HHS Public Access

Author manuscript

J Occup Environ Med. Author manuscript; available in PMC 2015 December 16.

Published in final edited form as:

J Occup Environ Med. 2014 May ; 56(5): 516–528. doi:10.1097/JOM.0000000000000133.

Prevalence of Obesity by Occupation Among US Workers:

The National Health Interview Survey 2004–2011

Ja K. Gu, MSPH, **Luenda E. Charles, PhD, MPH**, **Ki Moon Bang, PhD, MPH**, **Claudia C. Ma, MPH**, **Michael E. Andrew, PhD**, **John M. Violanti, PhD**, and **Cecil M. Burchfiel, PhD, MPH**

Biostatistics and Epidemiology Branch, Health Effects Laboratory Division, National Institute for Occupational Safety and Health, Centers for Disease Control and Prevention, Morgantown, WVFrom the Biostatistics and Epidemiology Branch, Health Effects Laboratory Division (Mr Gu, Dr Charles, Mrs Ma, Dr Andrew, and Dr Burchfiel) and Surveillance Branch, Division of Respiratory Disease Studies (Dr Bang), National Institute for Occupational Safety and Health, Centers for Disease Control and Prevention, Morgantown, WV; and Department of Social and Preventive Medicine (Dr Violanti), School of Public Health and Health Professions, State University of New York, University at Buffalo

Abstract

Objective—To estimate the prevalence of obesity and the change of prevalence of obesity between 2004–2007 and 2008–20011 by occupation among US workers in the National Health Interview Survey.

Methods—Self-reported weight and height were collected and used to assess obesity (body mass index ≥ 30 kg/m^2). Gender-, race/ethnicity-, and occupation-specific prevalence of obesity were calculated.

Results—Prevalence of obesity steadily increased from 2004 through 2008 across gender and race/ethnicity but leveled off from 2008 through 2011. Non-Hispanic black female workers in health care support (49.2%) and transportation/material moving (46.6%) had the highest prevalence of obesity. Prevalence of obesity in relatively low-obesity (white-collar) occupations significantly increased between 2004–2007 and 2008–2011, whereas it did not change significantly in high-obesity (blue-collar) occupations.

Conclusions—Workers in all occupational categories are appropriate targets for health promotion and intervention programs to reduce obesity.

The number of obese (body mass index [BMI] ≥ 30 kg/m^2) individuals in the United States has steadily increased over the past 30 years.[1] Data from the 2009–2010 National Health and Nutrition Examination Survey show that the prevalence of obesity has reached 40% among US adults.[2] Results from the National Health and Nutrition Examination Survey show that the prevalence of obesity among women is much higher than among men and it is also higher among non-Hispanic (NH) blacks than among other racial/ethnic groups. Obesity and

Address correspondence to Ja K. Gu, MSPH, National Institute for Occupational Safety and Health, HELD/BEB, Mailstop L-4050, 1095 Willowdale Rd, Morgantown, WV 26505 (jgu@cdc.gov).

None of the authors have any conflicts of interest. Authors used CDC public leased data.

overweight (BMI ≥ 25 kg/m^2) are linked to an increased risk of developing hypertension, dyslipidemia, type 2 diabetes, metabolic syndrome, stroke, coronary heart disease, sleep apnea, gallstones, ovulatory infertility, osteoarthritis, and some cancers (colon, breast, endometrial, and gallbladder).[3] In addition, recent studies have found that obesity is a risk factor for dementia,[4] proteinuria,[5] gout,[6] hirsutism,[7] and urinary incontinence.[8]

Even though the prevalence of obesity in US workers has been lower than in the general US population, the prevalence by gender and race/ethnicity in US workers has shown a similar pattern to the US general population (ie, higher prevalence in women and highest in NH blacks).[9, 10] Obesity among workers may have adverse occupation-related consequences.[9,11,12] Each profession has different job characteristics (labor vs sedentary, shift vs non-shift, most often regular hours vs frequent overtime, non-stressful vs stressful), and there may be differences in prevalence of obesity by occupation type. Caban and colleagues,[10] for the first time, published prevalence of obesity by occupation among US workers during the periods of 1986–1995 and 1997–2002. Their analyses of data during the period of 1997–2002 showed that the occupations with the highest overall prevalence of obesity were motor vehicle operation (31.7%) and police and firefighting (29.8%) for male workers in 41 occupational categories. The highest overall prevalence of obesity for female workers was in the occupations of motor vehicle operation (31.0%) and other protective service (30.5%). The occupations having the lowest prevalence during the same period were health technologists/technicians (13.7%) and architects/surveyors (14.5%) for male workers, and construction/extractive trades (6.9%) and architects/survey (7.3%) for female workers. During the period of 1986–2002, the prevalence of obesity among US workers significantly increased regardless of race and gender. Nevertheless, the trend of prevalence of obesity after 2002 among US workers has not been reported.

The aims of this study were (1) to estimate the prevalence of obesity by occupation among US workers over the 8-year period from 2004 through 2011 using the latest National Health Interview Survey (NHIS) public released data and (2) to compare the prevalence of obesity in both 23 major occupational groups and selected subgroups by race/ethnicity. We also compared the prevalence of obesity changes between 2004–2007 and 2008–20011 by occupations in each gender and racial/ethnic group.

METHODS

Study Population

Temporal individual-level data on obesity were derived from the 2004−2011 NHIS. The NHIS, which is developed and administered by National Center for Health Statistics in the US Centers for Disease Control and Prevention, is a nationwide survey on the health of the civilian noninstitutionalized US population.[13] The NHIS is a national representative of in-person household interview conducted annually and based on a multistage clustered area probability sample. The total initial interviewed sample size from the Sample Adults survey (aged 18 years or older) in 2004−2011 was 220, 105, with an average response rate of 79.8%. We included paid workers aged 18 years and older who were “working at a job or business” or “with a job or business but not at work” and also included unpaid workers who were “working, but not for pay, at a job or business” during the week prior to their

interview. The final sample size used in our analyses was 125,992 working adults, after excluding those who did not work during the week before the interview survey (n = 87,890) and those who were pregnant or missing the BMI variable (n = 6223).

Body Mass Index

Body mass index was used to assess obesity, calculated by dividing weight in kilograms by height in meters squared. In the Sample Adults questionnaire, participants were asked their height in inches ("How tall are you without shoes?") and their weight in pounds ("How much do you weigh without shoes?"). If participants' BMI measurements were 30 or greater, they were classified as obese.

Employment, Occupation, and Race/Ethnicity

Employment information was collected on all adults 18 years or older who reported working during the week before the NHIS survey and included paid and unpaid workers.

Occupational coding in the NHIS public use data files utilized 2-digit codes with 23 broad (major) occupational groups and 93 minor occupational groups. These 2-digit codes were based on the Standard Occupation Classification, which is produced by the US Census Bureau. Data prior to 2004 were not included in these occupational groups since the public use data files prior to 2004 contained 14 major occupational groups and 42 minor occupational groups. In the analysis tables for NH white, we show both 23 major and 93 minor occupational groups. Nevertheless, in the prevalence tables for NH blacks and Hispanics, we show 23 major and limited minor occupational groups because there were insufficient sample sizes. Race/ethnicity was self-reported and was classified as NH white, NH black, Hispanic, and NH others.

