

FACTORS RELATED TO OBESITY IN MEXICAN AMERICAN SCHOOL CHILDREN

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Childhood obesity, one of the most prevalent and serious nutritional diseases in the western world, is reported to be increasing in Mexican American children.¹ Although there is a lack of consensus on the etiology of obesity in childhood, factors related to maternal nutritional knowledge, feeding practices, values, socioeconomic status, acculturation level and other select demographic variables have been associated with obesity in children.² Understanding these factors may direct health care professionals in their efforts to prevent obesity in Mexican American children.

Obesity among children is a growing problem and a potential health risk that requires recognition.³ Obesity has been recognized as a major contributing factor to the increased incidence of coronary artery disease, hypertension and maturity onset diabetes.⁴ Childhood obesity, which occurs in five to 25 percent of children in the United States, is the leading cause of pediatric hypertension and a source of devastating psychosocial consequences.⁵ There is a high prevalence of obesity among Mexican American children.⁶ In an Arizona study of two- to five-year-olds, 13.3 percent of the Mexican American and 8.9 percent of other ethnic groups were overweight, a statistically significant difference.⁷ Obesity in the early years is likely to be followed by obesity in adult life.^{8,9} Prevention starts in the early years because once established,

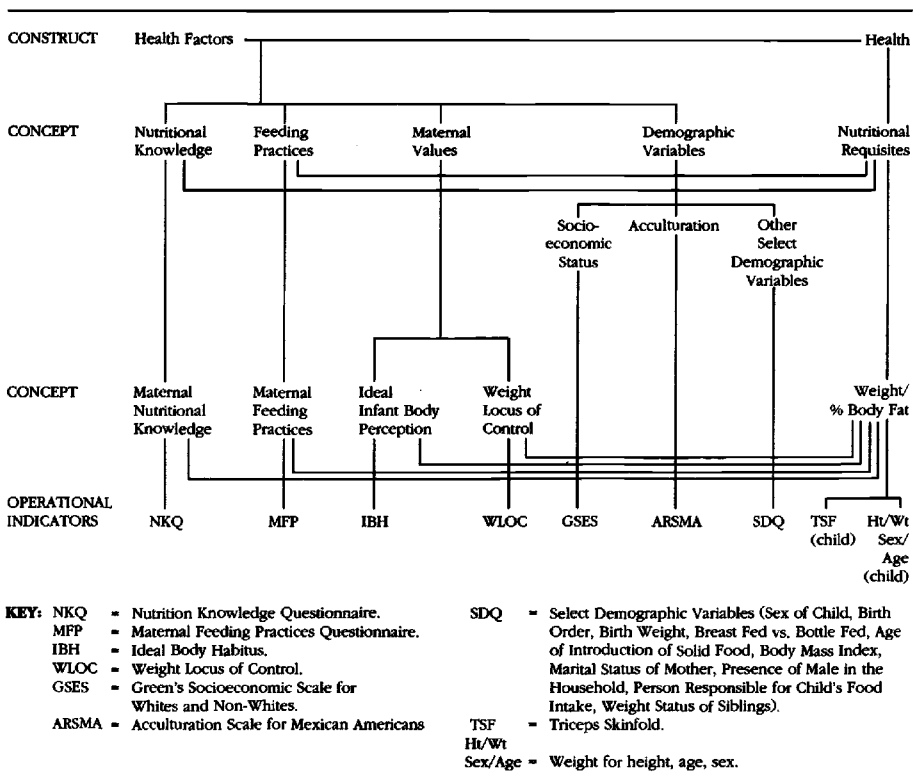
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childhood obesity often becomes chronic and resistant to treatment.^{10,11} Consequently, research has begun to focus on understanding the correlational determinants of obesity, especially potentially modifiable ones. The focus of this paper is on research regarding the relationship between nutritional knowledge, feeding practices, values, socioeconomic status, acculturation level and select demographic variables of Mexican American mothers and obesity in their children.

Conceptual Orientation

From a review of research, a framework for the study of obesity in Mexican American children emerges. Figure 1 is a schematic diagram which represents the variables of interest figuratively. Constructs,

FIGURE 1: Theoretical Framework for Factors Related to Obesity in Preschool Children



concepts and the linkages between them are clarified to identify areas of inquiry. On the construct level multiple health factors are associated with health, which is a state of complete physical, mental and social well-being.

