

Matern Child Health J (2011) 15:1308–1315  
DOI 10.1007/s10995-010-0683-7

# Latina Mothers' Perceptions of Healthcare Professional Weight Assessments of Preschool-Aged Children

Alma D. Guerrero · Wendelin M. Slusser ·  
Patricia M. Barreto · Norma F. Rosales ·  
Alice A. Kuo

Published online: 24 September 2010

© The Author(s) 2010. This article is published with open access at [Springerlink.com](http://Springerlink.com)

**Abstract** To understand Latina mothers' definitions of health and obesity in their children and perceptions of physician weight assessments. 24 low-income Spanish speaking Mexican mothers of children ages 2–5 years were recruited to participate in 4 focus groups. Half of the mothers had overweight or obese children and half had healthy weight children. Focus group comments were transcribed and analyzed using grounded theory. Themes and supporting comments were identified independently by 3 reviewers for triangulation. A fourth reader independently confirmed common themes. Mothers define health as a function of their child's ability to play and engage in all aspects of life. Obesity was defined with declining physical abilities. Mothers state health care provider

assessments help determine a child's overweight status. Causative factors of obesity included family role-modeling and psycho-social stress, physical inactivity, and high-fat foods consumed outside the home. Controlling food intake was the primary approach to preventing and managing obesity but mothers described family conflict related to children's eating habits. These findings held constant with mothers regardless of whether their children were overweight, obese, or at a healthy weight. Mothers utilize physical limitations and health care professional's assessment of their child's weight as indicators of an overweight status. These results highlight the importance of calculating and communicating body mass indices (BMI) for Latino children. Eliminating non-nutritive foods from the home, increasing physical activity, and involving family members in the discussion of health and weight maintenance are important strategies for the prevention and management of childhood obesity.

---

A. D. Guerrero · W. M. Slusser · A. A. Kuo  
Department of Pediatrics, David Geffen School  
of Medicine at UCLA, Los Angeles, CA, USA

W. M. Slusser  
Department of Community Health Sciences,  
UCLA School of Public Health, Los Angeles, CA, USA

P. M. Barreto  
Pediatric Healthy Lifestyle Center, Santa Clara Valley Medical  
Center, San Jose, CA, USA

N. F. Rosales  
Venice Family Clinic, Los Angeles, CA, USA

A. A. Kuo  
Department of Health Services, David Geffen School  
of Medicine at UCLA, Los Angeles, CA, USA

A. D. Guerrero (✉)  
UCLA Center for Healthier Children,  
Families and Communities, 10990 Wilshire Blvd.,  
Suite 900, Los Angeles, CA 90024, USA  
e-mail: [aguerrero@mednet.ucla.edu](mailto:aguerrero@mednet.ucla.edu)

**Keywords** Child obesity · Maternal perceptions ·  
Latina mothers · Healthcare provider weight assessments

## Introduction

The prevalence of overweight and obesity is high for all ages including young children. National data indicate one in four preschool children are overweight or obese and almost one in three Mexican American preschoolers are overweight or obese [1]. The disparities in overweight prevalence and the increasing Latino population stress the importance of targeting obesity prevention across diverse populations not only to decrease morbidity in childhood, but to also decrease adult obesity and the related morbidity, mortality and health care costs.

Parents and health care providers play a critical role in early intervention efforts. Because parents can shape early dietary patterns and encourage physical activity in their young children [2, 3], working with parents is crucial to prevent and manage overweight in children. Understanding parental perceptions of health and weight is an important starting point, as several studies indicate parents often underestimate the weight of their children [4] define overweight with reference to impairments in function [5, 6], or disagree with a diagnosis of overweight for their child without the presence of a weight-related complication [6, 7]. Cultural influences on parental perceptions are relevant as well, given Latina mothers have a maternal preference for plumper young children [8], associate thinness with poor health [9], and fail to perceive their children as overweight [8, 10].

Based on national guidelines, healthcare providers should be providing a yearly assessment of weight status for children over the age of two and therefore have the opportunity to address parental perceptions and misperceptions of young children's weight status during primary care visits. However, recent studies suggest that the quality of healthcare provider-parent counseling related to nutrition and physical activity for pediatric minority families are suboptimal [11] and no studies to date evaluate how parents, particularly parents from high risk ethnic subgroups, perceive weight assessments delivered by health care providers. Considering the lack of effective primary care-based interventions targeting the prevention and management of obesity among preschool age children [12] and the fact that primary-care-based interventions for overweight adult patients and adolescents can effectively contribute to weight loss efforts [13] and improve diet and physical activity [14], there is a need to explore promising healthcare provider-parent strategies that can change weight-related behaviors for young children.

