Weight Stigma and the Problem with BMI

Kennesaw State: February 15, 2019

A. Janet Tomiyama, Ph.D.
Associate Professor
Department of Psychology, UCLA
Questions?

Use the Chat function to ask!
Millions of people are dieting at any given time

Half of Americans are trying to lose weight\(^1\)

Many people are cutting calories to do so

Physicians recommend dieting as a first-line treatment for weight loss\(^2,3\)

\(^1\)Snook et al., 2017 \(^2\)van Gerwen et al., 2009 \(^3\)Salinas et al., 2011
Medicare’s Search for Effective Obesity Treatments

Diets Are Not the Answer

Traci Mann, A. Janet Tomiyama, Erika Westling, Ann-Marie Lew, Barbra Samuels, and Jason Chatman

University of California, Los Angeles

- 13 studies without control groups
  - Initial weight loss: 39 pounds
  - Ultimate gain-back: 32 pounds
  - 31% to 64% regain more than they lost

- 8 studies with control groups
  - Average weight change of dieters: Lost 2.3 lbs
  - Average weight change of controls: Gained 1.3 lbs

(American Psychologist, 2007)
Long-term Effects of Dieting: Is Weight Loss Related to Health?

A. Janet Tomiyama¹, Britt Ahlstrom¹ and Traci Mann²*

¹UCLA
²University of Minnesota

Abstract

“Success” in dieting interventions has traditionally been defined as weight loss. It is implicit in this definition that losing weight will lead to improved health, and yet, health outcomes are not routinely included in studies of diets. In this article, we evaluate whether weight loss improves health by reviewing health outcomes of long-term randomized controlled diet studies. We examine whether weight-loss diets lead to improved cholesterol, triglycerides, systolic and diastolic blood pressure, and fasting blood glucose and test whether the amount of weight lost is predictive of these health outcomes. Across all studies, there were minimal improvements in these health outcomes, and none of these correlated with weight change. A few positive effects emerged, however, for hypertension and diabetes medication use and diabetes and stroke incidence. We conclude by discussing factors that potentially confound the relationship between weight loss and health outcomes, such as increased exercise, healthier eating, and engagement with the health care system, and we provide suggestions for future research.
1. Not a lot of weight loss maintained

2. No strong relationship between weight loss and blood pressure

3. No matter how high quality the study
Implications for Public Policy

- EEOC’s proposed ruling: Use BMI as a criterion to charge people up to 30% more on health insurance
- Research Question: How many people will be unfairly misclassified as unhealthy?
Definition of cardiometabolic health

1. Blood pressure: Below 130/85, no meds
2. Triglycerides: Less than 150 mg/dL
3. HDL: More than 40 mg/dL, no meds
4. Fasting glucose: Less than 100 mg/dL, no meds
5. Insulin resistance: Less than 5.13
6. C-reactive protein: Less than 0.1 mg/dL
### Results

- 54 million overweight/obese misclassified as unhealthy
- Almost a quarter of underweight people are unhealthy
- 75 million total misclassifications

#### Table 2. Estimated population frequency of metabolic status (%), stratified by BMI category, of non-pregnant adults

<table>
<thead>
<tr>
<th>Metabolic status</th>
<th>Underweight</th>
<th>Normal weight</th>
<th>Overweight</th>
<th>Obese type 1</th>
<th>Obese type 2 and 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Healthy</td>
<td>3,187,756 (76.04)</td>
<td>46,578,422 (69.20)</td>
<td>34,444,523 (47.41)</td>
<td>17,682,754 (28.64)</td>
<td>2,078,293 (15.89)</td>
</tr>
<tr>
<td>Unhealthy</td>
<td>1,004,707 (23.96)</td>
<td>20,731,008 (30.80)</td>
<td>38,215,006 (52.59)</td>
<td>44,051,013 (71.36)</td>
<td>10,997,304 (84.11)</td>
</tr>
</tbody>
</table>
Does dieting work in the long-term?

