p = .002), low income (comfortable income AOR = 0.564, p = .011), and being on Medicaid (AOR = 2.060, p = .017). The largest independent risks for clinically meaningful weight losses were angina (AOR = 4.144, p = .001), cancer (AOR = 2.810, p = .024), high systolic blood pressure (AOR = 2.550, p = .001), asthma (AOR = 2.414, p = .019), and physical inactivity (AOR = 0.982 per YPAS point, p = .007).

Sex-Stratified Analyses

Tables 2 and 3 contain the AORs and individual and overall p values obtained from the final multivariable multinomial logistic regression model predicting weight changes status when the final model was re-estimated separately for women (Table 2) and for men (Table 3). Because this created smaller sample sizes, especially among the men, it is prudent to focus only on differences in effect sizes (i.e., the AORs) rather than on differences in the significance levels. Overall, the results of the sex-stratified analyses were similar, although there were six noteworthy exceptions involving age, socioeconomic status, cancer, blood pressure, and lower body function. Age was only associated with weight changes in men, with older men less likely to gain weight. Comfortable income levels were also only associated with weight changes in men, with men having higher incomes being more likely to lose weight and less likely to gain weight. Men on Medicaid were also more likely to lose weight. Cancer was associated with weight change in both men and women, but for men, it increased the risk of weight loss, whereas for women it increased the risk of weight gain. High blood pressure was associated with weight change only in women. Self-reported hypertension increased women's risk of weight gain and decreased their risk of weight loss, whereas uncontrolled blood pressure (i.e., measured systolic readings of more than 140 mm/hg) increased the risk of both weight loss and weight gain in women. Women with lower body limitations were less likely to lose weight.

Discussion

We examined the associations between multiple measures of sociodemographic characteristics, socioeconomic status, health habits, disease history, and functional status with 3-year weight change status in a large, probability sample of middle-aged African American men and women. Focusing on clinically meaningful (more than 5 kg) weight gains or losses, we found that two thirds of our participants had stable weights, whereas 17% had gained weight and 16% had lost weight. Thus, fully one third of our participants met or exceeded the threshold for clinically meaningful weight changes during just 3 years of follow-up.

Although statistically significant, independent associations were found in the pooled analyses of men and women for at least one measure in each risk factor category, there were few large effects; however, those effects were quite large. Indeed, in the pooled analyses of men and women, the major risks for 3-year clinically meaningful weight gain, in descending order of magnitude, were cancer, having COPD, lower income, and being on Medicaid. And the major risks for 3-year clinically meaningful weight loss, again in descending order of magnitude, were having angina or cancer, having high measured systolic blood pressure, asthma, and physical inactivity. The sex-stratified analyses revealed meaningful differences involving age, socioeconomic status, cancer, blood pressure, and lower body function. Age and socioeconomic status were important only for men, cancer had significant but different associations with weight change for women versus men, and high blood pressure and lower body limitations were important only for women. We expect that the explanations for these sex differences are linked to lifestyle and/or clinical factors, but further speculation is not prudent until these differential associations are confirmed in other population-based samples of African Americans.

Our findings should be tempered for two reasons, both of which involve external validity. First, we only enrolled middle-aged African Americans in one community into our study, and we do not have data on Anglo Americans and Hispanic Americans for direct comparisons. Second, our participants were, on average, quite overweight if not obese (i.e., the mean BMI at baseline was 29.9). Thus, although our sample is fully representative of the community that we studied, both the distribution of clinically meaningful weight change and its correlates may be quite different in other middle-aged African American samples in which overweight and obesity are less common.

These limitations notwithstanding, our results show that 3-year clinically meaningful weight changes in middle-aged African Americans were both frequent and significantly associated with a number of sociodemographic characteristics, socioeconomic status, health habits, disease history, and functional status. Thus, although obesity is typically acquired early in the life course, clinically relevant weight changes continue to occur throughout later stages of the life course as well. This represents a serious public health issue.