On the conceptual level, nutrition is a primary requisite of health and is related to nutritional knowledge, feeding practices, maternal values and demographic variables. Body weight and percent of body fat are measures of nutritional requisites. Overnutrition is considered to be a health risk. Childhood obesity has been associated with the variables of maternal nutritional knowledge, maternal feeding practices, ideal infant body perception and weight locus of control, socioeconomic status, acculturation level, and other select demographic variables.

Obesity is defined as excess body fat. The measurement of the triceps skinfold thickness greater than or equal to the eighty-fifth percentile of the United States Health and Nutrition Examination Survey (1989), and the weight for height, age and sex greater than or equal to the eighty-fifth percentile are recognized methods of determining childhood obesity.¹² The eighty-fifth percentile corresponds approximately to 120 percent of ideal body weight and serves as an accepted definition of obesity.¹³

Nutritional Knowledge

Customs and beliefs from Mexico concerning food affect nutrition awareness among Mexican Americans in the barrio, where obesity is a problem among infants and small children.¹⁴ Clark describes a fad of giving sweetened high-calorie milk to infants and reports an incident in which a mother had fed her child a mid-morning snack consisting of a cup of whole milk flavored with coffee and a tablespoon of sugar, a doughnut, half of a *pan dulce* (sweet bread) and a large breakfast roll.¹⁴ This mother took pride in having a fat baby and was annoyed when the doctor suggested that overfeeding constituted a health problem. Kay observed that few mothers breast feed for more than a few weeks.¹⁵ The first solid food for babies is usually *maizena*, a pudding of cornstarch. Next, they receive more coarsely ground corn and are frequently given a chocolate milk drink thickened with flour. She also notes that commercial baby foods are used liberally. Lack of maternal nutritional knowledge may relate to obesity because individuals may unintentionally select a diet that contributes to excess weight gain.^{16,17}

Feeding Practices

Parental feeding practices may contribute to the risk of childhood obesity. The relationship between selected feeding practices and infant weight was investigated using subjects aged 12 to 30 months.¹⁸ Subjects and parents were observed during the dinnertime meal. Parental prompts, particularly parental encouragements to eat, correlated highly to the child's relative weight and increased the probability that a child would eat. Wright, Holberg and Taussig also analyzed feeding practices in a sample of 1,112 healthy infants.¹⁹ Data were collected regarding breast feeding, formula feeding, and use of solid foods. They found that factors positively associated with breast feeding included education and marriage, whereas maternal employment outside the home and ethnicity (being Hispanic rather than Anglo-American) were related positively to bottle feeding. Solid foods were introduced earlier by Hispanics, by less educated women and by single women; maternal employment was unrelated to the introduction of solid foods. The use of food for non-nutritive purposes such as reward and punishment, relieving boredom and depression were shown by Guinn to be associated with obesity in Mexican American children.²⁰

Values

Children of mothers who are more "external" in their beliefs about personal control of weight may be at risk for obesity. The value of maternal perceived degree of personal control over body weight was investigated in relation to obesity of children.²¹ The perceived degree of personal control over body weight was assessed by the Weight Locus of Control (WLOC) scale.^{22,23} Locus of control was viewed as a continuum, with individuals perceiving a high degree of personal control over life events classified as "internal." Individuals classified as "external," who perceived they had less control over body weight, were predicted to be at increased risk of the development of obesity. The results of this study indicated that there was a trend that mothers were heavier and had heavier children if they perceived a more external focus with respect to locus of weight control. The belief that one cannot control one's own body weight has been associated with the development of obesity in mothers and children. Mexican American women have been reported to be more likely than Anglo women to feel they cannot control their weight.²³

Researchers have noted the cultural variations in the meaning of obesity and its prevalence in children.^{24,25} Many beliefs from Mexico about food and feeding persist in the thinking of second- and third-generation Mexican Americans and continue to influence health behavior.¹⁴ The belief that a fat baby is a healthy baby has been shown to be related to obesity in children.^{10,26} Interviews with mothers as well as their reactions to drawings exhibiting a range of infant body sizes—from lean to chubby—were used to assess the maternal value of ideal infant body size. Mothers who believed that a fat baby is a healthy baby and those that preferred drawings representing chubbier infants had more obese children than mothers who preferred a leaner baby. Some degree of fatness seems to be preferred by Mexican American mothers.^{14,25,26}

