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Weight Loss Advice U.S. Obese Adults Receive from Health Care Professionals

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Abstract

Objectives—To estimate the prevalence of obese patients advised by health professionals about weight loss and weight loss strategies.

Methods—A national sample of 1,873 obese adults (body mass index ≥ 30 kg/m², ≥ 18 years) was surveyed. Multivariable linear regression was used to determine characteristics associated with receiving weight loss advice, and advice on diet and physical activity. Linear regression was used to evaluate characteristics associated with how much weight loss was advised.

Results—Among obese adults visiting a physician (past 12 months), 39.0% reported being advised to lose weight. Men had lower odds of being advised to lose weight. Adults 40–49 years of age, reporting fair/poor health, and chronic diseases had greater odds of being advised to lose weight compared to referent groups. Among adults receiving advice on amount of weight to lose, a mean 20.9% total body weight reduction was recommended. Of those advised to lose weight, 64.2% were told to change their diet, 85.7% to increase physical activity, and 58.5% to use both strategies.

Conclusions—Obese adults should be advised by health professionals more frequently about weight loss and the use of caloric reduction *and* increased physical activity as the recommended weight loss strategy.

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Keywords

weight loss; physician counseling; physical activity; diet; obesity

Introduction

Obesity is a significant public health concern because of its increasing prevalence in the U.S. population, the increased risk of morbidity and mortality from medical conditions associated with obesity such as coronary heart disease, diabetes mellitus and cancer (Pi-Sunyer, 1993), and its attributable medical costs (Finkelstein et al., 2003; Sturm, 2002). Since 1980 the prevalence of U.S. obese adults, aged 20 years, has more than doubled (Ogden et al., 2006). Over a third of the U.S. adult population is currently estimated to be obese (National Center for Health Statistics, 2007).

National guidelines, such as the U.S. Preventive Services Task Force's (USPSTF) Guideline to Clinical Preventative Services (USPSTF, 1996), and the U.S. Department of Health and Human Services' (USDHHS) Clinical Guidelines on the Identification, Evaluation, and Treatment of Overweight and Obesity in Adults (USDHHS, 1998), have recommended that healthcare professionals intervene to prevent and manage the growing prevalence of obesity. The USPSTF's Guidelines (1996) recommend that all patients receive periodic BMI assessments as part of screening for obesity to help obese individuals lose or maintain weight and prevent or manage chronic disease complications. The USDHHS Clinical Guidelines (1998) recommend that individuals identified as obese be advised to initially reduce their weight by 10% over a period of 6 months using both caloric restriction and increased physical activity as the effective strategy to reduce weight (USDHHS, 1998; Miller et al., 1997).

However, less than half of obese individuals who visited their physician in the past year were counseled to lose weight (Galuska et al., 1999; Wadden et al., 2000; Foster et al., 2003; Stafford et al., 2000). A 2005 national study illustrated a trend of decreasing prevalence of weight loss advice to obese patients (Abid et al., 2005). Research on weight loss counseling by healthcare professionals focuses on the prevalence of advice and on factors that may influence giving advice. Less has been documented about specific advice received by patients. This study, using data from the National Physical Activity and Weight Loss Survey (NPAWLS), characterizes the frequency, content, and correlates of weight loss advice received by obese persons from their healthcare professionals.

Methods

Data

Data from NPAWLS, a nationwide telephone survey of households conducted between September 2002 and December 2002, was examined. The primary objective of the survey was to obtain data about individual physical activity and nutrition behaviors. The survey sample design used a list-assisted, random-digit-dial sample of telephone-equipped households in the U.S., similar to that of the Behavior Risk Factor Surveillance System

(BRFSS) survey (Mokdad et al., 2003). A replicate design that mixed telephone numbers from three independent samples was used to achieve racial and ethnic target percentages for Hispanic and non-Hispanic black respondents. NPAWLS had a total of 11,211 complete interviews, with a Council on American Survey Research Organizations (CASRO) response rate of 30.9 % (Frankel, 1983).