Acknowledgments

This study was supported, in part, by National Institute of Health Grant R01 AG-10436 to Douglas K. Miller. Dr. Wolinsky is Center co–principal investigator of the Center for Research in the Implementation of Innovative Strategies in Practice at the Iowa City VA Health Care System, which is funded through the Department of Veterans Affairs, Veterans Health Administration, Health Services Research and Development Service (HFP 04-149). The opinions expressed here are those of the authors and do not necessarily reflect those of any of the funding, academic, or governmental institutions involved.

References

Bjerkeset O, Romundstad P, Evans J, Gunnell D. Association of adult body mass index and height with anxiety, depression, and suicide in the general population: The HUNT study. American Journal of Epidemiology. 2008; 167:193–202. [PubMed: 17981889]

Concato J, Feinstein AR, Holford TR. The risk of determining risk with multivariable models. Annals of Internal Medicine. 1993; 118:201–210. [PubMed: 8417638]

D'Agostino RB. Propensity score methods for bias reduction in the comparison of a treatment to a non-randomized control group. Statistics in Medicine. 1998; 17:2265–2281. [PubMed: 9802183]

Department of Health & Human Services. The Surgeon General's call to action to prevent and decrease overweight and obesity. Rockville, MD: Author; 2001.

Dipietro L, Caspersen CJ, Ostfeld AM, Nadel ER. A survey for assessing physical activity among older adults. Medical Science & Sports Exercise. 1993; 25:628–642.

Ewing JA. Detecting alcoholism: The CAGE questionnaire. Journal of the American Medical Association. 1984; 252:1905–1907. [PubMed: 6471323]

Goodglass, H.; Kaplan, E. The assessment of aphasia and related disorders. 2nd. Philadelphia: Lea & Febiger; 1983.

Hanley JA, McNeil BJ. The meaning and use of the area under a receiver operating characteristic (ROC) curve. Radiology. 1982; 143:29–36. [PubMed: 7063747]

Harrell FE, Lee KL, Mark DB. Multivariable prognostic models: Issues in developing models, evaluating assumptions and adequacy, and measuring and reducing errors. Statistics in Medicine. 1996; 15:361–387. [PubMed: 8668867]

Himes CL. Obesity in later life: An overview of the issues. Research on Aging. 2004; 26:3–12.

Hosmer, DW.; Lemeshow, S. Applied logistic regression. New York: Wiley; 1989.

Kahng SK, Dunkle RE, Jackson JS. The relationship between the trajectory of body mass index and health trajectory among older adults: Multilevel modeling analyses. Research on Aging. 2004; 26:31–61.

Kohout FJ, Berkman LF, Evans DA, Cornoni-Huntley J. Two shorter forms of the CES-D (Center for Epidemiological Studies Depression) depression symptoms index. Journal of Aging and Health. 1993; 5:179–193. [PubMed: 10125443]

Krueger PM, Rogers RG, Hummer RA, Boardman JD. Body mass, smoking, and overall cause-specific mortality in older U.S. adults. Research on Aging. 2004; 26:82–107.

McLaren L, Beck CA, Patten SB, Fick GH, Adair CE. The relationship between body mass index and mental health. A population-based study of the effects of the definition of mental health. Social Psychiatry and Psychiatric Epidemiology. 2008; 43:63–71. [PubMed: 17960318]

Miller DK, Wolinsky FD, Andresen EM, Malmstrom TK, Miller JP. Adverse outcomes and correlates of change in the Short Physical Performance Battery (SPPB) over 36 months in the African American Health project. Journals of Gerontology Series A: Medical Sciences. 2008; 63A:487–494.

Miller DK, Wolinsky FD, Malmstrom TK, Andresen EM, Miller JP. Inner city middle aged African Americans have excess frank and subclinical disability. Journals of Gerontology Series A: Medical Sciences. 2005; 60A:207–212.

Molloy DW, Silberfeld M, Darzins P. Measuring capacity to complete an advance directive. Journal of the American Geriatrics Society. 1996; 44:660–664. [PubMed: 8642156]

Mukamal KJ, Kawachi I, Miller M, Rimm EB. Body mass index and risk of suicide among men. Archives of Internal Medicine. 2007; 167:468–475. [PubMed: 17353494]

National Heart, Lung, & Blood Institute. Clinical guidelines on the identification, evaluation, and treatment of overweight and obesity in adults. Washington, DC: National Academy Press; 1998.