Statistical Analysis

We combined NHIS data across years using the NHIS guidelines as presented in the following reports: Variance Estimation and Other Analytic Issues, NHIS 1995–2005, and Variance Estimation and Other Analytic Issues, NHIS 2006–2010.[14] To more accurately represent the population of the United States, all analyses were performed using a weighting variable, which was divided by 8 to take into consideration the 8 survey years 2004–2011. To attain unbiased estimates from the NHIS data, all analyses were weighted to account for the complex survey design and survey nonresponse using the SAS-callable SUDAAN v12 software (Research Triangle Institute, Research Triangle Park, NC). Standard errors were estimated using Taylor series linearization methods. Analyses were conducted separately for males and females by race/ethnicity. The sample size, the age-adjusted prevalence of obesity, and the percent change in prevalence of obesity between 2004–2007 and 2008–2011 are shown in Tables 1 to 4. A weighted linear regression model was fitted to the annual design-adjusted rates (ie, the slope in Table 1). The weight used for each annual rate was the inverse of its variance. Prevalence estimates that are derived from sample sizes less than 50 or relative standard errors (calculated as standard error of prevalence divided by prevalence) greater than 0.3 should be considered unreliable estimates.[15] All unreliable prevalence estimates are marked with an asterisk (*) in the tables. The two-sample t test was used to test the prevalence difference between the two time periods (2004–2007 vs 2008–2011) for each

occupational group. If the difference was statistically significant ($P < 0.05$), we placed a symbol (†) beside the prevalence difference.

RESULTS

The mean age for the all workers in this study from 2004 to 2011 was 41.3 (SE = 13.5) years, with women comprising 45.1% of the study sample. Table 1 shows the trends in prevalence of obesity by race/ethnicity among male and female workers. Annual prevalence of obesity increased significantly between 2004 and 2011 among all racial/ethnic groups except NH others. During this period, the fastest growing prevalence of obesity was among Hispanic male workers (slope = 1.087, $P = 0.001$). Among male workers, the prevalence of obesity for Hispanics surpassed that for NH whites from 2007 through 2011. The overall prevalence of obesity was highest among NH black female workers (40.0%) and lowest among NH white female workers (23.1%).

Table 2 presents the age-adjusted prevalence of obesity and obesity change in percent between 2004–2007 and 2008–2011 among NH whites for 23 major and 93 minor occupational groups. In the 23 major occupational groups, the highest prevalence of obesity was found for NH white males who worked in health care support (36.3%), followed by protective service (34.3%), and transportation and material moving (33.7%). Between the 2 periods (2004–2007 vs 2008–2011), the prevalence of obesity among male employees in computer and mathematics, legal area, and protective service significantly increased—10.4% ($P < 0.001$), 8.3% ($P = 0.047$), and 8.1% ($P = 0.015$), respectively. There were decreases in prevalence of obesity in farming/fishing/forestry (−4.7%), personal care and service (−2.8%), and transportation and−material moving (−2.4%), but these differences were not significant. In the 93 minor occupational groups, individuals with the highest age-adjusted prevalence of obesity were used as motor vehicle operators (39.2%), other construction and related workers (38.6%), law enforcement workers (38.2%), and nursing, psychiatric, and home health aides (38.1%), whereas the lowest age-adjusted prevalence of obesity was observed among individuals used as health diagnosing and treating practitioners (15.4%), military specific (16.1%), art and design workers (16.6%), and post-secondary teachers (16.8%). The first-line supervisors/managers of protective service had the largest increase in prevalence of obesity (21.0%, $P = 0.011$), followed by the counselors/social workers/other community/social service specialists (17.5%, $P = 0.013$). Among NH males, we observed decreased prevalence of obesity in one third of 93 occupations but none of these were statistically significant.

Among NH white female workers, the highest overall age-adjusted prevalence of obesity in the 23 major occupational groups was in farming/fishing/forestry (35.9%), followed by transportation and material moving (31.5%) and production (30.4%), whereas the lowest age-adjusted prevalence of obesity was in life/physical/social science (12.3%), followed by legal areas (14.8%) and arts/design/entertainment/sports/media (15.5%). Significant increases in prevalence of obesity from 2004–2007 to 2008–2011 was found among female workers in management (4.1%, $P = 0.012$), followed by education/training/library (4.0%, $P = 0.005$) and health care practitioners and technicians (5.5%, $P < 0.001$). In the 93 minor occupational groups, the individuals having the top 4 highest age-adjusted prevalence of

obesity were agricultural workers (38.9%), motor vehicle operators (36.5%), drafters/ engineering/mapping technicians (37.6%), and supervisors for food preparation and serving related (36.6%).

The overall age-adjusted prevalence of obesity of NH black female workers (39.5%) was much higher than that of NH black male workers (31.7%) in Table 3, whereas the overall age-adjusted prevalence for NH white female workers (21.6%) was lower than that of NH white male workers (27.0%). Among NH black female workers, the major occupational groups with an age-adjusted prevalence of obesity more than 40% were health care support (49.2%), transportation and material moving (46.6%), protective service (45.8%), personal care and service (45.9%), community and social services (44.7%), food preparation and serving related (44.1%), and health care practitioners and technicians (40.2%). The minor occupational groups with the highest prevalence of obesity were among persons who worked as motor vehicle operators (64.0%); supervisors for food preparation and serving related (52.2%); nursing-, psychiatric-, and home health aides (51.1%); and other protective service (50.0%). NH black females in all occupations had relatively high prevalence of obesity. There was a rare occupational group where the prevalence was less than 30% among NH black females; computer and mathematics (28.3%) and legal area (28.4%). Changes in prevalence of obesity between 2004–2007 and 2008–2011 were significant in management (15.8%, $P = 0.001$), business and financial operations (13.8%, $P = 0.002$), community and social services (13.7%, $P = 0.034$), and personal care and service (10.5%, $P = 0.030$).

Among NH black male workers, the major employment groups with high prevalence of obesity were in protective services (42.6%), community and social services (36.3%), production (33.9%), and transportation and material moving (33.8%). The minor employment groups with the highest were among NH black males who worked as law enforcement officers (49.9%) and motor vehicle operators (40.0%). Community and social services, protective services, and food preparation and serving-related occupations had significantly increased obesity between 2004–2007 and 2008–2011 (21.6%, 11.6%, and 13.2%, respectively). We observed that male motor vehicle operators had a 4.7% decrease in prevalence of obesity between 2004–2007 and 2008–2011, whereas motor vehicle operators had an increase of 16.4% female during the same time period.

Unlike NH whites and NH blacks, Hispanic female workers had a similar age-adjusted prevalence of obesity to Hispanic male workers (29.1% vs 28.6%, respectively) (Table 4). Hispanic male workers used in protective services (43.2%); community and social services (40.5%); life, physical, and social science (38.7%); and computer and mathematics (37.3%) had the highest age-adjusted prevalence of obesity among the major employment groups. Among the minor employment groups, the highest age-adjusted prevalence of obesity was observed in other protective services (54.3%). Jobs in farming/fishing/forestry (21.7%), food preparation and serving related (21.9%), and building and grounds cleaning and maintenance (23.2%) were occupations with relatively small prevalence of obesity among Hispanic males. Between 2004–2007 and 2008–2011, there were significant increases in prevalence− of obesity among Hispanic male workers in architecture and engineering

(21.5%, $P = 0.010$), sales and related (9.2%, $P = 0.018$), construction and extraction (6.8%, $P = 0.003$), and production (8.0%, $P = 0.005$).

Among Hispanic female workers, age-adjusted prevalence of obesity were highest for those used in transportation and material moving (36.4%), community and social services (34.8%), and health care support (33.2%). The motor vehicle operators (54.2%) had the highest prevalence of obesity in the minor groups. From 2004–2007 to 2008–2011, food and beverage serving workers had the highest increase in prevalence of obesity (11.7%, $P = 0.042$), whereas cooks and food preparation workers (−11.3%, $P = 0.056$) had a decrease in prevalence of obesity.