Study 1:
Dieting doesn’t work

Low Calorie Dieting → Stress? → Weight regain
Randomized controlled experiment

Day 1

Informed Consent & Training

Day 2 & 3

Cortisol sampling

Day 4-25

[3 weeks]

1200 kcal

Day 26 & 27

Control

Cortisol sampling

Psychology of Eating

Randomized controlled experiment

Conclusions from Lab Studies of Eating, Part I

Consumption After a High-Fat Preload
(Tomiyama et al., 2010, Psychosom. Med.)
Conclusions from Lab Studies of Eating, Part I
Consumption After a High-Fat Preload

Psychology of Eating Model

Low Calorie Dieting → Stress → ? → Weight gain

Study 1: Dieting doesn’t work
Study 2: Dieting is stressful
NHLBI Growth and Health Study

Participants:
1213 black
1166 white
2379 girls total

From 3 sites:
Richmond, CA
Cincinnati, OH
Washington, DC

Follow-up (ongoing)
Results

- Girls who were more stressed increased more in BMI:
  - High stress girls: 0.68 BMI units
  - Low stress girls: 0.58 BMI units
- The relationship between stress and BMI was stronger in black girls

(Tomiyama et al., 2013, Ann Beh Med)
Conclusions from Lab Studies of Eating, Part I

Consumption After a High Fat Preload

Psychology of Eating

Model

- Study 1: Dieting doesn’t work
- Study 2: Dieting is stressful
- Study 3: Stress predicts BMI gain

Low Calorie Dieting → Stress → Weight gain
Why do people diet?

DIETING IS EASY. IT’S LIKE RIDING A BIKE. AND THE BIKE IS ON FIRE. AND THE GROUND IS ON FIRE. AND EVERYTHING IS ON FIRE BECAUSE YOU’RE IN HELL.
Stressors that pack the most punch are:
- Social
- Involve evaluation or judgment

(Dickerson & Kemeny, 2004, Psychological Bulletin)
Cyclic OBesity/WEight-Based Stigma (COBWEBS) Model

- Obesity/Weight-Based Stigma
- Stress
- Weight Gain
  - 1. Increased Cortisol
  - 2. Increased Eating

(Tomiyama, 2014, Appetite)
Cyclic OBesity/WEight-Based Stigma (COBWEBS) Model

- Increased Cortisol
- Increased Eating
- Weight Gain
- Stress

(Tomiyama, 2014, Appetite)
Study 1: Stigma and cortisol

• Hypothesis: Experiences of weight stigma will correlate with cortisol levels

• Sample: 42 women with overweight/obese BMI
  – Mean: 31.35 BMI
  – Range: 24.89-42.62
  – 61% White, 19% Asian, 15% Latina, 5% Other
  – 41 years old on average

(Tomiyama et al., 2014, Health Psychology)
Study 1: Measures

- **Weight stigma**
  - **Events:** Stigmatizing Situations Inventory (Myers & Rosen, 1999)
    - “Losing a job because of your size”
  - **Perception:** Modified Stigma Consciousness Scale (Pinel, 1999)
    - “I never worry that my behaviors will be viewed as stereotypical of the overweight” (reverse-coded)

(Tomiyama et al., 2014, *Health Psychology*)
Conclusions from Lab Studies of Eating, Part I

Psychology of Eating

Study 1: Measures, cont’d

• Cortisol
  – Total daily output
  – Cortisol awakening response
  – Cortisol slope
  – Morning cortisol

• Oxidative Stress
  – A measure of cumulative wear and tear on cellular level
Study 1: Results

- Experiencing events + stigma consciousness significantly related to:
  - Cortisol awakening response ($\beta = 0.38, p < .05$)
  - Morning cortisol ($\beta = 0.39, p < .05$)
  - Oxidative Stress ($\beta = 0.33, p < .05$)