Variables

Respondents were asked to report their current height and weight without shoes, which were used to calculate BMI and obesity categories based on USDHHS Clinical Guidelines (1998) (Obese I = BMI 30.0–34.9; Obese II = BMI 35.0–39.9; Extreme Obesity = BMI 40). Respondents were also asked, “In the past 12 months, has a doctor, nurse, or other health professional given you advice about your weight?” Adults responding “yes, lose weight” were asked, “At the time of advice, how much did you weigh”, and “When the health care professional advised you to lose weight, how many pounds or kilograms did they say you should lose?” Respondents were also asked “When the health care professional gave you advice about your weight did they talk to you about physical activity or exercise?” and “... did they talk to you about your intake of fat or calories or both?” (Adults responding “yes, calories” or “yes, both calories and fat” were defined as receiving advice on reducing caloric intake.) Demographic and socioeconomic information obtained included age (18–29, 30–39, 40–49, 50–59, 60–69, 70 years), sex, race/ethnicity (Non-Hispanic White, non-Hispanic Black, Hispanic, Other [which includes Asian, Native Hawaiian/Pacific Islander, American Indian, or Alaskan Native]), marital status (currently, previously [divorced, widowed, or separated], never married), educational level (less than high school, high school, some college, college graduate), and region of residence (Northeast, Midwest, South, West [U.S. Census Bureau, 2007]).

Study Population

Of the total study population of 11,211 participants (aged = 18 years), 6,846 non-obese (BMI <30 kg/m²), 104 pregnant women, 1,147 who reported they had not seen a physician in the past 12 months, and 1,241 participants who had missing anthropometric (weight and height), key demographic, or socioeconomic information were excluded from the analyses. The final sample size was 1,873 obese participants.

Statistical Analysis

SAS (Version 9.1. SAS Institute Inc, Cary, NC) and SUDAAN (Release 9.0. Research Triangle Institute, Research Triangle Park, NC), with appropriate weighting and nesting variables, were used for multivariable analyses. The prevalence and correlates of obese adults was determined using logistic regression and Wald tests. Of the obese individuals who received weight loss advice and who had body weight information at time of advice (N=753), 434 received advice about how much weight to lose. Among these adults, linear regression and t-tests were used to calculate the amount of weight and percentage of current body weight advised to lose and, after controlling for current body weight, differences in weight advised to lose among demographic characteristics. Among the 753 adults who received weight loss advice, 744 obese adults had information on whether they were advised to lose weight using strategies of caloric reduction, increasing physical activity, or both.

Multivariate logistic regression and Wald tests were used to determine the prevalence and demographic correlates of specific weight loss strategies. Two-sided p -values less than 0.05 were considered statistically significant for all analyses.

Results

Demographic characteristics of the study population are provided in Table 1. Among obese adults who had visited a physician in the previous twelve months, an estimated 39.0 % reported being advised to lose weight (Table 1). After adjusting for covariates, women (vs. men), adults 40–49 years old (vs. 18–29 years), and residents of the Northeast and South (vs. of the West) had greater odds of being advised to lose weight. Adults who self-reported fair or poor general health (vs. excellent health) and who self-reported chronic diseases (vs. no chronic disease) had higher odds of being advised to lose weight. Obese and extremely obese individuals were more likely to be advised to lose weight.

Of the 753 people who received advice, 60.4% received advice about how much weight to lose. The 434 adults who received weight loss advice and had weight information available at the time of advice were consulted to lose a mean of 50.1 pounds (SE=1.9) or 20.9% of their total body weight (SE=0.6) (Data not shown). Of the adults who received weight loss advice, the majority, 82.3% (SE=2.2), were told to lose greater than or equal to 10% of their weight. Further assessment found that 47.4% (SE= 3.0) were told to lose greater than or equal to 20%, 20.3% (SE=2.2) were told to lose greater than or equal to 30.0% and 7.7% (SE=1.5) were told to lose greater than or equal to 40.0%. After controlling for BMI at time of advice, the percentage of weight that obese adults were advised to lose was not associated with most sociodemographic variables (Table 2). However, men were advised to lose significantly lower percentages of their total weight compared to women; while adults categorized as other race/ethnicity were advised to lose significantly higher percentages of their total weight compared to Whites.

Among adults receiving weight loss advice, a smaller percentage was advised to reduce calories (64.2%) as a weight loss strategy than to increase physical activity (85.7%); 58.5% were advised to use both strategies (Table 3). Compared to adults ages 18–29 years, adults 70 years had lower odds of receiving advice on physical activity. Residents of the Northeast had lower odds of receiving weight loss advice on both caloric restriction and physical activity than residents of the West. Individuals with high school educations (vs. < high school) had lower odds of receiving advice on caloric restriction.

