

A National Survey of Public Views About the Classification of Obesity as a Disease

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Objective: In 2013, the American Medical Association classified obesity as a disease. This study assessed public opinions about this disease classification.

Methods: In January 2014, a national sample of 1118 adults completed surveys assessing their agreement with 33 statements in support of and against the disease classification of obesity, as well as measures assessing sociodemographic characteristics.

Results: The majority of participants (51-61.7%) agreed with 11 of 17 statements in support of the disease classification of obesity (average agreement across all statements = 51%), including views that it will help people gain access to obesity treatment. A minority of participants (31-47.3%) agreed with 15 of 16 statements against the disease classification (average agreement across statements = 39.5%), including views that it will increase overreliance on medications or surgery to treat obesity (47.3%). Participants' attitudes were unaffected by sex, income, education, or health status but were related to causal beliefs about obesity. The disease classification received more support from African Americans and more opposition by individuals with higher weight stigma.

Conclusions: This study found more public agreement supporting the disease classification of obesity than opposing it. Further work should identify whether this classification affects health behaviors among individuals with obesity or societal weight stigmatization.

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Introduction

In June 2013, the American Medical Association (AMA) announced its decision to officially classify obesity as a “disease” (1,2). Obesity is widely considered a public health priority (3) and a serious and chronic health issue requiring both prevention and treatment (4,5). However, the new AMA classification of obesity as a disease resulted in substantial media attention and national debate, reflecting diverse opinions from medical experts and scientists who either supported the classification or opposed it. Those in opposition argued that declaring obesity as a disease is a mistake because it will lead to an overreliance on medications and surgery to treat obesity, shift the focus away from important environmental factors that contribute to obesity and increase stigma toward those who have obesity and that it is simply a response to recently approved FDA medications for weight loss (6-9). Proponents supporting the classification of obesity as a disease conversely argued that it will lead private insurers to pay for obesity treatment and weight loss programs, lead more doctors to discuss weight with patients, reduce blame and stigma experienced by individuals

with obesity, and ensure that more resources are dedicated to obesity prevention and treatment research (10-12).

Despite a plethora of news reports citing opinions from health professionals and obesity experts on this issue, there has been very little discussion or attention to public perceptions of obesity as a disease. Given that two-thirds of Americans have overweight or obesity (13) a substantial portion of the population could be affected by this new disease classification. It is therefore important to identify and understand public perceptions of obesity being labeled as a disease and potential sociodemographic factors that relate to these perspectives.

The present study aimed to examine public opinions about obesity being classified as a disease and social and demographic factors influencing these perspectives. A diverse national sample of American adults was surveyed to assess their level of agreement with statements in support of and against a disease classification for obesity. Participants additionally completed several questionnaires assessing their beliefs about the causes of obesity, attitudes toward people with

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obesity, and self-perceived weight and health to examine how these factors relate to their opinions about obesity as a disease.

Methods

Participants

Participants were recruited through Survey Sampling International (SSI) (<http://www.surveysampling.com>), which includes over 2 million active research respondents (only one member in each U.S. household can participate in any panel for the same survey) (14). Online recruitment by SSI is derived from more than 3400 sources using exclusively permission-based techniques and targeted approaches to achieve demographic and psychographic diversity within the online population. Panelists are 18 years or older, provide consent to join an SSI panel and provide validated geographic and demographic information. SSI makes efforts to recruit hard-to-reach groups, such as ethnic minorities and seniors, and provides a variety of incentives for overall program participation, which is voluntary. To ensure demographic diversity, we established target response levels that match the prevalence of different racial/ethnic groups in the U.S. and resemble the census population on gender, age, income, and education. We aimed to obtain a total sample of approximately 1000 adults. Of the 1228 participants who entered the survey, 110 were excluded due to deletion of item nonresponse missing data, resulting in a final sample size of 1118 participants. The study received approval from the authors' institutional review board. Data were collected in January of 2014. Table 1 presents sample characteristics.

Measures

Demographic and weight information. Participants reported their age, sex, ethnicity, highest level of education, household income, political orientation, self-perceived health status, and height and weight (to calculate participants' body mass index; BMI).