Robins JM, Rotnitzky A, Zhao LP. Estimation of regression coefficients when some regressors are not always observed. Journal of the American Statistical Association. 1994; 89:846–866.

Rosenbaum PR, Rubin DB. The central role of the propensity score in observational studies for causal effects. Biometrika. 1983; 70:41–55.

Rubin DB. Using multivariate matched sampling and regression adjustment to control bias in observational studies. Journal of the American Statistical Association. 1979; 74:318–324.

Strine TW, Mokdad AH, Dube SR, Balluz LS, Gonzalez O, Berry JT, et al. The association of depression and anxiety with obesity and unhealthy behaviors among community-dwelling US adults. General Hospital Psychiatry. 2008; 30:127–137. [PubMed: 18291294]

Thorpe RJ Jr, Ferraro KE. Aging, obesity, and mortality: Misplaced concerns about obese older people? Research on Aging. 2004; 26:108–129. [PubMed: 22707808]

Tinetti ME, Richman D, Powell L. Falls efficacy as a measure of fear of falling. Journal of Gerontology. 1990; 45:P239–P243. [PubMed: 2229948]

Ware, JE. Users manual for the SF-36v2tm Health Survey. Lincoln, RI: QualityMetric; 2007.

Ware, JE.; Kosinski, M.; Dewey, JE. How to score Version 2 of the SF-36 Health Survey. Boston: QualityMetric; 2000.

Wolinsky FD, Miller DK, Andresen EM, Malmstrom TK, Miller JP. Reproducibility of physical performance and physiologic assessments. Journal of Aging and Health. 2005; 17:111–124. [PubMed: 15750047]

Wolinsky FD, Miller TR, Malmstrom TK, Miller JP, Schootman M, Andresen EM, et al. Self-rated health: Changes, trajectories, and their antecedents among African Americans. Journal of Aging and Health. 2008; 20:143–158. [PubMed: 18192487]

Wray LA, Blaum CS, Ofstedal MB, Herzog RA. Diabetes diagnosis and weight loss in middle-aged adults. Research on Aging. 2004; 26:62–81.

Zablotsky D, Mack KA. Changes in obesity prevalence among women aged 50 years and older: Results from the Behavioral Risk Factor Surveillance System, 1990-2000. Research on Aging. 2004; 26:13–30.

Table 1

Adjusted Odds Ratios From the Final Multivariable Multinomial Logistic Regression Model of Three-Year Weight Change Groups Among All AAH Men and Women With Complete Data (*N* = 741)

Variable	5 kg or More Loss in Weight.(*n* = 106)	No Change in Weight (*n* = 504)	5 kg or More Gain in Weight (*n* = 131)	Overall *p* Value
Age (per year)	1.021	1.000	0.940*	.028
Widowed	0.672	1.000	0.361*	.043
Comfortable income	1.196	1.000	0.564*	.019
Being on Medicaid	1.881	1.000	2.183*	.033
BMI (per BMI unit)	1.052*	1.000	0.975	.007
YPAS Score (per YPAS point)	0.982**	1.000	0.993	.011
Self-reported angina	4.144***	1.000	0.952	.001
Self-reported asthma	2.414*	1.000	1.700	.048
Self-reported hypertension	0.647	1.000	1.478	.040
Self-reported diabetes	0.898	1.000	0.407**	.021
Self-reported cancer	2.810*	1.000	4.074***	.002
Self-reported COPD	1.134	1.000	3.768**	.008
Self-reported stroke	0.978	1.000	0.235	.085
Systolic blood pressure >140mg Hg	2.550***	1.000	1.301	.001
ADL count (per ADL)	1.233	1.000	1.222	.095
Lower body disability count (per disability)	0.809*	1.000	1.019	.056
SF-36 general health perceptions	0.991	1.000	1.014*	.010

Note: AAH = African American Health; BMI = body mass index; YPAS = Yale Physical Activity Score; COPD = Chronic Obstructive Pulmonary Disease; ADL = Activities of Daily Living. Eleven AAH men and women were excluded from the multivariable analysis because of missing data on one or more covariate(s).

