The Effects of Restraint, Gender, and Body Mass Index on the Accuracy of Self-Reported Weight

Jennifer R. Shapiro and Drew A. Anderson*

Department of Psychology, University at Albany, State University of New York, Albany, New York

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Abstract: Objective: Previous research has shown that women, restrained eaters, and overweight/obese individuals have a tendency to underreport their weight. This study investigated gender, dietary restraint, and BMI to determine which is the best predictor of errors in self-reported weight. Method: A total of 241 college students completed questionnaires pertaining to height and weight and then were weighed in the laboratory. Results: Although overall students were fairly accurate in reporting their weight, restraint status was the best predictor of weight underestimation. Discussion: These results suggest that restrained eaters, regardless of gender or BMI, have a tendency to underestimate their weight. © 2003 by Wiley Periodicals, Inc. Int J Eat Disord 34: 177–180, 2003.

Key words: gender; restraint; weight

INTRODUCTION

Several large-scale studies of health rely on self-report to determine weight, because it is a quick, cost-effective, and practical method for gathering both current and retrospective data. Although, in general, people accurately report their weight (Cash, Counts, Hangen, & Huffine, 1989; Stunkard & Albaum, 1981; Wing, Epstein, Ossip, & LaPorte, 1979), certain subgroups have been found to be less accurate than the general population.

Characteristics of Weight Underestimators

Women

Several studies have shown that women underreport their weight to a greater degree than men (Betz, Mintz, & Speakmon, 1994; Pirie, Jacobs, Jeffery, & Hannan, 1981; Wing et al., 1979). For example, Pirie and colleagues (1981) found a discrepancy between self-report and measured weight of 4.17 pounds for women compared with 0.89 pounds for men.
Restrained Eaters

Restrained eaters are chronic dieters who intend to eat less than desired (Gorman & Allison, 1995) and constantly struggle to maintain control over eating (Herman & Polivy, 1975; Lowe, 1993). Studies of female restrained eaters have found that they underreport their weight to a greater degree than other women (Cash, Grant, Shovlin, & Lewis, 1992; McCabe, McFarlane, Polivy, & Olmsted, 2001). However, male restrained eaters have been largely ignored in the literature.

Overweight and Obese

Overweight and obese individuals have also been shown to underreport their weight (Cash et al., 1989, 1992; Rowland, 1990; Stewart, Jackson, Ford, & Beaglehole, 1987), and the discrepancy between self-report and measured weight increases with increased weight (Fairburn and Beglin, 1994; Larson, 2000).

In conclusion, although most people are accurate at self-reporting their weight, it seems as though certain subgroups tend to underreport their weight. This study was designed to clarify the relative predictive value of gender, restraint, and BMI and their interactions on the accuracy of self-reported weight.

METHOD

A total of 243 (159 men and 84 women) college students were pooled from two other experiments concerning weight and eating changes during the freshman year of college (N = 146) and stress-induced eating (N = 97). In both experiments, participants completed the Revised Restraint Scale (RS; Herman & Polivy, 1980) and provided self-reported weight, while unaware that their weight would be verified. They were then weighed, with their shoes off, by the experimenter using a digital scale (Detecto model # 758C). There were no significant differences in accuracy of self-reported weight between participants in the studies (p > 0.05); thus, participants were pooled for further analyses.

RESULTS

Before analyses, two female outliers were removed from the data set, because they were extreme weight underestimators. Thus, 241 participants were used for further analyses. Participants had a mean age of 18.4 ± 2.0 years; a height of 165.0 ± 9.75 cm; a weight of 67.0 ± 13.0 kg; and body mass index (BMI; kg/m²) of 23.8 ± 4.2 kg/m². A total of 181 (75.1%) were Caucasian, 14 (5.8%) were African-American, and 46 (19.1%) were of other ethnic descent.

As a whole, participants were fairly accurate in reporting their weight. Self-reported and measured weights were strongly and significantly correlated (r = 0.98, p < 0.01). Participants reported a mean weight of 65.62 ± 12.55 kg, which represents a mean underestimation of −1.39 ± 2.65 kg (−2.0 %) of actual weight.

Predictors of Inaccuracy

To determine which variables would best predict weight underestimation, a hierarchical multiple regression analysis was performed with gender, restraint, body mass index, and their interactions as independent variables and the discrepancy between actual
weight and reported weight as the dependent variable. It has been argued that restraint should be conceptualized as a continuous as opposed to a categorical variable (Gorman & Allison, 1995; Stein, 1988); accordingly this study treated restraint as a continuous variable. Following standard regression procedures, the main effects were forced into the equation first, followed by the interaction effects.

