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## Accuracy of Self- and Parental Perception of Overweight Among Latino Preadolescents

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### Abstract

**Background**—This investigation examines self-perception and parental perception of child body size and factors associated with accurate parental perception of child body size.

**Methods**—Latino at-risk for overweight (AROW) and/or overweight preadolescent children (ages 8–11 years) along with their parents were recruited (N=123 dyads). Children's body mass index (BMI) was measured but not discussed before participants were shown pictures of body sizes and asked to select the image that represented the child's body.

**Results**—The correlation between the child's body size selection and the child's actual BMI was 0.117 ( $p=0.20$ ) whereas the correlation between the parent's assessment of the child's body size and the child's actual BMI was 0.470 ( $p<0.001$ ). Logistic regression revealed that only parental education level (college) was associated with a more accurate parental perception of their child's body size (OR: 0.11/ 95% CI: 0.01, 0.89) while child's sex, parental BMI, and parental health status were not associated with a perception that corresponded to the child's BMI.

**Limitations**—The sample was drawn from a single community clinic in Forsyth County which serves a large population of newer Latino immigrants in the county.

**Conclusions**—The results indicate that (1) Latino AROW/overweight preadolescent children do not have an accurate perception of their own body size; (2) Latino parents have a more accurate perception of their child's body size with a moderately sized correlation ( $r=0.47$ ,  $p>0.001$ ), suggesting that their perception of their child's body size is frequently inaccurate; and (3) Latino parents with higher education perceive their child's body size more accurately than less educated parents.

### Keywords

Weight perception; body mass index; ideal body size; Hispanic Americans; body image

Interventions for childhood obesity have, at times, been shown to be successful if they include parents.<sup>1,2</sup> But for parents to choose to actively participate in obesity prevention efforts with their children, they must first be aware of overweight in their children and must be concerned about the possible consequences. Erroneous perception of body size may have important health and behavioral implications.

Latino adults have been found to be inaccurate in their perceptions of their own overweight.<sup>3</sup> In a study of low-income Latinas and their children aged 5–7 years, all of the women selected a relatively thin body image as the most desirable and healthy for themselves but preferred a plumper figure for their children.<sup>4</sup> Several studies using multiethnic samples but not breaking results out by ethnicity have shown that parents often fail to identify their children as overweight.<sup>5,6</sup> These findings indicate that Latina mothers may have a more favorable view of childhood obesity and may fail to perceive overweight in their children as problematic. We examined the research question, “Do Latino preadolescents and their parents have similar interpretations of overweight as do medical providers who utilize Body Mass Index (BMI) to make this determination?”

## PATIENTS AND METHODS

### Participants

Hispanic-American at-risk for overweight (AROW) (BMI >85% and <95%) and overweight (BMI >95%) preadolescent children (ages 8–11 years) along with one of their parents were recruited from a clinic that serves the greatest number of Latino families in Forsyth County, North Carolina. All patients who met the eligibility criteria (child’s BMI >85%, child’s age 8–11 years, self-identified as Latino, and parent willing to participate with child in the study) were invited to participate. Of the 210 families contacted, 159 families agreed to participate on the telephone, and 123 families provided data.

### Measures

We obtained approval for this study from the Institutional Review Board of Wake Forest University Health Sciences. We present baseline data collected at the community-based health center in Winston-Salem, North Carolina prior to any discussion between the patient family and the health care provider. Children’s and parents’ BMI were measured<sup>7</sup> but not discussed before participants (both adults and children, separate from one another) were shown pictures of child body sizes and asked to select the image that most looked like the child’s body. Body size perception was gathered from a picture scale ranging from 1–7 for children where 1–2 was considered by health care providers to be underweight, 3–4 was considered by health care providers to be the ideal body size, 5 was considered to be AROW, and 6–7 was considered to be overweight.<sup>8</sup> This scale is significantly and highly correlated with measured percentage overweight ( $r=0.79$ ).<sup>8</sup> Additional variables that were collected include the following: (1) educational level of parent (using Census 2000 format);<sup>9</sup> (2) health status of parent (using questions from the Service Utilization Assessment);<sup>10</sup> and (3) parental acculturation (using questions from Marin’s short acculturation scale for Hispanics).<sup>11</sup>

## Statistical Methods

To assess how accurately Latino preadolescents perceive their body image compared to their parents, we calculated two correlations using Pearson's correlation coefficient: (1) between the child's assessment of his or her body size and the child's BMI, and (2) between the parent's assessment of the child's body size and the child's BMI.

To assess which factors are associated with a more accurate parental perception of body size, we created the variable AGREE. This was calculated by applying a cutoff point of 95% to the measured BMI percentile and classifying those above as overweight. We grouped the parental evaluation scores of 6 and 7 and defined this category as parents perceiving their child as overweight. When the parent's perception matched with the measured classification, the variable AGREE was coded 1; otherwise, it was coded 0. In a logistic regression, AGREE was used as the dependent variable with the sex of the child, education level of the parent (college degree versus no college degree), and self-reported health status of the parent included as independent variables.