- Controls for BMI

(Tomiyama et al., 2014, *Health Psychology*)
It’s not about your actual BMI, it’s how you perceive it

(Tomiyama et al., 2014, *Health Psychology*)
Obesity/Weight-Based Stigma

1. Increased Cortisol
2. Increased Eating

Study 1: Stigma correlated with cortisol

Weight Gain

Stress

1. Increased Cortisol
2. Increased Eating
Study 2: “Psychology of Shopping”

- Hypothesis: Experiencing weight stigma will cause increases in cortisol levels
- Sample: 110 undergraduate women
- Women who perceive self as:
  - Heavy
  - Thin
- Randomized to one of two conditions:
  - Weight stigma
  - Control

(Himmelstein, Incollingo Belsky, Tomiyama, 2014, *Obesity*)
Conclusions from Lab Studies of Eating, Part I: Consumption After a High-Fat Preload

Psychology of Eating

Study 2: “Shopping room”
Study 2: “Psychology of Shopping”

• Weighed
• Sit in waiting room with a very thin confederate
• ...who is accepted into the shopping activity

(Himmelstein, Incollingo Belsky, Tomiyama, 2014, Obesity)
“Unfortunately your shape and size just aren’t ideal for this style of clothing and we really do want everyone to have fun and feel good. Plus, we want to return the clothing to the designer in good condition.”
• Control Condition: Participants are excluded from the group shopping activity because “the study is full.”

(Himmelstein, Incollingo Belsky, Tomiyama, 2014, *Obesity*)
Study 2: Results

(Himmelstein, Incollingo Belsky, Tomiyama, 2014, *Obesity*)
Obesity/Weight-Based Stigma

Study 1: Stigma correlated with cortisol

Study 2: Stigma causes cortisol secretion

- 1. Increased Cortisol
- 2. Increased Eating

Weight Gain

Stress
Obesity/Weight-Based Stigma

Study 1: Stigma correlated with cortisol; partial mediation

Study 2: Stigma causes cortisol secretion

1. Increased Cortisol
2. Increased Eating

Weight Gain

Stress
NHLBI Growth and Health Study

Participants:

1213 black
1166 white
2379 girls total

...from 3 sites
Richmond, CA
Cincinnati, OH
Washington, DC

Follow-up (ongoing)
Study 3: Stigma and weight

• Have any of these people told you you’re too fat?
  – Father
  – Mother
  – Sister
  – Brother
  – Best girlfriend
  – Boy you like best
  – Teacher

(Hunger & Tomiyama, 2014, JAMA Pediatrics)
For every additional...
• Family member: 0.54 BMI points higher
• Others: 0.21 BMI points higher

(Hunger & Tomiyama, 2014, *JAMA Pediatrics*)
Eating disorder symptomatology

Girls labeled as “too fat” were:
• 61% more likely to engage in unhealthy weight control behaviors of
  – Fasting for over a day
  – Vomiting
  – Taking diet pills
  – Using laxatives

(Hunger & Tomiyama, 2018, JAH)
Obesity/Weight-Based Stigma

Study 1: Stigma correlated with cortisol

Study 2: Stigma causes cortisol secretion

Study 3: Stigma longitudinally predicts weight gain

Weight Gain

1. Increased Cortisol
2. Increased Eating

Stress
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Obesity/Weight-Based Stigma

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Ongoing Study: Stigma, stress, eating, and cortisol in daily life

Weight Gain

1. Increased Cortisol
2. Increased Eating

Stress
Procedure

tinyurl.com/uclatextingstudy
Thanks for texting! Provide a saliva sample in the CLEAR tube. If chewing gum, spit it out. Write the date/time on the bag label, with AM/PM. Reply Y when done.

Thanks! Q3: Please tell us briefly what happened and who/what made you feel stigmatized.

My friend made a rude comment.

Your follow-up survey will arrive in 24 hours; have your phone with you. Please wait at least 15 min before texting EVENT to receive another survey today.