* p <.05.

** p <.01.

*** p <.001.

Table 2

Adjusted Odds Ratios From the Final Multivariable Multinomial Logistic Regression Model of Three-Year Weight Change Groups. Among All AAH Women With Complete Data (*N* = 434)

Variable	5 kg or More Loss in Weight (*n* = 66)	No Change in Weight (*n* = 286)	5 kg or More Gain in Weight (*n* = 82)	Overall *p* Value
Age (per year)	1.063	1.000	0.853***	.001
Widowed	0.709	1.000	0.421	.169
Comfortable income	0.734	1.000	0.754	.481
Being on Medicaid	2.356*	1.000	1.636	.101
BMI (per BMI unit)	1.061*	1.000	0.956	.001
YPAS Score (per YPAS point)	0.979*	1.000	0.986	.009
Self-reported angina	2.659	1.000	0.642	.080
Self-reported asthma	2.950*	1.000	2.129	.040
Self-reported hypertension	0.429*	1.000	2.893**	.001
Self-reported diabetes	1.269	1.000	0.535	.168
Self-reported cancer	2.417	1.000	3.555*	.032
Self-reported COPD	0.718	1.000	4.316**	.008
Self-reported stroke	0.984	1.000	0.175	.092
Systolic blood pressure >140mg Hg	2.219*	1.000	1.943*	.009
ADL count (per ADL)	1.254	1.000	1.195	.237
Lower body disability count (per disability)	0.723**	1.000	1.086	.007
SF-36 general health perceptions	0.986	1.000	1.002	.237

Note: AAH = African American Health; BMI = body mass index; YPAS = Yale Physical Activity Score; COPD = chronic obstructive pulmonary disease; ADL = activities of daily living. Seven AAH women were excluded from the multivariable analysis because of missing data on one or more covariate(s).

* p <.05.

** p <.01.

*** p <.001.

Table 3

Adjusted Odds Ratios From the Final Multivariable Multinomial Logistic Regression Model of Three-Year Weight Change Groups Among All AAH Men With Complete Data (*N* = 307)

Variable	5 kg or More Loss in Weight (*n* = 40)	No Change in Weight (*n* = 218)	5 kg or More Gain in Weight (*n* = 50)	Overall *p* Value
Age (per year)	0.941	1.000	1.056	.223
Widowed	0.610	1.000	0.141	.349
Comfortable income	5.928**	1.000	0.254***	.001
Being on Medicaid	0.765	1.000	1.426	.845
BMI (per BMI unit)	1.097	1.000	0.960	.117
YPAS score (per YPAS point)	0.997	1.000	1.004	.869
Self-reported angina	12.791***	1.000	0.541	.001
Self-reported asthma	1.849	1.000	0.599	.595
Self-reported hypertension	1.027	1.000	0.721	.696
Self-reported diabetes	0.502	1.000	0.151*	.019
Self-reported cancer	5.678*	1.000	8.318	.041
Self-reported COPD	1.899	1.000	8.590	.222
Self-reported stroke	1.166	1.000	0.273	.641
Systolic blood pressure >140mg Hg	4.078**	1.000	0.793	.005
ADL count (per ADL)	1.100	1.000	1.823*	.063
Lower body disability count (per disability)	1.063	1.000	0.796	.434
SF-36 general health perceptions	0.983	1.000	1.038***	.001

Note: AAH = African American Health; BMI = body mass index; YPAS = Yale Physical Activity Score; COPD = chronic obstructive pulmonary disease; ADL = activities of daily living. Four AAH men were excluded from the multivariable analysis because of missing data on one or more covariate(s). Due to rounding of the weighted *n*'s, they sum to 308, not 307.

* $p < .05$.

** $p < .01$.

*** $p < .001$.