DISCUSSION

Differences in the overall prevalence of obesity have been observed between male and female workers and racial/ethnic groups.[16] In addition, prevalence of obesity has been examined by gender among US workers,[10] but it has not been explored across racial/ethnic groups by occupational group in this population. In this study, we estimated the prevalence of obesity by occupation in US workers, by gender and racial/ethnic groups.

Our results show that the prevalence of obesity among men and women significantly increased during 2004–2011. Nevertheless, prevalence of obesity between 2008 and 2011 remained mostly stable and did not show a statistically significant increase. In previous studies, the slope for the prevalence of obesity among the US population rapidly increased from the early 1980s to the mid-1990s, then slowly increased between the mid-1990s to the mid-2000s, and has been steady since the mid-2000s.[2, 17] Flegal and colleagues[17] reported that the prevalence of obesity in US adults was not significantly different during 2003 through 2010.

Our results also showed that the overall prevalence of obesity significantly increased 4.1% (0.51% annually) between 2004 and 2011. This prevalence during the period 2004–2011 increased much more slowly than in the period 1996 to 2002 (0.95% annually), which was observed by Caban and colleagues.[10] Obesity was much more prevalent among NH black female workers than among NH white female workers. Burke et al[18] reported that the big gap in prevalence of obesity between NH black females and NH white females may be partially explained by different perceptions of what constitutes overweight. In addition, Hispanic male workers had the biggest increase in prevalence of obesity over the same period. D'Alonzo et al[19] found that Hispanic immigrants have developed obesity during acculturation process of allostatic load. Some Hispanic immigrants tend to have poorer diets; less vegetable and fruit consumption and higher sweet drink consumption.[20]

The results of our study indicate that workers in health care support, protective service, and transportation and material moving have high prevalence of obesity. This finding is also consistent with a previous study.[10] Workers in architecture and engineering, health care practitioners and technicians, and arts/design/entertainment/sports/media had relatively low prevalence of obesity compared with other workers regardless of gender and race/ethnicity.

In our study, the highest prevalence of obesity was in workers of transportation and material moving, especially motor vehicle operators, irrespective of gender and race/ethnicity. Flórez Pregonero et al[21] reported that workers in the transportation industry are at greater risk of an improper diet and long duration of sedentary behavior, which could lead to excessive weight gain, especially in the abdominal region. Obesity in motor vehicle operators has been associated with elevated risk of obstructive sleep apnea,[22] traffic accidents,[23] and fatigue.[24] Hirata revealed that bus drivers had a high frequency of cardiovascular risk factors, such as obesity, hypertension, hyperlipidemia, and hyperglycemia.[25] This study showed that the prevalence of obesity of motor vehicle operators among NH white and NH black males did not increase any more during the study period 2004–2011. In addition, both NH white male and female workers in personal care and services had decreased prevalence of obesity.

The second highest prevalence of obesity was in protective service workers. NH black males and Hispanic males had much higher prevalence of obesity than did NH white males. Employees in high-stress occupations, like police officers and correctional security officers, may have had different types of stressors, for example, overtime work, shift work, and administrative and organizational pressures. Recent studies found that job-related demands, depression, and psychological distress among male law enforcement officers were related to weight gain and BMI.[26–29]

Several studies show that obesity among workers may have adverse occupation-related consequences such as work absence,[11] work impairment,[11] work limitation,[9] and workplace injury.[12] Hertz and colleagues[9] found that workers who were obese had more than double the work limitation of workers who were of normal weight (7% vs 3%). Obesity in workers also results in greater health care costs. Kuehl and colleagues[30] showed that firefighters with a BMI greater than 30 kg/m^2 were 3 times more likely to file Workers' Compensation claims than firefighters with a normal BMI. In another study, rates of Workers' Compensation claims were twice as high, medical claims costs were 7 times higher, and indemnity claim costs were 11 times higher among the heaviest employees compared with employees who had recommended weights.[31]

This study has some limitations. First, BMI, the measure used to define obesity, might not be as precise a measure as one would expect. Height and weight were self-reported measures, which could possibly have led to inaccurate BMI measurements for the workers. In 2 studies, underreporting of weight occurred among overweight females and overreporting of height occurred among the older individuals.[32–33] In addition, BMI does not estimate lean muscle mass and body fat composition. Nevertheless, an advantage is that BMI is highly correlated with percent body fat and is widely used as the definition of obesity. Second, the sample sizes of some of the listed occupations (eg, NH blacks in farming, forestry, and fishing) were relatively small, resulting in imprecise estimates. The National Center for Health Statistics considers a sample size of less than 50 to be unreliable. Finally, the NHIS data are collected cross-sectionally every year, and thus causal inference is not possible. The strength of this study is that it adds to the literature on obesity among persons in several occupations.

To summarize, our analyses of the NHIS 2004–2011 data show that prevalence of obesity of US workers steadily increased up to 2008 across gender and race/ethnicity but leveled off from 2008 through 2011. The prevalence of obesity in relatively low-obesity occupations (eg, white-collar jobs) significantly increased between 2004–2007 and 2008–2011, whereas the prevalence in high-obesity occupations (eg, blue-collar jobs) did not change significantly. Church and colleagues[34] found that a significant portion of the increase in US weight gain can be accounted for by declining workplace physical activity. Eighty percent of the current occupations are sedentary and involve light physical activity compared with 60% in 1960s.[34] Over the past 5 decades, there have been fewer opportunities for physical activity in the workplace. Employers should consider ways of increasing physical activity among their employees. A couple of examples are taking walks during breaks and redesigning offices (standing workstations, treadmill style desks, and placing printers away from desks).[35] Employers for indoor service jobs could increase workplace health initiatives and pay more attention to permitting employees to engage in some form of physical activity in the workplace. Tudor-Locke and colleagues[36] recently reported that workstation alternatives—sitting on a stability ball, sit-stand/standing desk, or treadmill and pedal desks —have much more daily energy expenditure than the traditional seated condition. Also, workers could be educated to recognize that the consumption of high-quality and healthy food and drinks without added sugars may be an effective strategy to achieve weight loss or weight maintenance. Since the 1980s, many European countries have seen rapidly increased obesity rates similar to the United States, and some European countries have taxed unhealthy foods and ingredients such as fast food, pastries, soft drinks, and other food containing lots of sugar, fat, and artificial sweeteners.[37]

Acknowledgments

The findings and conclusions in this report are those of the authors and do not necessarily represent the views of the National Institute for Occupational Safety and Health.

References

1. Ogden, CL.; Carroll, MD. Prevalence of overweight, obesity, and extreme obesity among adults: United States, Trends 1976–1980 through 2007–2008. Available at http://www.cdc.gov/nchs/data/hestat/obesity_adult_07_08/obesity_adult_07_08.pdf. Accessed December 3, 2012
2. Ogden, CL.; Carroll, MD.; Kit, BK.; Flegal, KM. Prevalence of Obesity in the United States, 2009–2010. Hyattsville, MD: National Center for Health Statistics; National Center for Health Statistics (NCHS) data brief No. 82
3. National Heart Lung and Blood Institute (NHLBI). What are the health risks of overweight and obesity?. National Institutes of Health; Available athttp://www.nhlbi.nih.gov/health/health-topics/topics/obe/risks.html. Accessed December 6, 2012
4. Beydoun MA, Beydoun HA, Wang Y. Obesity and central obesity as risk factors for incident dementia and its subtypes: a systematic review and meta-analysis. Obes Rev. 2008; 8:203–218.
5. Shen W, Chen H, Xu F, Li LS, Liu ZH. Obesity-related glomerulopathy: body mass index and proteinuria. Clin J Am Soc Nephrol. 2010; 5:1401–1409.10.2215/CJN.01370210 [PubMed: 20498244]
6. Maynard JW, McAdams DeMarco MA, Baer AN, et al. Incident gout in women and association with obesity in the Atherosclerosis Risk In Communities (ARIC) Study. Am J Med. 2012; 125:717.e9–717.e17. [PubMed: 22571781]

