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RESEARCH ARTICLE

Maternal Perception of Overweight in Toddlers

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Abstract

It is well established that parents of preschoolers are not very accurate in assessing their children as being overweight, however, little is known as to whether parents of toddlers give any thought to this or are less concerned than parents of young children. In the present study, the responses of mothers of normal weight toddlers were compared to those of obese toddlers to determine if the latter group displayed higher concerns related to their toddlers' weight status. Mothers of 24-month-old toddlers were surveyed as to their feeding practices and concerns. Results indicated that despite their toddlers meeting the criterion for obesity, these mothers displayed little concern for their toddlers being excessively overweight. Given the lack of concern for their toddlers' overweight, practitioners who work with low-income minority mothers may need to be especially sensitive to their beliefs about child health, feeding, and weight.

Keywords: Toddler; Mother; Child health

Introduction

Obesity rates for infants under age 2 years, while not as alarming as for preschoolers, are nevertheless worthy of concern. Using CDC growth charts for age and gender and a criterion of greater than or equal to the 95th percentile, recent NHANES data suggest that 11.4% of US infant girls younger than 2-years-old are obese, and that 5% of infant boys are at that level, for an average across sex of 8.1% [1]. The figures for high weight-for-recumbent length are even more alarming, as the national rate using WHO growth charts for infants under 2 years is now estimated to be 8.9% [2] and for infants enrolled in WIC programs a disturbing 12.3% [3]. As these percentages are about twice what an epidemiologist might expect, such trends for infants suggest that increased attention be paid to the factors that may contribute to excess weight gain by 2-years lest their prevalence rates for obesity in childhood be even higher.

Although the pediatric and public health fields recognize early overweight and obesity as placing young children at higher risk for developing hypertension, high cholesterol, respiratory ailments, orthopedic problems, type 2 diabetes, and depression [4], it is by no means clear that parents share this concern. Consider that many parents are not very accurate in assessing their children as being overweight, nor do they perceive their child's overweight as a health risk. In a survey of Australian primary school children ages 5- to 13-years, 81% of parents with overweight children and 42% of parents with obese children did not report concern about their child's weight [5]. With a sample of African-American children between 5- and 11-years-of-age, 90% of whom were at or above the 95th percentile according to their BMI (body mass index) *z*-scores, only 44% of caregivers perceived their child's weight to be a potential health problem [6]. In a study of 4- to 8-year-olds in a multiracial sample from New York, no differences were found in level of concern about overweight as a health risk between the parents of the 23% of children who were above the 95th percentile versus the 77% that were below [7]. Studies in Portugal also reinforce the finding that parents misperceive the weight of their children. Sixty-two percent of overweight/obese 9–12-year-old Portuguese children had their weight underestimated by their mothers [8], and most recently, 77% of parents underestimated the weight of their 6–10-year-old overweight/obese children [9].

Research with parents of preschool-age children is just as discouraging and reflects a phenomenon that may be true across nations and socioeconomic status. In a study that enrolled both low-income white and non-Hispanic black mothers from Ohio and Kentucky, as well as lower to upper middle-class white mothers, 79% of them failed to perceive their overweight 2- to 4-year-old child as overweight [10]. In a study of English children ages 3- to 5-years, less than 2% of parents of overweight children and only 17% of parents of obese children described their child as overweight [11]. Using a task that required mothers to choose from an array of under-

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to overweight children's silhouettes, only 40% of mothers of 3- and 4-year-olds in a German sample chose a silhouette that agreed with their own child's objective weight status, and only 49% viewed the overweight silhouettes to be indicative of increased risk for physical health problems [12]. Even more recent, only 2 of 47 (or 4%) Latina mothers of obese 4-to 5-year-olds from an urban city in Texas perceived their child as being "very overweight" [13].

Aim

In sum, while it is well established that parents of children, indeed, children as young as preschool age, are insensitive to their child being overweight and what the concomitant risks of child obesity entail, little is known as to whether parents of toddlers give any thought to this, or are even less concerned than parents of young children. The aim of this study then, was to compare the responses of mothers of normal weight 2-year-olds to those mothers of 2-year-olds already deemed to be obese in order to determine if the latter group displayed higher concerns related to their toddler's weight status.

Methods

Subjects and Procedures

Prior to the study's inception, the investigation was approved by the Institutional Review Board of the first author's university. As part of a longitudinal investigation on the precursors of child obesity, low-income mothers were recruited at a WIC center. WIC is the Special Supplemental Nutrition Program for Women, Infants and Children, a federal assistance program that provides health care and nutrition support for low-income pregnant and breastfeeding women, and children under the age of five (https://www.fns.usda.gov/wic). The 109 mothers who participated in this phase of the study were either black or Latina, and all reported having formula-fed their infants from birth. Their average school grade level attained was just over ninth. Mother-infant dyads were visited at home when their babies were approximately 24-months-old, with the toddlers weighed and measured and the mother responding to an orally-administered questionnaire. Anthropometric measures were taken twice by one of two home visitors using a portable digital scale (Model BD-585, Tanita Corp. of America, Arlington Heights, IL) and a Measure Mat (Model SMM 133, Hopkins Medical Products, Baltimore MD).