Discussion

The findings from this study indicate that obese adults are not adequately advised on weight loss. Only 39.0 % of obese adults received advice to lose weight. This estimate is slightly lower than another national study, which observed that 42.3% of obese individuals visiting a physician within the previous 12 months received weight loss advice (Abid et al., 2005). Our results suggest that obese women are more likely to receive weight loss advice from healthcare professionals than obese men. Although two previous studies have also reported this finding, the reason is unclear (Sciamanna et al., 2000; Friedman et al., 1994). Women

have been demonstrated to have greater awareness of their weight status (Wardle and Johnson, 2002), visit their physicians more frequently (Woodwell, 1997), and undertake healthy lifestyle behaviors more than men (Horm and Anderson, 1993; Serdula et al., 1993). Thus, it is possible that women inquire about weight loss strategies, have increased healthcare professional-patient interactions, and are perceived to be more willing to adopt changes that promote weight loss, (Galuska et al., 1999) resulting in higher advisement from healthcare professionals. Our findings also suggest that individuals who have higher BMI, who report poor/fair general health, and who report chronic diseases are more likely to receive advice than individuals who are classified as obese I, who are in excellent general health, and without self-reported chronic diseases. These results are consistent with current literature (Galuska et al., 1999; Sciamanna et al., 2000; Simkin-Silverman et al., 2005; Rodondi et al., 2006) and may indicate that healthcare professionals view obese patients as able to clinically benefit from weight loss advisement.

Over 80% of adults who received weight loss advice were told to lose more than or equal to 10% of their total body weight. The mean percent of weight advised to lose was 20.9%, approximately 11% more than recommended by USDHHS Clinical Guidelines (1998). It should be noted, however, that the survey did not clarify whether the amount of weight they were advised to lose was intended as an initial or an overall weight loss recommendation. Among adults who received weight loss advice, only 58.5% were told to both reduce calories and to increase physical activity. Thus, almost half of adults receiving advice were not told about both USDHHS recommended strategies. A 2005 study of physicians and their patients also reported that less than half of patients who received advice about weight loss were given any specific advice, with less than a third of these patients receiving advice to increase their exercise level (Simkin-Silverman et al., 2005). Reducing caloric intake and increasing physical activity has been shown to be the most effective method to lose weight initially and to maintain weight loss in numerous review articles and meta-analyses (Miller et al., 1997; Blue and Black, 2005; Knauper et al., 2005; Curioni and Lourenco, 2005). Therefore, a discrepancy seems to exist between the recommendations patients report to have received from their healthcare professionals and national clinical guidelines, as well as findings from research studies on the prevalence and content of weight loss advice. Our results also indicate that elderly obese patients are not being advised to exercise as often as younger obese patients, despite the clear benefits of being physically active. These results are in agreement with a study which reported a low prevalence, in addition to a decreasing prevalence of healthcare professional advice to obese elderly patients, as evidenced from a trend analysis (Jackson et al., 2005). The low prevalence of advice to engage in physical activity is disconcerting, as elderly individuals are at high risk for chronic diseases. It is possible that healthcare professionals regard physical activity as an unlikely method for weight control in this population since it requires regular, sustained physical effort, and since some older adults may have physical limitations. Additionally, weight reduction in older adults is not always beneficial, as evidence also indicate that a decreased BMI may be associated with a higher incidence of stroke, whereas a normal or slightly elevated BMI may result in greater reserve capacity (Chernoff, 2005).

Research cites numerous barriers to weight loss counseling. These include the overwhelmingly large population of obese patients; physicians' lack of reimbursement for

obesity treatment; physicians' general lack of training in nutrition, exercise science, and obesity management; and beliefs that obesity is the result of willful misconduct by the patient (Rippe et al., 2001; Sidorov, 2006). Solutions to these barriers may in part be addressed by exploring how healthcare providers could be compensated for counseling, continuing education for healthcare professionals, and referring obese patients to allied health professionals such as dietitians and physical activity specialists as a follow-up of advice to lose weight.

