



Colorado Department
of Public Health
and Environment

Health Statistics Section

Alyson Shupe, Ph.D.,
Section Chief

Monica Clancy

Rickey Tolliver, M.P.H.

Patricia Holguin

Research and Evaluation Unit

Jodi Drisko, M.S.P.H.,
Director

Janelle Mares

Debra Tuenge

Chris Wells, M.S.

Survey Research Unit

Becky Rosenblatt, M.A.,
Director

Mark King

Kathleen Rice

Vital Statistics Unit

Mary Chase, Director

Kirk Bol, M.S.P.H.

Juanita Galvan

4300 Cherry Creek Drive South
Denver, Colorado 80246-1530
(303)692-2160
(800)886-7689

health.statistics@state.co.us
www.cdph.state.co.us/hs/

Weight Control Strategies and the Impact of Health Care Provider Advice on Weight Loss Attempts Among Colorado Adults

Alyson Shupe, Ph.D.; Rickey Tolliver, M.P.H.;* Karen Cox, M.S., R.D., CLC; Karen DeLeeuw, M.S.W.**

Introduction

Overweight and obesity are growing problems among Colorado adults. In 1990, 29.1 percent of Colorado adults were overweight and 6.9 percent were obese; however, by 2006, 36.7 percent were overweight and 18.2 percent were obese.

Obesity is a risk factor for several chronic diseases including cardiovascular disease, certain types of cancer, and diabetes. Chronic diseases accounted for 6 of the 10 leading causes of death in 2006 in Colorado. The medical costs of obesity are also extremely high. An estimated \$874,000,000 in obesity-attributable expenditures were made in Colorado (1998-2000 data).¹

Research is being conducted on effective strategies for weight loss and maintenance. There is strong evidence that the combination of a reduced-calorie diet and increased physical activity produces greater weight loss than diet alone or physical activity alone.² There is also evidence that those who are advised by a health care provider to lose weight are more likely to attempt weight loss than those who are not advised.^{3,4,5} This report describes weight control strategies of Colorado adults and explores the impact of health care provider advice on weight loss attempts.

Methods

The Colorado Behavioral Risk Factor Surveillance System (BRFSS) is an ongoing statewide telephone health survey of Colorado adults ages 18 years and older. Interviews with 6,104 respondents were completed in 2006. All households with telephones have a chance of being selected to participate in the survey, with individual survey respondents being randomly selected from each successfully contacted household. In 2006, the Colorado BRFSS included questions on weight control to examine the prevalence of attempting to lose or maintain weight, to describe weight control strategies among respondents, and to examine the association between being advised to lose weight by a health care provider and weight loss attempts.

* Health Statistics Section, Colorado Department of Public Health and Environment

** Center for Healthy Living and Chronic Disease Prevention, Colorado Department of Public Health and Environment

Results

The respondents were evenly split between males and females. The majority of the respondents were white (76.8%); 16.6 percent were Hispanic and 2.1 percent were African American. Two thirds (66.6%) had at least some college education and about 65 percent were between the ages of 30 to 65 years.

As shown in Table 1, males were more likely to be overweight (44.4%) than females (28.6%). A higher proportion of adults ages 18-29 were at a normal weight than those in older age groups. Both Black (27.1%) and Hispanic (27.0%) adults were significantly more likely to be obese than White, non-Hispanic (16.5%) adults. Those who were college graduates were significantly less likely to be obese than those with lower levels of educational attainment.

Prevalence of losing and maintaining weight

Overall, an estimated 45.4 percent of adults were trying to lose weight; 33.1 percent were trying to maintain weight; and 21.5 percent were not trying to lose or maintain weight. Table 2 presents the proportion of adults trying to lose weight, trying to maintain weight, or doing neither, by weight category and gender. Nearly one in three normal-weight females (32.8%) were trying to lose weight compared to only 7.9 percent of normal-weight males. Nearly three-quarters of overweight females (72.5%) were trying to lose weight compared to less than half (45.1%) of overweight males. Overweight males were more likely to be trying to maintain weight or be doing nothing than overweight females. Similar proportions of obese males and females were trying to lose weight, however obese females were significantly less likely to be doing nothing than obese males.