The survey instrument included 12 items culled from the *Infant Feeding Practices Questionnaire* [14] and from the *Child Feeding Questionnaire* [15]. Items were scored on a 1–5 scale, with 5 being high on the characteristic. Using their weights and heights to calculate BMI, 67 of the toddlers were classified as being of normal weight (i.e., less than the 85th BMI percentile for age and sex), with a mean percentile of 55. Twenty-four of the toddlers were shown to be at or above the 95th percentile (mean percentile of 98.6), classifying them as obese. The 18 toddlers who were between the 85th and 94th percentiles were eliminated from further analysis.

Results

To examine differences between mothers of the non-overweight toddlers versus obese toddlers, *t*-tests were conducted on the survey items. As shown in the Table significant differences were detected on four of the survey questions. Mothers of obese toddlers were less concerned that their child was underweight, and also professed less difficulty in feeding their child. Relative to mothers of the non-overweight, however, mothers of obese toddlers scored higher on their perceived responsibility and monitoring of their child's food intake. In contrast, differences were not shown for items such as mother's concern that her child is overeating, or that her child is overweight (Table 1).

Table 1: Maternal survey items by BMI percentile.

	<85th	> 95	
	M (SD)	M (SD)	t
Concern that child is underweight	2.61 (1.39)	1.92 (1.23)	2.06*
Concern that child is overweight	2.09 (1.78)	2.42 (1.56)	-.84
Awareness of child's hunger cues	4.32 (.93)	4.58 (.92)	-.03
Interacts socially during feeding	2.84 (1.10)	3.03 (1.35)	-.53
Uses food to calm child	2.25 (1.16)	1.98 (1.24)	.92
Feeds child on a schedule	2.94 (.94)	2.91 (.80)	.14
Perceived responsibility	3.85 (1.15)	4.67 (.50)	-2.05*
Feeding restriction	3.18 (.67)	2.81 (.87)	1.38
Food monitoring	4.01 (.91)	4.72 (.38)	-2.22*
Difficulty in child feeding	2.28 (1.21)	1.62 (.76)	2.16*
Concern that child overeats	1.79 (.78)	1.52 (.48)	.86
Pushes child to eat more	2.10 (.94)	1.80 (.98)	.75
*p<.05 M = Mean, (SD) = Standard deviation			

Discussion

Despite their toddlers meeting the criterion for obesity, these mothers displayed little concern for their young children being excessively overweight. Indeed, 24 of the 109 children in the original sample, or 22%, qualified as being obese, yet the mean score of 2.42 on concern for their child being overweight was closer to "not at all" than to "very much concerned." Sadly, this result with so young a group echoes the findings with older children whose parents do not seem very perturbed about their children's overweight status [7, 5]. While child obesity may not be the inevitable outcome, overweight infants and toddlers have a heightened risk for staying overweight as they grow older [16], and overweight status in infancy carries its own co-morbidities [17]. From this perspective then, these results with mothers of 2-year-olds are particularly troubling. But why such results?

Research has shown that parents of obese children (BMI $\geq$ 95th percentile) are less accurate in judging their child's weight than are parents of children who weigh less [7], and regardless of income and ethnicity, most seem to be relatively oblivious to their child's weight status [11]. This phenomenon has been reported in various nations (e.g., England, German, Portugal, United States) and therefore not culture specific. Nonetheless,

some have argued that within a heterogeneous nation like the United States, subculture may be a possible factor in minimizing perception of health risks-witness the acceptance of larger bodies by the African-American community as reported by some [18, 6]. It is therefore worth noting that the present sample was comprised entirely of black and Latina low-income mothers, who perhaps not incidentally, averaged less than a high school education. But research with low-income minority mothers suggests that more than acceptance is at work here; rather, it is possible that these mothers may actually prefer fatter babies [19]. That is, while not making a conscious effort to overfeed their infants, the view that "a chubby baby is a healthy baby" as a subcultural norm may partially explain their responses that reflect a lack of concern [20, 21].

For such reasons, reversing or merely slowing the trend toward obesity in the early years is especially challenging. Practitioners may need to soft sell their advice to mothers about pacing their infants' growth, while respecting any cultural beliefs that a 'skinny' child is indicative of bad mothering. The challenge remains to provide guidance and support to minority mothers about healthy feeding and healthy weight, while addressing faulty infant weight perceptions in a non-threatening and culturally sensitive manner [22].

Key messages

- Research suggests that many parents do not perceive their children as being overweight
- Whether parents are concerned about overweight in their toddlers has not been explored
- Mothers in this study displayed little concern for their toddlers being obese
- Guidance to mothers about healthy infant weight should be presented in a culturally sensitive manner

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