Hello! This is a follow-up survey, which will ask a series of questions. Q1: Have you eaten or consumed beverages in the last 30 minutes? Please Reply Y or N.
Preliminary results

“I went in the store to try on clothes and the sales person told me that they didn't have anything in my size.”

“I was at the gym playing ball and one of the other guys said I've got the fat guy.”

“I was at the doctor office and of course I was told I need to lose weight, as if I'm not trying.”
Mean food servings post-stigma: **3.21** (95% CI: 2.31, 4.11)

Mean food servings 24 hrs later (control): **2.21** (95% CI: 0.54, 3.13)
**Obesity/Weight-Based Stigma**

1. Increased Cortisol
2. Increased Eating

**Study 1:** Stigma correlated with cortisol

**Study 2:** Stigma causes cortisol secretion

**Study 3:** Stigma longitudinally predicts weight gain

**Future Study:** Longitudinal study to test full model

**Ongoing Study:** Stigma, stress, and cortisol in daily life

**Weight Gain**

**Stress**
Questions?

Use the Chat function to ask!
Break

Reconvene at 2:30 pm
Are there any alternatives to dieting?

You can talk to your patients and clients about healthy behaviors without once mentioning the “W” word!

• Eating more fruits and vegetables
• Moving more
• Sleeping better
• Handling stress
Are there any alternatives to dieting?

**Linda Bacon, Ph.D.**
- Weight-neutral
- Shown in randomized controlled trials to beneficially affect:
  - Blood pressure
  - Blood lipids
  - Cholesterol
  - Binge eating
  - Exercise
  - Psychological well-being

Evidence-based solution: HAES
Principles of Health At Every Size®

1. **Weight inclusivity**: Accepting and respecting the diversity of body shapes and sizes
2. **Health enhancement**: Improving access to information & services; attending to physical, spiritual, social, economic, emotional, & other needs
3. **Respectful care**: Owning biases, ending weight stigma & discrimination
4. **Eating for well-being**: Promoting eating in a manner which balances individual nutritional needs, hunger, satiety, nutritional needs, and pleasure
5. **Life-enhancing movement**: Promoting individually appropriate, enjoyable, life-enhancing physical activity, rather than exercise that is focused on a goal of weight loss
Health At Every Size®

haescurriculum.com

Outline
- Defining Weight and Health
- Changes in Weight Over Time
- Associations Between Weight and Health
- Drawbacks of Dieting
- Definition of Health at Every Size
- Differences Between Dieting and Non-Dieting
- Research in Support of Health at Every Size
- Common Misconceptions of Health at Every Size

[Image of a video slide showing the outline]
Focus: Reducing anti-fat attitudes

*Not*: Coping interventions, body image interventions
Weight Bias among Health Professionals Specializing in Obesity

Marlene B. Schwartz,* Heather O’Neal Chambliss,† Kelly D. Brownell,* Steven N. Blair,† and Charles Billington‡

Abstract

Purpose: To determine the level of anti-fat bias in health professionals specializing in obesity and identify personal characteristics that correlate with both implicit and explicit bias.

Research Methods and Procedures: The Implicit Associations Test (IAT) and a self-report questionnaire assessing explicit attitudes, personal experiences with obesity, and demographic characteristics was administered to clinicians and researchers attending the opening session of an inter-

who are obese, and indicating an understanding of the experience of obesity.

Discussion: Even professionals whose careers emphasize research or the clinical management of obesity show very strong weight bias, indicating pervasive and powerful stigma. Understanding the extent of anti-fat bias and the personal characteristics associated with it will aid in developing intervention strategies to ameliorate these damaging attitudes.

Key words: stigma, discrimination, implicit attitudes

Introduction
Modern culture idealizes thinness and disparages obesity (1). Weight bias and discrimination have been documented
• Schwartz et al. finding:
  – 389 physicians, researchers, pharmacologists, epidemiologists, psychologist, nurses, clinicians specializing in obesity
  – Significantly higher pro-thin, anti-fat bias on both IAT and explicit measures.