7. Fatemi Naeini F, Najafian J, Jazebi N. Hirsutism and body mass index in a representative of Iranian people. ARYA Atheroscler. 2012; 8:43–54. [PubMed: 23056100]
8. Subak LL, Richter HE, Hunskaar S. Obesity and urinary incontinence: epidemiology and clinical research update. J Urol. 2009; 182(6):S2–S7. suppl. [PubMed: 19846133]
9. Hertz RP, Unger AN, McDonald M, Lustik MB, Biddulph-Krentar J. The impact of obesity on work limitations and cardiovascular risk factors in the U.S. workforce. J Occup Environ Med. 2004; 46:1196–1203. [PubMed: 15591970]
10. Caban AJ, Lee DJ, Fleming LE, Gomez-Marin O, LeBlanc W, Pitman T. Obesity in US workers: the National Health Interview Survey, 1986 to 2002. Am J Public Health. 2005; 95:1614–1622. [PubMed: 16051934]
11. Rodbard HW, Fox KM, Grandy S. Impact of obesity on work productivity and role disability in individuals and at risk for diabetes mellitus. Am J Health Promot. 2009; 23:353–360. [PubMed: 19445439]
12. Pollack KM, Sorock GS, Slade MD, et al. Association between body mass index and acute traumatic workplace injury in hourly manufacturing employees. Am J Epidemiol. 2007; 166:204–211. [PubMed: 17485732]
13. National Center for Health Statistics (NCHS). National Health Interview Survey (NHIS) Public Use Data Release, NHIS Survey Description. 2011. ftp://ftp.cdc.gov/pub/Health_Statistics/NCHS/Dataset_Documentation/NHIS/2011/srvydesc.pdf. Accessed Accessed December 10, 2012
14. National Center for Health Statistics (NCHS). Variance estimation and other analytic issues, NHIS 2006–2012. Available at http://www.cdc.gov/nchs/data/nhis/2006var.pdf. Accessed August 12, 2013
15. Klein RJ, Proctor SE, Boudreault MA. Healthy people 2010 criteria for data suppression. Healthy People 2010 Stat Notes. 2004; 24:1–12.
16. National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK). Overweight and obesity statistics. http://win.niddk.nih.gov/statistics/index.htm. Accessed March 18, 2013
17. Flegal KM, Carroll MD, Kit BK, Oqden CL. Prevalence of obesity and trends in the distribution of body mass index among US adults, 1999–2010. JAMA. 2012; 307:491–497. [PubMed: 22253363]
18. Burke, MA.; Heiland, F. Race, obesity, and the puzzle of gender specificity. Federal Reserve Bank of Boston; 2008. Working Paper No. 08-8Available at http://ssrn.com/abstract=1324342 or http://dx.doi.org/10.2139/ssrn.1324342. Accessed April 16, 2013
19. D'Alonzo KT, Johnson S, Fanfan D. A biobehavioral approach to understanding obesity and the development of obesogenic illnesses among Latino immigrants in the United States. Biol Res Nurs. 2012; 14:364–374. [PubMed: 22923710]
20. Creighton MJ, Goldman N, Pebley AR, Chung CY. Durational and generational differences in Mexican immigrant obesity: is acculturation the explanation? Soc Sci Med. 2012; 75:300–210. [PubMed: 22575698]
21. Flórez Pregonero A, Gómez LF, Parra DC, Cohen DD, Arango Paternina CM, Lobelo F. Time spent traveling in motor vehicles and its association with overweight and abdominal obesity in Colombian adults who do not won a car. Prev Med. 2012; 54:402–404. [PubMed: 22521998]
22. Xie W, Chakrabarty S, Levine R, Johnson R, Talmage JB. Factors associated with obstructive sleep apnea among commercial motor vehicle drivers. J Occup Environ Med. 2011; 53:169–173. [PubMed: 21270659]
23. Anderson JE, Govada M, Steffen TK, et al. Obesity is associated with the future risk of heavy truck crashes among newly recruited commercial drivers. Accid Anal Prev. 2012; 49:378–384. [PubMed: 23036416]
24. Wiegand DM, Hanowski RJ, McDonald SE. Commercial drivers' health: a naturalistic study of body mass index, fatigue, and involvement in safety-critical events. Traffic Inj Prev. 2009; 10:573–579.10.1080/15389589093295277 [PubMed: 19916128]
25. Hirata RP, Sampaio LM, Leitão Filho FS, et al. General characteristics and risk factors of cardiovascular disease among interstate bus drivers. Sci World J. 2012:1–7.10.1100/2012/216702
26. Gu JK, Charles LE, Burchfiel CM, et al. Associations between psychological distress and body mass index among law enforcement officers: the National Health Interview Survey 2004–2010. Saf Health Work. 2013; 4:52–62. [PubMed: 23515237]

27. Kubzansky LD, Gilthorpe MS, Goodman E. A prospective study of psychological distress and weight status in adolescent/young adults. Ann Behav Med. 2012; 43:219–228. [PubMed: 22090262]
28. Violanti JM, Fekedulegn D, Andrew ME, Charles LE, Hartley TA, Burchfiel CM. Adiposity in policing: mental health consequences. Int J Emerg Ment Health. 2011; 13:257–266. [PubMed: 22900459]
29. Block JP, He Y, Zaslavsky AM, Ding L, Ayanian JZ. Psychosocial stress and change in weight among US adults. Am J Epidemiol. 2009; 170:181–192. [PubMed: 19465744]
30. Kuehl KS, Kisbu-Sakarya Y, Elliot DL, et al. Body mass index a predictor of firefighter injury and workers' compensation claims. J Occup Environ Med. 2012; 54:579–582. [PubMed: 22569476]
31. Østbye T, Dement JM, Krause KM. Obesity and workers' compensation. Arch Intern Med. 2007; 167:766–773. [PubMed: 17452538]
32. Nawaz H, Chan W, Abdulrahman M, Larson D, Katz DL. Self-reported weight and height: implications for obesity research. Am J Prev Med. 2001; 20:294–298. [PubMed: 11331120]
33. Rowland ML. Self-reported weight and height. Am J Clin Nutr. 1990; 52:1125–1133. [PubMed: 2239790]
34. Church TS, Thomas DM, Tudor-Locke C, et al. Trends over 5 decades in U.S. occupation-related physical activity and their associations with obesity. PLoS One. 2011; 6:e19657.10.1371/journal.pone.0019657 [PubMed: 21647427]
35. Parker-Pope, T. Less active at work, Americans have packed on pounds. Well.blogs.nytimes.com. Available at http://well.blogs.nytimes.com/2011/05/25/less-active-at-work-americans-have-packed-on-pounds/. Published May 25, 2011. Accessed April 11, 2013
36. Tudor-Locke C, Schuna JM, Frensham LJ, Proenca M. Changing the way we work: elevating energy expenditure with workstation alternative. Int J Obes (Lond). Nov 28.2013 [epub ahead of print].
37. FoodDrinkEurope and EFFAT. Joint EFFAT-FoodDrinkEurope position on discriminatory food taxes. May. 2003 Available at http://www.fooddrinkeurope.eu/uploads/positions_documents/EFFAT_FoodDrinkEurope_Joint_Position_Discriminatory_Food_Taxes_final_-EN.pdf. Accessed December 12, 2013

TABLE 1

Prevalence of Obesity (BMI ≥30 kg/m^2) and Trends in Obesity Among US Workers, 2004–2011.