Opinions about obesity as a disease. We developed a series of survey items to assess participant agreement with various statements that support or oppose the classification of obesity as a disease. Statements were developed from content of national news reports (15), established medical websites (e.g., Medscape) (16) popular news blogs (e.g., The Huffington Post) (17), press statements from professional obesity or health organizations (e.g., The Obesity Society) (11), and advocacy groups (e.g., the National Association for the Advancement of Fat Acceptance) (18) published online in the months following the announcement by the AMA. Content was selected for item development if it was publicly put forth as a reason to support or oppose the classification of obesity as a disease. In addition, published research articles discussing obesity as a disease were also searched in the scientific literature, and relevant content was extracted. The aim was to collect sufficient arguments and perspectives made on both sides of the debate by a range of health professionals, scientists, medical experts, and advocates to provide a diverse set of information for the public to consider and respond to. In total, there were 17 statements in support of the disease classification, and 16 statements against the classification. All statements were presented in random order. These items formed two scales and scale reliability was tested for each: (1) statements in support of the obesity disease classification (17 items, Cronbach's $\alpha = 0.93$) and (2) statements

TABLE 1 Sample characteristics

	N	%
Gender		
Female	560	50.2
Male	556	49.8
(Missing)	2	
Race/ethnicity		
White (non-Hispanic, non-Latino)	746	66.7
Black or African American	196	17.5
Asian or Pacific Islander	39	3.5
Latino, Hispanic, or Mexican American	120	10.7
Other	17	1.5
(Missing)	3	
Annual household income		
<\$25,000	310	27.8
\$25,000-\$49,999	311	27.9
\$50,000-\$74,999	200	17.9
\$75,000-\$99,999	135	12.1
\$100,000+	159	14.3
(Missing)	3	
Education		
High school or less	331	29.7
Some college/technical or vocation degree	370	33.2
College graduate or higher	415	37.2
(Missing)	2	
Political orientation		
Conservative	306	27.5
Moderate	577	51.8
Liberal	230	20.7
(Missing)	5	
Self-perception of health		
Excellent	154	13.8
Very good	385	34.6
Good	374	33.6
Fair	162	14.5
Poor	39	3.5
(Missing)	4	
Weight status		
Underweight	63	5.6
Normal weight	391	35
Overweight	324	29
Obese	340	30.4
Awareness of AMA disease classification		
Yes	342	30.6
No	775	69.4
(Missing)	1	
	Mean	SD
Body mass index (BMI)	28.2	10.8
Age (years)	43.8	15.6

that oppose the obesity disease classification (16 items, Cronbach's $\alpha = 0.88$); see Tables 2 and 3 for wording of statements in both scales. Participants were also asked if they were previously aware of the AMA's decision to classify obesity as a disease.

TABLE 2 Participants' agreement with statements in support of the classification of obesity as a disease

Statements in support of classifying obesity as a disease	Percent agreement ^a	Percent neutral ^b	Percent disagreement ^c
Classifying obesity as a disease will lead more doctors to spend time talking to patients about their weight	61.7%	26.1%	12.2%
Labeling obesity as a disease is an important step in helping people gain access to obesity treatment	59.4%	23.9%	16.7%
Classifying obesity as a disease will help ensure that more resources are dedicated to research for obesity prevention and treatment	58.4%	27.7%	14.0%
There is a medical basis for obesity to be classified as a disease, because like other diseases obesity may impair the normal functioning of a body, decrease life expectancy, or cause death	58.3%	29.2%	12.5%
Recognizing obesity as a disease will lead medical professionals to treat obesity more seriously	58.2%	27.6%	14.2%
Classifying obesity as a disease will help improve reimbursement for weight loss counseling and education	55.4%	31.9%	12.7%
Classifying obesity as a disease will lead to better medical care for people with obesity	55.1%	27.9%	17.0%
Labeling obesity as a disease is an important step in acknowledging the complexity of this particular condition	54.9%	25.6%	19.5%
Recognizing obesity as a disease will improve the way that the medical community addresses this health issue	54.4%	28.1%	17.5%
Classifying obesity as a disease will improve insurance reimbursements for obesity drugs, weight loss surgery, and counseling	53.9%	29.3%	16.8%
The classification of obesity as a disease will encourage insurance companies to provide better coverage of obesity treatment	51.2%	28.5%	20.3%
Obesity should be classified as a disease	48.9%	22.1%	29.1%
By labeling obesity as a disease, doctors will address obesity with more compassion and respect	45.6%	35.0%	19.5%
Obesity meets the medical definition of 'disease' in that it is a physiological dysfunction of the human organism with environmental, genetic, and endocrinological causes	44.0%	38.9%	17.1%
Classifying obesity as a disease will reduce the stigma experienced by obese individuals, who are often blamed for their condition	37.1%	32.7%	30.1%
Obesity is not a matter of poor willpower or laziness and should be treated like a disease	37.0%	31.8%	31.2%
Obesity should be classified as a disease because the social benefits of doing so will outweigh the costs	33.7%	36.9%	29.4%