• Has anything changed a decade later?
Conclusions from Lab Studies of Eating, Part I

• Explicit Bias:
  – 7-point Likert scales rating general feelings toward fat/thin people
  – 7-point likert scale rating fat and thin people along stereotype dimensions
    • Lazy, stupid, worthless

• Note: These stimuli exactly parallel Schwartz et al., 2003
We are interested in how people categorize words. For this task, when I say go, you will have 20 seconds to classify as many of the items in the list as you can into the categories at the top that they belong to. Do not skip or change any items.
Conclusions from Lab Studies of Eating, Part I

• N = 231, 40% male, normal BMI (24.7)
• White, well-educated

Degree of clinical contact

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Obesity-related research</td>
<td>49</td>
<td>21</td>
</tr>
<tr>
<td>Works directly with obese patients</td>
<td>60</td>
<td>26</td>
</tr>
<tr>
<td>Both</td>
<td>75</td>
<td>33</td>
</tr>
<tr>
<td>Neither</td>
<td>46</td>
<td>20</td>
</tr>
</tbody>
</table>
Conclusions from Lab Studies of Eating, Part I

• Participants categorized significantly more words...
  – Fat-Bad vs. Fat-Good
  – Fat-Lazy vs. Fat-Motivated
  – Fat-Stupid vs. Fat-Smart
  – But not Fat-Worthless vs. Fat-Valuable

• Explicitly endorsed fat people as more bad, lazy, stupid, and worthless than thin people.
<table>
<thead>
<tr>
<th>Implicit Anti-fat Bias (d-score)</th>
<th>2001</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bad-Good</td>
<td>0.96 (1.04)</td>
<td>0.81 (1.14)</td>
</tr>
<tr>
<td>Lazy-Motivated*</td>
<td>1.59 (1.30)</td>
<td>0.65 (1.06)</td>
</tr>
<tr>
<td>Worthless-Valuable*</td>
<td>0.50 (0.84)</td>
<td>0.10 (0.79)</td>
</tr>
<tr>
<td>Stupid-Smart*</td>
<td>0.78 (0.85)</td>
<td>0.44 (0.97)</td>
</tr>
<tr>
<td>Explicit Anti-fat Bias (1-7 Likert)</td>
<td>2001</td>
<td>2013</td>
</tr>
<tr>
<td>-----------------------------------</td>
<td>--------------</td>
<td>--------------</td>
</tr>
<tr>
<td>Bad*</td>
<td>0.30 (1.11)</td>
<td>0.79 (1.28)</td>
</tr>
<tr>
<td>Lazy*</td>
<td>0.71 (1.39)</td>
<td>1.17 (1.45)</td>
</tr>
<tr>
<td>Worthless</td>
<td>0.19 (0.60)</td>
<td>0.18 (0.56)</td>
</tr>
<tr>
<td>Stupid</td>
<td>0.26 (0.97)</td>
<td>0.19 (0.62)</td>
</tr>
</tbody>
</table>
How and why weight stigma drives the obesity ‘epidemic’ and harms health

A. Janet Tomiyama, Deborah Carr, Ellen M. Granberg, Brenda Major, Eric Robinson, Angelina R. Sutin and Alexandra Brewis

Abstract

Background: In an era when obesity prevalence is high throughout much of the world, there is a correspondingly pervasive and strong culture of weight stigma. For example, representative studies show that some forms of weight discrimination are more prevalent even than discrimination based on race or ethnicity.

