INTRODUCTION

Obesity is recognized as a worldwide public health concern. It is commonly assessed and classified using Body Mass Index (BMI). Historical data suggests that adults tend to under-report their own weight and that the gap between self-reported weight and actual weight increases with obesity. Few studies have examined how well young adults report their own height and weight.

OBJECTIVE

This study investigates self-reported height, weight and subsequent BMI versus actual measurements in young adults.

METHODS

• Over 1,500 students across 8 U.S. universities provided their height and weight via a survey
• Measurements were subsequently taken by trained professionals
• Both self-reported and measured BMI were then calculated for each participant.
• Correlations between self-reported and measured height, weight and BMI were assessed using Spearman's rho.
• Kappa coefficient was used to test agreement between categorical variables of self-reported and actual calculated BMI (i.e. underweight, normal, overweight, obese)

RESULTS

1562 college students completed the survey including 1064 Females (68%) and 450 Males (29.81%), with 48 participants (3%) choosing not to disclose their gender.

Table 1. Demographics

<table>
<thead>
<tr>
<th>VARIABLE</th>
<th>FREQUENCY (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>450 (29.81)</td>
</tr>
<tr>
<td>Female</td>
<td>1064 (68.12)</td>
</tr>
<tr>
<td>Did not answer</td>
<td>48 (3.07)</td>
</tr>
<tr>
<td>Race</td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>881 (56.40)</td>
</tr>
<tr>
<td>Black or African American</td>
<td>161 (10.31)</td>
</tr>
<tr>
<td>Asian</td>
<td>142 (9.09)</td>
</tr>
<tr>
<td>American Indian or Alaska Native</td>
<td>16 (1.02)</td>
</tr>
<tr>
<td>Native Hawaiian or other Pacific Islander</td>
<td>10 (0.64)</td>
</tr>
<tr>
<td>Biracial</td>
<td>21 (1.34)</td>
</tr>
<tr>
<td>Other</td>
<td>64 (4.10)</td>
</tr>
<tr>
<td>Choose not to answer or Missing</td>
<td>267 (17.10)</td>
</tr>
<tr>
<td>State</td>
<td></td>
</tr>
<tr>
<td>Alabama</td>
<td>112 (7.17)</td>
</tr>
<tr>
<td>Florida</td>
<td>399 (25.54)</td>
</tr>
<tr>
<td>Kansas</td>
<td>111 (7.11)</td>
</tr>
<tr>
<td>Maine</td>
<td>197 (12.61)</td>
</tr>
<tr>
<td>New York</td>
<td>187 (11.97)</td>
</tr>
<tr>
<td>South Dakota</td>
<td>136 (8.71)</td>
</tr>
<tr>
<td>Tennessee</td>
<td>227 (14.53)</td>
</tr>
<tr>
<td>West Virginia</td>
<td>193 (12.36)</td>
</tr>
<tr>
<td>Appalachian Status</td>
<td></td>
</tr>
<tr>
<td>Appalachian</td>
<td>185 (11.84)</td>
</tr>
<tr>
<td>Non-Appalachian</td>
<td>1140 (72.98)</td>
</tr>
<tr>
<td>Choose not to answer or Missing</td>
<td>237 (15.17)</td>
</tr>
</tbody>
</table>

Subsequent BMI Categories showed significant agreement for both genders
• Males – $\kappa = 0.79$ (95% CI, 0.73 to 0.84)
• Females – $\kappa = 0.76$ (95% CI, 0.72 to 0.80)

• Height was overestimated by both Males and Females
• Weight was overestimated by Males but underestimated by Females
  - Self-Reported measurements remained statistically correlated to Actual Height and Weight

Table 2. Actual vs. Self-Reported Average Height and Weight by Gender

<table>
<thead>
<tr>
<th>VARIABLE</th>
<th>HEIGHT (cm)</th>
<th>WEIGHT (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Actual</td>
<td>Self-Reported</td>
</tr>
<tr>
<td>Males</td>
<td>175.28 +/- 7.70</td>
<td>177.32 +/- 7.24</td>
</tr>
<tr>
<td></td>
<td>p&lt;0.001</td>
<td>p&lt;0.001</td>
</tr>
<tr>
<td>Females</td>
<td>164.65 +/- 7.10</td>
<td>164.80 +/- 7.87</td>
</tr>
<tr>
<td></td>
<td>p&lt;0.001</td>
<td>p&lt;0.001</td>
</tr>
</tbody>
</table>

CONCLUSION

• This study suggests self-reported anthropometric measurements in young adults can be used to calculate BMI for weight classification purposes.
• Further investigation is needed to better assess self-reported vs. measured height and weight discrepancies across populations.