In order to identify areas that may help inform healthcare provider-parent strategies for young Latino children, a group of US children at high risk for obesity, a qualitative research methodology was used to obtain detailed information on Latino parents' perspectives regarding managing health and weight in their young children and their experiences with healthcare providers. The aims of this study were as follows: (1) to understand low-income Latina mothers' perceptions of their child's weight status, (2) to describe whether health care providers are important resources in helping parents understand their child's weight status, and (3) to identify Latina mothers' beliefs regarding the causes of overweight in young children that could be potentially targeted by healthcare providers.

## Methods

This study was approved by the Institutional Review Board at the University of California, Los Angeles and by the research committee of the Venice Family Clinic (VFC). VFC is the largest free clinic in the nation, providing comprehensive primary health care, and a range of specialty care and supportive services to more than 21,000 mostly uninsured and minority patients in more than 110,000 visits annually in the West Los Angeles area. Latinos make up the largest ethnic group served by the clinic. There are approximately 4,500 children that receive care at the VFC and local data approximated that 50% of these children were overweight (BMI > 85% for age and sex). Given the high prevalence of overweight and the large representation of Latinos, the VFC was an ideal setting for the study. Between August of 2004 and February of 2005, 4 focus groups were held with mothers who have young children who receive health care at VFC.

## Subject Recruitment

Latina mothers of preschool children (ages 24–60 months) were invited to participate in the study. Eligibility for the study was determined by date of birth and height and weight measurements of the child taken directly from the clinic note during a routine clinic visit during the months of recruitment. The 2,000 Centers for Disease Control and Prevention (CDC) US Growth Charts were used to calculate and determine BMI ( $\text{kg}/\text{m}^2$ ) percentile for age and gender. Mothers whose children were overweight or obese (BMI > 85% for age and sex) were grouped together and invited to participate in a focus group and mothers whose children were at a healthy weight (BMI < 85% for age and sex) were invited to participate in a focus group held on a separate date. Pediatric providers were informed and educated about the purpose of the study and encouraged to recruit Latina mothers for the study based on their child's height, weight, and age during routine clinic visits. Mothers of overweight or obese preschool aged children were placed into one set of two focus groups, and mothers with normal weight children were placed into another set of two focus groups. The mothers were separated in this fashion so as not to contaminate responses based on the weight status of their children. Mothers received a \$25 honorarium and were provided with on-site day care for participation.

## Demographic and Perceived Weight Questionnaire

Before starting the focus group sessions, mothers completed a short demographic questionnaire and were also asked to describe their child's weight ("underweight",

“normal weight”, or “overweight”) and how they describe their own weight using these terms. After completing the short questionnaire mothers had their heights and weights measured in order to calculate maternal BMI.

### Focus Groups

Two of the authors and a VFC public health intern jointly moderated the focus groups. Following Jain et al. [7], an outline of open-ended questions (Table 1) was used and elaboration was sought as topics arose. The focus groups were designed to explore the areas of maternal perceptions of health and overweight and whether health care providers play an important role in preventing and managing childhood overweight. The same outline of open-ended questions was used for all 4 focus groups.

### Analyses

Each focus group was audio taped and transcribed verbatim. Data were examined using transcript-based analysis, in which relevant themes were highlighted and margin-coded [15, 16]. To validate thematic coding, three reviewers, 2 general pediatricians and 1 pediatric resident, independently analyzed transcripts. Thematic analysis was performed using grounded theory, an approach whereby new theory is generated directly from the data [16]. All lists of recurrent themes were compared and the common themes were identified by group consensus. There were 8 major themes across all groups. The three reviewers generated a list of comments that best supported each of the 8 major themes and together selected the most representative comments. After this process an additional reviewer independently reviewed the transcripts and recorded a set of themes. This 4th reviewer was not directly involved with the focus groups. All of the themes identified by the outside reviewer were among the themes identified by the 3 primary reviewers.

**Table 1** Outline of open ended questions used during focus groups

---

How do you know your child is healthy?
How do you know your child is at a healthy weight?
How do you know your child is overweight?
What do you think about growth charts that are used in the clinical setting to provide weight assessments by health care providers? Are they helpful? Why or why not?
Have any of you ever talked to a health care provider about your child's weight? If so, how did it go? Were you satisfied? Why or why not?
What causes a child to be overweight?
What can parents do to prevent overweight?
What can parents do if they have a child who is overweight?