Discussion: In this Opinion article, we review compelling evidence that weight stigma is harmful to health, over and above objective body mass index. Weight stigma is prospectively related to heightened mortality and other chronic diseases and conditions. Most ironically, it actually begets heightened risk of obesity through multiple obesogenic pathways. Weight stigma is particularly prevalent and detrimental in healthcare settings, with documented high levels of ‘anti-fat’ bias in healthcare providers, patients with obesity receiving poorer care and having worse outcomes, and medical students with obesity reporting high levels of alcohol and substance use to cope with internalized weight stigma. In terms of solutions, the most effective and ethical approaches should be aimed at changing the behaviors and attitudes of those who stigmatize, rather than towards the targets of weight stigma. Medical training must address weight bias, training healthcare professionals about how it is perpetuated and on its potentially harmful effects on their patients.

Conclusion: Weight stigma is likely to drive weight gain and poor health and thus should be eradicated. This effort can begin by training compassionate and knowledgeable healthcare providers who will deliver better care and ultimately lessen the negative effects of weight stigma.

Keywords: Weight stigma, Weight bias, Anti-fat attitudes, Discrimination, Health policy, Obesity
Intervention types

Controllability interventions
Examples: Medical, genetic explanations for obesity

Empathy/acceptance interventions
Example: Videos of first-hand accounts of discrimination

Social norms
Example: (False) feedback regarding others’ beliefs

(Daníelsdóttir, O’Brien, Ciao, 2010, Obesity Facts)
Meta-analysis

• Overall effect: $d = -0.33$ (small/medium size)
• But, credibility interval = -0.72 to 0.06 indicating no reliable effect
• And no differences between:
  • Type of intervention
  • Study population

(Lee, Ata, & Brannick, 2010, *Body Image*)
Weight bias reduction in health professionals: a systematic review

A. S. Alberga¹, B. J. Pickering¹, K. Alix Hayden², G. D. C. Ball³, A. Edwards⁴, S. Jelinski⁵,⁶, S. Nutter¹, S. Oddie⁷, A. M. Sharma⁸ and S. Russell-Mayhew¹

Many studies had methodological weaknesses, including short assessment periods, lack of randomization, lack of control group and small sample sizes. Although many studies reported changes in health professionals’ beliefs and knowledge about obesity aetiology, evidence of effectiveness is poor, and long-term effects of intervention strategies on weight bias reduction remain unknown. The findings highlight the lack of experimental research to reduce weight bias among health professionals (n = 2). Studies utilized various bias-reduction strategies. Many studies had methodological weaknesses, including short assessment periods, lack of randomization, lack of control group and small sample sizes. Although many studies reported changes in health professionals’ beliefs and knowledge about obesity aetiology, evidence of effectiveness is poor, and long-term effects of intervention strategies on weight bias reduction remain unknown. The findings highlight the lack of experimental research to reduce weight bias among health professionals. Although changes in practice will likely require multiple strategies in various sectors, well-designed trials are needed to test the impact of interventions to decrease weight bias in healthcare settings.

Keywords: Healthcare, obesity, prejudice, stigma.
Intervention types

Controllability interventions
Examples: Medical, genetic explanations for obesity

Empathy/acceptance interventions
Example: Videos of first-hand accounts of discrimination

Social norms
Example: (False) feedback regarding others’ beliefs

Weight stigma awareness
Example: uconnruddcenter.org/weight-bias-stigma-videos-exposing-weight-bias
WEIGHT BIAS & STIGMA > VIDEOS EXPOSING WEIGHT BIAS

Yale  Weight Prejudice: Myths & Facts

Watch later  Share
Brainstorming & Discussion

5 minutes: Design an intervention to decrease weight stigma. What “ingredients” would you choose? (Choose 2-3)

Be prepared to share your ideas in person/chat box

Controllability interventions
Examples: Medical, genetic explanations for obesity

Empathy/acceptance interventions
Example: Videos of first-hand accounts of discrimination

Social norms
Example: (False) feedback regarding others’ beliefs

Weight stigma awareness
Example: uconnruddcenter.org/weight-bias-stigma-videos-exposing-weight-bias
Conclusions from Lab Studies of Eating, Part I
Consumption After a High-Fat Preload

Psychology of Eating

Thank you
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www.dishlab.org