

**Title:** Weight Perception Among Rural Middle-School Children, Gratiot County, Michigan, 2015: Associations with BMI and Weight Goal

**Program of Study:** Master of Public Health

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### Abstract

Prevalence of overweight and obesity among US children and adolescents has increased 3-fold over the past 3 decades. Although there has been a significant public health effort to address the epidemic, these interventions have focused more on raising awareness of the epidemic itself than making individuals aware of their overweight or obese status. Accurate perception of oneself as overweight or obese has been linked to greater motivation to change lifestyle behaviors. The objective of the current study is to examine the accuracy of self-reported weight compared to measured BMI in rural middle school students in Michigan, and to assess the relationship between weight perception and weight goal.

For this study, a sample of 447 students (252 boys, 192 girls) aged 10 to 13 years were recruited from six rural school districts (three elementary schools and three middle schools) in mid-Michigan in 2015. Data were collected during an annual heart health fair targeting 5<sup>th</sup> and 6<sup>th</sup> grade students in the schools. An interviewer-administered questionnaire adapted from the

Youth Risk Behavior Survey was used to obtain data on weight perception and weight goal. Research assistants measured height by using a Child ShorrBoard (recorded to nearest centimeter with shoes and socks off); they also measured weight and percent body fat with a BC-534 Tanita InnerScan Body Composition Monitor (recorded to nearest kilogram with shoes and socks off). Microsoft Excel 2016 and IBM SPSS version 23 were used to analyze the data, with Chi-square tests performed, measures of central tendency calculated, and charts created.

There was a linear relationship between measured BMI and perceived weight among girls. Measured BMI increased by category of perceived weight, such that the girls who perceived themselves as very underweight had the lowest measured BMI on average (17.8 kg/m<sup>2</sup>) and those who perceived that they were very overweight had the highest measured BMI on average (28.3 kg/m<sup>2</sup>). For boys, those who perceived themselves as very underweight had a measured BMI that was higher than that for those who perceived that they were about the right weight (22.6 kg/m<sup>2</sup> compared to 20.1 kg/m<sup>2</sup>), but a linear relationship was seen between measured BMI and perceived weight for subsequent categories.

Considering weight goal, those who wanted to lose weight had the highest BMI, whereas those who wanted to gain weight had the lowest BMI. As found in other studies, weight goal varied by reported weight perception ( $p < 0.001$ ). Students who perceived themselves as underweight reported to want to gain weight, whereas students who perceived themselves as overweight indicated that they wanted to lose weight. Future interventions aimed at obesity prevention should incorporate accurate self-perception programs.

## **Christian Worldview Integration**

The current body of research shows that obesity in childhood and adolescence tends to track into adulthood. In addition, accurate perception of oneself as overweight or obese has been linked to greater motivation to modify lifestyle behaviors. Proverbs 23:7 says, “For as he thinks in his heart, so is he.” The way that individuals – young and old – perceive themselves in their mind determines the action that they will take towards their health. Consequently, we decided to assess 1) whether middle-school children could accurately perceive their weight, and 2) whether their weight goal varied by their perceived weight category.

We reasoned that the period of adolescence is a critical time when lifelong habits are formed. Therefore, adolescents’ perception of their weight may influence them 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 crucial that children and adolescents be given the right tools and resources to accurately perceive themselves and undertake the appropriate steps towards reaching or maintaining a healthy weight. As Christian public health professionals, we are “compelled by the love of Christ” (2 Corinthians 4:14) to “go around and do good” just like Jesus did (Acts 10:38). In the public health field, this translates into bringing knowledge where it is lacking and preventing diseases by promoting health. We believe that the findings of our research can be built upon to plan and implement obesity prevention programs for children and adolescents.