---

## Results

### Short Questionnaire

The mean age of subjects was 29 years and all participants had a least one child between the ages of 24–60 months. All 24 mothers were of Mexican descent and the mean number of years of residence in the US was 10.2 years. All mothers were either high school graduates or received less than 12th grade education.

Mothers were able to perceive their own weight more correctly than their children's. Over half of the group (13 of 24 mothers) were either overweight or obese (BMI > 25) and of these, 6 were obese (BMI > 30). It should be noted two of the mothers were pregnant so their BMI and perceived weight were not included in the analysis. Approximately 80% of mothers perceived their own weight accurately and of those who were overweight or obese, 94% correctly perceived their weight as overweight. Of all mothers, 14 of 24 (58%) accurately perceived their child's weight. Of mothers with overweight children, 42% of mothers (5 of 12) correctly perceived their child as overweight.

### Maternal Perceptions

Eight major themes were identified in the focus groups and are presented, including supportive comments, in Table 2. The 8 themes are divided into the major topics that emerged during the group discussions. The topics included: definitions of health and overweight, the role of health professionals in assessing child health and obesity, the etiology of childhood obesity, and parental interventions to prevent or manage childhood obesity. There were no differences in the themes that emerged between the focus groups with mothers of overweight or obese children and those with mothers of normal weight children.

Mothers defined both health and overweight in a young child by a child's ability to function, with a healthy child defined as more active and playful and an overweight child with declining physical abilities (comments for Theme 1 and 2). In addition, parents agreed health care providers play an important role in defining healthy weight and an overweight status in their young children. Many parents agreed a health care providers' assessment of a child's weight is important particularly when it is not obvious to a parent by declining physical abilities or when a parent feels their child is “too thin” (comments for Theme 3). These themes were found across all four focus groups.

When asked about causes of overweight in young children, parents were knowledgeable and identified high-fat diets, particularly meals consumed outside of the home, lack of exercise, and poor role modeling as factors that could contribute to an overweight status in a young child

**Table 2** Common themes by topic with supportive quotes

*Definition of Health and Overweight—Theme 1: Health and overweight is defined by a child's ability to function*

Well, my girl is very healthy, she eats everything I give her, she is neither chubby nor skinny and she is always in the mood for playing, all day

I think a child is healthy when he runs, jumps, eats well and is not weak

At the WIC...they say that she's overweight. But I see her being very active. She likes to run, she does a lot of exercise, and I don't see her very fat. And they say she's overweight. This is where I have doubt...that she is overweight

*Definition of Health and Overweight—Theme 2: An overweight child is defined as one with declining physical abilities, who is less, and who tires easily*

If they're fat and they never do exercise well, if they fall it's going to be difficult to get up much less run, play, wrestle, or do something because they're out of shape (*compared to non-overweight children*). They end up becoming short of breath

(*What are the signs when your child is overweight*) He feels tired. He becomes short of breath

From school to the house she gets really tired, because she is so overweight, she gets very tired when walking and the girl begins to suffocate

*Definition of Health and Overweight: Health Professionals—Theme 3: Mothers acknowledge not being able to determine a healthy weight by body habitus alone and a health professional's weight assessment is deemed useful*

When they do not gain a lot of weight you cannot tell, when they gain enough then yes the clothes [can tell you.] But when they do not gain a lot like 2 or 3 lb you cannot notice because they have it distributed over their body. A doctor can explain to us when children are normal or when they are overweight

The doctor because sometimes we cannot tell that a child is gaining weight. Sometimes we prefer to make an appointment for a physical to know if they are well or not. We bring them and the doctors look at the chart of a child and they can tell if a child has gained weight or not or tell us if he is normal. When a child gains weight that is when the doctor explains to us what we can do to help him so that he doesn't continue to gain more and more weight

When I take him to the doctor, I am always asking about his weight, his height, if he is fine, because one is always concerned. "Is he eating enough? Am I feeding him properly?" Sometimes you see them thin but it is not because they are not well fed. That is why I am always asking the doctor, every time I take him to his check ups; this is how I convince myself that he is fine

*Etiology—Theme 4: Family role-modeling and psychosocial stress can contribute to a child becoming overweight*

Well, the example one sets, right? As an adult. For example, if I like pizza a lot, my child will also like it a lot, and eat it. And if I don't like it, they won't either. It depends on the example and what they get used to

I imagine violence at home or that the father doesn't love them or the mother doesn't love them. They (*children*) find relief in food. To get full, to fill the emptiness