Table 1. Weight status (based on body mass index) by gender, age, race/ethnicity, and education, 2006

| | Body mass index* | | |
|----------------------------------|------------------------------------------|--------------------------|---------------------|
| | Normal weight % (95% CI) [†] | Overweight % (95% CI) | Obese % (95% CI) |
| Gender | | | |
| Male | 36.6 (34.2-39.0) | 44.4 (42.0-46.8) | 19.0 (17.1-20.8) |
| Female | 54.1 (52.1-56.0) | 28.6 (26.8-30.4) | 17.3 (15.9-18.8) |
| Age | | | |
| 18-29 | 55.9 (51.2-60.6) | 30.0 (25.7-34.4) | 14.1 (10.8-17.4) |
| 30-39 | 42.5 (39.1-45.8) | 39.3 (35.9-42.7) | 18.2 (15.7-20.8) |
| 40-49 | 41.0 (38.0-44.1) | 38.2 (35.1-41.4) | 20.7 (18.1-23.4) |
| 50-59 | 41.7 (38.7-44.7) | 37.9 (34.9-40.9) | 20.4 (17.9-22.9) |
| 60+ | 42.9 (40.4-45.5) | 38.5 (36.0-41.0) | 18.6 (16.6-20.6) |
| Race/ethnicity | | | |
| White | 46.6 (44.9-48.3) | 36.9 (35.3-38.5) | 16.5 (15.3-17.7) |
| Black | 40.8 (29.6-52.0) | 32.1 (21.7-42.5) | 27.1 (17.9-36.2) |
| Hispanic | 35.3 (30.7-39.7) | 37.7 (33.1-42.4) | 27.0 (22.8-31.2) |
| Other | 53.6 (45.0-62.2) | 31.9 (23.7-40.1) | 14.5 (9.0-19.9) |
| Education | | | |
| Less than high school | 40.2 (33.6-46.8) | 36.7 (30.2-43.2) | 23.1 (17.6-28.6) |
| High school | 40.6 (37.2-44.0) | 38.8 (35.4-42.1) | 20.6 (17.9-23.3) |
| Some college or technical school | 45.6 (42.6-48.7) | 33.6 (30.8-36.4) | 20.8 (18.5-23.1) |
| College graduate | 48.3 (46.1-50.6) | 37.6 (35.4-39.8) | 14.0 (12.5-15.5) |

*Body mass index (BMI) is used to calculate weight status: normal weight=BMI of <25kg/m²; overweight =BMI of 25 to <30 kg/m²; obese= BMI of >30 kg/m².

[†] Confidence interval

SOURCE: Colorado Behavioral Risk Factor Surveillance System, Health Statistics Section, Colorado Department of Public Health and Environment.

Table 2. Trying to lose/maintain weight by weight status and gender, 2006

| Body mass index* | Trying to lose weight % (95% CI) [†] | Trying to maintain weight % (95% CI) | Neither % (95% CI) |
|------------------|-----------------------------------------------|--------------------------------------|--------------------|
| Normal | 22.3 (20.5-24.2) | 43.9 (41.5-46.3) | 33.8 (31.4-36.2) |
| Males | 7.9 (5.9-9.9) | 40.5 (36.4-44.6) | 51.6 (47.3-55.9) |
| Females | 32.8 (30.2-35.4) | 46.3 (43.5-49.1) | 20.9 (18.6-23.3) |
| Overweight | 55.3 (52.6-57.9) | 30.5 (28.1-33.0) | 14.2 (12.3-16.1) |
| Males | 45.1 (41.5-48.6) | 36.0 (32.6-39.5) | 18.9 (16.1-21.7) |
| Females | 72.5 (69.1-75.9) | 21.3 (18.2-24.4) | 6.2 (4.4-8.0) |
| Obese | 77.8 (74.6-80.9) | 14.8 (12.1-17.5) | 7.4 (5.4-9.6) |
| Males | 72.1 (67.1-77.1) | 17.7 (13.5-22.0) | 10.2 (6.6-13.7) |
| Females | 84.5 (81.3-87.7) | 11.2 (8.4-14.1) | 4.3 (2.6-5.9) |

*Body mass index (BMI) is used to calculate weight status: normal weight=BMI of <25kg/m²; overweight =BMI of 25 to <30 kg/m²; obese= BMI of >30 kg/m².