^aAgreement was defined as endorsement of "4" (agree) or "5" (strongly agree) on the 5-point Likert rating scale.

^bNeutral was defined as endorsement of "3" on the 5-point Likert scale.

^cDisagreement was defined as endorsement of "1" (strongly disagree) or "2" (disagree) on the 5-point Likert rating scale.

Weight controllability. Participants were asked four questions about the extent that they believe obesity to be within personal control. These questions assessed attributions of personal responsibility and blame for body weight, using questions adapted from previously published scales (19,20). This measure was tested by the authors in recent research, which demonstrated good internal reliability (21). In the present sample, Cronbach's α was 0.76.

Perceived causes of obesity. Participants indicated how important they believed 14 different factors are in causing obesity, using a modified measure developed by Foster and co-workers (22). The original measure describes 11 contributing factors to obesity (e.g.,

genetic factors, overeating, physical inactivity). Three additional items were added that have received increasing attention as contributors to obesity, including pricing of foods (23,24), marketing/advertising of unhealthy foods (23,24), and food addiction (25). Responses are provided on a 5-point Likert scale (1 = "not at all important") to (5 = "extremely important"). In previous research by the authors, subscales were developed from these items through exploratory factor analysis, and only items with adequate scale reliability were retained (26). In the present study, these subscales yielded good internal reliability including "physiological causes" (3 items, $\alpha = 0.81$), "behavioral causes" (7 items, $\alpha = 0.85$), and "environmental causes" (3 items, $\alpha = 0.76$).

TABLE 3 Participants' agreement with statements against the classification of obesity as a disease

Statements against classifying obesity as a disease	Percent agreement ^a	Percent neutral ^b	Percent disagreement ^c
Recognizing obesity as a disease, as opposed to a 'condition' or 'disorder' will not necessarily result in improved health outcomes for patients	52.20%	31.70%	16.1%
Classifying obesity as a disease will lead medical professionals to rely too much on medications and surgery to treat obesity	47.30%	30.00%	22.7%
Labeling obesity as a disease will shift the focus away from measures to encourage healthy diets and regular exercise	44.90%	24.20%	30.9%
Classifying obesity as a disease will make more employers reluctant to hire obese employees	44.40%	33.10%	22.5%
Classifying obesity as a disease will shift focus away from important environmental factors that contribute to obesity (such as fast food restaurants, marketing of unhealthy foods, the cost of unhealthy versus healthy foods)	44.20%	29.20%	26.7%
Obesity should not be considered a disease because obesity is more a risk factor for other conditions (e.g., like diabetes and heart disease) rather than a disease in its own right	41.40%	28.60%	30.1%
Labeling obesity as a disease will lead doctors to rely too much on a patient's body weight to determine his/her health status	40.60%	35.80%	23.6%
Obesity should not be classified as a disease, because not all obese persons develop diabetes or heart disease, suggesting that obesity alone is a poor predictor of health	39.20%	30.90%	29.9%
Obesity should not be considered a disease because the main measure to determine obesity is body mass index (BMI), which is simplistic and flawed	38.20%	35.40%	26.4%
Labeling obesity as a disease will not change the way that doctors see their patients	37.90%	33.80%	28.4%
Obesity has been classified as a disease mostly in response to new FDA-approved drugs for weight loss	36.30%	48.80%	15.0%
Since obesity does not always lead to poor health (e.g., some obese persons are fit and eat healthy), obesity should not be considered a disease	35.10%	33.80%	31.0%
Since so many diseases are difficult to cure, labeling obesity as a disease will lead obese individuals to feel pessimistic about improving their health	35.10%	35.90%	29.1%
Obesity should not be considered a disease because there are no specific symptoms associated with obesity	33.20%	28.50%	38.2%
Classifying obesity as a disease will increase the stigma and discrimination experienced by obese individuals	31.60%	34.90%	33.6%
There is no agreed-upon scientific definition of 'disease,' so obesity should not be classified as a disease	31.00%	40.30%	28.7%