I agree (*that family stress is important to healthy eating*). I have noticed that right now I am having problems with my daughter's father and as I get more stressed the more I eat. I get an urge to keep eating

**Table 2** continued

*Etiology—Theme 5: Lack of exercise can cause a child to become overweight*

I've known and seen children where the mother and father work, paying the one who takes care of them (*caregiver*) cares for 15 or 20 other children, and (*the caregiver*) doesn't have time for each one, they are just sitting watching TV, and eating junk

We spend most of our time in the house and this is when I have noticed, since they are not doing much exercise this is when one begins to gain weight

Not doing exercised and eating bad food can contribute to a child being overweight

*Etiology—Theme 6: Excessive fat in a diet can cause a child to become overweight*

Well, what I believe causes overweight is bad nutrition, when one gives them greasy food, what we call junk food, potato chips, too much bread all those sort of things that makes one gain weight

Food from McDonalds is junk food, food that only makes them fat. I do eat it, but not frequently, only on the weekends

I think it's strange because all you hear about is them (*schools*) getting rid of the potato chips and soda from the school but the food they serve is hamburgers, pizza, and hot dogs (*fatty foods*)

*Attempts to Manage Childhood Obesity—Theme 7: The most common home intervention to manage obesity in a young child is to control the quantity and types of food children eat*

Her doctor told me the following, that if she continued to gain weight month after month where would we end up. But she is not too overweight, I just need to regulate her diet or control her foods

My son he is overweight...and now I am with that battle against him. Measuring everything and telling him not as much sweets, "you are going to eat this right now and at night your eating this." I have a serious problem with him right now. It is a battle when its time to eat

Take out from the grocery list the cookies and sweets because if they don't have them at home, they will not be asking for them. (*On what a parent can do to help their overweight child.*)

*Attempts to Manage Childhood Obesity—Theme 8: Efforts to implement physician recommendations or to change dietary habits are undermined by other caregivers in the home (husbands and grandparents.)*

We are never in agreement in how we nourish our child. The children know that when I take them to the store I do not buy them candy but when he (*father*) takes them he will always buy them plenty of candy, cheetos, and soda

When we go to visit my brother, this is once a month, well, their ways of thinking are very different than ours. There is always a lot of candy at their house, cheetos, cookies, sweets, but not in my house, not with me. And my children go over there and they go to the bedroom with the bags of candies and we are always vigilant and my sister in law gets upset, and says "let them eat, leave them alone they are kids."

My daughter's dad he had this fixed idea that my daughter was not eating well and underweight and "too skinny." But when I take her to the doctor I try to make him understand what the doctors tell me and I show him what they show me and such. I show him so that he understands and so that he will stop feeding me these ideas that my daughter is too skinny

(comments for Themes 4–6) Although parents mentioned a lack of exercise as a contributing factor of an overweight status across all groups, none of the focus groups mentioned increasing physical activity as an approach to prevent or manage overweight in young children. When parents were asked about what parents could do to prevent or manage overweight in young children, the common theme across all groups was to control the quantity and types of food a child consumed (Theme 7). In discussing strategies of how parents attempt to control the types of food consumed, family member disagreement about the foods young children eat in the home emerged as a common theme across all groups (Theme 8).

## Discussion

We set out to explore Latina maternal perceptions of health and overweight and to explore how mothers perceive healthcare professional weight assessments in their young children. There were no theme differences found between mothers of overweight or obese children and mothers of normal weight children. The study findings indicate that parents may be using physical limitations to determine whether their child is overweight or obese and healthcare providers are important resources for understanding their child's weight status. Mothers were knowledgeable about high-fat diets and the lack of exercise as causes of childhood obesity. However, the most common practice used by parents to prevent or manage childhood obesity was food restriction. In addition, psychosocial stressors and family member disagreements in the home were found to be contributing causes of childhood obesity. Our results provide suggestions for healthcare provider strategies, specifically around counseling, that may offer promise for obesity prevention and management in this population and also provides hypotheses to guide future obesity interventions in the Latino community.

Mothers in this study are utilizing physical limitations and a health professional's assessment of their child's weight as indicators of an overweight status. Many mothers may only become concerned about their child's weight if a health professional identifies overweight in their child because they themselves are using other definitions of overweight such as inactivity, fatigue, shortness of breath or ill-fitting clothes. The usefulness of health care provider weight assessments for young children of high risk ethnic groups is currently absent in the literature, although maternal perceptions among African-Americans indicate mothers do not find use of pediatric growth charts meaningful for weight assessments in a Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) setting [7].