	Sample Size	Estimated US Population	Overall Prevalence*	Prevalence of Obesity* 2004–2011									
				2004	2005	2006	2007	2008	2009	2010	2011	Slope (SE)†	*P*
Overall	125,992	134,218,503	26.2	23.5	24.9	25.4	26.0	26.8	27.4	27.7	27.6	0.607 (0.063)	<0.001
Male all	64,086	73,709,744	26.9	24.0	25.8	26.0	27.3	27.3	28.2	28.2	28.4	0.594 (0.086)	<0.001
White (non-Hispanic)	39,600	51,082,726	27.0	24.0	26.5	26.8	27.0	27.6	27.7	28.1	28.1	0.494 (0.115)	0.005
Black (non-Hispanic)	7,652	7,199,154	31.7	29.0	29.7	29.2	33.4	29.3	35.3	32.7	35.3	0.845 (0.259)	0.017
Hispanic	12,771	11,466,438	28.2	25.0	24.1	25.4	28.2	29.8	31.1	30.4	30.8	1.087 (0.172)	0.001
Others (non-Hispanic)	4,063	3,899,332	13.8	11.4	12.6	12.7	18.1	11.5	13.6	15.4	14.6	0.407 (0.281)	0.197
Female all	61,906	60,508,759	25.3	22.9	23.8	24.5	24.3	26.3	26.5	27.0	26.7	0.605 (0.074)	<0.001
White (non-Hispanic)	37,110	42,357,885	23.1	20.6	21.3	22.9	23.2	23.7	24.4	24.5	24.1	0.571 (0.086)	0.001
Black (non-Hispanic)	10,661	7,764,020	40.0	38.6	36.0	38.3	37.6	41.3	41.8	42.2	43.5	0.939 (0.218)	0.005
Hispanic	10,491	7,029,058	28.5	25.1	29.3	26.6	24.9	30.8	28.4	30.4	31.5	0.746 (0.296)	0.046
Others (non-Hispanic)	3,644	3,357,796	12.1	10.6	15.6	9.3	7.2	13.7	13.6	17.0	9.7	0.138 (0.515)	0.797

*The unit of prevalence of obesity is percent (%).

†A weighted linear regression model was fitted to the annual design-adjusted rates. The weight used for each annual rate was the inverse of its variance.

TABLE 2

Age-Adjusted Prevalence of Obesity Among Non-Hispanic White Adults by 23 Major and 93 Minor Occupational Groups

	Non-Hispanic White Male Workers					Non-Hispanic White Female Workers				
Occupational Group	**Sample Size 2004–11**	**Prevalence* 2004–11**	**Prevalence* 2004–07**	**Prevalence* 2008–11**	**Prevalence* Difference†**	**Sample Size 2004–11**	**Prevalence* 2004–11**	**Prevalence* 2004–07**	**Prevalence* 2008–11**	**Prevalence Difference†**
All non-Hispanic	39,600	27.0	26.1	27.9	1.8‡	37,110	21.6	22.0	24.2	2.2‡
1. Management	5,214	26.0	25.2	26.9	1.7	3,175	20.6	18.5	22.6	4.1‡
Chief executives, general and operations managers; legislators	903	28.3	28.4	28.2	−0.2	334	20.5	16.4	24.2	7.8
Advertising, marketing, promotions, public relations, and sales managers	303	21.1	22.7	20.4	−2.3	262	16.4	16.1	17.5	1.4
Operations specialties managers	834	29.7	30.5	29.2	−1.3	631	22.2	22.1	22.5	0.4
Others	3,174	25.1	23.3	26.9	3.6	1,948	20.7	17.7	23.8	6.1‡
2. Business and financial operations	1,719	24.9	23.8	25.7	1.9	1,983	21.9	20.1	23.6	3.5
Business operations specialists	865	27.0	25.3	28.7	3.4	1,009	20.4	18.8	21.9	3.1
Financial specialists	854	22.7	22.7	22.3	−0.4	974	23.5	21.2	25.6	4.4
3. Computer and Mathematics	1,514	27.0	20.7	31.1	10.4‡	574	26.1	23.2	27.4	4.2
Computer specialists	1,465	27.0	20.7	30.9	10.2‡	517	26.9	23.8	28.4	4.6
Mathematical science occupations	49	27.0§	//	//	¶	60	19.3§	23.1§	16.7§	1
4. Architecture and Engineering	1,409	26.0	23.7	28.3	4.6	264	21.7	21.1	21.3	0.2
Architects, surveyors, and cartographers	111	22.4	20.6§	24.0§	¶	34	10.8§	//	//	1
Engineers	960	25.5	23.8	27.6	3.8	167	18.3	17.7	17.7	0.0
Drafters, engineering, and mapping technicians	338	29.3	25.6	32.2	6.6	63	37.6	25.1§	42.9§	¶
5. Life, physical, and social science	466	21.5	18.8	24.3	5.5	431	12.3	11.2	13.8	2.6
Life scientists	110	22.2	21.1	24.4	3.3	103	4.7§	//	//	¶
Physical scientists	136	22.9	19.6	26.1	6.5	59	11.4	8.7§	19.6§	¶
Social scientists and related workers	118	18.8	15.0§	23.3	¶	191	13.0	10.7	15.7	5.0
Life, physical, and social science technicians	102	23.8	21.8	26.0§	¶	78	22.6	22.4	26.7	1
6. Community and social services	484	32.7	30.0	36.1	6.1	805	24.3	24.2	24.9	0.7
Counselors, social workers, and other community and social service specialists	223	34.1	27.4	44.9	17.5‡	705	24.5	24.0	25.0	1.0
Religious workers	261	30.7	32.2	26.0	−6.2	100	22.1	24.6	23.5§	1

Occupational Group	Non-Hispanic White Male Workers					Non-Hispanic White Female Workers				
	Sample Size 2004–11	Prevalence* 2004–11	Prevalence* 2004–07	Prevalence* 2008–11	Prevalence* Difference†	Sample Size 2004–11	Prevalence* 2004–11	Prevalence* 2004–07	Prevalence* 2008–11	Prevalence Difference†
7. Legal	543	21.8	17.8	26.1	8.3‡	533	14.8	14.2	14.9	0.7
Lawyers, judges, and related workers	465	21.1	18.7	24.0	5.3	207	11.5	11.1	9.9	−1.2
Legal support workers	78	26.6	14.2§	41.4§	¶	324	17.0	15.4	18.8	3.4
8. Education, training, and library	1,439	22.7	22.6	22.9	0.3	3,985	18.7	16.8	20.8	4.0‡
Postsecondary teachers	465	16.8	19.3	14.7	−4.6	470	16.1	15.5	16.8	1.3
Primary, secondary, and special education school teachers	732	27.0	26.1	27.8	1.7	2,566	18.4	15.6	20.8	5.2‡
Other teachers and instructors	151	22.3	19.4	27.3	7.9	282	18.4	15.3	21.6	6.3
Librarians, curators, and archivists	43	9.8§	//	//	¶	181	25.8	18.1	30.0	11.9
Other educations, training, and library occupations	48	18.4§	//	//	¶	486	22.4	23.4	21.6	−1.8
9. Arts, design, entertainment, sports and media	930	20.2	21.4	19.1	−2.3	891	15.5	15.5	15.5	0.0
Art and design workers	325	16.6	18.3	14.8	−3.5	356	14.5	13.6	14.8	1.2
Entertainers and performers, sports and related workers	238	21.9	22.1	22.4	0.3	156	17.9	15.0§	19.1§	¶
Media and communications workers	240	23.6	21.4	26.1	4.7	331	16.4	16.4	16.5	0.1
Media and communication equipment workers	127	21.4	30.4	15.9§	¶	48	14.0§	//	//	¶
10. Healthcare practitioners and technicians	1,042	18.9	20.2	17.6	−2.6	3,358	20.9	18.1	23.6	5.5‡
Health diagnosing and treating practitioners	772	15.4	16.6	13.9	−2.7	2,357	19.3	16.1	22.4	6.3‡
Health technologists and technicians	239	29.8	32.9	26.3	−6.6	989	24.7	23.6	26.4	2.8
Others	31	11.4§	//	//	¶	12	16.3§	//	//	¶
11. Healthcare support	158	36.3	32.9	38.3	5.4	1,278	29.2	27.2	31.0	3.8
Nursing, psychiatric, and home health aides	91	38.1	29.8§	48.6§	¶	710	32.5	30.0	34.3	4.3
Occupational and physical therapist assistants and aides	10	9.6§	//	//	¶	30	27.2§	//	//	¶
Others	57	36.3	33.1§	30.7§	¶	538	25.1	25.0	26.5	1.5
12. Protective service	1,149	34.3	30.3	38.4	8.1‡	287	28.8	25.1	33.9	8.8
First-line supervisors/managers	131	34.6	24.8	45.8	21.0‡	15	40.1§	//	//	¶
Firefighting and prevention workers	156	30.4	22.3	36.5	14.2	9	0.0§	//	//	¶
Law enforcement workers	517	38.2	36.0	40.5	4.5	124	27.3	23.7	31.6	7.9