^aAgreement was defined as endorsement of "4" (agree) or "5" (strongly agree) on the 5-point Likert rating scale.

^bNeutral was defined as endorsement of "3" on the 5-point Likert scale.

^cDisagreement as defined was endorsement of "1" (strongly disagree) or "2" (disagree) on the 5-point Likert rating scale.

Fat Phobia Scale. Participants completed the Fat Phobia Scale (27), which assesses their attitudes about obese persons using 14 pairs of adjectives (e.g., "lazy" versus "industrious") as anchors on a 5-point scale. Participants selected a point on the scale that best described their feelings about persons with obesity for each adjective pair. Scores above 2.5 indicate more negative attitudes toward people with obesity. Cronbach's α on this measure in the present sample was 0.93.

Results

Sample characteristics

Table 1 presents sample characteristics. The sample approximated 2010 U.S. Census demographics in terms of gender, race, and house-

hold income (28,29). Additionally, BMI categories were similar to the distribution of body weight categories in the U.S. adult population (30).

Public views about the AMA disease classification for obesity

Table 2 presents the percentage of participants who agreed with statements in support of classifying obesity as a disease. The majority of participants (51-61.7%) agreed with 11 of the 17 statements on this scale. Across all items, the average percentage agreement among participants was 51%. The highest participant agreement (61.7%) occurred in response to the statement that classifying

TABLE 4 Linear regression results: social and demographic predictors of participants' views of the disease classification

Variables	Agreement with statements in support of the classification of obesity as a disease	Agreement with statements in opposition of the classification of obesity as a disease
Gender		
Male	-	-
Female	-0.046	-0.054
Age	0.001	-0.005***
Race/ethnicity		
White (non-Hispanic, non-Latino)	-	-
Black or African American	0.136*	-0.023
Asian or Pacific Islander	0.197 [†]	0.101
Latino, Hispanic, or Mexican American	0.095	-0.007
Other	-0.147	-0.093
Annual household income		
<\$25,000	-	-
\$25,000-\$49,999	0.045	0.06
\$50,000-\$74,999	0.113 [†]	-0.019
\$75,000-\$99,999	0.084	0.041
\$100,000+	-0.026	0.061
Education		
High school or less	-	-
Some college/technical degree	-0.036	-0.03
College graduate or higher	0.035	-0.095 [†]
Political orientation		
Conservative	-0.03	0.042
Moderate	-	-
Liberal	0.122*	-0.104*
Self-perceived health		
Excellent	-0.105	0.163
Very good	-0.149	0.038
Good	-0.193 [†]	0.069
Fair	-0.043	0.041
Poor	-	-
Weight status		
Underweight	0.125	-0.007
Normal weight	-	-
Overweight	-0.019	0.096*
Obese	0.004	0.034
Attributions of blame/control for obesity	-0.075**	0.233***

TABLE 4. (continued).

Variables	Agreement with statements in support of the classification of obesity as a disease	Agreement with statements in opposition of the classification of obesity as a disease
Perceived causes of obesity		
Behavioral causes of obesity	-0.111**	0.028
Physiological causes of obesity	0.293***	-0.008
Environmental causes of obesity	0.110***	0.028
Fat Phobia Scale	0.019	0.093***
Awareness of AMA disease classification		
No	-	-
Yes	0.056	0.104**

Regression coefficients shown are estimated with separate multivariable linear regression models; [†]*P* < 0.1, **P* < 0.05, ***P* < 0.01, ****P* < 0.001.

obesity as a disease will lead more doctors to spend time talking to patients about their weight. Almost 60% of participants agreed that labeling obesity as a disease is an important step in helping people gain access to obesity treatment (59%), will help ensure that more resources are dedicated to obesity research (58%), will lead medical professionals to treat obesity more seriously (58%), and that there is a medical basis for obesity to be classified as a disease (58%).