The study's findings highlight the critical role health care professionals may have in being important mediators of overweight prevention in preschoolers. Across all four groups, including mothers of overweight or obese children and normal weight children, mothers view their child's health care provider as an important resource to make weight assessments in their young children, particularly when physical limitations are not yet prevalent in their children. Health care providers therefore may have an important opportunity to optimize prevention, identification, and treatment of overweight Latino children by documenting BMI's for all children greater than 2 years of age. This is supported by recent national expert committee guidelines on child and adolescent overweight and obesity, which recommends at least a yearly assessment of weight status and BMI calculation in all children [17]. Our findings suggest sharing BMI results and providing weight assessments as well as incorporating parental definitions of health and overweight (i.e. limitations in physical abilities) while counseling may help parents better understand their child's weight status.

Mothers in our study believed role modeling and overall emotional states can have a direct influence on children's eating habits which supports the existing evidence that mothers play a key role in shaping early dietary patterns of their young children [2]. Therefore, identifying parental and child psychosocial stressors may be important and should be part of the standard routine approach to addressing child health and weight. Working with parents to ensure overall health and psychological well-being through screening, counseling and providing appropriate referrals may be an essential component to childhood overweight prevention and management. Although this subject did not receive much attention in the recent recommendations on childhood obesity prevention it may deserve more consideration in the prevention and management of childhood obesity [18].

Lack of exercise was identified as a factor that can contribute to a child's overweight status. However, Mexican-American mothers in our study did not identify increasing daily activity as an intervention to prevent or manage childhood overweight. The literature has shown physical activity and reduction of sedentary activities to improve weight loss and management [19]. An eight-year study of three- to five-year-old children for example found that the most active children had significantly lower body mass index than their less active counterparts [20]. However, the literature has also demonstrated that many parents perceive their children to be spontaneously and sufficiently active [21] and that perceptions of neighborhood safety, such as road safety and harm from strangers, are associated with children's physical activity [22–24]. Therefore, parental perceptions about sufficient activity level and

neighborhood safety in the inner-city neighborhoods of Los Angeles County may be influencing the strategies our study mothers apply to prevent or manage childhood obesity. Thus, exploring parental perceptions of neighborhood safety and providing families with practical day-to-day strategies to increase physical activity to a minimum of 60 min/day such as taking the stairs rather than the elevator, jump roping, dancing, or 30 min of active play at a local park may be important to emphasize during a weight management visit [18]. An important next step might be to explore and determine what physical activities might be more culturally acceptable and easy to integrate for Latino families.

Mothers also identified excessive fat intake as a cause of overweight with many parents referencing the non-nutritive value of foods consumed outside of the home as causes of overweight. Several parents mentioned consuming fast food meals on the weekend with their young preschool aged children. It is possible fast food meals on the weekend, particularly Sundays, is a cultural practice for Mexican–American families. Although studies have examined the association of fast food consumption with overweight in school age, adolescents, and adults [25–28] few studies to date have explored the extent or key drivers of fast food consumption among preschool children. Our results emphasize the need to further explore the practice of fast food consumption among preschoolers and possible interventions that might include providing families with healthier food alternatives from fast food restaurants (handout, menu guide, etc). Such an intervention is further supported by the fact many individuals are unable to identify from among typical fast-food and restaurant menus, those foods with the fewest calories, the least salt, and the most fat [29].

Controlling quantity of foods as a way to improve weight status in their children was a common theme across all focus groups. Similar findings have been reported in larger sample sizes of Hispanic parents. In a sample size of 200 parents, approximately 50% responded stating that reducing high-fat and high-sugar snacks were tried in the home in order to control a child's weight [10]. Instinctively, it makes sense for mothers to exert control over high caloric food intake in the already overweight child. This is supported by evidence that consumption of high caloric sweetened beverages is associated with the occurrence of overweight [30]. However, studies indicate a child's risk for overweight may be increased when parents try to exert a high degree of control over feeding and restricting food access may lead a child to overeat [31, 32]. Our study's findings, which are consistent with others, suggests counseling efforts might be aimed at discouraging families from strict control over food intake and instead encouragement of healthier alternatives. One evidence-based approach is to

increase the availability of healthy foods such as fruit and vegetables and eliminate the unhealthy foods such as soda and high-fat snack food in the home so there is no need to set limits or “control” the intake of unhealthy foods [33].

