

Title: Accuracy of self-reported weight compared to measured BMI among rural middle school students in Michigan

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Abstract: Measured BMI, due to its validity and reliability, is the method of choice for field-based assessments of overweight and obesity in all population groups. However, on account of its ease and affordability, self-reported perception of body weight is frequently used in surveys targeting overweight and obese individuals. The common trend is that obesity in childhood and adolescence continues into adulthood. Females and overweight youth often underestimate their weight more than males and normal-weight youth respectively. Evidence shows that accurate perception of oneself as overweight or obese is linked to greater motivation to change lifestyle behaviors. The objective of this study was to examine the accuracy of self-reported weight compared to measured BMI in rural middle school students in Michigan. A sample of 1,995 students aged 11 and 12 were recruited over a period of 5 years from six rural school districts in mid-Michigan. Data was collected using an interviewer-administered questionnaire with questions from the Youth Risk Behavior Survey. Height and weight were measured by research

assistants and BMI was calculated. The majority (54.4%) of the students perceived themselves as about the right weight, with about the same proportion (52.7%) in the normal weight category of BMI. Similarly, 23.6% regarded themselves as slightly overweight, with 20.0% in the overweight category of BMI. Although only 3.5% considered themselves as very overweight, 26.4% were in the obese category of BMI. All of those who reported they were slightly overweight were obese by BMI standards, and those who reported they were very overweight were at higher levels of obesity. When stratified by age and gender, none of the 11-year-old girls who perceived themselves as underweight were in the underweight category of BMI, whereas those who perceived themselves as having the right weight were accurate in their estimation. None of 12-year-old boys and girls who perceived themselves as underweight were in the underweight category of BMI, while those who perceived themselves as having the right weight were accurate in their estimation. There was statistically significant evidence ($p=0.000$) to show that there is a difference in weight perception across the BMI categories. Both 11- and 12-year-olds were more likely to underestimate their overweight status; there was no difference between boys and girls. 11-year-old boys underestimated their weight status, which is not in agreement with the findings from other studies that reported such behavior in girls.

Christian Worldview Integration

Literature shows that obesity in childhood and adolescence tends to continue into adulthood. In addition, perceived weight plays a major role in one's decision to change behavior that leads to a healthier lifestyle. Proverbs 23:7 says explicitly, "For as he thinks in his heart, so is he. 'Eat and drink!' he says to you, but his heart is not with you." In light of this, our research was conducted

with the goal to determine if there was a discrepancy in the perceived weight category of middle school students versus their actual weight category.

We reasoned that the period of adolescence is a critical time when the character and enduring behavioral patterns of individuals are formed. Thus, adolescents' perception of their weight would influence their decision to form habits that would persist into adulthood. Proverbs 22:6 says, "Train up a child in the way that he should go: and when he is old, he will not depart from it." It is important that children and adolescents – especially those at risk of becoming obese – be taught healthy lifestyle habits to assure a healthy future for them. As Christian public health professionals, "the love of Christ compels us" (2 Corinthians 4:14) to "go around and do good" just like Jesus did (Acts 10:38). Wherever there is a lack of health-related knowledge, on account of which "people are destroyed" (Hosea 4:6), we have the mandate to go there, disseminate knowledge and promote health. It is hoped that the findings of this study will serve as a call to action to stop the trends in child and adolescent obesity, and that the results of our research can be built upon to plan and implement weight intervention programs for children and adolescents.