Table 3 presents the percentage of participants who agreed with statements in opposition of the disease classification. Only one item of the 16 statements on this scale received agreement from a majority of respondents (52.2%), which stated that recognizing obesity as a disease will not necessarily result in improved health outcomes for patients. The remaining 15 statements on this scale received ratings of agreement from a minority of respondents (31-47.3%), including agreement with statements that the disease classification will lead medical professionals to rely too much on medications or surgery to treat obesity (47.3%), shift the focus away from measures to encourage healthy eating and exercise (44.9%) and important environmental factors that contribute to obesity (44.2%), and make more employers reluctant to hire employees who have obesity (44.4%). The average percentage agreement among participants across all items was 39.5%. Although less than half of participants agreed with statements opposing the disease classification, these percentages of agreement were higher than the percentage of participants who disagreed or were neutral on 13 out of the 16 items.

Regression analyses

Table 4 presents results from two separate linear regression models assessing social and demographic variables related to participants'

agreement with statements in favor of versus opposing the classification of obesity as a disease. Outcome variables are mean scales demonstrating participants' agreement with statements in support of or in opposition to the classification of obesity as a disease. A total of 1093 participants were included in the final regression models, as 25 observations were excluded due to nonresponse missing data on the primary independent variables.

Agreement with statements in support of the classification of obesity as a disease was higher among African Americans, participants who identified their political affiliation as liberal, and participants with lower attributions of personal control for obesity. In addition, beliefs about the causes of obesity influenced agreement with the disease classification. Specifically, participants were more likely to support the disease classification if they attributed the causes of obesity to physiological and environmental factors, rather than to behavioral causes. A number of sociodemographic variables including gender, age, income, education, weight status, perceived health status, explicit weight bias (measured on the Fat Phobia Scale) and prior awareness of the AMA decision had no significant effect on agreement with statements in support of the disease classification of obesity.

In contrast, agreement with statements that oppose the disease classification was higher among participants with an overweight BMI (but not an obese BMI), those with prior awareness of the AMA disease classification, participants who expressed more weight bias (higher fat phobia scale scores), and those who endorsed higher attributions of blame and personal control for obesity. Participants who were older in age and who identified their political affiliation as liberal showed less agreement with statements in opposition to the disease classification compared to people with a moderate political orientation and individuals who were younger. No other variables were significantly correlated with participant agreement with items on this scale. In addition, examination of the interaction terms between BMI status and weight stigma showed no significant differences in participants' support or opposition of the disease classification.

Discussion

This study provides novel insights about public perceptions of the classification of obesity as a disease. In general, findings show that there was more agreement with statements supporting the disease classification of obesity than opposing it. The majority of participants expressed agreement with 11 of the 17 statements in support of the disease classification, whereas this was only true for 1 of the 16 statements opposing the classification (although the percentage of participants who agreed with statements opposing the classification exceeded percentages of disagreement or neutrality). Participants who attributed less blame and personal control for excess body weight were more likely to agree with the disease classification, whereas participants who attributed more blame and personal control were more likely to oppose the classification. These weight-related attributions may influence perceptions of obesity as a disease because of participants' inferences or assumptions that diseases in general involve a more complex etiology rather than just personal behavior as a causal factor. While this was not directly assessed, previous work has found that provision of information about the

complex etiology of obesity (including genetic, biological, and environmental factors) can reduce attributions of blame and personal responsibility for excess body weight (31,32).