Study Strengths and Limitations

Strengths of this study include the national sample and detailed data on weight status, type of advice given, and advice compliance. This study also has several limitations. First, the amount and type of healthcare professional advice was reported as recalled by the patient. It is unclear whether this truly reflects the interaction with the healthcare professional or rather what the patient perceived. Additionally, BMI data were extracted from self-reported height and weight information. Research demonstrates that self-reported weight tends to be underestimated (Kuskowska-Wolk et al., 1989). Additionally, men typically overestimate and women underestimate their past body weight (Perry et al., 1991; Casey et al., 1995). Another limitation is that information was not available on how fast the patient was recommended to lose weight and whether advice on prevention of future weight rebounding was received. Furthermore, there was no weight information regarding the 1,241 individuals who had missing data. Therefore, it is possible that our final sample did not represent all obese individuals in the sample. Sampling by random digit dialing may have also introduced selection bias, because households without landline phones tend to be those of lower socioeconomic status (Aday, 1989), a factor associated with obesity (Bray, 1992). The survey had a low CASRO response rate, 30.9%, due to a high proportion of nonworking telephone numbers and respondents who hang up. Thus, our results have limited generalizability. Using a less conservative measure of response than the CASRO such as a cooperation rate [complete interviews/(complete interviews + refusals + terminations)], yields a response of 51.4%. The CASRO and cooperation rate in this study may have resulted in a lower estimate of obesity prevalence. The most comparable survey to the NPAWLS is the BRFSS, which had a median CASRO response rate of 58.3% and cooperation rate of 76.7% (CDC, 2002). This paper focused only on obese individuals within the NPAWLS sample. The prevalence of obesity was 16.7% in the original sample of the NPAWLS, compared to 21.9% from the 2002 BRFSS (CDC, 2002).

Conclusion

The NPAWLS data suggest that healthcare professionals including physicians are not taking advantage of their influential role in promoting healthy behaviors among their obese patient population. Healthcare professionals should increase efforts to advise their obese patients about appropriate weight loss strategies.

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Table 1

Sociodemographic and health status characteristics of obese U.S. adults^a and percentage of obese adults who received advice to lose weight, NPAWLS, 2002.

Characteristic	N	%who received advice (SE)	Crude OR (95% CI)	Adjusted ^b OR (95% CI)
Overall	1873	39.0 (1.4)	-	-
Sex				
Male	792	32.3 (1.9)	1.0	1.0
Female	1081	45.4 (1.9)	1.7 (1.4–2.2)	1.8(1.4–2.3)
Age (years)				
18–29	200	30.4 (4.0)	1.0	1.0
30–39	375	30.7 (2.9)	1.0 (0.6–1.6)	1.1 (0.7–1.9)
40–49	439	49.2 (2.9)	2.2 (1.4–3.4)	2.1 (1.3–3.4)
50–59	424	43.4 (2.8)	1.8 (1.1–2.7)	1.4 (0.9–2.4)
60–69	253	41.8 (3.7)	1.6 (1.0–2.6)	1.2 (0.7–2.1)
70+	182	30.5 (4.0)	1.0 (0.6–1.7)	0.7 (0.4–1.2)
Race/ethnicity				
White	1184	38.1 (1.6)	1.0	1.0
Black	385	42.8 (3.2)	1.2 (0.9–1.6)	1.0 (0.7–1.4)
Hispanic	250	35.9 (4.3)	0.9 (0.6–1.4)	1.1 (0.7–1.8)
Other	54	48.1 (8.3)	1.5 (0.8–2.9)	1.6 (0.9–3.1)
Region				
Northeast	286	48.6 (3.6)	2.1 (1.5–3.2)	2.2 (1.4–3.3)
Midwest	380	36.3 (2.9)	1.3 (0.9–1.9)	1.3 (0.9–2.0)
South	838	40.3 (2.0)	1.5 (1.1–2.1)	1.5 (1.1–2.1)
West	369	30.7 (2.9)	1.0	1.0
Education				
< High school	254	39.3 (3.9)	1.0	1.0
High school	560	35.6 (2.4)	0.9 (0.6–1.3)	1.0 (0.7–1.6)
Some college	570	39.8 (2.5)	1.0 (0.7–1.5)	1.4 (0.9–2.1)
College graduate	489	42.0 (2.6)	1.1 (0.8–1.6)	1.5 (1.0–2.3)
General health				
Excellent	171	29.8 (4.0)	1.0	1.0
Very Good	530	32.3 (2.4)	1.1 (0.7–1.7)	1.0 (0.6–1.6)
Good	700	39.0 (2.2)	1.5 (1.0–2.3)	1.2 (0.8–1.9)
Fair	332	49.3 (3.4)	2.3 (1.4–3.6)	1.7 (1.1–2.9)
Poor	140	54.4 (5.3)	2.8 (1.6–4.9)	2.0 (1.1–3.7)
Marital status				
Currently	998	37.3 (1.7)	1.0 (0.7–1.3)	0.8 (0.5–1.1)
Previously	560	44.7 (2.6)	1.3 (0.9–1.9)	0.9 (0.6–1.4)
Never	315	38.3 (3.5)	1.0	1.0
Chronic disease^c				
Yes	937	48.6 (2.0)	2.2 (1.8–2.8)	2.1 (1.6–2.7)