As can be seen from Table 1, whereas the three main variables together accounted for a significant percentage of the variance in accuracy of estimation, an examination of the slopes revealed that only the RS accounted for a significant proportion of variance in weight underestimation, with higher restraint scores associated with a greater degree of weight underreporting. The interaction variables did not add to the percentage of variance accounted for, indicating no interaction effects. In fact, the addition of the interaction variables rendered the RS score nonsignificant. Thus, restraint seemed to be the strongest predictor of accuracy of self-reported weight.

DISCUSSION

The results of this study support previous literature suggesting that, on average, people are generally accurate at self-reporting their weight. However, this study found that restraint was a better predictor of weight underestimation than both gender and weight.

Although previous research has found that gender and body mass play roles in the accuracy of self-reported intake, these variables are positively correlated with dietary restraint (Allison, Kalinsky, & Gorman, 1992; Klem, Klesges, & Shadish, 1990), and these results may have been an artifact of this relationship. This study suggests that weight underreporting is best conceptualized as being related to restraint, not gender or weight status. One possibility for this is that restrained eaters underreport their weight, because they are highly concerned with and/or base their self-worth largely on weight and shape. Thus, restrained eaters might be influenced by social desirability to underreport their weight to conform to the current cultural standards for “ideal weight.”

One implication of this study is that because most people are generally accurate at self-reporting their weight, using self-report data from the general population seems reasonable. However, when conducting research on populations that may have a high proportion of individuals high in restraint, self-reported weight is likely to be biased.

Table 1. Results of hierarchical regression analysis

<table>
<thead>
<tr>
<th>Regression</th>
<th>$R^2$</th>
<th>$b$</th>
<th>$\beta$</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1</td>
<td>0.040</td>
<td>—</td>
<td>—</td>
<td>0.02</td>
</tr>
<tr>
<td>RS</td>
<td>—</td>
<td>−0.08</td>
<td>−0.19</td>
<td>0.01</td>
</tr>
<tr>
<td>Gender</td>
<td>—</td>
<td>−0.44</td>
<td>−0.08</td>
<td>0.25</td>
</tr>
<tr>
<td>BMI</td>
<td>—</td>
<td>−0.01</td>
<td>−0.02</td>
<td>0.79</td>
</tr>
<tr>
<td>Step 2</td>
<td>0.048</td>
<td>—</td>
<td>—</td>
<td>0.12</td>
</tr>
<tr>
<td>RS</td>
<td>—</td>
<td>0.12</td>
<td>0.29</td>
<td>0.67</td>
</tr>
<tr>
<td>Gender</td>
<td>—</td>
<td>3.8</td>
<td>0.69</td>
<td>0.48</td>
</tr>
<tr>
<td>BMI</td>
<td>—</td>
<td>0.13</td>
<td>0.19</td>
<td>0.56</td>
</tr>
<tr>
<td>RS * Gender</td>
<td>—</td>
<td>−0.24</td>
<td>−0.63</td>
<td>0.50</td>
</tr>
<tr>
<td>RS * BMI</td>
<td>—</td>
<td>−0.08</td>
<td>−0.49</td>
<td>0.57</td>
</tr>
<tr>
<td>Gender * BMI</td>
<td>—</td>
<td>−0.17</td>
<td>−0.74</td>
<td>0.51</td>
</tr>
<tr>
<td>RS * Gender * BMI</td>
<td>—</td>
<td>0.00</td>
<td>0.57</td>
<td>0.60</td>
</tr>
</tbody>
</table>

Note: RS = restraint scale. BMI = body mass index. Gender was dummy coded as females = 0, males = 1.
This study does have limitations. First, it was conducted in a college population; thus, it is not clear whether these findings can be extended to other populations. Future replications with restrained eaters of all ages are needed. Also, restraint only explained 4% of the variance of underreporting. Clearly, other factors are involved in weight underestimation, and future studies should examine alternative variables that may explain weight underestimation.

Despite these shortcomings, this study is the first to examine the relative contributions of restraint, gender, and body mass index to the accuracy of self-reported weight and extends our understanding of the variables operating in weight underestimation.

REFERENCES