[†] Confidence interval

SOURCE: Colorado Behavioral Risk Factor Surveillance System, Health Statistics Section, Colorado Department of Public Health and Environment.

Strategies for maintaining and losing weight

Overall, about 59.0 percent of adults reported that they were using both diet and physical activity to control their weight; 12.3 percent were using diet only; 21.2 percent were using physical activity only; and 7.4 percent reported not using either diet or physical activity to lose or maintain weight.

Among adults trying to maintain weight, about 12.5 percent reported modifying their diet only; 32.6 percent reported using physical activity only; 41.6 percent reported using both

physical activity and modifying their diet; and 13.3 percent reported not trying using physical activity or diet as a strategy to maintain weight.

Among adults trying to lose weight, 12.0 percent reported modifying their diet only; 12.9 percent reported using physical activity only; 71.8 percent reported using both physical activity and modifying their diet; and 3.1 percent reported not trying using physical activity or diet as a strategy to lose weight.

As shown in Table 3, about half of both normal-weight males and females were using diet and physical activity to lose or maintain weight. Overweight females (70.4%) were much more likely to be using a combination of diet and physical activity to lose or maintain weight than were overweight males (56.6%), who were more likely than females to rely on physical activity alone. Whereas similar proportions of obese males and females were using a combination of diet and physical activity to lose or maintain weight, a higher proportion of obese males were relying on physical activity alone. Overall, obese adults were more likely to rely on diet alone and less likely to rely on physical activity alone to lose or maintain weight than were normal or overweight adults.

Advised to lose weight by a health care provider

Overall, only 17.0 percent of overweight adults and 40.7 percent of obese adults who had a medical checkup in the past twelve months were advised by their health care provider to lose weight.

Among the nearly 25 percent of overweight and obese adults who had a medical checkup in the past twelve months and were advised to lose weight, 90 percent (88.8% overweight and 92.2% obese) reported that they were also trying to lose weight. However, among those who are overweight and obese and did not receive advice to lose weight, only 58 percent

Table 3. Weight loss/maintenance strategies of those trying to lose or maintain weight by weight status and gender, 2006

| Body mass index* | Diet and physical activity % (95% CI)[†] | Diet only % (95% CI) | Physical activity only % (95% CI) | Neither % (95% CI) |
|-------------------------|----------------------------------------------------------|-----------------------------|------------------------------------------|---------------------------|
| Normal | 51.6 (48.8-54.5) | 8.8 (7.3-10.3) | 29.0 (26.3-31.6) | 10.6 (8.8-12.4) |
| Male | 46.8 (41.1-52.5) | 7.1 (4.5-9.7) | 33.5 (28.0-39.1) | 12.6 (8.5-16.6) |
| Female | 53.8 (50.6-56.9) | 9.5 (7.6-11.4) | 26.9 (24.1-29.9) | 9.8 (7.9-11.6) |
| Overweight | 62.2 (59.4-65.0) | 12.3 (10.6-14.0) | 20.1 (17.6-22.6) | 5.4 (4.0-6.7) |
| Male | 56.6 (52.7-60.6) | 12.3 (9.9-14.6) | 25.4 (21.8-29.0) | 5.7 (3.7-7.7) |
| Female | 70.4 (66.9-74.0) | 12.4 (10.0-14.8) | 12.4 (9.6-15.1) | 4.8 (3.2-6.4) |
| Obese | 65.1 (61.5-68.7) | 17.0 (14.4-19.7) | 12.2 (9.7-14.7) | 5.6 (3.3-7.9) |
| Male | 63.6 (58.0-69.1) | 14.1 (10.5-17.7) | 16.0 (11.9-20.1) | 6.3 (2.4-10.3) |
| Female | 66.9 (62.3-71.3) | 20.3 (16.5-24.2) | 8.0 (5.5-10.4) | 4.8 (3.0-6.7) |

*Body mass index (BMI) is used to calculate weight status: normal weight=BMI of <25kg/m2; overweight =BMI of 25 to <30 kg/m2; obese= BMI of >30 kg/m2.
[†] Confidence interval

SOURCE: Colorado Behavioral Risk Factor Surveillance System, Health Statistics Section, Colorado Department of Public Health and Environment.

were trying to lose weight. In other words, overweight and obese adults receiving advice to lose weight were 6.5 times more likely to attempt weight loss compared to those who did not receive such advice (OR=6.5, 95% CI =3.5-12.0).

were nearly 3 times as likely to be attempting weight loss than those who were not advised.