Socioeconomic Status

Golden, Saltzer, DePaul-Snyder and Reiff²⁷ attempted to identify which variables contribute to the development of obesity in children. They explored the nutritional knowledge factor that might contribute to the excess risk for obesity in low socioeconomic populations. They appraised maternal nutritional knowledge with a 14-item multiple choice and true/false scale dealing with caloric values and food preparation. Nutritional knowledge was significantly less in mothers of lower socioeconomic status, the group with the greatest incidence of obesity in children, as compared with a middle-class population. From their study they concluded that there is an increased incidence of obesity in children in the lower socioeconomic status population. These results are consistent with the results obtained by Oken, Hartz, Giefer and Rimm; Durant, Martin, Linder and Weston; Garn, Hopkins and Ryan; and Woolston in their studies of obesity in the lower socioeconomic population.²⁸⁻³¹ Furthermore, in low-income families there is a greater prevalence of obesity among children in ethnic groups than in the Anglo group.⁶

Acculturation

The Mexican Americans are a heterogeneous group with regard to acculturation.¹⁴ Acculturation is defined as the process by which cultures adapt to and integrate different lifestyles congruent with some of their own cultural beliefs.³² Some Mexican American families appear

to be almost fully assimilated into Anglo culture; for others there is less acceptance of Anglo patterns. For some, American fast foods often replace rice and beans on the dinner table. In a southwestern Women, Infants, and Children (WIC) program, obesity is prevalent in 11.9 percent of all children ages one to five years old, but for Mexican American children alone the rate is 14.2 percent.³³ However, intracultural diversity must be assumed in any study that explores possible relationships between food consumption and other social and cultural factors.³⁴

Hazuda, Haffner, Stern and Eifler assessed the relationship between acculturation and obesity in 1,288 Mexican Americans and 929 non-Hispanic white adults.³⁵ For the Mexican Americans, increased acculturation was accompanied by a statistically significant decline in obesity. The investigators suggest that culturally mediated factors exert a pervasive influence on obesity in Mexican Americans.

Other Select Demographic Variables

Other demographic variables have been suggested as contributing to the risk of obesity in children. These include: sex of child, birth order, birth weight, breast-feeding vs. bottle feeding, age of introduction of solid foods, maternal body mass index, marital status of mother, presence of male in household, person responsible for child's food intake and weight status of siblings.

Controversy remains concerning the variables related to breast feeding and bottle feeding, birth weight and age of introduction of solid foods in relation to the development of obesity in children. Kramer and Castiglia reported that breast feeding has been shown to have a significant protective effect against subsequent obesity and that the early introduction of solid food could be an early step to obesity. Dubois, Hilland and Beaton failed to demonstrate that an obese child is one who is given solids early and not breast fed.³⁶⁻³⁸ Obese children do tend to have overweight parents and siblings, establishing a recognizable familial pattern.³⁷ Facets of the family organization, such as the absence of a father or male in the household, also may play an important part in the customs that influence maternal child health practices.^{14,39} Alexander and Blank²⁶ report finding a statistically significant relationship between the body mass index (weight in kilos/height in meters) of Mexican American mothers and obesity in their preschool children.

A significant increase in the prevalence of obesity in Mexican American children was reported by the National Institutes of Health (1985) and by Malina, Zavaleta and Litle.^{13,40} Obesity in the early years clearly cannot account for all obesity occurring later in life, but there is sufficient evidence of a relationship to cause concern. Reports from the Childhood Obesity Workshop of the National Institute of Child Health and Human Development suggest that prevention of obesity should begin in programs for children between the ages of three and five.³ Because early childhood is so critical to physiological development and to the establishment of lifetime habits and behavioral traits, this period is thought to have the greatest potential for the prevention of obesity.⁴¹ Understanding the etiology of obesity in children can provide health care professionals with preventive intervention strategies.

Health care professionals are in a position to help prevent obesity. Their close and continuous contact with school children and their families provides opportunity for nutritional assessment and counseling. They can increase awareness of the prevalence of obesity in Mexican American children and of the factors associated with childhood obesity: nutritional knowledge, feeding practices, values, socioeconomic status, acculturation level and other select demographic variables of Mexican American mothers and their children.

NOTES

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