Characteristic	N	%who received advice (SE)	Crude OR (95% CI)	Adjusted ^b OR (95% CI)
No	936	29.9 (1.8)	1.0	1.0
Obese Classification^d				
Obese I	1220	31.3 (1.6)	1.0	1.0
Obese II	413	50.9 (2.9)	2.3 (1.7–3.0)	2.1 (1.6–2.7)
Extreme Obesity	240	59.8 (4.0)	3.3 (2.3–4.7)	2.8 (1.9–4.2)

^aAmong all individuals who visited doctor(s) in the past 12 months

^bSelected characteristic was adjusted for all other covariates

^cDiagnosis of high blood pressure, heart disease, or diabetes CI, confidence interval; NPAWLS, National Physical Activity and Weight Loss Survey; OR, odds ratio; SE, standard error

^dObese I (BMI: 30.0–34.9); Obese II (BMI: 35.0–39.9); Extreme Obesity (BMI= 40.0)

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Table 2

Weight advised to lose by sociodemographics among obese U.S. adults^a, aged 18 years and older, NPAWLS, 2002.

		greater than or equal to 10% of weight (SE)	% of total weight advised to be lost (SE)	(lbs) advised to be lost (SE)
Overall	434 ^c	82.3(2.2)	-	18
Sex			<i>p</i> <0.01	<i>p</i> =0.94
Male	169	74.5(3.7)	18.2 (0.8)	50.0 (3.0)
Female	265	87.7(2.5)	22.7 (0.8)	50.2 (1.9)
Age (years)			<i>p</i> =0.85	<i>p</i> =0.68
18–29	41	84.6(6.1)	21.5 (2.0)	48.0 (4.9)
30–39	78	84.1(5.5)	20.4 (1.4)	48.3 (3.8)
40–49	124	84.4(3.7)	22.0 (1.1)	54.4 (2.9)
50–59	112	73.7(4.7)	20.1 (1.2)	48.6 (3.0)
60–69	58	89.3(4.4)	20.2 (1.3)	49.3 (4.1)
70+	21	78.6(11.2)	20.3 (2.1)	47.7 (4.4)
Race/ethnicity			<i>P</i> <0.01	<i>p</i> =0.02
White	245	84.3(2.5)	21.2 (0.7)	52.2 (1.9)
Black	107	77.2(5.0)	18.5 (1.3)	43.0 (3.6)
Hispanic	64	72.4(8.4)	20.8 (1.7)	47.9 (4.0)
Other	18	100.0(0.0)	26.7 (1.7)	59.1 (4.1)
Region			<i>p</i> =0.83	<i>p</i> =0.76
Northeast	76	86.1(4.7)	20.5 (1.3)	48.4 (3.2)
Midwest	72	88.7(4.5)	21.5 (1.6)	52.9 (4.0)
South	212	79.6(3.3)	21.1 (0.8)	50.5 (2.2)
West	74	78.9(5.4)	19.9 (1.4)	47.9 (3.6)
Education			<i>p</i> =0.37	<i>p</i> =0.70
<High school	66	83.3(5.3)	22.4 (1.7)	53.4 (4.9)
High school	111	86.8(3.9)	21.9 (1.1)	51.9 (3.1)
Some college	134	77.6(4.4)	20.1 (1.1)	48.0 (2.8)
College graduate	123	82.7(3.7)	20.0 (1.0)	49.1 (2.5)
General health			<i>p</i> =0.79	<i>p</i> =0.87
Excellent	34	87.4 (6.9)	21.3 (1.6)	51.3 (3.4)
Very good	98	86.1(3.5)	21.0 (1.0)	50.1 (2.5)
Good	160	79.1(3.8)	20.0 (0.9)	48.0 (2.5)
Fair	97	83.1(4.7)	21.9 (1.6)	51.9 (3.6)
Poor	45	79.3(7.2)	21.4 (2.1)	52.9 (6.8)
Marital status			<i>p</i> =0.19	<i>p</i> =0.72
Currently married	225	79.9(3.0)	20.0 (0.8)	49.2 (2.2)
Previously married	131	84.0(4.0)	22.1 (1.3)	50.5 (3.2)
Never married	78	88.3(4.3)	22.2 (1.2)	52.6 (3.3)
Chronic Disease^d			<i>p</i> =0.66	<i>p</i> =0.49