A higher proportion of overweight and obese females (28.8%) were advised to lose weight than overweight and obese males (22.3%); however, health care provider advice is especially important for overweight and obese males. As shown in Table 4, overweight and obese males who were advised to lose weight were nearly 11 times more likely to be attempting weight loss than those who had not been advised to lose weight. Females who were overweight or obese and advised to lose weight

Table 4. Advised to lose weight and attempting by weight status vs. not advised and attempting, 2006

| Body mass index* | Advised to lose weight and attempting % (95% CI)[†] | Not advised and attempting % (95% CI) | Odds ratio (95% CI) |
|-------------------------|---------------------------------------------------------------------|----------------------------------------------|----------------------------|
| Overweight | 88.8 (83.6-94.0) | 52.6 (49.1-56.7) | 7.9 (2.8-21.8) |
| Obese | 92.2 (89.0-95.3) | 71.0 (65.3-76.8) | 4.1 (1.8-9.5) |
| Overweight and obese | 90.6 (87.7-93.6) | 57.7 (54.4-60.9) | 6.5 (3.5-12.0) |
| Males | 88.7 (83.9-93.5) | 47.0 (42.3-51.8) | 10.8 (4.4-26.6) |
| Females | 92.5 (89.1-95.8) | 71.7 (68.0-75.4) | 2.7 (1.2-6.4) |

*Body mass index (BMI) is used to calculate weight status: normal weight=BMI of <25kg/m²; overweight =BMI of 25 to <30 kg/m²; obese= BMI of >30 kg/m².

[†] Confidence interval

SOURCE: Colorado Behavioral Risk Factor Surveillance System, Health Statistics Section, Colorado Department of Public Health and Environment.

Discussion

A significantly higher proportion of males were overweight compared to females. However overweight females were significantly more likely to be trying to lose weight than overweight males. Interestingly, nearly one-third of normal-weight females were trying to lose weight. Although the most prevalent strategy for trying to lose or maintain weight among overweight males and females was a combined strategy of diet and physical activity, for those who relied on physical activity only, a significantly higher proportion of males used this strategy than females. Although more males were overweight than females, females were more likely to be advised to lose weight. Health care provider advice to lose weight had a powerful impact on weight loss attempts, particularly for overweight and obese males.



REFERENCES

- 1 Finkelstein EA, Fiebelkorn IC, Wang G. State-level estimates of annual medical expenditures attributable to obesity. *Obesity Research* 2004;12(1):18-24.
- 2 The Clinical Guidelines on the Identification, Evaluation, and Treatment of Overweight and Obesity in Adults: The evidence Report, NIH Publication No. 98-4083, 1998, National Institutes of Health.
- 3 Bish CL, Blanck HM, Serdula MK, Marcus M, Kohl HW 3rd, Khan LK. Diet and physical activity behaviors among Americans trying to lose weight: 2000 Behavioral Risk Factor Surveillance System. *Obesity Research* 2005 Mar;13(3):596-607.
- 4 Abid A, Galuska D, Khan LK, Gellespie C, Ford ES, Serdula MK. Are healthcare professionals advising obese patients to lose weight? A trend analysis. *MedGenMed*, 2005 Oct 12;7(4):10.
- 5 Kant, AK, Miner, P. Physician Advice About Being Overweight: Association with Self-Reported Weight Loss, Dietary, and Physical Activity Behaviors of US Adolescents in the National Health and Nutrition Examination Survey, 1999-2002. *Pediatrics* Vol. 119 No. 1 January 2007, pp. e142-e147.