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### Title

Weight labeling and obesity: a longitudinal study of girls aged 10 to 19 years.

### Permalink

<https://escholarship.org/uc/item/9262s6cd>

### Journal

JAMA pediatrics, 168(6)

### ISSN

2168-6203

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### Publication Date

2014-06-01

### DOI

10.1001/jamapediatrics.2014.122

Peer reviewed

# Letters

## RESEARCH LETTER

### Weight Labeling and Obesity: A Longitudinal Study of Girls Aged 10 to 19 Years

Anti-obesity efforts that rely on stigmatizing weight (eg, using harsh language or stereotypical portrayals of overweight individuals) may impede health promotion efforts, as weight stigma is often negatively related to behavior change and thus seems unlikely to result in weight loss.<sup>1</sup> Indeed, considerable research underscores the detrimental effects of weight stigma on the physical health and well-being of children and adolescents,<sup>2</sup> and nationally representative, longitudinal data show weight-based discrimination is associated with weight gain among older individuals.<sup>3</sup> Although the childhood weight stigma literature frequently examines overt and often malicious behaviors (eg, bullying), stigma processes can begin when an individual experiences *weight labeling*.<sup>4</sup> By labeling someone as overweight, the negative stereotypes, status loss, and mistreatment associated with this label may now be applicable to the individual. Recent research suggests that the negative psychological effects of weight stigma can begin when one is simply labeled as “too fat” by others.<sup>5</sup> However, the relationship between weight labeling and weight gain remains unknown. Thus, we examined if weight labeling during childhood was related to the likelihood of having an obese body mass index (BMI) nearly a decade later.

**Methods | Sample.** The National Heart, Lung, and Blood Institute Growth and Health Study followed up girls who self-identified as black (n = 1213) or white (n = 1166) from age 10 years until age 19 years. Extensive study information is available at <https://biolincc.nhlbi.nih.gov/static/studies/nghs/Protocol.pdf>. The National Heart, Lung, and Blood Institute Growth and Health Study protocol was approved by institutional review boards at all 3 sites (University of California, Berkeley; University of Cincinnati; and Westat/Group Health Association, Rockville, Maryland). The University of California, Los Angeles Institutional Review Board provided human subjects approval for the current study. The child provided writ-

ten assent and a parent/guardian provided written informed consent until the child became 18 years old, at which point she provided written informed consent.

**Measures.** A parent or guardian provided income and education information at baseline. Certified staff conducted anthropometry and collected information on pubertal timing and weight labeling. Weight labeling was assessed by asking participants, “Have any of these people told you that you were too fat?” followed by a list that included father, mother, brother, sister, best girlfriend, boy you like best, any other girl, any other boy, and teacher. Participants reporting “yes” to any item were considered “labeled.”

**Results |** Participants without BMI data at age 19 years (n = 317) were excluded from analyses. These participants did not differ in baseline BMI, weight labeling, or race but had slightly lower levels of household income and parental education. At baseline, 57.9% (n = 1188) of participants reported being labeled. Black girls reported more weight labeling than white girls ( $\chi^2 = 16.13$ ,  $P < .001$ ), although this difference was small ( $\phi = 0.089$ ). Baseline BMI and weight labeling status were moderately correlated ( $r = 0.41$ ,  $P < .001$ ). Logistic regression analyses (**Table**) evaluated the association between baseline labeling and obesity 10 years later. Adjusting for baseline BMI, household income, parental education, race, and age at menarche, being labeled “too fat” at age 10 years remained a significant predictor of obesity at age 19 years (odds ratio = 1.66). The odds ratio was 1.62 when family members were the source of labeling and 1.40 when nonfamily members were the source. These effects were not modulated by race.

**Discussion |** Being labeled “too fat” in childhood was associated with higher odds of having an obese BMI nearly a decade later. Importantly, this relationship was independent of initial BMI and thus not attributable simply to participants’ objective weight at baseline. These data provide novel evidence that the relationship between weight stigma and weight gain may begin early in life; these findings also demonstrate that this relationship can emerge even for a seemingly innocuous

**Table. Results of Logistic Regression Analyses Predicting Obesity Status at Age 19 Years From Baseline Weight Labeling<sup>a</sup>**

Predictor	Source of Labeling, OR (95% CI)		
	Model 1: Anyone	Model 2: Family	Model 3: Nonfamily
Baseline BMI	1.70 (1.61-1.80)	1.70 (1.61-1.80)	1.72 (1.62-1.82)
Race	1.31 (0.93-1.84)	1.30 (0.93-1.82)	1.32 (0.94-1.86)
Parental education	0.73 (0.58-0.93)	0.73 (0.58-0.93)	0.75 (0.59-0.95)
Household income	0.76 (0.64-0.89)	0.76 (0.64-0.89)	0.74 (0.63-0.88)
Age at menarche	1.01 (0.91-1.12)	1.00 (0.90-1.11)	1.01 (0.91-1.13)
Baseline labeling	1.66 (1.20-2.30)	1.62 (1.18-2.22)	1.40 (1.01-1.94)

Abbreviations: BMI, body mass index; OR, odds ratio.

<sup>a</sup> The pattern of results was the same when modeling both weight labeling and BMI as continuous variables; these full results are available from the authors.

facet of stigma (ie, labeling). Weight stigma may contribute to weight gain by increasing obesogenic stress processes and triggering weight-promoting coping behaviors like overeating; future research should examine these potential mechanisms.

**Conclusions** | Given our findings, and the broader literature suggesting weight stigma adversely affects the well-being of overweight children,<sup>2</sup> advocating for weight stigma as public health policy seems unproductive.<sup>6</sup> Researchers, public health officials, and clinicians should consider nonstigmatizing approaches to improving the health and well-being of overweight children.

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**Published Online:** April 28, 2014.  
doi:10.1001/jamapediatrics.2014.122.

**Conflict of Interest Disclosures:** None reported.

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