Occupational Group	Non-Hispanic White Male Workers					Non-Hispanic White Female Workers				
	Sample Size 2004–11	Prevalence* 2004–11	Prevalence* 2004–07	Prevalence* 2008–11	Prevalence* Difference†	Sample Size 2004–11	Prevalence* 2004–11	Prevalence* 2004–07	Prevalence* 2008–11	Prevalence Difference†
Others	345	27.3	23.0	29.2	6.2	139	30.8	29.4	36.7	7.3
13. Food preparation and serving related	1,124	27.3	27.5	27.5	0.0	2,059	23.6	23.2	24.2	1.0
Supervisors	231	27.6	29.0	27.7	−1.3	203	36.6	40.2	31.5	−8.7
Cooks and food preparation workers	373	32.0	34.1	34.1	0.0	517	29.7	28.6	31.5	2.9
Food and beverage serving working	420	19.7	20.6	21.2	0.6	1,171	18.1	15.3	21.0	5.7
Others	100	35.9	36.7	38.1	1.4	168	24.9	23.6	25.5	1.9
14. Building and grounds cleaning and maintenance	1,266	29.7	27.6	31.9	4.3	824	25.9	25.6	26.5	0.9
Supervisors	190	37.3	39.0	35.4	−3.6	62	30.4	30.4§	26.3§	¶
Building cleaning and pest control workers	673	29.7	26.5	33.2	6.7	704	26.9	25.8	28.6	2.8
Grounds maintenance workers	403	27.7	27.1	28.7	1.6	58	9.5§	//	//	¶
15. Personal care and service	405	24.5	25.9	23.1	−2.8	1,825	25.4	27.0	24.3	−2.7
Supervisors	23	34.9§	//	//	¶	51	13.9§	//	//	¶
Animal care and service workers	28	26.7§	//	//	¶	126	21.3	23.8§	21.5	¶
Entertainment attendants and related workers	88	31.2	31.2§	27.4§	¶	70	22.9	9.4§	29.5§	¶
Funeral service workers	9	13.3§	//	//	¶	3	7.0§	//	//	¶
Personal appearance workers	60	18.0	22.6§	13.0§	¶	452	18.7	20.6	18.3	−2.3
Transportation, tourism, and lodging attendants	34	15.8§	//	//	¶	49	13.8§	//	//	¶
Others	163	21.0	27.4	16.3	−11.1	1,074	30.1	32.0	28.5	−3.5
16. Sales and related	4,373	26.2	25.1	27.3	2.2	4,033	22.4	22.2	22.6	0.4
Supervisors	1,343	26.6	26.8	26.1	−0.7	980	20.3	19.2	22.0	2.8
Retail sales workers	1,244	27.6	26.4	29.2	2.8	1,789	26.5	26.0	27.0	1.0
Sales representatives, services	702	23.1	22.9	23.2	0.3	455	19.7	19.5	19.6	0.1
Sales representatives, wholesale and manufacturing	618	30.2	25.3	35.0	9.7‡	239	14.0	15.7	14.0	−1.7
Others	466	22.6	19.7	26.2	6.5	570	20.0	21.8	18.4	−3.4
17. Office and administrative support	2,363	28.5	29.4	27.6	−1.8	7,841	26.7	25.9	27.8	1.9
Supervisors	218	30.5	29.1	32.5	3.4	572	26.1	25.8	26.7	0.9
Communications equipment operators	9	46.4§	//	//	¶	43	19.6§	//	//	¶
Financial clerks	185	33.5	34.8	35.0	0.2	1,470	28.0	26.9	29.1	2.2

Occupational Group	Non-Hispanic White Male Workers					Non-Hispanic White Female Workers				
	Sample Size 2004–11	Prevalence* 2004–11	Prevalence* 2004–07	Prevalence* 2008–11	Prevalence* Difference†	Sample Size 2004–11	Prevalence* 2004–11	Prevalence* 2004–07	Prevalence* 2008–11	Prevalence Difference†
Information and record clerks	579	30.5	30.1	29.6	−0.5	1,908	26.7	27.0	26.5	−0.5
Material recording, scheduling, dispatching, and distributing workers	962	28.8	31.0	26.6	−4.4	718	27.4	25.9	29.2	3.3
Secretaries and administrative assistants	77	25.4	41.7§	12.9§	¶	1,826	23.4	23.1	23.9	0.8
Others	333	20.9	22.0	22.4	0.4	1,304	29.7	27.2	32.7	5.5
18. Farming, fishing, and forestry	302	29.3	31.1	26.4	−4.7	79	35.9	44.0§	24.3§	¶
Supervisors	23	31.1§	//	//	¶	4	0.0§	//	//	¶
Agricultural workers	200	29.1	32.4	24.9	−7.5	71	38.9	45.5§	27.5§	¶
Fishing and hunting workers	30	24.6§	//	//	¶	2	0.0§	//	//	¶
Forest, conservation, and logging workers	49	24.3§	//	//	¶	2	0.0§	//	//	¶
19. Construction and extraction	3,792	26.3	24.0	28.5	4.5	136	16.4	17.4	15.7§	¶
Supervisors	443	28.2	29.3	26.9	−2.4	15	11.4§	//	//	¶
Construction trades workers	3,025	25.0	22.3	27.6	5.3‡	107	19.8	22.6	16.0	¶
Helpers, construction trades	25	31.2§	//	//	¶	3	15.7§	//	//	¶
Other construction and related workers	213	38.6	37.8	39.3	1.5	11	4.9§	//	//	¶
Extraction workers	86	29.1	–	–	–	0	0§	//	//	¶
20. Installation, maintenance, and repair	2,682	28.5	29.0	27.7	−1.3	121	26.8	33.3	22.5§	¶
Supervisors	163	35.2	32.9	36.7	3.8	11	21.6§	//	//	¶
Electrical and electronic equipment mechanics, installers, and repairers	376	27.6	25.5	30.2	4.7	46	36.8§	//	//	¶
Vehicle and mobile equipment mechanics, installers, and repairers	990	27.7	30.1	24.9	−5.2	16	15.9§	//	//	¶
Others	1,153	27.8	27.9	27.8	−0.1	48	20.0§	//	//	¶
21. Production	3,084	29.8	29.6	30.1	0.5	1,254	30.4	29.8	30.7	0.9
Supervisors	343	31.9	30.3	34.1	3.8	78	35.4	46.3§	25.8§	¶
Assemblers and fabricators	369	26.1	26.3	25.9	−0.4	232	29.7	27.5	34.3	6.8
Food processing workers	116	35.1	37.0§	37.1	¶	100	32.6	36.2§	25.1	¶
Metal workers and plastic workers	852	31.0	33.1	28.0	−5.1	116	25.0	23.7	22.0	−1.7
Printing workers	149	21.1	18.1	23.3	5.2	59	33.3	46.9§	26.3§	¶

