



# Self-Weighing Throughout Adolescence and Young Adulthood: Implications for Well-Being

Carly R. Pacanowski, PhD, RD; Katie A. Loth, PhD, RD; Peter J. Hannan, MStat; Jennifer A. Linde, PhD; Dianne R. Neumark-Sztainer, PhD, MPH, RD

## ABSTRACT

**Objective:** To describe the prevalence of self-weighing in the transition period from adolescence to young adulthood and examine cross-sectional and longitudinal associations between self-weighing and weight status, psychological, and behavioral outcomes.

**Design:** *Project Eating and Activity in Teens and Young Adults*, a longitudinal cohort study that assessed variables 3 times over 10 years.

**Participants:** A total of 1,868 adolescents and young adults.

**Main Outcome Measures:** Weight, body mass index, weight disparity, body satisfaction, weight concern, self-esteem, depression, and unhealthy weight control behaviors.

**Analysis:** Cross-sectional and longitudinal.

**Results:** Significant positive correlations were found at each time point between self-weighing and weight concern for both genders. Self-weighing was significantly inversely related to self-esteem at each time point in female participants. Increases in endorsement of self-weighing were significantly related to decreases in body satisfaction and self-esteem and increases in weight concern and depression in female participants and to increases in weight concern in male participants.

**Conclusions and Implications:** Findings suggest that self-weighing may not be an innocuous behavior for young people, particularly women. Interventions should assess potential harmful consequences of self-weighing in addition to any potential benefits. It may be appropriate for clinicians to ask about self-weighing, and if it is frequent, to explore motivations, perceived benefits, and potential adverse correlates or consequences.

**Key Words:** self-weighing, weight, well-being, psychological, self-esteem, adolescent (*J Nutr Educ Behav*. 2015;47:506-515.)

Accepted August 10, 2015.

## INTRODUCTION

Obesity in adolescents is a public health concern, and because obesity tracks from adolescence into adulthood,<sup>1</sup> cost-effective ways are needed to prevent excessive weight gain during this critical life transition. Body dissatisfaction and weight concerns, 2 predictors of disordered eating behaviors, are also elevated among adolescents,<sup>2</sup> which makes it crucial that

interventions aimed at obesity prevention among adolescents also take care to not exacerbate predictors of disordered eating behaviors. There is some evidence suggesting that self-weighing may facilitate weight control in some adults and not be psychologically detrimental.<sup>3,4</sup> However, there is reason to believe that self-weighing may not be advisable for certain adults<sup>5</sup> or other age groups, such as adolescents and young adults.<sup>4,6</sup> Thus,

it is important to determine whether self-weighing can be helpful for weight management in adolescents, while simultaneously not contributing to poor well-being, by developing a better understanding of the long-term outcomes of self-weighing for both weight management and behavioral or psychosocial outcomes.

There is scarce literature exploring self-weighing in adolescents and young adults and findings are inconsistent. Two cross-sectional studies found associations between self-weighing and less chance of weight regain in adolescents,<sup>7,8</sup> but for current weight, findings have been mixed. In 1 study, self-weighing was positively associated with body mass index (BMI)<sup>9</sup> whereas 2 others found no relationship<sup>10,11</sup> and 1 study found an inverse association.<sup>8</sup> Two longitudinal studies also reported inconsistent results: Self-weighing frequency was positively associated with prospective weight

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Department of Epidemiology and Community Health, School of Public Health, University of Minnesota, Minneapolis, MN

*Conflict of Interest Disclosure:* The authors' conflict of interest disclosures can be found online with this article on [www.jneb.org](http://www.jneb.org).

Address for correspondence: Carly R. Pacanowski, PhD, RD, Department of Epidemiology and Community Health, School of Public Health, University of Minnesota, West Bank Office Bldg, 1300 South 2nd St, Ste 300, Minneapolis, MN 55415; Phone: (215) 630-0397; E-mail: [cpacanow@umn.edu](mailto:cpacanow@umn.edu)

Published by Elsevier, Inc. on behalf of the Society for Nutrition Education and Behavior <http://dx.doi.org/10.1016/j.jneb.2015.08.008>

gain in one study<sup>12</sup> but in another study, no association was found.<sup>10</sup> Regarding well-being, self-weighing has been found to be associated with higher depressive symptomatology, lower self-esteem, and lower body satisfaction, with some differences across gender.<sup>9,11,13</sup> Considering behaviors, self-weighing has been found to be associated with both healthy (eg, eating fewer foods with little nutritional value) and unhealthy (eg, skipping meals) weight control behaviors in 3 studies.<sup>10,11,13</sup> However, 1 study found no association between frequency of self-weighing and unhealthy weight control behaviors.<sup>8</sup>