		greater than or equal to 10% of weight (SE)	% of total weight advised to be lost (SE)	(lbs) advised to be lost (SE)
Yes	270	80.5(2.8)	21.1 (0.8)	51.0 (2.1)
No	164	84.8(3.3)	20.6 (0.8)	48.8 (2.3)
Obese Classification^e			<i>P</i> <0.01	<i>P</i> <0.01
Obese I	230	81.0(3.0)	17.5 (0.6)	37.2 (1.5)
Obese II	127	83.2(3.9)	22.5 (1.1)	54.2 (3.0)
Extreme Obesity	77	84.8(5.2)	29.4 (1.9)	86.7 (6.5)

^a Among those who received weight loss advice from their health professional.

^b Adjusted for body mass index (BMI) only.

^c A total of 753 adults received weight loss advice. Of these individuals, 26 were excluded because information about their body weight at time of advice was not obtained. Additionally, the study excluded 293 individuals who were not told to lose a specific amount of weight.

^d Diagnosis of high blood pressure, heart disease, or diabetes. NPAWLS, National Physical Activity and Weight Loss Survey; SE, standard error

^e Obese I (BMI: 30.0–34.9); Obese II (BMI: 35.0–39.9); Extreme Obesity (BMI= 40.0)

Table 3 Prevalence and odds of obese U.S. adults who received weight loss advice to modify diet, increase physical activity, or both, NPAWLS, 2002.

	N	Diet		Physical activity		Both	
		% who received diet advice (SE)	Adjusted ^b OR (95% CI)	% who received physical activity advice (SE)	Adjusted ^b OR (95% CI)	% who received diet and physical activity advice (SE)	Adjusted ^b OR (95% CI)
Overall	744 ^c	64.2(2.2)	--	85.7(1.5)	--	58.5(2.2)	--
Sex							
Male	271	61.3(3.5)	1	85.3(2.3)	1	56.0(3.5)	1
Female	473	66.1(2.8)	1.3(0.9,1.9)	85.9(1.9)	1.1(0.7,1.8)	60.1(2.9)	1.2(0.9,1.8)
Age (years)							
18–29	60	52.0(8.0)	1	93.0(3.7)	1	47.5(7.9)	1
30–39	119	70.1(5.5)	1.9(0.8,4.3)	88.0(3.4)	0.5(0.1,1.8)	66.7(5.6)	1.8(0.8,4.1)
40–49	213	69.3(3.8)	1.7(0.8,3.7)	88.9(2.4)	0.6(0.2,1.8)	66.2(3.9)	1.8(0.9,3.8)
50–59	196	63.9(3.9)	1.2(0.6,2.7)	82.5(3.1)	0.4(0.1,1.2)	58.6(4.0)	1.2(0.6,2.6)
60–69	102	63.6(5.8)	1.1(0.5,2.6)	86.5(3.7)	0.5(0.1,1.8)	54.4(5.9)	1.0(0.4,2.2)
70+	54	51.6(8.1)	0.7(0.3,1.9)	66.8(8.2)	0.1(0.0,0.5)	34.9(7.2)	0.4(0.2,1.1)
Race/Ethnicity							
White	450	61.8(2.7)	1	84.1(1.9)	1	55.7(2.7)	1
Black	178	69.2(4.3)	1.2(0.7,2.0)	87.5(3.0)	1.3(0.7,2.4)	64.1(4.5)	1.3(0.8,2.1)
Hispanic	89	65.8(7.7)	1.1(0.5,2.2)	89.4(3.6)	1.7(0.7,4.0)	62.0(7.7)	1.2(0.6,2.4)
Other	27	75.1(11.1)	1.7(0.4,7.4)	93.7(6.1)	2.5(0.4,17.4)	68.9(11.7)	1.6(0.4,6.0)
Region							
Northeast	137	48.4(5.2)	0.6(0.3,1.2)	82.8(3.6)	0.8(0.4,1.8)	41.3(5.0)	0.5(0.2,0.9)
Midwest	141	65.8(4.6)	1.3(0.7,2.4)	87.4(3.1)	1.3(0.6,3.0)	60.0(4.8)	1.0(0.5,1.9)
South	351	70.3(2.9)	1.4(0.8,2.5)	86.7(2.2)	1.1(0.6,2.3)	64.0(3.1)	1.1(0.6,1.9)
West	115	63.1(5.8)	1	83.6(4.0)	1	61.3(5.8)	1
Education							
< High school	95	79.7(4.6)	1	78.4(5.4)	1	65.1(6.0)	1
High school	206	61.2(4.2)	0.4(0.2,0.8)	87.0(2.5)	1.5(0.7,3.1)	57.5(4.3)	0.7(0.4,1.2)
Some college	236	64.1(3.8)	0.5(0.2,0.9)	86.1(2.6)	1.4(0.7,3.0)	58.1(3.9)	0.7(0.4,1.3)
College graduate	207	60.3(4.1)	0.4(0.2,0.8)	87.0(2.6)	1.6(0.7,3.8)	56.8(4.1)	0.7(0.4,1.3)