Occupational Group	Non-Hispanic White Male Workers					Non-Hispanic White Female Workers				
	Sample Size 2004–11	Prevalence* 2004–11	Prevalence* 2004–07	Prevalence* 2008–11	Prevalence* Difference†	Sample Size 2004–11	Prevalence* 2004–11	Prevalence* 2004–07	Prevalence* 2008–11	Prevalence Difference†
Textile, apparel, and furnishings workers	90	24.4	18.7§	37.6§	¶	179	31.4	30.9	32.3	1.4
Woodworkers	96	31.2	36.9	23.4§	¶	14	14.4§	//	//	¶
Plant and system operators	141	28.6	27.7	30.0	2.3	4	0.0§	//	//	¶
Others	928	30.7	29.8	31.9	2.1	472	30.7	26.3	35.4	9.1
22. Transportation and material moving	3,088	33.7	34.9	32.5	−2.4	652	31.5	32.9	30.5	−2.4
Supervisors	78	27.6	25.9§	27.5§	¶	19	16.5§	//	//	¶
Air transportation workers	98	10.6§	//	//	¶	23	1.7§	//	//	¶
Motor vehicle operators	1,707	39.2	40.2	38.2	−2.0	322	36.5	37.6	36.5	−1.1
Rail transportation workers	57	37.2	29.1§	45.8§	¶	4	5.0§	//	//	¶
Water transportation workers	22	14.8§	//	//	¶	2	0.0§	//	//	¶
Other transportation workers	77	30.9	31.8	32.6	¶	14	25.7§	//	//	¶
Material moving workers	1,049	28.4	30.3	26.5	−3.8	268	28.2	30.3	24.6	−5.7
23. Military specific	59	16.1	3.0§	21.2§	¶	26	15.0§	//	//	¶

*The unit of prevalence of obesity is percent (%).

†Prevalence difference between 2008–2011 and 2004–2007.

‡Statistically significant difference (P <0.05) between prevalence in 2008–2011 and prevalence in 2004–2007.

§The obesity estimate is unreliable because the relative standard error of the estimate is larger than 30% or the sample size is less than 50.[15]

//Rate of prevalence of obesity for 2004–2007 (or 2008–2011) is not estimated because the rate for 2004–2011 is unreliable.

¶[Percent change is not calculated because the prevalence in either 2004–2007 or 2008–2011 is unreliable or no data exist.

TABLE 3

Age-Adjusted Prevalence of Obesity Among Non-Hispanic Black Adults by 23 Major and Selected Minor Occupational Groups

	Black Male Workers					Black Female Workers				
Occupational Group	**Sample Size 2004–11**	**Prevalence* 2004–11**	**Prevalence* 2004–07**	**Prevalence* 2008–11**	**Prevalence* Difference†**	**Sample Size 2004–11**	**Prevalence* 2004–11**	**Prevalence* 2004–07**	**Prevalence* 2008–11**	**Prevalence* Difference†**
All non-Hispanic Male	7,652	31.7	30.2	33.2	3.01	10,661	39.5	37.6	42.2	4.61
1. Management	466	31.4	31.0	31.7	0.7	541	36.2	28.1	43.9	15.81
2. Business and financial operations	247	32.6	37.7	29.2	−8.5	495	38.5	31.1	44.9	13.81
3. Computer and Mathematics	192	33.1	25.4	38.6	13.2	112	28.3	21.9	34.8	12.9
4. Architecture and Engineering	100	33.9	29.8§	34.4	¶	22	31.4§	¶	¶	¶
5. Life, physical, and social science	46	38.1§	¶	¶	//	56	35.2	¶	¶	//
6. Community and social services	168	36.3	28.0	49.6	21.61	383	44.7	37.7	51.4	13.71
7. Legal	34	34.7§	¶	¶	//	98	28.4	30.6§	27.1	//
8. Education, training, and library	211	30.3	28.2	33.1	4.9	774	39.1	38.6	39.5	0.9
9. Arts, design, entertainment, sports and media	126	21.6	17.0§	26.2	//	83	34.6	38.1§	27.3§	//
10. Health care practitioners and technicians	157	26.8	22.0	29.1	7.1	767	40.2	38.2	41.4	3.2
Health diagnosing and treating practitioners	82	19.4	14.6§	20.8§	//	423	41.4	39.4	43.2	3.8
Health technologists and technicians	73	36.7	30.3§	41.5§	//	340	38.4	37.0	39.0	2.0
11. Health care support	114	30.0	29.1	31.1	2.0	896	49.2	49.9	48.2	−1.7
Nursing, psychiatric, and home health aides	85	29.8	24.4§	33.8§	//	741	51.1	51.4	50.2	−1.2
12. Protective service	385	42.6	36.4	48.0	11.61	253	45.8	44.4	46.7	2.3
Firefighting and prevention workers	19	61.7§	¶	¶	//	2	0.0§	¶	¶	//
Law enforcement workers	134	49.9	44.3	57.1	12.8	100	47.6	55.1	41.0	−14.1
Others protective service	198	38.7	34.8	38.9	4.1	131	50.0	42.9	55.6	12.7
13. Food preparation and serving related	370	31.4	22.6	35.8	13.21	604	44.1	45.5	43.0	−2.5
Supervisors	59	36.3	40.4§	35.4§	//	103	52.2	46.2	48.2§	//
Cooks and food preparation workers	187	35.2	26.2	39.3	13.1	256	48.1	50.9	46.2	−4.7
Food and beverage serving working	83	31.1	8.4§	38.5	//	196	38.1	36.3	38.7	2.4
14. Building and grounds cleaning and maintenance	496	31.8	28.4	34.0	5.6	465	40.0	39.4	40.9	1.5
Supervisors	33	21.7§	¶	¶	//	34	53.4§	¶	¶	//

Occupational Group	Black Male Workers					Black Female Workers				
	Sample Size 2004–11	Prevalence* 2004–11	Prevalence* 2004–07	Prevalence* 2008–11	Prevalence* Difference†	Sample Size 2004–11	Prevalence* 2004–11	Prevalence* 2004–07	Prevalence* 2008–11	Prevalence* Difference†
Building cleaning and pest control workers	366	32.8	27.9	36.4	8.5	427	38.3	35.2	41.9	6.7
Grounds maintenance workers	97	31.2	31.7	30.0	//	4	46.1§	¶	¶	//
15. Personal care and service	175	24.8	19.7	28.8	9.1	717	45.9	40.1	50.6	10.5‡
16. Sales and related	533	28.0	28.9	27.3	−1.6	973	33.6	31.0	35.9	4.9
Supervisors	154	27.7	31.3	24.6	−6.7	190	31.9	28.1	33.3	5.2
Retail sales workers	207	31.9	38.7	24.8	−13.9	618	35.6	32.7	38.3	5.6
17. Office and administrative support	767	31.6	29.7	33.0	3.3	2,149	40.0	38.5	41.3	2.8
18. Farming, fishing, and forestry	31	13.5§	¶	¶	//	10	44.0§	¶	¶	//
Agricultural workers	19	9.6§	¶	¶	//	10	44.0§	¶	¶	//
19. Construction and extraction	528	30.1	30.8	29.8	−1.0	21	50.0§	¶	¶	//
Supervisors	33	38.6§	¶	¶	//	4	26.0§	¶	¶	//
Construction trades workers	459	29.9	31.9	27.8	−4.1	15	48.5§	¶	¶	//
20. Installation, maintenance, and repair	386	30.4	32.7	28.3	−4.4	35	14.7§	¶	¶	//
21. Production	692	33.9	31.3	36.9	5.6	519	40.5	38.0	44.5	6.5
22. Transportation and material moving	1,129	33.8	32.1	34.9	2.8	279	46.6	45.6	47.6	2.0
Motor vehicle operators	547	40.7	42.6	37.9	−4.7	151	64.0	57.5	73.9	16.4
Material moving workers	491	29.1	23.1	34.2	11.1‡	109	32.3	32.4	37.9	5.5
23. Military specific	14	60.2§	¶	¶	//	11	35.2§	¶	¶	//

*The unit of prevalence of obesity is percent (%).