Participants' attitudes about the disease classification were unaffected by sex, education, income, or perceived health status. African Americans expressed higher agreement with statements in support of the disease classification. Reasons for this were not examined, although it may be that the higher prevalence of obesity among African Americans compared to other racial and ethnic groups (13) plays a role in their perceptions of obesity as a disease. Participants' own weight status did not influence their support of the disease classification but did affect attitudes in opposition of the classification. Specifically, participants with a BMI in the "overweight" range, but not "obese" range, were more likely to oppose the disease classification. Given no differences in extent of agreement for statements in support of the classification observed across weight categories, future work should clarify whether or not differences exist in perceptions of obesity as a disease among individuals who perceive themselves to be "overweight" versus "obese," and whether such perceptions are influenced by prior weight loss efforts or experiencing weight-related health consequences.

The present findings raise questions about the role of weight stigma in both predicting public attitudes about the disease classification, and their perceptions of whether the classification itself will increase or decrease weight stigma. Participants who expressed higher weight stigma in the present sample were more likely to oppose the disease classification. This finding seems intuitive given evidence from previous research demonstrating that individuals expressing higher weight stigma are more likely to assign blame to people with obesity and attribute their excess weight to factors like personal control, willpower, and discipline (33,34) rather than to more complex etiological factors in line with definitions of disease. However, public advocacy organizations that aim to promote fat acceptance and eradicate weight stigma, such as NAAFA, have also publicly opposed the disease classification on grounds that they believe it will increase stigmatization of people who have obesity (18). Thus, it is likely that individuals who oppose the disease classification will include people both high and low on expressions of weight stigma, given the different reasons for their concerns of labeling obesity as a disease.

Findings of our study additionally demonstrate differing views on whether classifying obesity as a disease will increase or decrease stigma against persons with obesity. Although 37% of participants agreed that the disease classification will reduce stigma experienced by people with obesity who are often blamed for their weight, 31.6% of participants agreed that classifying obesity as a disease will increase stigma and discrimination towards persons with obesity. Within the specific context of health care, public views were equally mixed; 45.6% of participants agreed that the disease classification will lead doctors to address obesity with more compassion and respect, whereas 37.9% agreed that labeling obesity as a disease will not change the way that doctors see their patients. While previous research demonstrates that the provision of information about the complex etiology of obesity can reduce levels of weight stigma (31,32), no work has yet tested how a "disease" label of obesity influences societal weight stigma compared to other explanations of obesity and its causes. Given the mixed views on this issue in the present sample, and among experts cited in the media (11,18), it will be important for continued research to study the implications of

the disease classification on societal stigmatization of people affected by obesity. It will also be informative to examine how a disease label might influence behaviors of individuals affected by obesity, especially in light of recent experimental evidence suggesting that it may affect body image and self-regulatory food choices (35), as well as perspectives from researchers on its potential implications for obesity management in health care settings (36,37) and development of obesity-related public policies (38).

Finally, it is noteworthy that most participants in this study (69%) were unaware that the AMA had designated a disease classification to obesity, but those who were aware were more likely to oppose the classification. Although this issue received considerable media attention and discourse in the fields of medicine, obesity, and public health, much of the public may have little understanding of this classification and its potential implications. Health care providers may want to inform their patients of the disease classification and specifically discuss its implications as a paradigm for diagnosis and treatment with patients who have obesity.

Several limitations of this study should be noted. Recruitment of participants was limited to those who had access to a computer with an Internet connection. In addition, participants' weight and height were self-reported, however research indicates fairly high concordance between objective and self-reported measures of height and weight for adults (39). Although the racial distribution of the sample resembled that of US Census data, it will be important for future work to more closely examine perspectives of the disease classification of obesity among ethnic minorities whose vulnerability and experiences of obesity may be different.

As some time has now passed since the disease classification of obesity was approved, it is important to monitor and assess the impact of this designation on the issues raised both in favor of and opposing it. Some progress is apparent, including increasing options for weight management drugs under review by the FDA, collaboration of leading national health organizations to release newly revised clinical guidelines for obesity treatment, increased efforts to improve medical education on obesity, and policy measures passed by the AMA to work with health organizations in advocacy efforts to improve patient access to all evidence-based obesity treatments (40). However, while these efforts signal progress, much work remains to improve coverage for obesity treatment and reduce weight bias and discrimination, and it will be important to assess whether the disease classification of obesity plays an effective contributing role in these efforts to improve the quality of life for individuals with obesity. ○