Lastly, mothers stated disagreement among family members in regards to eating habits interfere with weight reduction efforts in the home. This is also seen in the African–American community, with mothers citing grandmothers and fathers interfering with a mother's sense of control over their child's diet [7]. Mothers reports of disagreement among family members seem to stem from differences in perceptions of weight and nutrition practices. Mothers reported that it was generally the father or grandmother who was not concerned about the child's weight and allowed the child to have second portions or excessive sweets. Although no qualitative studies exist examining concordance or discordance between parental and grandparent perceptions of young children's weight, a few studies have examined acculturation but have found no consistent association between acculturation and children's weight [30, 34–36]. Further investigation needs to be taken to study other family member's perceptions of a young child's weight to determine the presence of generational or gender differences among family members' beliefs and knowledge. Programs found to be effective at changing health behaviors are usually school or family based because of the recognition that language, environmental and cultural factors are important in changing health behaviors. Some of the most successful school-based interventions aimed at preventing overweight have included a parent component [37, 38]. Chronic health related problems such as asthma have been shown to benefit from home based interventions [39–41]. Therefore, home-based interventions or interventions targeting multiple family members seem promising for overweight prevention and reduction efforts and warrant further investigation.

### Limitations

There are several limitations to the study. Because of the qualitative nature of the study, these results are intended only to generate hypotheses and stimulate further investigation. All of the mothers were of low-income Mexican descent; therefore, findings and conclusions may differ for other Latino, cultural and socioeconomic groups and are not generalizable. The study was designed and a few of the focus groups were conducted by pediatric physicians. Thus, answers may have been biased as participants may have been providing answers to appeal to the investigating group. In a focus group setting some participants may have felt their answers or opinions were in the minority and may have been less likely to verbalize their thoughts. However,

several common themes were identified across all four groups which indicates consensus among participants on several topics.

## Conclusions

Our qualitative results may be useful to both intervention researchers and healthcare providers. The study mothers describe their perceptions and definitions of overweight, causes of overweight, and practices to manage weight in their young children which is critical to develop healthcare provider strategies for parents of young Latino children. Our study results indicate healthcare providers might be more effective in helping parents understand their child's weight status if they include the physical limitations associated with childhood obesity along with standard BMI and weight assessments. Identifying and addressing underlying family and parental psychosocial stressors may also be important approaches for healthcare providers in the prevention and management of childhood obesity. Finally, counseling related to weight-reduction practices should include increasing physical activity, discontinuing strict control over food intake, and strategies to promote familial agreement on dietary and lifestyle practices.

**Acknowledgments** This project was supported by a grant from the Health Resources and Services Administration (HRSA), Bureau of Health Professions (D58HP05185), PI: Alice Kuo, M.D., Ph.D. Primary Care Residency Training Grant. The study was part of a larger quality improvement initiative designed to enhance care for overweight Latino children at the Venice Family Clinic. We would like to give special thanks to the mothers who participated in this study. We would also like to extend our gratitude to all of the pediatric providers at the Venice Family Clinic who helped with participant recruitment and the clinic's research committee for support of the study.

**Conflict of interest** There are no financial disclosures associated with this manuscript.

**Open Access** This article is distributed under the terms of the Creative Commons Attribution Noncommercial License which permits any noncommercial use, distribution, and reproduction in any medium, provided the original author(s) and source are credited.