†Prevalence difference between 2008–2011 and 2004–2007.

‡Statistically significant difference (*P* <0.05) between prevalence in 2008–2011 and prevalence in 2004–2007.

§The obesity estimate is unreliable because the relative standard error of the estimate is larger than 30% or the sample size is less than 50.[15]

//(Percent change is not calculated because the prevalence in either 2004–2007 or 2008–2011 is unreliable or no data exist.

¶Rate of prevalence of obesity for 2004–2007 (or 2008–2011) is not estimated because the prevalence rate for 2004–2011 is unreliable.

TABLE 4

Age-Adjusted Prevalence of Obesity Among Hispanic Adults by 23 Major and Selected Minor Occupational Groups

	Hispanic Male Workers					Hispanic Female Workers				
Occupational Group	Sample Size 2004–11	Prevalence* 2004–11	Prevalence* 2004–07	Prevalence* 2008–11	Prevalence* Difference†	Sample Size 2004–11	Prevalence* 2004–11	Prevalence* 2004–07	Prevalence* 2008–11	Prevalence* Difference†
All non-Hispanic Male	12,771	28.6	25.8	30.4	4.6‡	10,491	29.1	26.6	30.2	3.6‡
1. Management	607	29.9	31.6	28.5	−3.1	484	25.9	21.4	29.5	8.1
2. Business and financial operations	207	31.3	29.7	31.6	1.9	333	28.6	22.4	32.9	10.5‡
3. Computer and Mathematics	184	37.3	36.9	40.5	3.6	67	29.1	7.3§	4.8§	//
4. Architecture and Engineering	174	34.6	22.9	44.4	21.5‡	38	24.9§	¶	¶	//
5. Life, physical, and social science	50	38.7	–	–	//	55	23.9	3.4§	0.0§	//
6. Community and social services	91	40.5	34.8§	46.3	//	183	34.8	28.2	39.1	10.9
7. Legal	26	30.6§	¶	¶	//	77	26.3	10.5§	16.5§	//
8. Education, training, and library	172	31.6	28.3	34.6	6.3	661	28.8	25.2	31.7	6.5
9. Arts, design, entertainment, sports and media	140	27.1	23.9	27.4	3.5	131	18.6	15.4	21.1	5.7
10. Health care practitioners and technicians	135	34.5	39.2	30.5	−8.7	369	30.4	29.9	31.7	1.8
Health diagnosing and treating practitioners	80	27.3	16.3§	37.6§	//	209	29.5	27.5	31.8	4.3
Health technologists and technicians	53	43.1	62.8§	19.9§	//	159	33.4	32.0	33.7	1.7
11. Health care support	77	24.7	13.5§	33.1§	//	549	33.2	33.6	32.8	−0.8
Nursing, psychiatric, and home health aides	46	27.0§	¶	¶	//	342	32.4	35.8	29.4	−6.4
12. Protective service	309	43.2	38.0	47.0	9.0	89	25.3	29.1§	0.0§	//
Firefighting and prevention workers	26	25.1§	¶	¶	//	1	0.0§	¶	¶	//
Law enforcement workers	131	39.9	30.3	45.7	15.4	35	18.3§	¶	¶	//
Others protective service	133	54.3	58.5	50.7	−7.8	48	25.5§	¶	¶	//
13. Food preparation and serving related	996	21.9	21.9	21.6	−0.3	869	31.1	32.3	29.7	−2.6
Supervisors	101	24.4	26.4	24.1§	//	85	39.6	34.5§	39.0§	//
Cooks and food preparation workers	534	26.1	24.9	26.0	1.1	399	34.2	39.1	27.8	−11.3
Food and beverage serving working	194	14.2	15.5§	13.2§	//	296	20.9	14.9	26.6	11.7‡
14. Building and grounds cleaning and maintenance	1,081	23.2	22.1	24.1	2.0	1,165	25.5	25.3	25.6	0.3
Supervisors	56	38.7	40.5§	38.5§	//	34	31.7§	¶	¶	//
Building cleaning and pest control workers	494	24.3	23.7	25.3	1.6	1,115	25.4	25.0	25.7	0.7
Grounds maintenance workers	531	20.6	18.8	22.1	3.3	16	13.9§	¶	¶	//
15. Personal care and service	138	32.2	28.3	35.3	7.0	712	31.5	32.0	30.6	−1.4

Occupational Group	Hispanic Male Workers					Hispanic Female Workers				
	Sample Size 2004–11	Prevalence* 2004–11	Prevalence* 2004–07	Prevalence* 2008–11	Prevalence* Difference†	Sample Size 2004–11	Prevalence* 2004–11	Prevalence* 2004–07	Prevalence* 2008–11	Prevalence* Difference†
16. Sales and related	822	31.2	26.9	36.1	9.2‡	1,149	26.1	21.6	29.9	8.3‡
Supervisors	232	36.3	32.6	38.3	5.7	195	23.8	16.0	30.2	14.2
Retail sales workers	351	29.4	23.5	35.2	11.7	709	28.2	23.4	31.8	8.4‡
17. Office and administrative support	813	30.3	29.3	30.8	1.5	1,904	30.9	29.6	32.1	2.5
18. Farming, fishing, and forestry	357	21.7	22.0	21.2	−0.8	133	31.3	32.5	28.3	−4.2
Agricultural workers	324	20.9	20.2	22.2	2.0	129	31.3	32.1	29.1	−3.0
19. Construction and extraction	2,445	25.9	22.7	29.5	6.8‡	35	5.2§	4.9§	4.6§	//
Supervisors	136	42.1	37.1	45.1	8.0	5	0.0§	¶	¶	//
Construction trades workers	2,182	23.7	20.9	26.8	5.9‡	26	7.5§	¶	¶	//
20. Installation, maintenance, and repair	826	30.9	29.4	32.3	2.9	39	21.8§	¶	¶	//
21. Production	1,341	26.0	22.5	30.5	8.0‡	862	25.5	22.3	29.4	7.1
22. Transportation and material moving	1,391	32.3	30.2	34.2	4.0	310	36.4	32.2	40.4	8.2
Motor vehicle operators	641	38.3	36.8	39.6	2.8	70	52.4	36.6§	63.4§	//
Material moving workers	672	27.4	25.2	29.2	4.0	222	33.8	32.4	35.4	3.0
23. Military specific	11	7.6§	¶	¶	//	2	0.0§	¶	¶	//

*The unit of prevalence of obesity is percent (%).

†Prevalence difference between 2008–2011 and 2004–2007.

‡Statistically significant difference (P <0.05) between prevalence in 2008–2011 and prevalence in 2004–2007.

§The obesity estimate is unreliable because the relative standard error of the estimate is larger than 30% or the sample size is less than 50.[15]

//(Percent change is not calculated because the prevalence in either 2004–2007 or 2008–2011 is unreliable or no data exist.

¶Rate of prevalence of obesity for 2004–2007 (or 2008–2011) is not estimated because the rate for 2004–2011 is unreliable.