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References

1. American Medical Association. "AMA Adopts New Policies on Second Day of Voting at Annual Meeting." June 18, 2013. <http://www.ama-assn.org/ama/pub/news/news/2013/2013-06-18-new-ama-policies-annual-meeting.page>. Accessed December 2, 2014
2. Pollack A. AMA recognizes obesity as a disease. *New York Times*. June 18, 2013. http://www.nytimes.com/2013/06/19/business/ama-recognizes-obesity-as-a-disease.html?_r=0. Accessed July 25, 2013.
3. Gortmaker SL, Swinburn BA, Levy D, et al. Changing the future of obesity: science, policy, and action. *Lancet* 2011;378:838-847.
4. Brown WV, Fujioka K, Wilson PWF, Woodworth KA. Obesity: Why be concerned? *Am J Med* 2009 ;122(4, Supplement):I-CO4.
5. Nejat EJ, Polotsky AJ, Pal L. Predictors of chronic disease at midlife and beyond—the health risks of obesity. *Maturitas* 2010;65:106-111.

6. Gunderman R. Is obesity really a disease? *The Atlantic*. June 24, 2013. <http://www.theatlantic.com/health/archive/2013/06/is-obesity-really-a-disease/277148/>. Accessed July 25, 2013.
7. Tanner M. Obesity is Not a Disease. *National Review Online*. July 3, 2013. <http://www.nationalreview.com/article/352626/obesity-not-disease-michael-tanner>. Accessed July 25, 2013.
8. Kabat G. Why Labeling Obesity as a Disease is a Big Mistake. *Forbes* July 9, 2013. <http://www.forbes.com/sites/geoffreykabat/2013/07/09/why-labeling-obesity-as-a-disease-is-a-big-mistake/>. Accessed July 27, 2013.
9. Katz, D. Obesity as Disease: Why I Say No. *Huffington Post*. June 21, 2013. http://www.huffingtonpost.com/david-katz-md/obesity-disease_b_3478322.html. Accessed July 3, 2013.
10. Allison DB, Downey M, Atkinson RL, et al. Obesity as a disease: a white paper on evidence and arguments commissioned by the Council of the Obesity Society. *Obesity* 2008;16:1161-1177.
11. The Obesity Society Applauds the American Association for Recognizing Obesity as a Disease. *The Obesity Society*. June 19, 2013. <http://www.obesity.org/news-center/tos-applauds-ama-for-recognizing-obesity-as-a-disease.htm>. Accessed June 25, 2013.
12. Aronne LJ, Nelinson DS, Lillo JL. Obesity as a disease state: a new paradigm for diagnosis and treatment. *Clin Cornerstone* 2009;9:9-29.
13. Ogden CL, Carroll MD, Kit BK, Flegal KM. Prevalence of childhood and adult obesity in the United States, 2011-2012. *JAMA* 2014;311:806-814.
14. Survey Sampling International. *The Science of Sampling*. 2011. Available <http://www.surveysampling.com>. Accessed October 13, 2014.
15. Wilson, J. Physicians group labels obesity a disease. *CNN Health*. June 19, 2013. <http://www.cnn.com/2013/06/19/health/ama-obesity-disease-change/>. Accessed September 6, 2013.
16. Frellick, M. Obesity Disease Classification Will Help With Treatment, Docs Say. *Medscape Medical News*. July 10, 2013. <http://www.medscape.com/viewarticle/807587>. Accessed September 17, 2013.
17. Hoven, A. Obesity as a Disease? *Huffington Post*. June 28, 2013. http://www.huffingtonpost.com/ardis-d-hoven-md/obesity-as-a-disease_b_3518956.html. Accessed October 1, 2013.
18. National Association to Advance Fat Acceptance. *AMA Rules Against Advisors: Fat Now a Disease!* July 2013. <http://www.naafaonline.com/newsletterstuff/oldnewsletterstuff/July%202013%20NAAFA%20Newsletter.html>. Accessed September 17, 2013.
19. Corrigan PW, Markowitz FE, Watson A, Rowan D, Kubiak MA. An attribution model of public discrimination towards persons with mental illness. *J Health Soc Behav* 2003;44:162-179.
20. Cunningham JA, Sobell LC, Chow V. What's in a label? The effects of substance types and labels on treatment considerations and stigma. *J Stud Alcohol Drugs* 1993;54:693.
21. DePierre JA, Puhl RM, Luedicke J. A new stigmatized identity? Comparisons of a "food addict" label with other stigmatized health conditions. *Basic Appl Soc Psychol* 2013;35:10-21.
22. Foster GD, Wadden TA, Makris AP, et al. Primary care physicians' attitudes about obesity and its treatment. *Obes Res* 2003;11:1168-1177.
23. Glanz K, Bader MD, Iyer S. Retail grocery store marketing strategies and obesity: an integrative review. *Am J Prev Med* 2012;42:503-512.
24. Zimmerman FJ. Using marketing muscle to sell fat: the rise of obesity in the modern economy. *Annu Rev Public Health* 2011;32:285-306.
25. Gearhardt AN, Grilo CM, DiLeone RJ, Brownell KD, Potenza MN. Can Food be Addictive?. Public Health and Policy Implications. *Addiction (Abingdon, England)*. 2011;106:1208-1212.
26. Puhl RM, Latner JD, King KM, Luedicke J. Weight bias among professionals treating eating disorders: attitudes about treatment and perceived patient outcomes. *Int J Eat Disord* 2014;47:65-75.
27. Bacon JG, Scheltema KE, Robinson BE. Fat phobia scale revisited: the short form. *Int J Obes* 2001;25:252-257.
28. US Census Bureau. Profile of general population and housing characteristics. http://www.factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=DEC_10_DP_DPDP1. Accessed December 5, 2014.
29. US Census Bureau. Selected Economic Characteristics: 2008-2010 American Community Survey 3-Year Estimates. http://www.factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_10_3YR_DP03&prodType=table. Accessed December 5, 2014
30. Flegal KM, Carroll MD, Kit BK, Ogden CL. Prevalence of obesity and trends in the distribution of body mass index among US adults, 1999-2010. *JAMA* 2012;307:491-497.
31. Lippa NC, Sanderson SC. Impact of information about obesity genomics on the stigmatization of overweight individuals: an experimental study. *Obesity* 2012;20:2367-2376.
32. O'Brien KS, Puhl RM, Latner JD, Azeem SM, Hunter JA. Reducing anti-fat prejudice in preservice health students: a randomized trial. *Obesity* 2010;18:2138-2144.