## References

- Ogden, C. L., Carroll, M. D., & Flegal, K. M. (2008). High body mass index for age among US children and adolescents, 2003–2006. *JAMA*, *299*(20), 2401–2405.
- Birch, L. L., & Fisher, J. O. (1998). Development of eating behaviors among children and adolescents. *Pediatrics*, *101*(3), 539–549.
- Moore, L. L., Lombaradi, D. A., White, M. J., Campbell, J. L., Olivera, S. A., & Ellison, R. C. (1991). Influence of parents' physical activity levels on activity levels of young children. *Journal of Pediatrics*, *118*(2), 215–219.
- Killion, L., Hughes, S. O., Wendt, J. C., Pease, D., & Nicklas, T. A. (2006). Minority mothers' perceptions of children's body size. *Int J Pediatr Obes*, *1*(2), 96–102.
- Crawford, P. B., Gosliner, W., Strode, P., Samuels, S. E., Burnett, C., & Craypo, L. (2004). Walking the talk: Fit WIC wellness programs improve self-efficacy in pediatric obesity prevention counseling. *American Journal of Public Health*, *94*, 1480–1485.
- Thompson, L. S., & Story, M. (2003). Perceptions of overweight and obesity in their community: Findings from focus groups with urban, African American caretakers of preschool children. *Journal of the National Black Nurses Association*, *14*(1), 28–37.
- Jain, A., Sherman, S. N., Chamberlin, L. A., Carter, Y., Powers, S. W., & Whitaker, R. C. (2001). Why don't low-income mothers worry about their preschoolers being overweight? *Pediatrics*, *107*(5), 1138–1146.
- Contento, I. R., Basch, C., & Zybert, P. (2003). Body image, weight, and food choices of Latina women and their young children. *J Nutr Educ Behav*, *35*(5), 236–248.
- Crawford, P. B., Gosliner, W., Anderson, C., Strode, P., Becerra-Jones, Y., Samuels, S., et al. (2004). Counseling Latina mothers of preschool children about weight issues: Suggestions for a new framework. *Journal of the American Dietetic Association*, *104*(3), 387–394.
- Myers, S., & Vargas, Z. (2000). Parental perceptions of the preschool obese child. *Pediatric Nursing*, *26*(1), 23–30.
- Taveras, E. M., Gortmaker, S. L., Mitchell, K. F., & Gillman, M. W. (2008). Parental perceptions of overweight counseling in primary care: The roles of race/ethnicity and parent overweight. *Obesity (Silver Spring)*, *16*(8), 1794–1801.
- Small, L., Anderson, D., & Melnyk, B. M. (2007). Prevention and early treatment of overweight and obesity in young children: A critical review and appraisal of the evidence. *Pediatr Nurs*, *33*(2), 155–161.
- Wadden, T. A., Berkowitz, R. I., Vogt, R. A., Steen, S. N., Stunkard, A. J., & Foster, G. D. (1997). Lifestyle modification in the pharmacologic treatment of obesity: A pilot investigation of a potential primary care approach. *Obesity Research*, *5*, 218–226.
- Patrick, K., Calfas, K. J., Norman, G. J., Zabinski, M. F., Sallis, J. F., Rupp, J., et al. (2006). Randomized controlled trial of a primary care and home-based intervention for physical activity and nutrition behaviors: PACE+ for adolescents. *Archives of Pediatrics and Adolescent Medicine*, *160*(2), 128–136.
- Denzin, N. K., & Lincoln, Y. S. (1994). *Handbook of qualitative research*. Thousand Oaks, CA: Sage Publications.
- Glaser, B. G., & Strauss, A. L. (1967). *The constant comparative method of qualitative data analysis, the discovery of grounded theory: Strategies for qualitative research*. Chicago, Ill: Aldine Publishing Co.
- Barlow, S. E., & Expert, Committee. (2007). Expert committee recommendations regarding the prevention, assessment, and treatment of child and adolescent overweight and obesity: Summary report. *Pediatrics*, *120*(Suppl 4), S164–S192.
- Davis, M. M., Gance-Cleveland, B., Hassink, S., Johnson, R., & Paradis, G. (2007). Resnicow KRfpoPDSS. Recommendations for prevention of childhood obesity. *Pediatrics*, *120*(Suppl 4), S229–S253.
- Epstein, L. H., Valosk, A. M., Vara, L. S., McCurley, J., Wisniewski, L., & Kalarchain, M. A. (1995). Effects of decreasing sedentary behavior and increasing activity on weight change in obese children. *Health Psychology*, *14*(2), 109–115.
- Moore, L. L., Nguyen, U. S., Rothman, K. J., Cupples, L. A., & Ellison, R. C. (1995). Preschool physical activity level and change in body fatness in young children. The Framingham children's study. *Am J Epidemiol*, *142*(9), 982–988.
- Lopez-Dicastillo, O., Grande, G., & Callery, P. (2010). Parents' contrasting views on diet versus activity of children: Implications