## RESULTS

In our sample of participating parents, 88% were mothers and 73% were from Mexico (other participants came from Guatemala, El Salvador, Dominican Republic, Columbia, Venezuela, and Nicaragua). Ninety-nine percent of our sample of parents reported that Spanish was spoken at home and with their friends. Moreover, 99% of these adults chose to complete surveys in Spanish. Forty-five percent (45%) of the adults had an education of 8th grade or less; 16% had education up to the 12th grade but not including graduation; 22% graduated from high school; 5% reported some college; 4% reported an associates degree/technical school; and 8% reported a college degree or higher. Average adult age was 35 years (SD 7.4) and average adult BMI was 33.4 (SD 7.8). Only 17% of adults rated their health as "very good" or "excellent;" 38% reported "good" health; and 45% reported "fair" or "poor" health. Average child age was 9.3 years (SD 1.3). The distribution of female and male children was approximately equal. Average study child's BMI was 25.9 (SD 5.5) indicating that 30% were AROW and more than 60% were overweight.

The correlation between the child's body size selection and the child's actual BMI was 0.117 ( $p=0.20$ ) whereas the correlation between the parent's assessment of the child's body size and the child's actual BMI was 0.470 ( $p<0.001$ ). The two correlations were statistically different ( $p=0.001$ ), suggesting that parents had a more accurate assessment of the child's body size than did the child. While the correlation between parental perception and child's true BMI is statistically significant, we note it is only moderate in magnitude and thus conclude that parental perception of body size is frequently inaccurate.

Table 1 shows the results of the logistic regression. Parent's education was significantly associated with a more accurate perception of the identified obese child (OR: 0.11, 95% CI: 0.01, 0.89, comparing parents with less than a college education to parents with a college education or higher).

## DISCUSSION

In this study, we found that Latino preadolescent overweight children perceived their body size inaccurately while their parents perceived their child's body size more accurately (but still with only a moderately sized correlation, suggesting frequent inaccuracy). Accuracy of parental perception was associated with higher parental educational levels, greater than or equal to a college level education.

Prior work from Killion et al demonstrated that African-American and Hispanic mothers' perceptions of their children's body sizes are often inaccurate for children with BMI > 95%.<sup>12</sup> However, this study only focused on young children aged 3–5 years. Likewise, Olvera et al demonstrated that less acculturated children and mothers identified thinner body sizes than the BMI would indicate.<sup>13</sup> A third of their sample of children were overweight or at-risk for overweight as indicated by the BMI. In our sample of only at-risk for overweight and overweight preadolescents, children were inaccurate in their body size identification, but parents were more accurate in identifying the correct body size for their child. Accuracy of perception was not affected by child's sex as it was in the study by Olvera et al.

The potential factors that create only a moderately-sized correlation between parental perception of their child's body size and actual BMI could be due to many reasons. Among low-income mothers in general, it has been shown that Latino parents do not believe growth charts are useful in defining a child's weight but that physical activity and good appetite are more important markers of health status.<sup>14</sup> Studies of Latino families in particular indicate that these individuals may have different standards for what constitutes a healthy child when compared to the standards of physicians or other ethnic groups.<sup>15</sup> One analysis demonstrated that Mexican-American mothers of obese children selected a "chubby baby" as ideal significantly more often than Mexican-American mothers of non-obese children.<sup>16</sup> From this report, one can infer that Latina mothers may strive to have overweight babies since it is perceived as an ideal body size. Mendoza et al proposes that the discrepancies in perception of a child's health between mother and physician, as revealed in the Hispanic Health and Nutrition Examination Survey (HHANES), may be due to an alternate view of what constitutes good health status in children, "one that is not fully appreciated by traditional measures."<sup>15</sup> In Mendoza's family-community health promotion model, he suggests that Latinos understand good health as the absence of problems that limit functional ability to perform everyday activities.<sup>15</sup>

Health professionals should not assume that defining overweight according to BMI has meaning for all parents. Furthermore, even if a group of people is able to assess body size accurately enough to appropriately apply the term "overweight," there still remains the issue of engendering an understanding that overweight/obesity is an unhealthy state.

Where should we focus future interventions? Jain et al believes that although a discrepancy exists between the views of parents and health professionals regarding the definition of overweight in children, both parties share a general belief that children should be physically active and eat healthy diets.<sup>14</sup> Future interventions should consider that it may be more

valuable to focus on these common goals in our efforts towards decreasing the epidemic of childhood obesity.<sup>14</sup>

## Limitations

The study was limited due to a sample that was drawn from a single clinic in Forsyth County; therefore, generalizability may be limited. However, this clinic is one of the predominant clinics providing health care to Latino immigrant families in the city and might offer a glimpse into the less acculturated Latino family. The study involved mostly Latina mothers; it would be interesting to determine whether Latino fathers share similar degrees of body image perceptions for their children. Lastly, future research on Latino families should investigate other factors that enable parents to more accurately perceive their child's body size such as acculturation of the parent and child,

## Relevance

Erroneous perception of body size may have important health and behavioral implications. Understanding the mutable factors that reinforce parental ability to see their child's body size accurately is a necessary first step to developing effective pediatric obesity interventions. Consistent with the Health Belief Model,<sup>17</sup> perceived severity of a problem impacts the likelihood that individuals are willing to change their behaviors. In this case, connecting an accurate perception of an overweight child to poor health would be an important first step for Latino parents to promote behavior change to address obesity in their overweight children.

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**Table 1**

Factors Associated with Accurate Perceptions of Child Obesity (N=123)

	Odds ratio estimate	95% CI
Child's Sex <sup>1</sup>	0.68	0.30, 1.52
Parent's Education <sup>2</sup>	0.11	0.01, 0.89
Parent's BMI	0.97	0.92, 1.02
Parent's Health Status	1.04	0.67, 1.61

An estimate of higher than 1.0 in the odds ratio indicates an increased odds of agreement between perceived and actual overweight.

<sup>1</sup>Reference category: Female

<sup>2</sup>Reference category: With college degree

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