33. Ebner DS, Latner JD, O'Brien KS. Just world beliefs, causal beliefs, and acquaintance: associations with stigma toward eating disorders and obesity. *Pers Individ Differ* 2011;51:618-622.
34. Hansson LM, Rasmussen F. Attitudes towards obesity in the Swedish general population: the role of one's own body size, weight satisfaction, and controllability beliefs about obesity. *Body Image* 2014;11:43-50.
35. Hoyt CL, Burnette JL, Auster-Gussman L. "Obesity is a disease" examining the self-regulatory impact of this public-health message. *Psychol Sci* 2014;25:997-1002.
36. Hurt RT, Varayil JE, Mundi MS, Martindale RG, Ebbert JO. Designation of obesity as a disease: lessons learned from alcohol and tobacco. *Curr Gastroenterol Rep* 2014;16:1-7.
37. Church TS. Why obesity should be treated as a disease. *Curr Sports Med Rep* 2014; 13:205-206.
38. Via MA, Mechanick JL. Obesity as a disease. *Curr Obes Rep* 2014;1-7.
39. Kuczmarski MF, Kuczmarski RJ, Najjar M. Effects of age on validity of self-reported height, weight, and body mass index: findings from the Third National Health and Nutrition Examination Survey, 1988-1994. *J Am Diet Assoc* 2001;101: 28-34.
40. Smith SR, The Obesity Society. Obesity as a disease: Where we are and what's ahead. Letter from the President. June 11, 2014. <http://www.obesity.org/publications/ama-joins-call-for-coverage-of-obesity-treatments.htm>. Accessed January 30, 2015.