These disparate and inconsistent findings call for further investigation, notably more research studies with long-term follow-up. *Project Eating and Activity in Teens and Young Adults (EAT)*, a longitudinal cohort study in a population-based sample of female and male adolescents and young adults, presents an opportunity to further explore self-weighing and its relationship with body weight and other psychosocial outcomes while investigating how these variables changed over a 10-year period. This study expands on previous analyses from *Project EAT*<sup>11-13</sup> by assessing self-weighing and outcomes indicative of well-being at 3 time points over 10 years. The current study has 3 objectives: (1) to describe the prevalence of self-weighing during the transition from adolescence to young adulthood; (2) to examine cross-sectional associations between self-weighing and selected outcomes; and (3) to investigate contemporaneous changes in self-weighing with changes in weight status, psychological, and behavioral outcomes over 10 years. Based on previous work, the authors hypothesized that more frequent self-weighing would be associated with poorer psychological status (greater body dissatisfaction and depressive symptoms, and lower self-esteem) and greater likelihood of engaging in unhealthy weight control behaviors.

## METHODS

### Study Design, Participants, and Recruitment

The researchers drew data for these analyses from *Project EAT-I*, *-II*, and *-III*, 3 waves of a 10-year longitudinal study designed to examine dietary

intake, physical activity, weight control behaviors, weight status, and factors associated with these outcomes among young people. In *Project EAT-I* (1998–1999), middle school and senior high school students at 31 public schools in the Minneapolis/St Paul metropolitan area completed surveys and anthropometric measures.<sup>14,15</sup> In *Project EAT-II* (2003–2004), original participants were mailed follow-up surveys.<sup>16,17</sup> *Project EAT-III* (2008–2009) observed participants as they progressed from adolescence to young adulthood. The University of Minnesota Institutional Review Board Human Subjects Committee approved all protocols.

The analytic sample used in this article to address objectives 1 and 2 includes the 1,902 young adults who responded at all 3 time points. There were 819 male participants (43%) and 1,083 female participants (57%) who completed surveys for *EAT-I* (time 1), *EAT-II* (time 2), and *EAT-III* (time 3). To address objective 3, participants had to respond to the self-weighing item at all 3 time points, which slightly decreased the analytic sample to 1,868 (female participants,  $n = 1,058$ ; male participants,  $n = 810$ ).

Because attrition from the time 1 sample did not occur at random, data were weighted using the response propensity method.<sup>18</sup> Response propensities (ie, the probability of responding to the *Project EAT-III* survey) were estimated using a logistic regression of response at time 3 on a large number of predictor variables from *EAT-I*. Weights were calibrated so that the weighted total sample sizes used in analyses for each gender cohort accurately reflect the actual observed sample sizes in those groups. The weighting method resulted in estimates representative of the demographic makeup of the original school-based sample, thereby allowing results to be more generalizable to the population of young people in the Minneapolis/St Paul metropolitan area.

### Measures

**Self-weighing.** The authors assessed engagement in self-weighing by asking participants to respond to the statement, “I weigh myself often.” Participants responded at each survey time point using a 4-point Likert scale

in which 1 = *strongly disagree* and 4 = *strongly agree* (test-retest agreement [agree vs disagree] = 85%<sup>19</sup>). A small study comparing the assessment of self-weighing used in the current article with a more objective assessment yielded a correlation of  $r = .60$ .<sup>12</sup>

**Weight status variables: weight and BMI.** At time 1, trained research assistants following standardized procedures measured height and weight, from which BMI was calculated. Body mass index at later time points was calculated from self-reported height and weight; validation of self-reports is described elsewhere.<sup>20</sup> Age and gender were assessed via self-report.

**Psychological variables: weight disparity, body satisfaction, weight concern, depression, and self-esteem.** The researchers calculated weight disparity by comparing self-assessed ideal weight and self-reported current weight. Participants responded to the question, *At what weight do you think you would look best?*<sup>2,15</sup> This value was divided by self-reported weight and multiplied by 100 to make a percentage (repeat correlation at *EAT-III* = 0.95). Body satisfaction was assessed using items based on the Body Shape Satisfaction scale.<sup>21</sup> Participants described level of satisfaction related to 10 different body parts using a 5-point Likert scale (Cronbach  $\alpha = .92$ ). Weight concern was assessed with 2 items: *I think a lot about being thinner* and *I am worried about gaining weight* (4-point Likert scale, *strongly disagree* to *strongly agree*) (Cronbach  $\alpha = .87$ ).<sup>2,14</sup> Depressive symptoms were assessed using 6 items from the Kandel and Davies Depressive Mood scale<sup>22</sup> (Cronbach  $\alpha = .82$ ). The researchers assessed self-esteem using 6 items from the Rosenberg Self-esteem scale<sup>23</sup> (Cronbach  $\alpha = .79$ ).

**Behavioral variables: less extreme and extreme unhealthy weight control behaviors.** Participants were asked to indicate whether they had engaged in each of 9 behaviors for reducing weight in the past year (yes/no).<sup>2,15</sup> Five of these behaviors constituted less extreme unhealthy weight control behaviors: fasted, ate very little food, used a food substitute, skipped meals, or smoked more

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