	Diet		Physical activity		Both		
	N	% who received diet advice (SE)	Adjusted ^b OR (95% CI)	% who received physical activity advice (SE)	Adjusted ^b OR (95% CI)	% who received diet and physical activity advice (SE)	Adjusted ^b OR (95% CI)
General Health							
Excellent	55	53.0(7.9)	1	92.3(3.9)	1	53.0(7.9)	1
Very Good	174	62.9(4.5)	1.4(0.7,2.8)	85.7(2.8)	0.5(0.1,1.8)	57.5(4.6)	1.1(0.5,2.2)
Good	285	61.9(3.6)	1.3(0.6,2.6)	87.3(2.2)	0.6(0.2,1.9)	58.3(3.6)	1.1(0.5,2.1)
Fair	162	66.0(4.6)	1.4(0.7,3.1)	85.2(3.8)	0.5(0.1,1.8)	58.6(4.9)	1.1(0.5,2.2)
Poor	68	80.2(5.3)	2.4(0.9,6.1)	75.8(6.0)	0.2(0.1,1.0)	65.0(6.7)	1.1(0.4,2.7)
Marital Status							
Current	374	65.2(2.8)	1.1(0.6,1.9)	84.8(2.0)	0.9(0.4,2.0)	58.9(2.9)	1.1(0.6,1.9)
Previously	240	64.3(3.9)	0.9(0.5,1.7)	86.3(2.6)	1.5(0.6,3.7)	59.1(4.0)	1.1(0.6,2.1)
Never	130	60.1(6.0)	1	88.1(3.5)	1	55.6(6.0)	1
Chronic Disease^d							
Yes	465	67.3(2.6)	1	85.0(2.0)	1	60.6(2.8)	1
No	279	59.4(3.7)	0.7(0.5,1.1)	86.7(2.2)	0.8(0.5,1.3)	55.2(3.7)	0.7(0.5,1.1)
Obese Classification^e							
Obese I	381	62.1 (3.0)	1.1 (0.7, 1.9)	85.1 (2.1)	1.0 (0.5,1.9)	56.4 (3.1)	1.1 (0.7, 1.8)
Obese II	212	68.3 (3.8)	1.3 (0.8, 2.3)	85.9 (2.8)	1.0 (0.5, 2.2)	62.0 (3.9)	1.3 (0.7, 2.2)
Extreme Obesity	151	64.0 (5.1)	1	86.8 (3.2)	1	59.1 (5.1)	1

^a Among individuals that had received advice to lose weight

^b Adjusted for all other covariates

^c A total of 753 adults received weight loss advice. Of these individuals, 9 were excluded due to missing data on specific type of advice given (diet, physical activity, or both)

^d Diagnosis of high blood pressure, heart disease, or diabetes CI, confidence interval; NPAWLS, National Physical Activity and Weight Loss Survey; SE, standard error

^e Obese I (BMI: 30.0–34.9); Obese II (BMI: 35.0–39.9); Extreme Obesity (BMI= 40.0)