- for health promotion and obesity prevention. *Patient Educ Couns*, 78(1), 117–123.
22. Carson, V., Kuhle, S., Spence, J. C., & Veugelers, P. J. (2010). Parents' perception of neighbourhood environment as a determinant of screen time, physical activity and active transport. *Canadian Journal of Public Health*, 101(2), 124–127.
  23. Carver, A., Timperio, A., & Crawford, D. (2008). Playing it safe: The influence of neighbourhood safety on children's physical activity. *A review. Health Place*, 14(2), 217–227.
  24. Holt, N. L., Cunningham, C. T., Sehn, Z. L., Spence, J. C., Newton, A. S., & Ball, G. D. (2009). Neighborhood physical activity opportunities for inner-city children and youth. *Health Place*, 15(4), 1022–1028.
  25. Duerksen, S. C., Elder, J. P., Arredondo, E. M., Ayala, G. X., Slymen, D. J., Campbell, N. R., et al. (2007). Family restaurant choices are associated with child and adult overweight status in Mexican–American families. *Journal of the American Dietetic Association*, 107(5), 849–853.
  26. Denney-Wilson, E., Crawford, D., Dobbins, T., Hardy, L., & Okely, A. D. (2009). Influences on consumption of soft drinks and fast foods in adolescents. *Asia Pac J Clin Nutr*, 18(3), 447–452.
  27. Francis, D. K., Van den Broeck, J., Younger, N., McFarlane, S., Rudder, K., Gordon-Strachan, G., et al. (2009). Fast-food and sweetened beverage consumption: Association with overweight and high waist circumference in adolescents. *Public Health Nutr*, 12(8), 1106–1114.
  28. Rydell, S. A., Harnack, L. J., Oakes, J. M., Story, M., Jeffery, R. W., & French, S. A. (2008). Why eat at fast-food restaurants: Reported reasons among frequent consumers. *Journal of the American Dietetic Association*, 108(12), 2066–2070.
  29. California Center for Public Health Policy, (2008). Two thirds of Californians fail every question on fast food nutrition quiz. Sweeping support for restaurant nutritional labeling. Davis, CA2007 [cited 2008 October 19]; Available from: <http://www.publichealthadvocacy.org/PDFs/menupressrelease.pdf>.
  30. Ariza, A. J., Chen, E. H., Binns, H. J., & Christoffel, K. K. (2004). Risk factors for overweight in five- to six-year-old Hispanic-American children: A pilot study. *Journal of Urban Health*, 81(1), 150–161.
  31. Satter, E. M. (1999). Internal regulation and the evolution of normal growth as the basis for prevention of obesity in children. *Journal of the American Dietetic Association*, 97(7), 457–461.
  32. Fisher, J. O., & Birch, L. L. (1999). Restricting access to palatable foods affects children's behavioral response, food selection and intake. *American Journal of Clinical Nutrition*, 69(6), 1264–1272.
  33. Blanchette, L., & Brugg, J. (2005). Determinants of fruit and vegetable consumption among 6–12 year old children and effective interventions to increase consumption. *J Hum Nutr Diet*, 18(6), 431–443.
  34. Olvera, N., Suminski, R., & Power, T. G. (2005). Intergenerational perceptions of body image in hispanics: Role of BMI, gender, and acculturation. *Obesity Research*, 13(11), 1970–1979.
  35. Elder, J. P., Arredondo, E. M., Campbell, N., Baquero, B., Duerksen, S., Ayala, G., et al. (2010). Individual, family, and community environmental correlates of obesity in Latino elementary school children. *J Sch Health*, 80(1), 20–30. quiz 53-5.
  36. Kaiser, L. L., Melgar-Quinonez, H. R., Lamp, C. L., Johns, M. C., & Harwood, J. O. (2001). Acculturation of Mexican–American mothers influences child feeding strategies. *Journal of the American Dietetic Association*, 101(5), 542–547.
  37. Fitzgibbon, M. L., Stolley, M. R., Schiffer, L., Van Horn, L., KauferChristoffel, K., & Dyer, A. (2005). Two-year follow-up results for Hip-Hop to Health Jr.: A randomized controlled trial for overweight prevention in preschool minority children. *Journal of Pediatrics*, 146(5), 618–625.
  38. Coleman, K. J., Tiller, C. L., Sanchez, J., Heath, E. M., Sy, O., Milliken, G., et al. (2005). Prevention of the epidemic increase in child risk of overweight in low-income schools: The El Paso coordinated approach to child health. *Archives of Pediatrics and Adolescent Medicine*, 159(3), 217–224.
  39. Morgan, W. J., Crain, E. F., Gruchalla, R. S., O'Connor, G., Kattan, M., Evans, R. R., et al. (2004). Results of a home-based environmental intervention among urban children with asthma. *New England Journal of Medicine*, 351(11), 1068–1080.
  40. Brown, J. V., Bakeman, R., Celano, M. P., Demi, A. S., Kobrynski, L. W., & Wilson, S. R. (2002). Home-based asthma education of young low-income children and their families. *Journal of Pediatric Psychology*, 28(8), 677–688.
  41. Lin, S., Gomez, M. I., Hwang, S. A., Franko, E. M., & Bobier, J. K. (2004). An evaluation of the asthma intervention of the New York State healthy neighborhoods program. *Journal of Asthma*, 41(5), 583–595.